

## EXPERIMENTAL STATISTICS

# Regional Gross Value Added (Production Approach), 1998 to 2013

Coverage: UK

Date: 16 December 2015

Geographical Area: European (NUTS)

Theme: Economy

## Main points

- In 2013, of the NUTS1 regions, Scotland had the largest annual increase in real GVA, at 4.0%, followed by the East of England at 3.7%.
- Excluding Extra-Region, two of the NUTS1 regions' real GVA decreased in 2013: North East (-2.7%), South West (-0.4%).
- Since the economic downturn in 2009, the West Midlands had the largest increase in real GVA between 2009 and 2013 (12.7%), followed by London (11.2%). Northern Ireland was the only region to decrease over this period (-0.8%).
- Of the NUTS2 sub-regions, Bedfordshire and Hertfordshire had the largest annual increase in real GVA in 2013, at 9.5%, followed by Herefordshire, Worcestershire and Warwickshire at 6.3%.
- Northumberland and Tyne and Wear was the NUTS2 sub-region with the largest annual decrease in real GVA in 2013 with a decrease of 5.8%, followed by Dorset and Somerset with a decrease of 2.6%.
- Of the NUTS2 sub-regions, between 2009 and 2013 North Eastern Scotland saw the largest increase in real GVA, at 21.1%, followed by Highlands and Islands at 20.9% and Herefordshire, Worcestershire and Warwickshire at 20.8%.
- In the same period, East Yorkshire and Northern Lincolnshire was the NUTS2 region that saw the largest decrease in real GVA, at 9.5%, followed by Northern Ireland with a decrease of 0.8%.

## Summary

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 2012.

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 experimental figures 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. These estimates are published for the first time using new NUTS boundaries from the 2013 review, which came into force on 1 January 2015 (background note 1 provides further details).

As these are experimental statistics, users should note that there are still quality issues affecting some of the industry CVMs. Several industries show a conspicuous difference to the GVA compiled using the income approach (GVA(I)). More information about these can be found in the section 'Comparison of current price regional GVA(I) and GVA(P)' in this bulletin. For these industries users are advised to exercise caution in their use of the real GVA(P) estimates, as there may be quality issues with the underlying data.

**Table 1: NUTS1 All industry regional CVM indices from 2009 to 2013**

(Base year = 2012)

NUTS1 regions	2009	2010	2011	2012	2013
North East	96.2	96.9	98.2	100.0	97.3
North West	95.6	99.1	99.1	100.0	102.1
Yorkshire & The Humber	99.4	99.4	100.5	100.0	101.5
East Midlands	94.5	96.4	98.8	100.0	103.3
West Midlands	91.8	96.5	100.0	100.0	103.5
East of England	97.8	99.6	99.9	100.0	103.7
London	92.5	93.7	97.6	100.0	102.9
South East	94.4	96.6	98.6	100.0	102.4
South West	93.7	96.7	96.8	100.0	99.6
England <sup>1</sup>	94.5	96.6	98.6	100.0	102.3
Wales	93.3	93.8	100.6	100.0	102.8
Scotland	95.7	95.5	97.8	100.0	104.0
Northern Ireland	101.5	100.3	100.8	100.0	100.7
Extra-Regio	150.6	140.8	116.5	100.0	91.4

**Table source:** Office for National Statistics

**Table notes:**

1. England is not a NUTS region but is included for comparison with other countries.

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Table 1 indicates that, from 2009 to 2013, six of the twelve NUTS1 regions produced an increase in real GVA (GVA taking account of inflation, as measured by CVM indices) each year. Of the other regions, five showed increase in all years bar one: 2010 for Scotland; 2012 for Yorkshire and The Humber and Wales; and 2013 for North East and South West. Only Northern Ireland demonstrates no apparent upward trend over this period.

## About this release

1. This bulletin presents the third year's full set of experimental results for regional 'real' Gross Value Added using the production approach (GVA(P)). The GVA(P) measure is principally designed to provide 'real' estimates of constant price GVA growth, via chained volume measures (CVM). The CVM are presented as indices referenced to equal 100 in 2012.
2. The development and publication of regional GVA(P) at constant prices (where the effects of inflation are removed) involves deflating annual current price data (which include the effects of inflation). 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. Prior to 2013 regional GVA was only calculated on an income basis (GVA(I)), where deflation is very difficult due to the availability of appropriate price indices.
3. 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 2015](#). 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.
4. 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 2015 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.
5. 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.
6. One 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 [reference tables](#) published with this bulletin.

7. The estimates in this bulletin are experimental and do not have National Statistics status. We advise users to exercise caution in the interpretation and use of these statistics. The ONS also publishes annual estimates of regional GVA(I) at current prices, which are National Statistics and remain the primary ONS source of regional GVA. The [most recent estimates of GVA\(I\)](#) were published on 9 December 2015. 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 two current price measures directly.
8. Similarly 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 ONS 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 the annual Regional Accounts information for Northern Ireland from ONS.
  - The Welsh Government (in conjunction with the Office for National Statistics) 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.

## NUTS1 real regional GVA(P) estimates

### Real GVA for NUTS1

In 2013, 10 of the 12 NUTS1 regions increased their real GVA index. Scotland had the largest annual increase in real GVA, at 4.0%, followed by the East of England at 3.7% and the West Midlands at 3.5%. With the exception of Extra-Regio, two of the NUTS1 regions' real GVA decreased in 2013. The largest decrease was in the North East, which decreased by 2.7%, followed by the South West, which decreased by 0.4%.

The UK economy went into downturn between Q2 2008 and Q3 2009. The UK figure for GVA(P) 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 2013.

Of the NUTS1 regions, all except the North East, North West and Scotland demonstrated uninterrupted growth in real GVA between 1998 and 2007 (pre-downturn). In 2008 nine of the

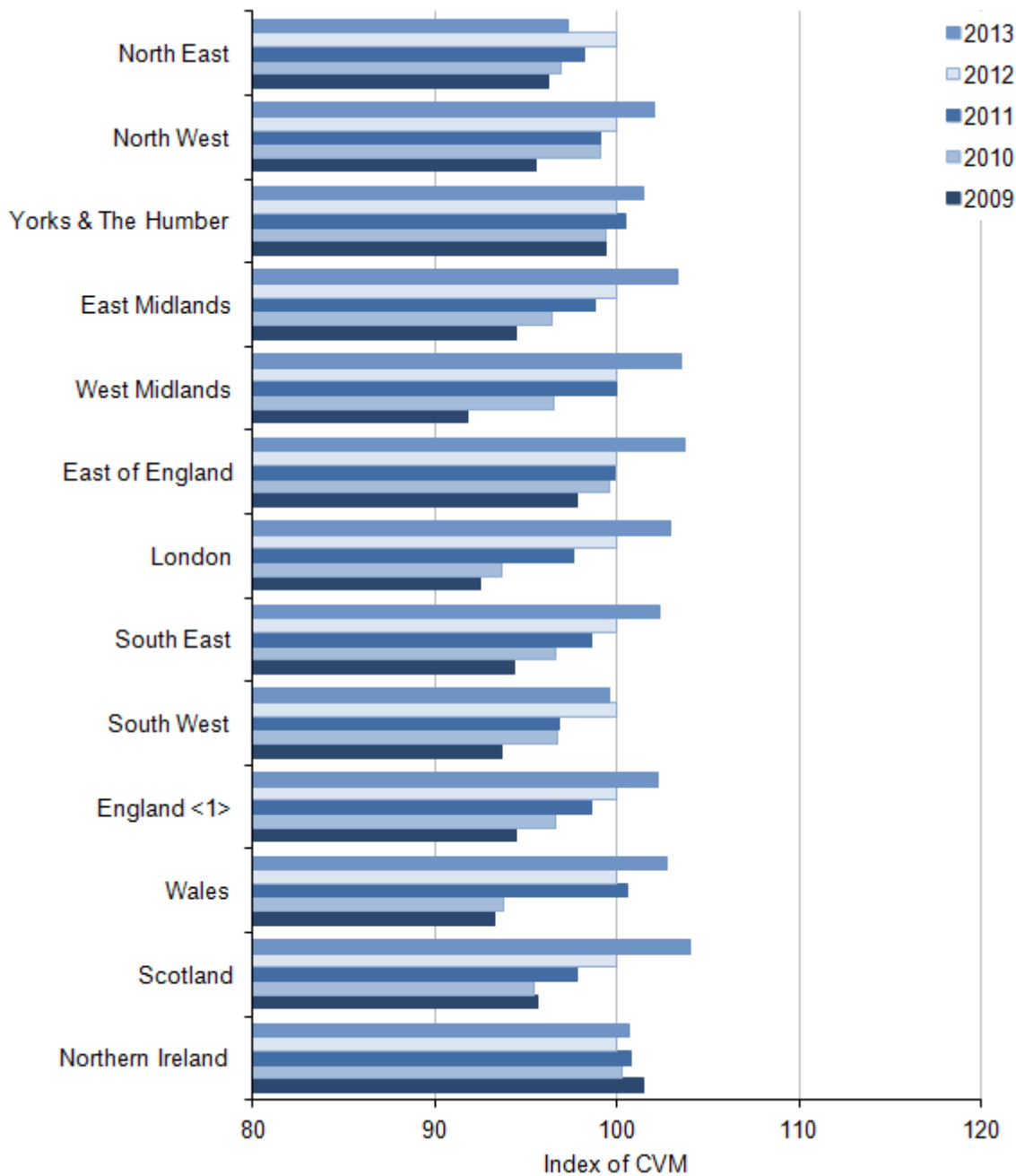
NUTS1 regions decreased their index value; only the South East, South West and Scotland showed growth. In 2009, at the low point of the economic downturn, all NUTS1 regions decreased their index value.

Figure 1 shows the real GVA index value for each NUTS1 region for the years since the downturn, 2009 to 2013. During this period nine of the NUTS1 regions were at their peak in 2013, the exceptions were:

- North East (100.0 in 2012)
- South West (100.0 in 2012)
- Northern Ireland (101.5 in 2009)

Over this period, most regions were at their lowest value in 2009. The exceptions were Scotland (lowest in 2010) and Northern Ireland (lowest in 2012).

**Figure 1: NUTS1 Index of Real GVA for all industry totals (Chained Volume Measure)[2], 2009 to 2013**



Source: Office for National Statistics

**Notes:**

1. England is not a NUTS region, but included for comparison with other UK countries.
2. 2012=100

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## NUTS2 real regional GVA(P) estimates

### Real GVA for NUTS2

The NUTS boundary changes introduced from 1 January 2015 (see background note 1) have increased the number of NUTS2 sub-regions from 37 to 40. The change was to increase the number of London sub-regions from two to five.

In 2013 real GVA increased in 31 of the 40 NUTS2 sub-regions. The largest percentage increases were in:

- Bedfordshire and Hertfordshire (9.5%)
- Herefordshire, Worcestershire and Warwickshire (6.3%)
- Inner London West (5.7%)

Of the nine NUTS2 sub-regions which decreased their real GVA index value between 2012 and 2013, the largest decreases were in:

- Northumberland and Tyne and Wear (-5.8%)
- Dorset and Somerset (-2.6%)
- Merseyside (-1.9%)
- Essex (-1.6%)

At NUTS1 there was general growth in real GVA expressed as chained volume measures (CVM) in the pre-economic downturn, followed by a sharp decline. However, within the NUTS1 regions there is variation between the NUTS2 sub-regions. The downturn and recovery affected all sub-regions, with each showing its own characteristics.

All of the 40 NUTS2 sub-regions increased their real GVA index between 1998 and 2013. The greatest increases were for North Eastern Scotland (83.6%) and Inner London West (71.6%). The lowest increases were for Outer London East and North East (10.1%) and Kent (16.7%).

Looking at the years since the economic downturn, 36 of the 40 sub-regions had a higher real GVA index in 2013 compared with 2009. The greatest increases were in:

- North Eastern Scotland (21.1%)
- Highlands and Islands (20.9%)
- Herefordshire, Worcestershire and Warwickshire (20.8%)

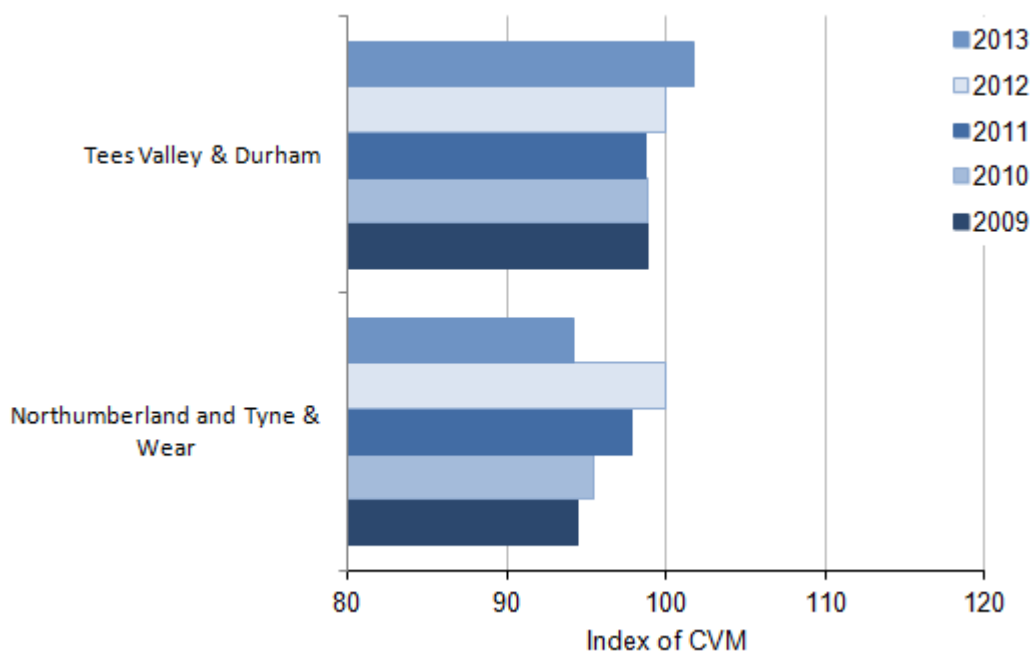
The four sub-regions that showed a decrease between 2009 and 2013 were:

- East Yorkshire and Northern Lincolnshire (-9.5%)



- Northern Ireland (-0.8%)
- Merseyside (-0.5%)
- Northumberland and Tyne and Wear (-0.2%)

**Figure 2: NUTS2 All industry regional CVM indices[1] for the North East, 2009 to 2013**



Source: Office for National Statistics

**Notes:**

1. 2012=100

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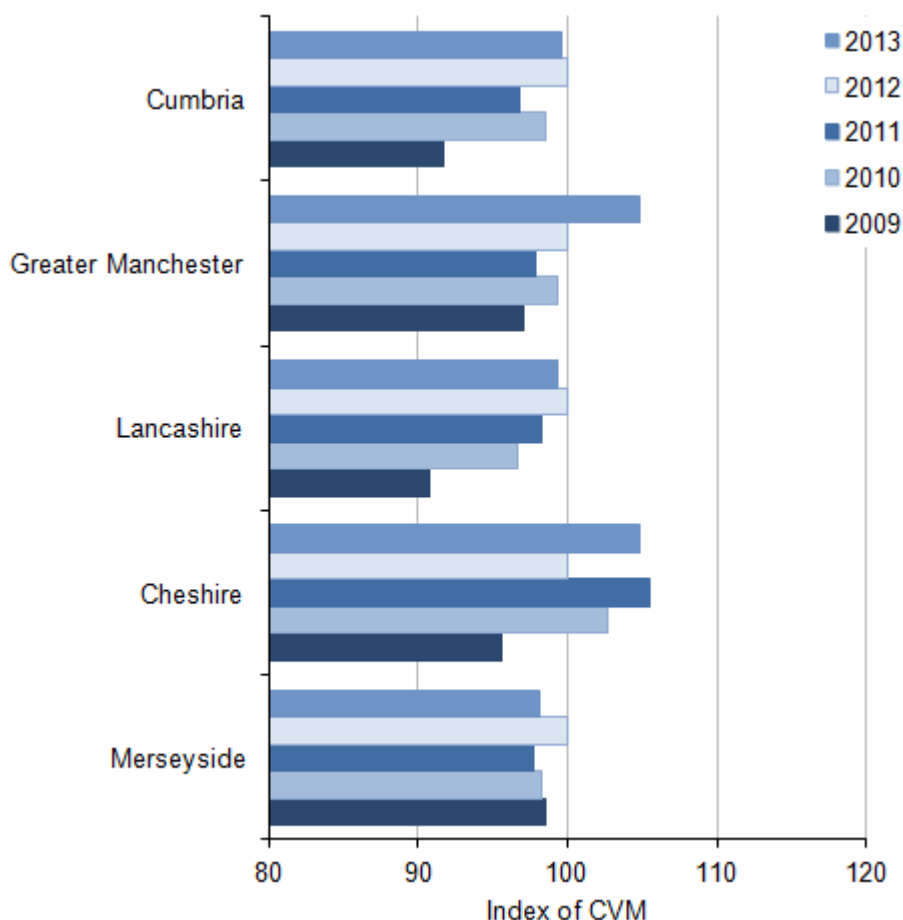
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The effect of recovery from the economic downturn was clear in the Northumberland and Tyne and Wear sub-region, with an increasing index up until 2012. This was largely driven by growth in industry sections J (information and communication) and N (administrative and support service activities), which increased every year during this period. Industry sections K (financial and insurance activities), G (wholesale and retail trade; repair of motor vehicles) and R (arts, entertainment and recreation) also helped drive this increase; after a decline between 2009 and 2010, these industries grew until 2012.

The 2013 decrease had a broad base, with 11 industries' indices decreasing from 2012. This was shown most notably in industry sections G (wholesale and retail trade; repair of motor vehicles), D (electricity, gas, steam and air-conditioning supply), B (mining and quarrying), and N (administrative and support service activities).

In contrast Tees Valley and Durham showed little change from 2009 to 2011. The increase from 2011 to 2013 was based on strong growth in industry sections D (electricity, gas, steam and air-conditioning supply), B (mining and quarrying), and R (arts, entertainment and recreation).

**Figure 3: NUTS2 All industry regional CVM indices[1] for the North West, 2009 to 2013**



Source: Office for National Statistics

**Notes:**

1. 2012=100

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Merseyside showed a decline from 2009 to 2011, before growing to its peak in 2012. The decrease in 2013 was led primarily by decreases in industry sections D (electricity, gas, steam and air-conditioning supply), K (financial and insurance activities) and L (real estate activities); while industry section P (education) followed the overall pattern of the sub-region from 2009 to 2013.

Cheshire experienced sharp increases in 2010 and 2011, before a steep fall in 2012 and increasing again in 2013. This pattern can be seen most strongly in industry sections C (manufacturing), N

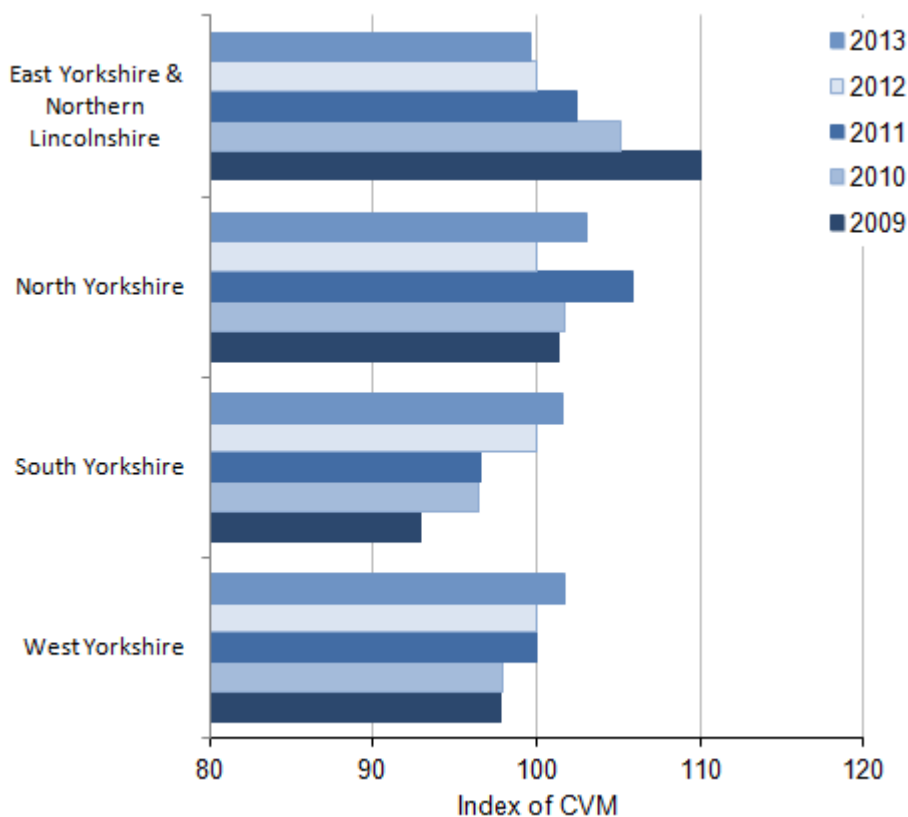
(administrative and support service activities) and Q (human health and social work activities). The growth in 2013 was further driven by strong growth in industry sections B (mining and quarrying), E (water supply; sewerage and waste management) and N (administrative and support service activities).

Lancashire saw growth each year from 2009 to 2012, with industry sections C (manufacturing), G (wholesale and retail trade; repair of motor vehicles), Q (human health and social work activities) and R (arts, entertainment and recreation) all growing consistently over this period. Eight industry sections contributed to the decrease in 2013, including H (transportation and storage) and G (wholesale and retail trade; repair of motor vehicles).

Greater Manchester fell in 2011 before increasing in 2012 and then more steeply in 2013. Industry section R (arts, entertainment and recreation) showed this pattern, with growth in 2012 and 2013 also driven by industry sections B (mining and quarrying) and N (administrative and support service activities). Although industry section G (wholesale and retail trade; repair of motor vehicles) fell from 2011 to 2012, it showed strong growth in 2013 which contributed to the rise in the overall index for Greater Manchester.

Cumbria had its largest growth between 2009 and 2010, driven by an increase in nine industries, most notably industry section B (mining and quarrying). The overall pattern of rise and fall over the five-year period was shown most clearly in industry section C (manufacturing).

**Figure 4: NUTS2 All industry regional CVM indices[1] for Yorkshire and The Humber, 2009 to 2013**



Source: Office for National Statistics

**Notes:**

1. 2012=100

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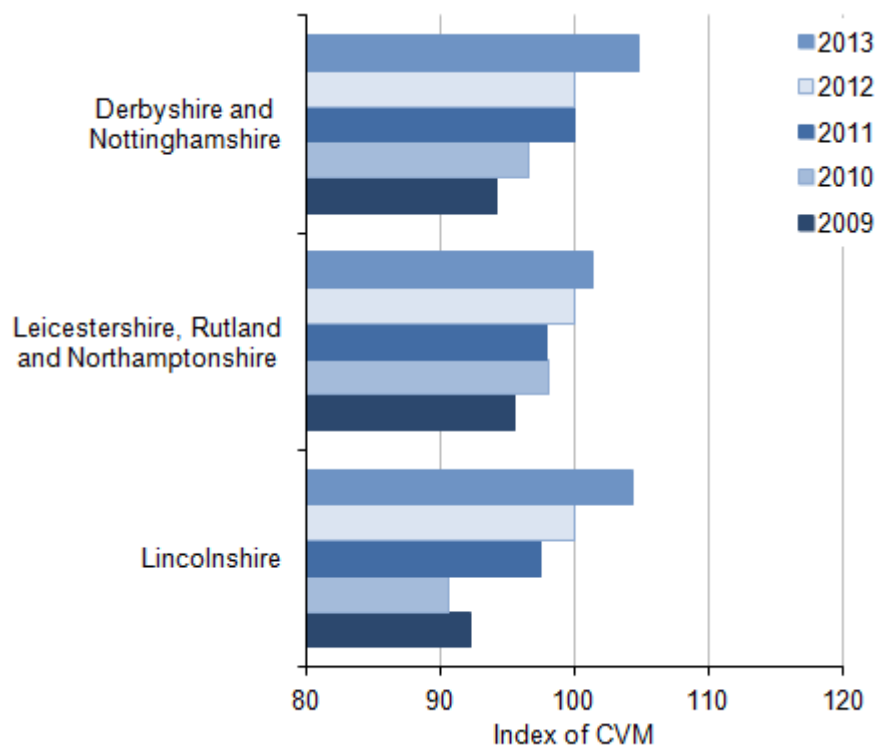
East Yorkshire and Northern Lincolnshire had large decreases annually from 2009 (with an index of 110.0) to 2013 (with an index of 99.6). This was driven by substantial decreases in several industries, including section D (electricity, gas, steam and air-conditioning supply), in 2010, 2011 and 2013, section R (arts, entertainment and recreation) in 2010 and 2011, section K (financial and insurance activities) in 2010, and section J (information and communication) in 2011. However, industry section P (education) was the only industry to decrease in each year of this period.

The increase in North Yorkshire in 2011 was led by industry sections G (wholesale and retail trade; repair of motor vehicles), D (electricity, gas, steam and air-conditioning supply), A (agriculture, forestry and fishing) and M (professional, scientific and technical activities), amongst others. All of these industries also contributed to the decrease in 2012. In contrast, the increase in 2013 was driven largely by growth in industry section B (mining and quarrying).

From its low point (92.9) in 2009, South Yorkshire increased to its peak in 2013 (101.6). Industry sections J (information and communication), N (administrative and support service activities) and Q (human health and social work activities) all saw growth in each year over this period.

West Yorkshire grew steadily over the period 2009 to 2013. The largest growth was in industry section B (mining and quarrying) in 2012 and 2013, although this industry declined in 2011. Industry section P (education) was the only industry to continually grow over this period.

**Figure 5: NUTS2 All industry regional CVM indices[1] for the East Midlands, 2009 to 2013**



Source: Office for National Statistics

**Notes:**

1. 2012=100

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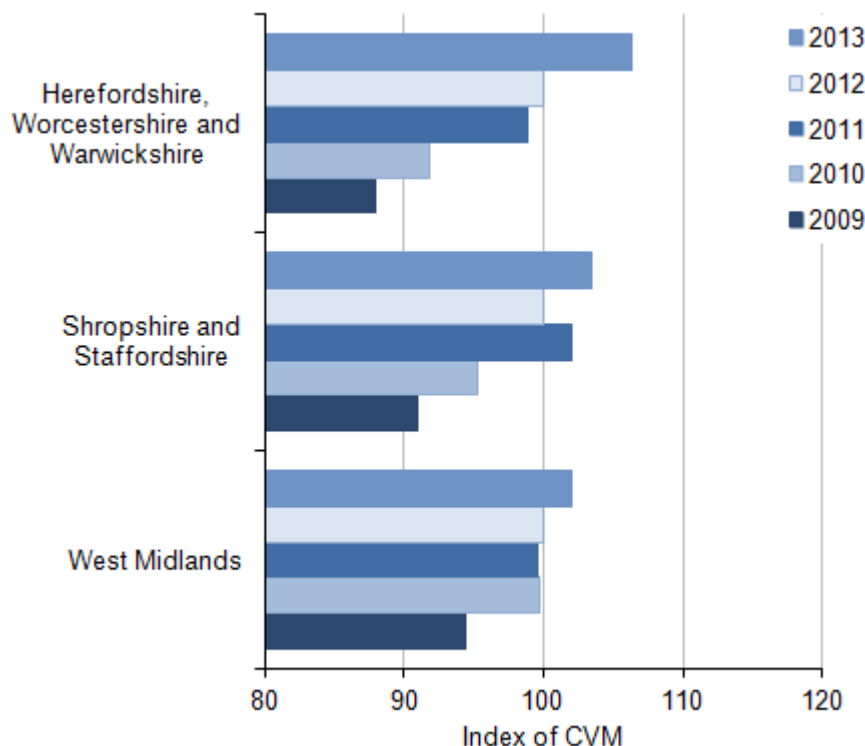
Derbyshire and Nottinghamshire showed a steady increase from 2009 to 2013. Industry sections H (transportation and storage), M (professional, scientific and technical activities) and N (administrative and support service activities) grew in every year of this period. The steeper growth in 2013 was led by industry sections J (information and communication) and G (wholesale and retail trade; repair of motor vehicles).

Leicestershire, Rutland and Northamptonshire also increased over the 2009 to 2013 period, with the exception of a slight fall in 2011. Industry sections L (real estate activities) and Q (human health and social work activities) grew each year over this period, while industry section S (other service activities) declined in each year. The largest growth in 2013 was in industry section B (mining and quarrying).

Lincolnshire had the most notable changes of this group of sub-regions through this period. The region decreased to a low of 90.6 in 2010, before recovering to 104.4 in 2013. The increases from

2010 to 2013 can be seen in industry sections B (mining and quarrying), D (electricity, gas, steam and air-conditioning supply) and G (wholesale and retail trade; repair of motor vehicles).

**Figure 6: NUTS2 All industry regional CVM indices[1] for the West Midlands, 2009 to 2013**



Source: Office for National Statistics

**Notes:**

1. 2012=100

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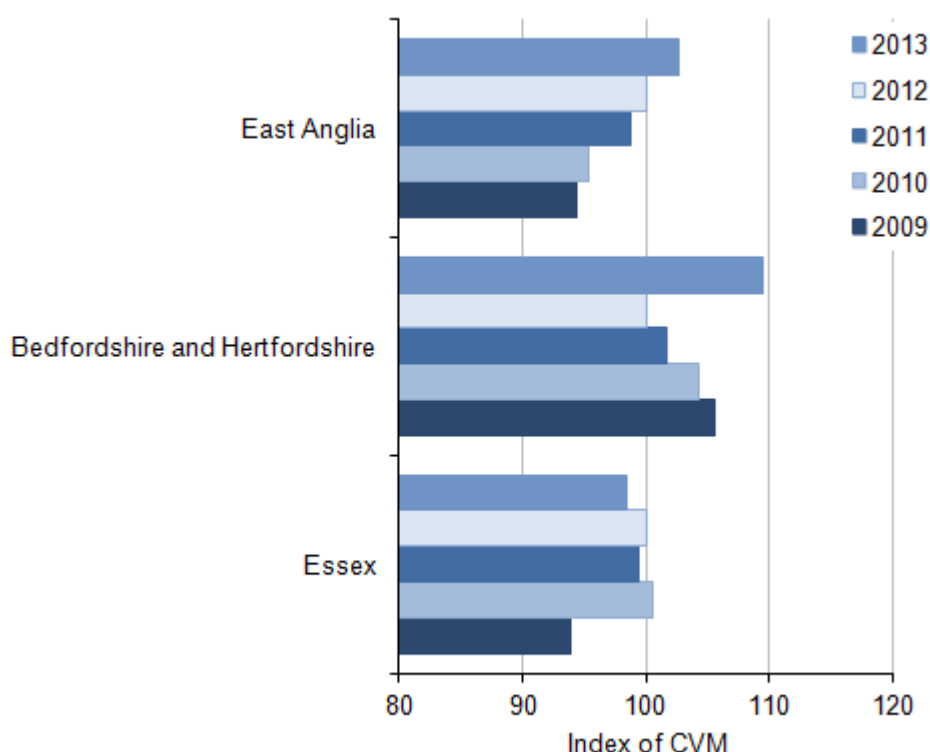
The index for Herefordshire, Worcestershire and Warwickshire increased notably from 88.0 in 2009 to 106.3 in 2013. Only two industry sections grew in every year of this period: sections D (electricity, gas, steam and air-conditioning supply) and Q (human health and social work activities). Some 14 industries saw growth in 2013, the most notable of which were industry sections R (arts, entertainment and recreation), G (wholesale and retail trade; repair of motor vehicles), and N (administrative and support service activities).

The growth in the index for Shropshire and Staffordshire between 2009 and 2011 was due to increases in a wide range of industries. The largest growth in 2010 was in industry sections B (mining and quarrying) and D (electricity, gas, steam and air-conditioning supply), while the industry sections with the largest growth in 2011 were S (other service activities) and G (wholesale and retail trade; repair of motor vehicles). The decrease in 2012 was due to falls across a wide range of 10

industries, most notably in sections S (other service activities) and F (construction). In 2013, 17 of the 20 industries saw growth, the largest of which was industry section B (mining and quarrying), which grew by 67.6 index points.

The West Midlands sub-region has grown from its low point in 2009 (94.4) to a peak in 2013 (102.0). Industry sections Q (human health and social work activities) and R (arts, entertainment and recreation) grew in each of these years. The overall pattern of the West Midlands, with a decrease in 2011 but growth in all other years, can be seen in industry sections J (information and communication), L (real estate activities) and S (other service activities).

**Figure 7: NUTS2 All industry regional CVM indices[1] for the East of England, 2009 to 2013**



Source: Office for National Statistics

**Notes:**

1. 2012=100

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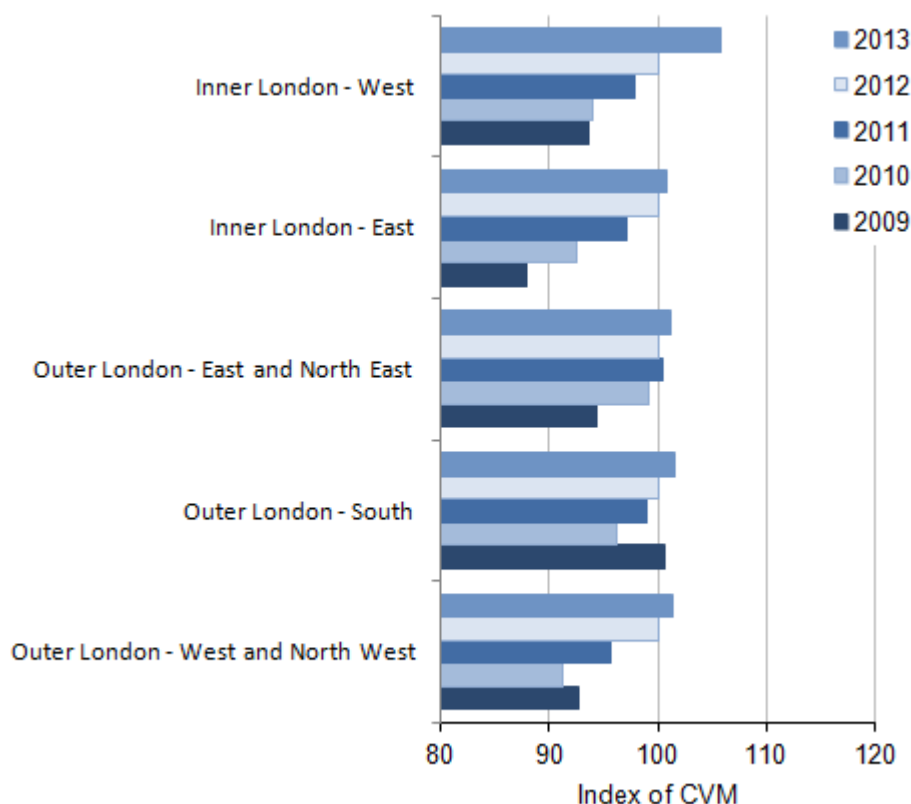
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East Anglia showed steady year on year increases from 2009 to 2013, which were also seen in industry sections I (accommodation and food service activities) and L (real estate activities). The largest growth in 2013 was in industry section G (wholesale and retail trade; repair of motor vehicles).

The Bedfordshire and Hertfordshire sub-region was atypical in that it had decreases each year from 2009 to 2012, with industry sections C (manufacturing), G (wholesale and retail trade; repair of motor vehicles) and I (accommodation and food service activities) also decreasing each year. However, the largest decrease in 2010 came from industry section B (mining and quarrying), which decreased by 57.9 index points. In 2012 the biggest decrease was in industry section R (arts, entertainment and recreation), which fell by 46.5 index points. 13 industries contributed to the steep growth in 2013, the largest of which were industry sections G (wholesale and retail trade; repair of motor vehicles) and Q (human health and social work activities).

Essex was also unusual. After a sharp increase in 2010, it then alternately decreased and increased until 2013. The increase in 2010 was led by industry sections F (construction) and I (accommodation and food service activities). The decrease in 2011 was driven by large decreases in industry sections D (electricity, gas, steam and air-conditioning supply) and R (arts, entertainment and recreation). 11 industry sections contributed to the fall in 2013, most notably industry sections D (electricity, gas, steam and air-conditioning supply) and H (transportation and storage).

**Figure 8: NUTS2 All industry regional CVM indices[1] for London, 2009 to 2013**



Source: Office for National Statistics

**Notes:**

1. 2012=100



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Both Inner London West and Inner London East demonstrated the same pattern of increase throughout the period 2009 to 2013.

Growth in GVA for Inner London West was greatest between 2012 and 2013. The strongest industrial growths during this period were in sections E (water supply; sewerage and waste management), F (construction) and P (education).

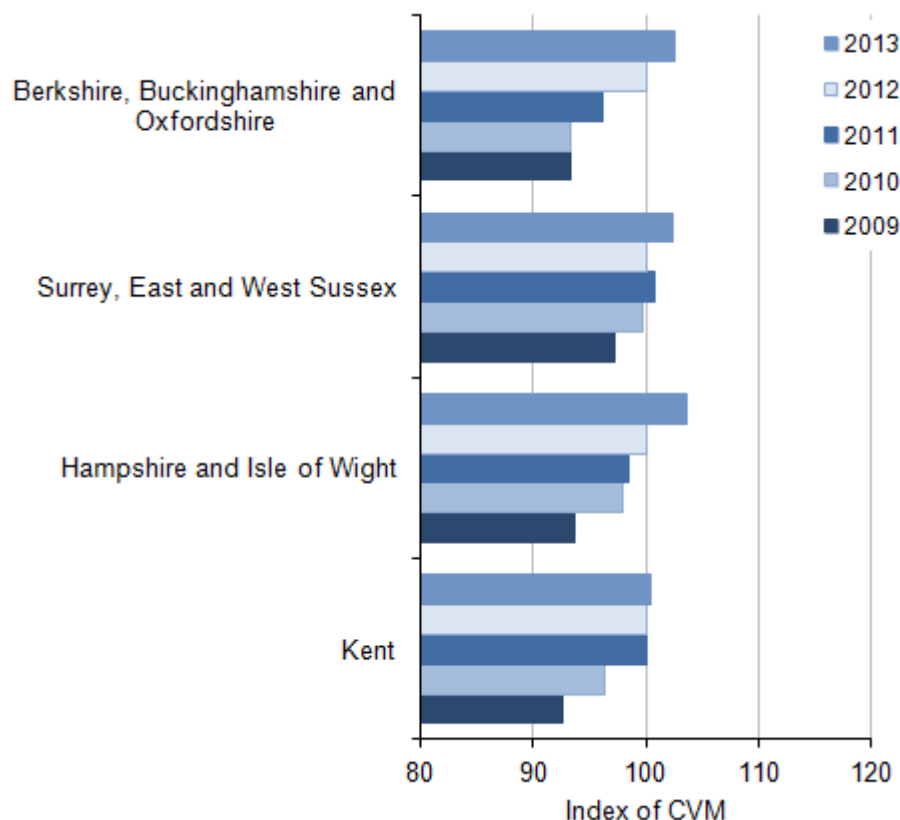
Despite increasing in all years mentioned, growth in Inner London East was slowest between 2012 and 2013, increasing from 100.0 to 100.9. There were large falls in industry sections B (mining and quarrying) and D (electricity, gas, steam and air-conditioning supply), which contributed to this slowdown.

Outer London East and North East grew in all years except 2012. A decrease in 13 of the 20 industry sections led to this fall, with notable falls in industry sections I (accommodation and food service activities) and K (financial and insurance activities) between 2011 and 2012.

Outer London South saw a decrease between 2009 and 2010, but then grew in all subsequent years to reach a high point of 101.5 in 2013 and make it the second highest London sub-region. Industry sections B (mining and quarrying), D (electricity, gas, steam and air-conditioning supply) and E (water supply; sewerage and waste management) all performed strongly in 2013.

Outer London West and North West followed the same pattern as Outer London South, with a low point of 91.3 in 2010. A notable decrease in industry sections K (financial and insurance activities) and S (other service activities) contributed to this fall. Following the fall in 2010, there was growth in each subsequent year to a value of 101.4 in 2013. Industry sections B (mining and quarrying) and D (electricity, gas, steam and air-conditioning supply) both performed strongly in 2013.

**Figure 9: NUTS2 All industry regional CVM indices[1] for the South East, 2009 to 2013**



Source: Office for National Statistics

**Notes:**

1. 2012=100

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While stable for the years 2009 and 2010 (at 93.3), Berkshire, Buckinghamshire and Oxfordshire increased each year across the period 2010 to 2013 (from 93.3 to 102.5). The increase in these years was also seen in industry sections G (wholesale and retail trade; repair of motor vehicles), H (transportation and storage), J (information and communication), and M (professional, scientific and technical activities).

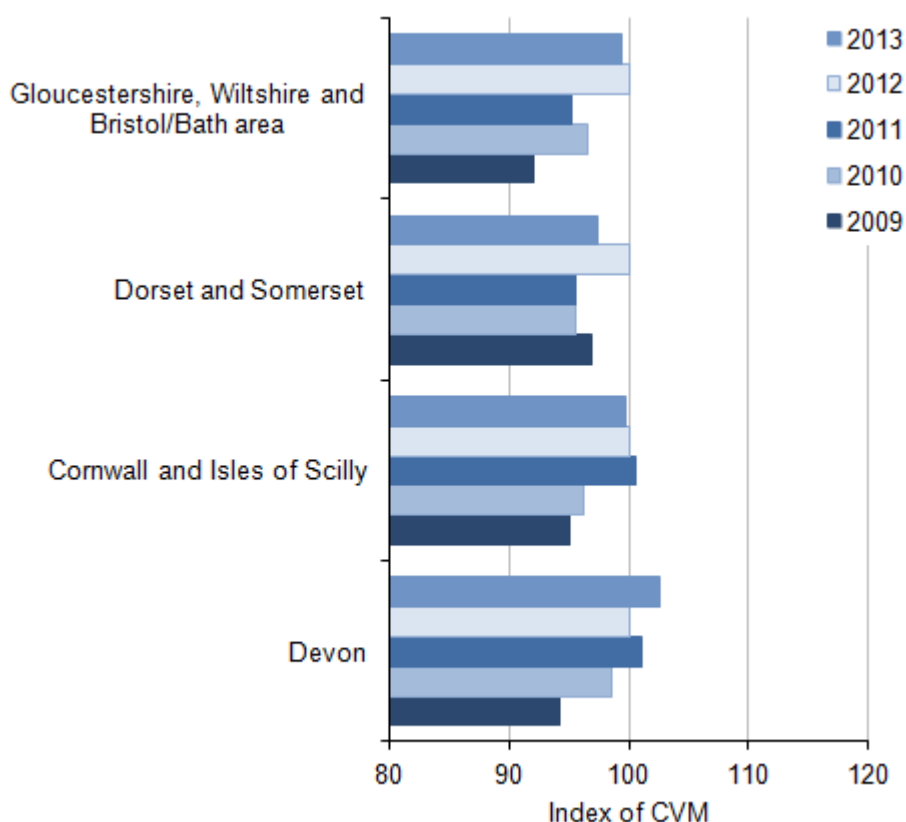
In Surrey, East and West Sussex the decrease between 2011 and 2012 was due mainly to decreases in industry sections O (public administration and defence; compulsory social security), P (education) and S (other service activities). The sub-region saw an increase between 2012 and 2013, with the largest industrial increase across this period in section B (mining and quarrying).

Hampshire and Isle of Wight increased its index value throughout the period 2009 to 2013. Two industries followed this trend, industry sections M (professional, scientific and technical activities)

and N (administrative and support service activities). There were also strong performances in industry sections B (mining and quarrying) and D (electricity, gas, steam and air-conditioning supply) in the latest year.

Kent also increased its index value across the period, from 92.6 in 2009 to 100.5 in 2013. The years 2011 and 2012 were both stable at 100.0. There was strong growth in industry section B (mining and quarrying) in all years.

**Figure 10: NUTS2 All industry regional CVM indices[1] for the South West, 2009 to 2013**



Source: Office for National Statistics

**Notes:**

- 1. 2012=100

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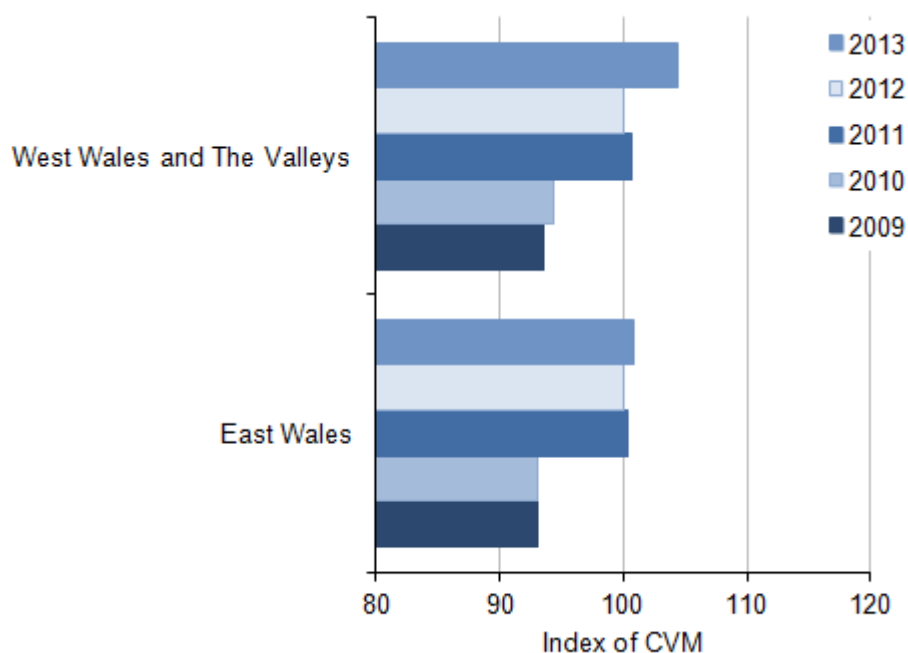
The Gloucestershire, Wiltshire and Bristol/Bath area saw alternating decreases and increases from 2009 to 2013, peaking at 100.0 in 2012. Industry sections N (administrative and support service activities) and Q (human health and social work activities) were the only industries to show growth in all years between 2009 and 2013.

Dorset and Somerset reached its highest level (100.0) in 2012. This was largely due to increases in industry sections B (mining and quarrying) and J (information and communication).

From its low point (95.1) in 2009, Cornwall and Isles of Scilly had a number of industries that showed increases through to its high point (100.6) in 2011. These included industry sections B (mining and quarrying), E (water supply; sewerage and waste management) and Q (human health and social work activities).

Devon had a peak in 2011 (101.1), with a decrease in 2012 (100.0) followed by growth in 2013 (102.6). The growth between 2012 and 2013 was largely due to growth in industry sections B (mining and quarrying), G (wholesale and retail trade; repair of motor vehicles) and M (professional, scientific and technical activities).

**Figure 11: NUTS2 All industry regional CVM indices[1] for Wales, 2009 to 2013**



Source: Office for National Statistics

**Notes:**

1. 2012=100

**Download chart**

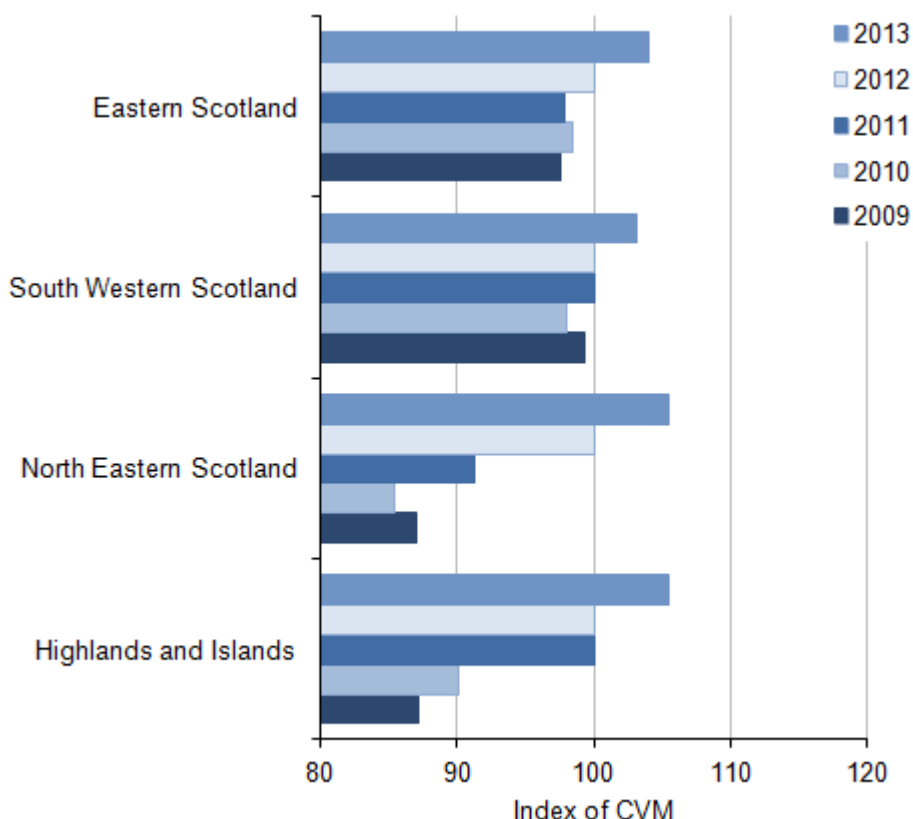
[XLS](#) [XLS format](#)  
(51.5 Kb)

Over the period 2009 to 2013, West Wales and The Valleys, like most regions, experienced its lowest point in 2009 (93.6). The largest growth for this sub-region was between 2010 and 2011, when the index increased from 94.4 to 100.7. Further growth between 2012 and 2013 was driven

by large increases in industry sections D (electricity, gas, steam and air-conditioning supply) and M (professional, scientific and technical activities).

East Wales also reached its lowest level (93.0) in 2009. Between 2010 and 2011, 17 of the 20 industry sections showed increases, notably industry sections D (electricity, gas, steam and air-conditioning supply), G (wholesale and retail trade; repair of motor vehicles) and R (arts, entertainment and recreation). From 2011 to 2013, the sub-region has remained relatively stable.

**Figure 12: NUTS2 All industry regional CVM indices[1] for Scotland, 2009 to 2013**



Source: Office for National Statistics

**Notes:**

- 1. 2012=100

**Download chart**

[XLS](#) [XLS format](#)  
(68 Kb)

Eastern Scotland was at its lowest level in 2009 (97.6). The strongest growth was seen between 2012 and 2013, which can be attributed to growth in industry sections A (agriculture, forestry and fishing), D (electricity, gas, steam and air-conditioning supply), G (wholesale and retail trade; repair of motor vehicles) and R (arts, entertainment and recreation).

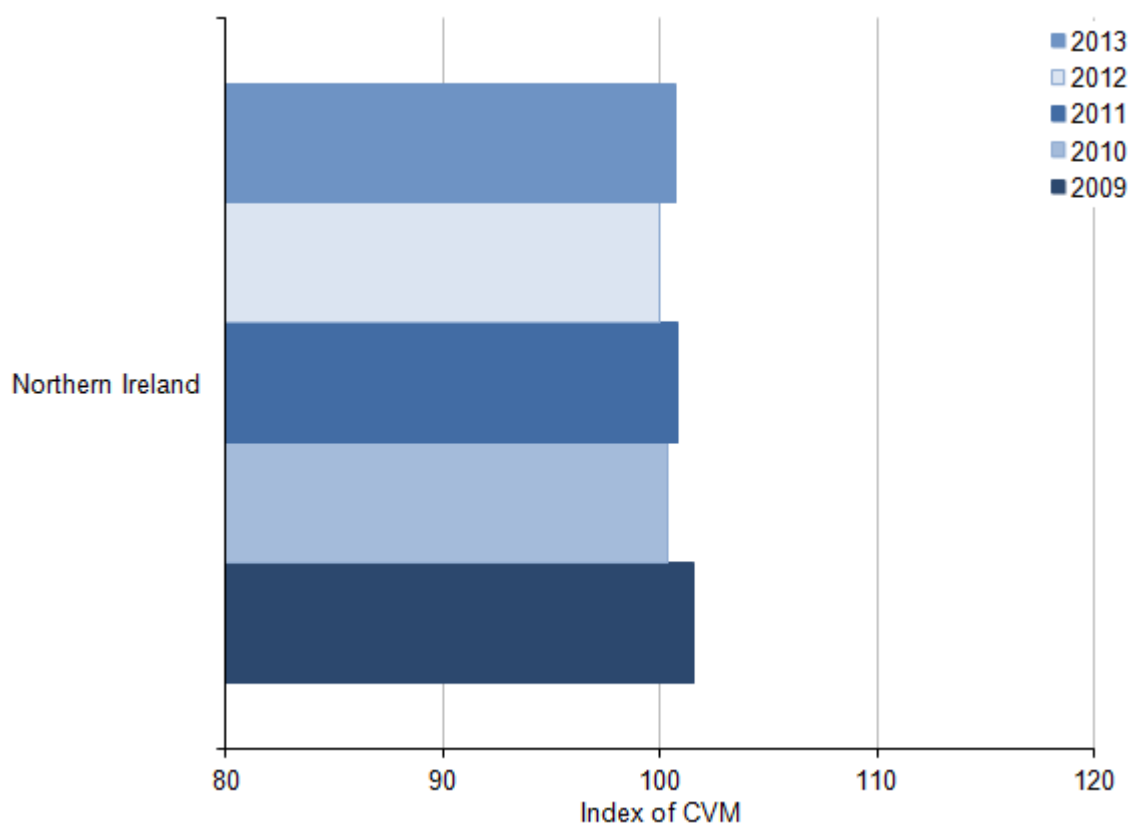
South Western Scotland reached the low point of its economic downturn in 2010, a year later than most areas. In 2011 and 2012 the sub-region remained stable with an index of 100.0 in both years. The sub-region then saw growth between 2012 and 2013, with strong increases in industry sections D (electricity, gas, steam and air-conditioning supply) and J (information and communication).

Both North Eastern Scotland and the Highlands and Islands showed large increases from 2010 to 2012.

In North Eastern Scotland the largest growth was between 2011 and 2012. This was driven by strong growth in industry sections M (professional, scientific and technical activities), N (administrative and support service activities) and P (education).

In the Highlands and Islands the largest growth was in the period 2010 to 2011. The cause was spread across several industries but most notably in sections A (agriculture, forestry and fishing), C (manufacturing) and D (electricity, gas, steam and air-conditioning supply). Following this growth, the sub-region remained stable in 2011 and 2012.

**Figure 13: NUTS2 All industry regional CVM indices[1] for Northern Ireland, 2009 to 2013**



Source: Office for National Statistics

**Notes:**

1. 2012=100

## Download chart

 [XLS format](#)

(101 Kb)

Of the years 2009 to 2013, Northern Ireland's real GVA was at its highest level in 2009. This was mostly driven by strong performance in industry sections E (water supply; sewerage and waste management), F (construction) and K (financial and insurance activities). Growth was seen between 2012 and 2013, with the largest increases in industry sections B (mining and quarrying) and K (financial and insurance activities).

## Recent methodological changes

1. This year has seen a big change to the treatment of household rental income, with two changes occurring simultaneously. The first of these is a change in the average house prices used to calculate the regional allocation of imputed rental of owner-occupied dwellings. This change has been necessary because the former data source (provided by the Department for Communities and Local Government) is no longer available. The new data use 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 estimates of dwelling stock used have also been changed to build up from Local Authority and Council level data, providing a coherent and consistent framework for use across the Regional Accounts at all NUTS levels. This change has had a considerable impact on GVA estimates for London, Scotland and Northern Ireland in particular.
2. 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 \(ESA2010\)](#), we have made changes to regional GVA to reflect cross-border income relating to the ownership of second homes, including those in the UK owned by foreign nationals and those owned by UK residents but located in other countries. The activity has two components: property income (import and export), which will feature in the next release of regional Gross Disposable Household Income (GDHI); and housing services (import and export), which features in both regional GVA and GDHI as a part of rental income (the second change to rental income this year). For the regional allocation of second homes we have used data from Council Tax records and the 2001 and 2011 Censuses, with gaps in coverage filled by modelling using overall housing stock. Differences in regional house prices have also been accounted for in the regional indicator for foreign-owned second homes in the UK. No further ESA2010 changes have required a specific regional methods change in the production of these estimates.
3. All other changes made to the UK National Accounts measure of GVA, to satisfy the requirements of Gross National Income or ESA2010, impact upon the regional GVA estimates in the form of different national totals for output and intermediate consumption, even where no explicit changes to the regional allocation have been needed. Of these, changes to the treatment of [non-profit institutions serving households \(NPISH\) \(109.6 Kb Pdf\)](#) and changes to improve coverage ([exhaustiveness \(225.9 Kb Pdf\)](#)) have resulted in the greatest impact on the national figures.
4. As part of our programme to improve the way we measure specific industries in GVA(P), we have reviewed the finance industries and made some changes. Previously we used the

regional allocation of SIC Section K as a whole, taken from the income measure GVA(I), to allocate all component industries: SIC divisions 64 (financial intermediation), 65 (insurance and pension funding), and 66 (activities auxiliary to finance and insurance). We have now used regional estimates of bank and building society fees and commission income, and financial intermediation services indirectly measured (FISIM), to allocate the major part of division 64 at the NUTS1 level, with the remainder of that industry and the further breakdown to the NUTS2 level using the distribution of employees across regions.

5. For the other financial industries, divisions 65 and 66, we have identified some potential data sources for use in the future, but these are not yet ready to be used. Planned changes to the ONS financial inquiries should in time provide better quality regional data for the insurance industry, while a project to develop administrative VAT turnover data from HMRC for use in national and regional output measures should provide good quality estimates for the auxiliary activities. As an interim measure we have used the regional distribution of employees to allocate these industries at both NUTS levels.
6. We have carried out a review of the way we measure the agriculture, forestry and fishing industry (SIC Section A) in regional GVA and have made some changes to improve consistency and coherence with other data sources. The new methods exclusively use data from the Department for Environment, Food and Rural Affairs (Defra) agricultural accounts for the agriculture industry, with other sources (mostly ONS surveys) being used to measure the forestry and fishing industries.
7. Finally, improved data have been used to measure the output of armed forces personnel both in the UK and posted overseas, to include Ministry of Defence civilian personnel in support roles. This has resulted in a considerable change to the Extra-Region estimate for public administration and defence (SIC Section O), and a small corresponding impact on all other regions.

## Comparison of current price regional GVA(I) and GVA(P)

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 9 December 2015. Although conceptually identical, the different methods and data sources used in the two measures inevitably result in differences between the GVA(I) and GVA(P) estimates.

Where there are differences between the current price GVA(I) and GVA(P) estimates, users are strongly advised to use the GVA(I) estimates. These are National Statistics and have satisfied the UK Statistics Authority requirements for quality and adherence to the National Statistics Code of Practice. The GVA(P) estimates are experimental and should therefore be considered less reliable.

While work has been carried out over the past year to improve the financial and insurance activities industry estimates in regional GVA(P) (see recent methodological changes, points 4 and 5), there continue to be differences across a number of regions when compared with regional GVA(I) estimates.

The following industries have also been identified as showing conspicuous differences across a number of regions:



- Sub-section CD (manufacture of coke and refined petroleum products)
- Sub-section CF (manufacture of pharmaceuticals)
- Section N (administrative and support service activities)
- Section O (public administration and defence; compulsory social security)
- Section P (education)
- Section R (arts, entertainment and recreation)
- Section T (activities of households)

In addition to these, there remain some other industries that show notable differences in particular regions, with several of these occurring in London. At the NUTS2 level in particular, some additional differences have been introduced during the implementation of the new NUTS boundaries for London, due to different data being used to split the old NUTS2 sub-regions between the new areas. We plan to review this methodology during the coming year with the aim of improving the consistency between the two GVA measures.

For all these industries users are advised to exercise caution in their use of the real GVA(P) estimates, as there may be quality issues with the underlying data. We have a programme of continuous improvement aimed at addressing the main areas of concern with the GVA(P) measures. These industries will be given priority in this programme of work.

## Future work plans

1. In December 2015 ONS Regional Accounts will deliver estimates of real GVA(P) growth to Eurostat in accordance with a legal requirement that requires EU Member States to provide annual measures of regional GVA growth in previous years' prices.
2. We plan to publish experimental estimates of regional real Gross Value Added Production Approach (GVA(P)), for the period 1998 to 2014, in December 2016.
3. We plan to publish estimates of regional Gross Value Added using the income approach (GVA(I)), for the period 1997 to 2015, in December 2016.
4. While we have two different measures of regional GVA, GVA(P) will remain experimental and GVA(I) will continue to be the lead National Statistic. In the longer term (2016 to 2017), a regional GVA balancing project will consider the viability of producing a single balanced measure of regional GVA. The eventual aim, once the quality of estimates has been improved sufficiently, is to provide estimates at a greater level of industrial detail, in both current prices and CVM.
5. We plan to publish regional Gross Disposable Household Income (GDHI) estimates, for the period 1997 to 2014, in spring 2016.
6. The Regional Accounts team is always looking for ways to improve the data used in the calculation of regional GVA(P). If you have any comments, suggestions or feedback, please contact [regionalaccounts@ons.gov.uk](mailto:regionalaccounts@ons.gov.uk).

## Background notes

1. The [Nomenclature of Units for Territorial Statistics \(NUTS\)](#) provides a single uniform breakdown for the production of regional statistics for the EU. These regional GVA(P) estimates are

published for the first time using new NUTS boundaries from the 2013 review, which came into force on 1 January 2015. They are compiled and published at two levels of NUTS geography:

- NUTS1: Wales, Scotland, Northern Ireland and the nine English regions
- NUTS2: 40 sub-regions – mainly groups of counties and unitary authorities

Some areas appear at more than one level, for example, Northern Ireland appears at both NUTS1 and NUTS2 levels.

The NUTS classification was established by Eurostat in the early 1970s as a single, coherent system for dividing up European Union territory in order to produce regional statistics for the EU. Since 2003, any changes to boundaries to account for changes in, for instance, local authority boundaries, have needed to go through a formal process of application to the EU, with any changes being implemented at the end of pre-set periods of enforced stability.

The term Extra-Regio is applied to economic activity that cannot be assigned to any specific region within a country. For the UK the contribution of UK embassies abroad, UK armed forces and support personnel stationed overseas and activities taking place on the continental shelf (North Sea oil and gas extraction) are assigned to Extra-Regio.

2. GVA(P) is valued at basic prices, which reflect the amount received by the producer for a unit of goods or services excluding any taxes on products (for example Value Added Tax) and including any subsidies on products (for example import subsidies). The price includes any taxes on production (for example business rates) and excludes any subsidies on production (for example agricultural land set-aside).
3. Regional GVA(P) is a workplace-based measure, compiled using mostly output and intermediate consumption data from the Annual Business Survey (ABS). These estimates are provided at t-2 (where t is the current year) for NUTS1 and NUTS2 levels of geography.
4. The project to develop a measure of regional GVA using the production approach was initiated in response to the [Review of Economic Statistics for Policymaking by Christopher Allsopp in 2003](#). One of the recommendations of the review was for the development and publication of regional GVA at constant prices, which involves deflating annual data that are produced at current prices.

## Quality

5. ONS Regional Accounts annually review [Quality and Methodology Information \(QMI\)](#) reports for regional GVA and regional GDHI, detailing methods used to produce these statistics.
6. The principal data source used for the regional allocation of GVA(P) is the ONS Annual Business Survey (ABS). The ABS estimates represent approximately two thirds of the UK economy, but exclude public sector and financial sector activity (banking, finance and insurance auxiliaries, pension funding) and households with employees. For these industries we use the best available data as proxy indicators to allocate the national total to regions. Public sector totals are allocated using an estimate of regional public expenditure derived from regional public

sector earnings from the Annual Survey of Hours and Earnings (ASHE) and regional public sector employees from the Business Register and Employment Survey (BRES).

7. The ABS provides data for approximate GVA and total purchases (intermediate consumption) at both NUTS1 and NUTS2 levels. These are used to derive regional output (calculated as GVA plus intermediate consumption). The separate calculation of output in addition to intermediate consumption will facilitate a future change to accommodate double deflation (see the 'About this release' section of this bulletin for more details) should suitable input price indices become available.
8. 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-terms growth in the expenditure-deflated figures over the span of the time series data.

ONS published an [a development of a regional measure of real Gross Value Added using a production approach article \(237.3 Kb Pdf\)](#) 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.

9. ONS is developing SUT in previous years' prices, which should provide industry-level deflators that can be applied directly, removing the need to constrain the regional estimates to ensure consistency with the UK figures. It is expected that this development will be completed by 2017, resulting in a single regional real GVA dataset from December 2017.

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