

Statistical bulletin

# Regional Gross Value Added (Production Approach): December 2014

An experimental measure of regional GVA (the increase in the value of the economy due to the production of goods and services).

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## Table of contents

1. [Correction](#)
2. [Key points](#)
3. [Summary](#)
4. [About this release](#)
5. [Recent methodological changes](#)
6. [NUTS1 real regional GVA\(P\) estimates](#)
7. [NUTS2 real regional GVA\(P\) estimates](#)
8. [Comparison of current price regional GVA\(I\) and GVA\(P\)](#)
9. [Future plans](#)
10. [Background notes](#)

# 1. Correction

**Friday 3rd July 2015 at 2:30pm**

We have discovered a processing error affecting the GVA(P) estimates for SIC Sections E (water supply, sewerage, waste management and remediation activities), J (information and communication), O (public administration and defence; compulsory social security), P (education), Q (human health and social work activities) and R (arts, entertainment and recreation) that were published in December 2014. Some data for public sector earnings were input incorrectly, resulting in data for many NUTS2 sub-regions being allocated to the wrong area. This has not affected the NUTS1 region figures, but has affected the sub-regional distribution for all years 1998 to 2011 of the time series. The error affects both nominal and real (chained volume) measures. As GVA(P) is still experimental it is subject to continuous development, and this means that the compilation system has already been improved and updated since last December's publication. Unfortunately this means that it would be difficult for us to recreate the December 2014 dataset with this error corrected. We therefore intend to correct the error in the next publication, planned for December 2015. In the meantime users are advised to exercise additional caution in their use of the GVA(P) estimates for Sections E, J, O, P, Q and R, and to refer to the regional GVA(Income) estimates to gain an understanding of the magnitude of the error in any given sub-region.

**Wednesday 22nd April 2015 at 11:30am**

We have discovered a processing error affecting the GVA(P) estimates for SIC Section A (agriculture, forestry and fishing) that were published in December 2014. Some data for farming activities were input incorrectly, resulting in data for each year being allocated to the previous year. This has not affected the totals for agriculture, but has affected the regional distribution for each year of the time series. The impact is small and confined to the estimates for Section A in both current prices and chained volume measures. As GVA(P) is still experimental it is subject to continuous development, and this means that the compilation system has already been improved and updated since last December's publication. Unfortunately this means that it would be difficult for us to recreate the December 2014 dataset with this error corrected. We therefore intend to correct the error in the next publication, planned for December 2015. In the meantime users are advised to exercise additional caution in their use of the GVA(P) estimates for Section A, and to refer to the regional GVA(Income) estimates to gain an understanding of the magnitude of the error in any given region.

## 2. Key points

- In 2012, of the NUTS1 regions, London had the largest annual increase in real GVA, at 2.4%, followed by the South East at 2.1%. Wales had the largest annual decrease at -2.8%
- Excluding Extra-Region, four of the NUTS1 regions' real GVA decreased in 2012: Wales (-2.8%); Northern Ireland (-1.3%); West Midlands (-1.1%); and Yorkshire and The Humber (-0.5%)
- Since the economic downturn, London had the largest increase in real GVA between 2009 and 2012 (10.2%), followed by the West Midlands (8.7%). Yorkshire and The Humber was the only region to decrease over this period (-0.2%)
- Of the NUTS2 sub-regions, North Eastern Scotland had the largest annual increase in real GVA in 2012, at 7.0%, followed by Berkshire, Buckinghamshire and Oxfordshire at 5.9%, and Greater Manchester at 5.0%
- Shropshire and Staffordshire was the NUTS2 sub-region with the largest annual decrease in real GVA in 2012, at -5.0%, followed by North Yorkshire, and Cornwall and Isles of Scilly, both at -4.9%
- Of the NUTS2 sub-regions, between 2009 and 2012 the Highlands and Islands saw the largest increase in real GVA, at 17.5%, followed by Herefordshire, Worcestershire and Warwickshire at 15.3%, and North Eastern Scotland at 14.8%
- In the same period, East Yorkshire and Northern Lincolnshire was the NUTS2 region that saw the largest decrease in real GVA, at -12.3%, followed by Bedfordshire and Hertfordshire at -4.4%, and Dorset and Somerset at -2.1%

### 3. Summary

**Table 1: NUTS1 All industry regional CVM indices from 2008 to 2012**

Base year = 2011

NUTS1 regions	2008	2009	2010	2011	2012
North East	98.6	93.8	96.8	100.0	100.3
North West	100.1	98.5	100.5	100.0	101.9
Yorkshire & The Humber	107.3	99.7	99.7	100.0	99.5
East Midlands	99.3	94.5	96.8	100.0	100.7
West Midlands	97.2	91.0	97.4	100.0	98.9
East of England	104.4	99.8	101.8	100.0	100.7
London	98.2	92.9	95.1	100.0	102.4
South East	100.7	96.8	99.2	100.0	102.1
South West	99.2	97.3	100.1	100.0	100.3
England	100.2	95.7	98.2	100.0	101.2
Wales	94.1	93.6	93.9	100.0	97.2
Scotland	102.3	97.2	97.2	100.0	100.8
Northern Ireland	103.1	98.0	97.8	100.0	98.7
Extra-Region	140.7	130.0	121.4	100.0	85.5

Source: Office for National Statistics

These estimates of Gross Value Added (GVA) are compiled using the production approach, 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).

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 (background note 1 provides further details).

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.

As these are experimental statistics, users should note that there are quality issues affecting some of the industry chained volume measures (CVMs). Several industries show a conspicuous difference from the GVA compiled using the income approach (GVA(I)). More detail on these can be found in the section 'Comparison of current price regional GVA(I) and GVA(P)' in this release.

Other quality issues affecting manufacturing sub-sections, most notably in sub-sections CD (manufacture of coke and refined petroleum products) and CE (manufacture of chemicals and chemical products), have resulted in particularly unreliable CVM index values for some regions in some years.

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.

## 4. About this release

1. This bulletin presents the second 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)
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. Previously regional GVA has only been calculated on an income basis (GVA(I)), which is incompatible with deflation
3. The GVA(P) estimates are compiled using a 'top-down' approach. National Accounts Supply and Use Tables (SUT) provide national totals for each of 112 industry components. Regional indicator datasets are used to calculate regional proportions for each industry. These proportions are then used to regionalise 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 2014. 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 2014 and they are used because no regional price indices are currently available. The Eurostat Manual on regional accounts methods (2013 edition) 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). This release includes data for 33 industries, at constant prices given in CVM, with the effects of inflation removed
6. The estimates in this release are experimental and 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(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 10 December 2014. 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 publication to enable users to compare the two current price measures directly
7. 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 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 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
- Welsh Government (in conjunction with the Office for National Statistics) produces quarterly 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. They can be found at: [Indices of production and construction](#) and [Index of market services](#)

## 5. Recent methodological changes

### Deflation methods

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 [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.

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.

### Gross National Income

In keeping with the UK National Accounts commitment to meeting the European Commission definition of [Gross National Income](#), estimates of the value added to the economy of [illegal activity relating to drugs and prostitution \(251.9 Kb Pdf\)](#) have been included in regional GVA for the first time. Some regional data sources are available that provide information on seizures of illegal drugs by police forces and on crimes related to prostitution. However the inconsistencies in these data sources, over time and between regions of the UK, have meant that reliable estimates of the regional variation in these activities have not been possible at this time. We have therefore allocated the UK total figure for each activity across the regions according to the adult population in each area.

Therefore it is not possible to draw any conclusions about areas of the UK that have higher or lower than average use of illegal drugs or prostitution services from these regional GVA estimates.

## European System of Accounts 2010

The UK, along with all other European Union Member States, has begun a programme of work to introduce the changes to data and methods required by the new [European System of Accounts \(ESA2010\)](#). These changes are many and varied, and will be implemented in the UK National Accounts over a number of years. The UK Regional Accounts aim to implement any relevant changes (those requiring a different treatment to be implemented in order to allocate the national total across regions of the UK) in the first regional publication following their introduction to the National Accounts.

The most notable ESA2010 change implemented this year is to the treatment of [research and development \(R&D\) \(349.1 Kb Pdf\)](#) activities carried out by businesses, government and educational institutions for their own use (as distinct from such activities carried out by enterprises classified to the R&D industry itself). The activity, formerly counted as part of intermediate consumption, is now counted as capital formation. For the regional allocation of R&D we have used data from the [Business Expenditure on Research and Development \(BERD\)](#) survey, and its subsidiary surveys for government and higher education R&D (GovERD and HERD). The R&D change has had the greatest impact on regional GVA of all changes implemented this year.

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 \(NPISH\) \(109.6 Kb Pdf\)](#) have resulted in the greatest impact on the national figures.

## Onshore oilfields

We have made use of the [Oil and Gas Model](#) developed by Scottish Government statisticians to improve the measurement of onshore oil and gas extraction in regional GVA. The model provides more up-to-date estimates of the output and costs associated with oil and gas extraction and provides a split between offshore and onshore activity. We have used the onshore figures from the Scottish model and have allocated them to regions using data from the Department for Energy and Climate Change (DECC) on the actual production by each onshore oilfield. As before, all offshore activity is assigned to the Extra-Regio category (background note 1) in accordance with European guidance.

## 6. NUTS1 real regional GVA(P) estimates

### Real GVA for NUTS1 regions

The UK economy went into downturn between Q2 2008 and Q3 2009. GVA(P) expressed in chained volume measures (CVM), known as real GVA, fell to a low in 2009 and then increased each year to 2012.

At NUTS1 level the real GVA indices showed a general pattern of steady increase from 2000 through to the start of the downturn in 2008.

Of the NUTS1 regions, the East of England, London, the South West and Wales demonstrated uninterrupted growth in real GVA between 1998 and 2007 (pre-downturn). Overall, England also demonstrated uninterrupted increases over this period.

The largest increase in real GVA over the pre-downturn period (1998 to 2007) was in London (46.5%), followed by Northern Ireland (43.9%) and Yorkshire and The Humber (35.0%). The smallest increase over this period was in the West Midlands (20.0%).

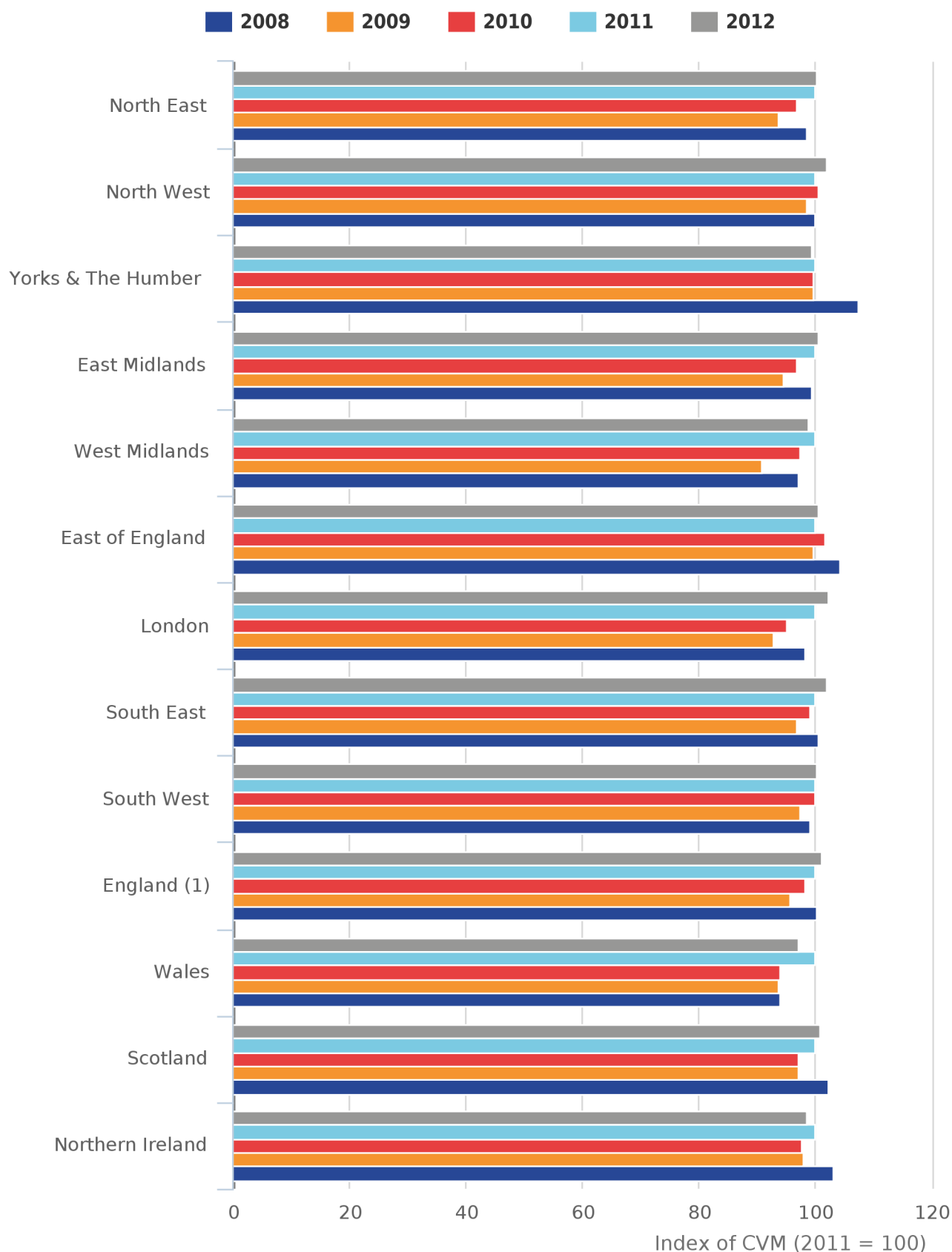
Before the economic downturn, eight of the NUTS1 regions (and England) increased to a peak in 2007. However, the real GVA index was highest in 2006 for the North East and West Midlands, and was highest in 2008 for the South East and Scotland.

Following the economic downturn, in 2012 the North East (index of 100.3), London (102.4), the South East (102.1) and South West (100.3) all surpassed their earlier peaks, as did the West Midlands (100.0) and Wales (100.0) in 2011.

For the period 2008 to 2012, 2009 was the low point for nine regions. Scotland was lowest in both 2009 and 2010 (97.2). Yorkshire and The Humber was also lowest in both 2009 and 2010 (99.7), until decreasing to 99.5 in 2012.

Excluding Extra-Region, between 2009 and 2012 all regions demonstrated an increase except Yorkshire and The Humber, which was at 99.7 in 2009 and 99.5 in 2012.

**Figure 1: NUTS1 Index of Real GVA for all industry totals (Chained Volume Measure)**



**Source: Office for National Statistics**

**Notes:**

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

## 7. NUTS2 real regional GVA(P) estimates

### Real GVA for NUTS2 sub-regions

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

All of the 37 NUTS2 sub-regions had increased real GVA indices in 2012 compared with the latest estimates for 1998. The greatest increases were for North Eastern Scotland (76.0%) and Inner London (71.7%). The lowest increases were for the West Midlands (12.8%), Kent (14.1%) and Essex (15.0%).

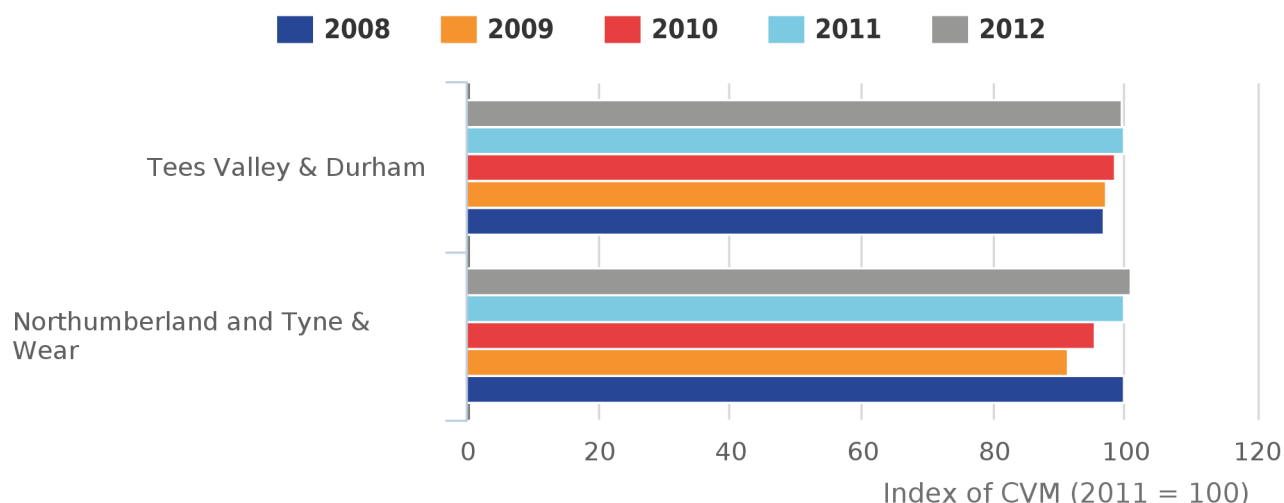
Looking at the years since the economic downturn, 32 of the sub-regions had a higher real GVA index in 2012 compared to 2009. The five greatest increases were in:

- Highlands and Islands (17.5%)
- Herefordshire, Worcestershire and Warwickshire (15.3%)
- North Eastern Scotland (14.8%)
- Lincolnshire (12.3%)
- Inner London (11.8%)

The five sub-regions which showed a decrease from 2009 to 2012 were:

- East Yorkshire and Northern Lincolnshire (-12.3%)
- Bedfordshire and Hertfordshire (-4.4%)
- Dorset and Somerset (-2.1%)
- Merseyside (-1.3%)
- Eastern Scotland (-0.1%)

**Figure 2: NUTS2 All industry regional CVM indices for the North East**



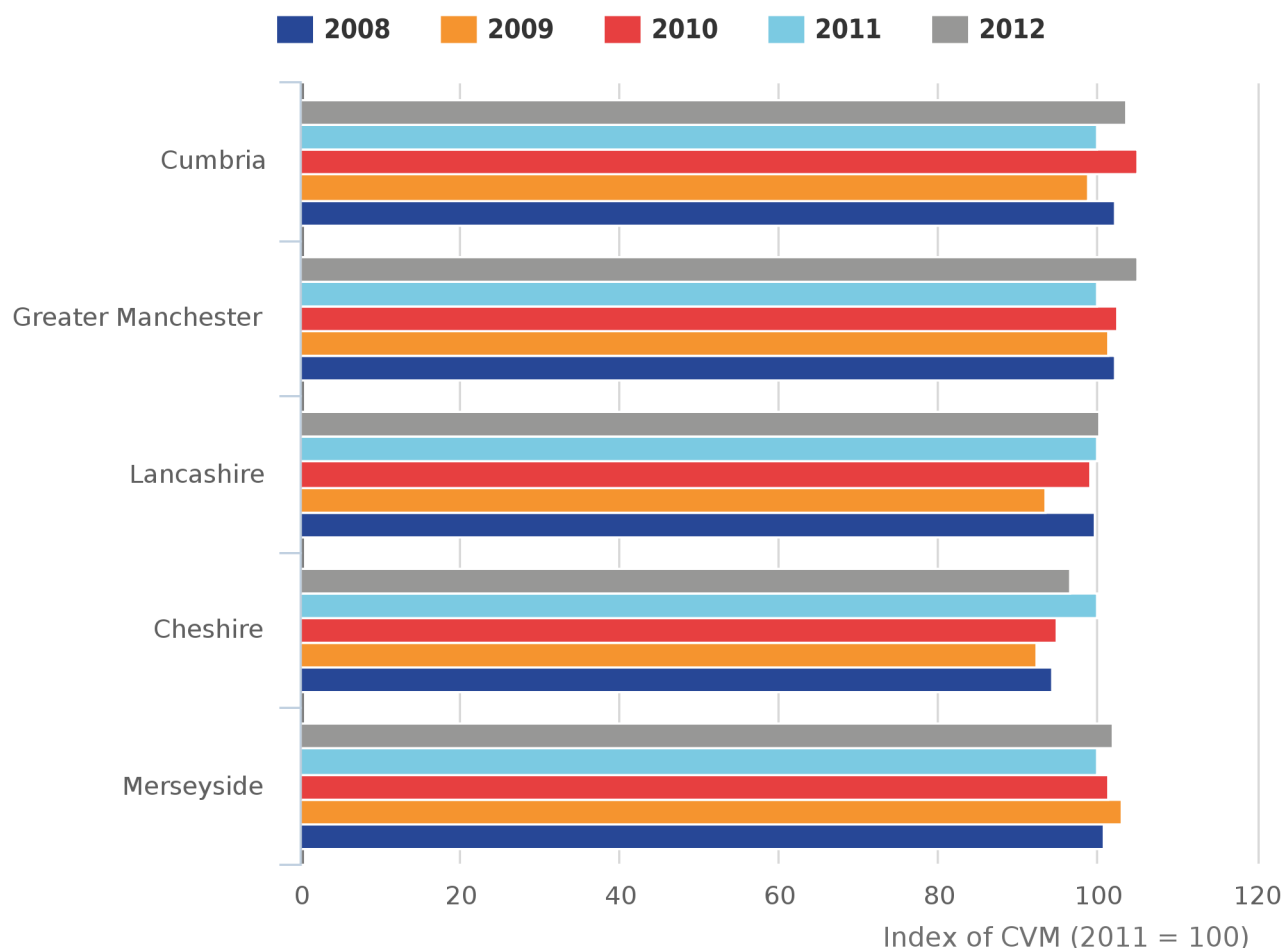
**Source: Office for National Statistics**

The effect of the economic downturn and subsequent recovery was clear in the Northumberland and Tyne & Wear sub-region, with a significant change over the period. This was largely driven by industry sections C (manufacturing), J (information and communication), M (professional, scientific and technical activities) and N (administrative and support service activities).

The effect of the downturn was much less evident for Tees Valley and Durham. This sub-region showed little movement from 2008 to 2009. The increase to 2011 was based on strong increases in industry sections A (agriculture, forestry and fishing), L (real estate activities), M (professional, scientific and technical activities) and R (arts, entertainment and recreation).

The 2012 decrease had a broad base, shown most notably in industry sections A (agriculture, forestry and fishing), E (water supply; sewerage and waste management), I (accommodation and food service activities) and T (activities of households).

**Figure 3: NUTS2 All industry regional CVM indices for the North West**



**Source: Office for National Statistics**

Merseyside was one of the few sub-regions to increase between 2008 and 2009. This was led primarily by increases in industry sections C (manufacturing) and J (information and communication). Manufacturing also partly drove the decrease in 2010, along with sections K (financial and insurance services) and P (education).

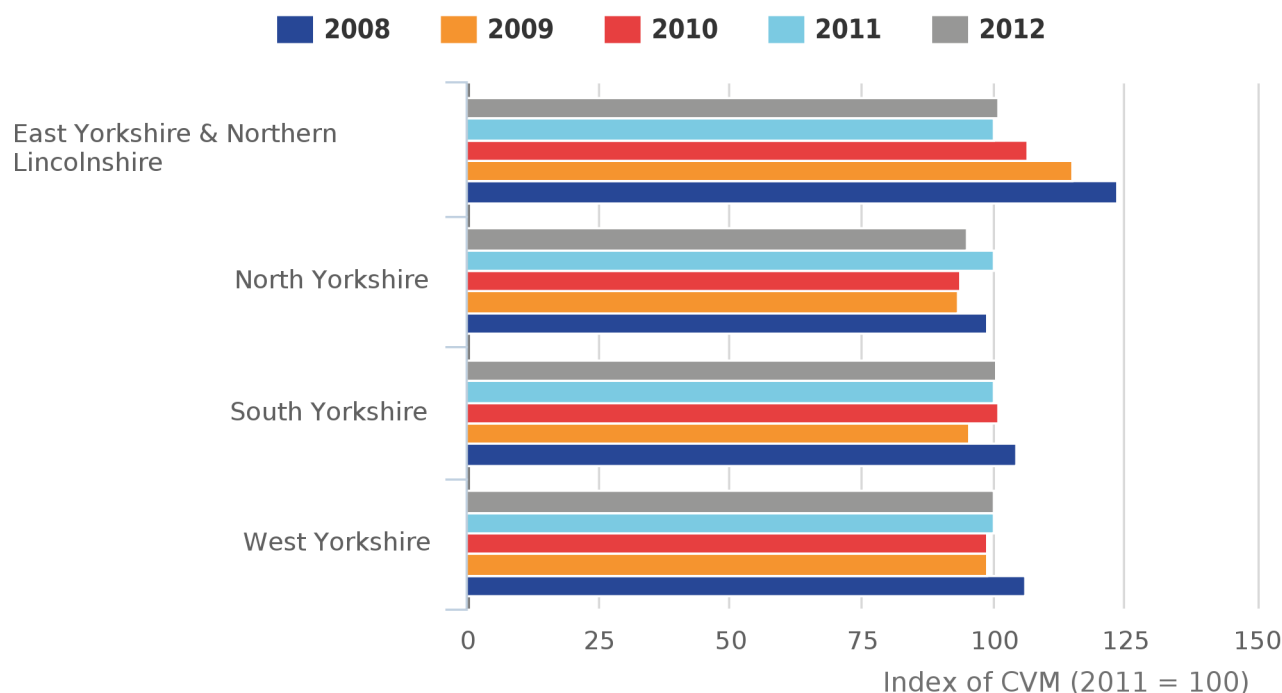
Cheshire experienced a sharp increase in 2010 and again in 2011. The 2010 increase was broadly driven by some 16 industry sections including B (mining and quarrying), C (manufacturing), D (electricity, gas, steam and air-conditioning supply) and T (activities of households).

Lancashire saw large falls between 2008 and 2009 over a number of industries including sections B (mining and quarrying), C (manufacturing), D (electricity, gas, steam and air-conditioning supply), F (construction) and H (transportation and storage).

Greater Manchester demonstrated many increased indices for 2012, especially in industry sections E (water supply; sewerage and waste management), N (administrative and support service activities), O (public administration and defence; compulsory social security) and R (arts, entertainment and recreation).

Cumbria had a number of falling and rising industries. Section D (electricity, gas, steam and air-conditioning supply) had large CVM index numbers due to a small current price value in the index year (2011). The pattern of rise and fall was shown most clearly in industry sections G (wholesale and retail trade; repair of motor vehicles), H (transportation and storage), P (education) and S (other service activities).

**Figure 4: NUTS2 All industry regional CVM indices for Yorkshire and The Humber**



**Source: Office for National Statistics**

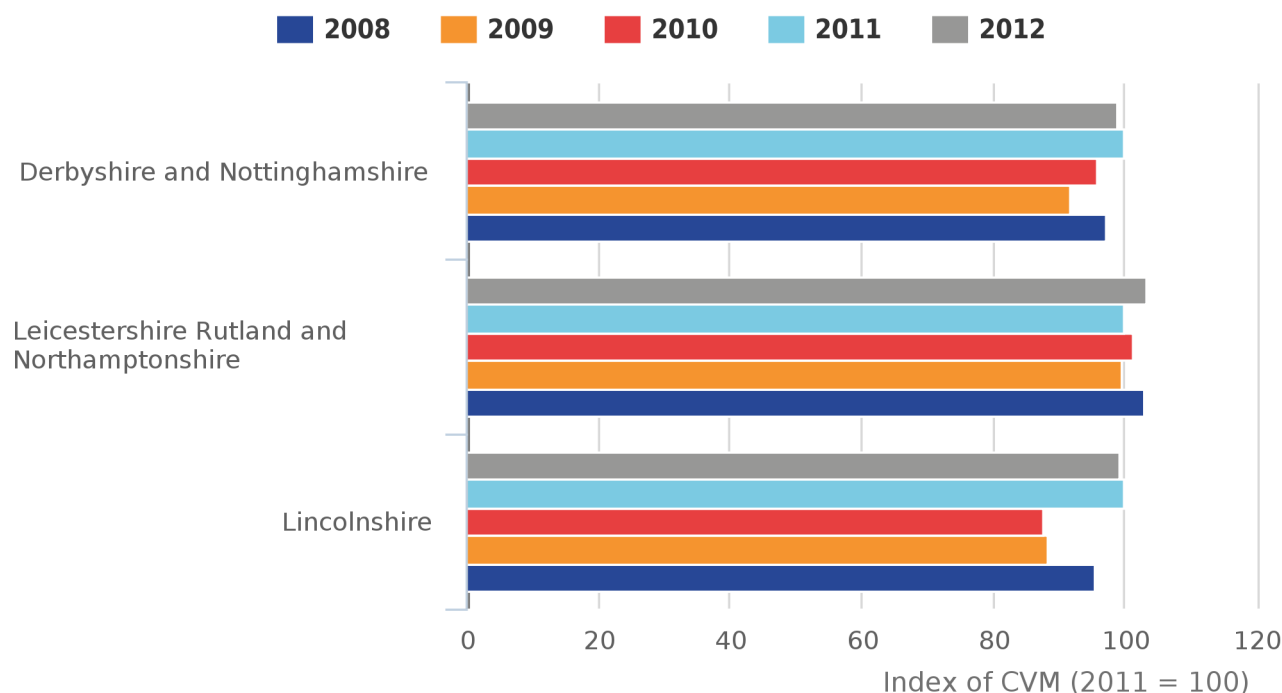
East Yorkshire and Northern Lincolnshire had large decreases annually from 2008 (with an index of 123.7) to 2011 (with an index of 100.0). This was driven by substantial decreases in several industries, including sections B (mining and quarrying), C (manufacturing), G (wholesale and retail trade; repair of motor vehicles) and K (financial and insurance services).

The decrease in 2012 in North Yorkshire was led by industry sections B (mining and quarrying), D (electricity, gas, steam and air-conditioning supply), G (wholesale and retail trade; repair of motor vehicles) and P (education). All of these industries also contributed to the increase in 2011.

From its low point (95.3) in 2009, South Yorkshire increased and then remained steady in the period 2010 to 2012. The 2010 increase was mainly driven by industry sections C (manufacturing), D (electricity, gas, steam and air-conditioning supply), E (water supply; sewerage and waste management), G (wholesale and retail trade; repair of motor vehicles) and I (accommodation and food service activities).

West Yorkshire, after a fall between 2008 and 2009, remained fairly level for the 2009 to 2012 period. The initial fall in 2009 was led by industry sections G (wholesale and retail trade; repair of motor vehicles), H (transportation and storage), I (accommodation and food service activities) and N (administrative and support service activities).

**Figure 5: NUTS2 All industry regional CVM indices for the East Midlands**



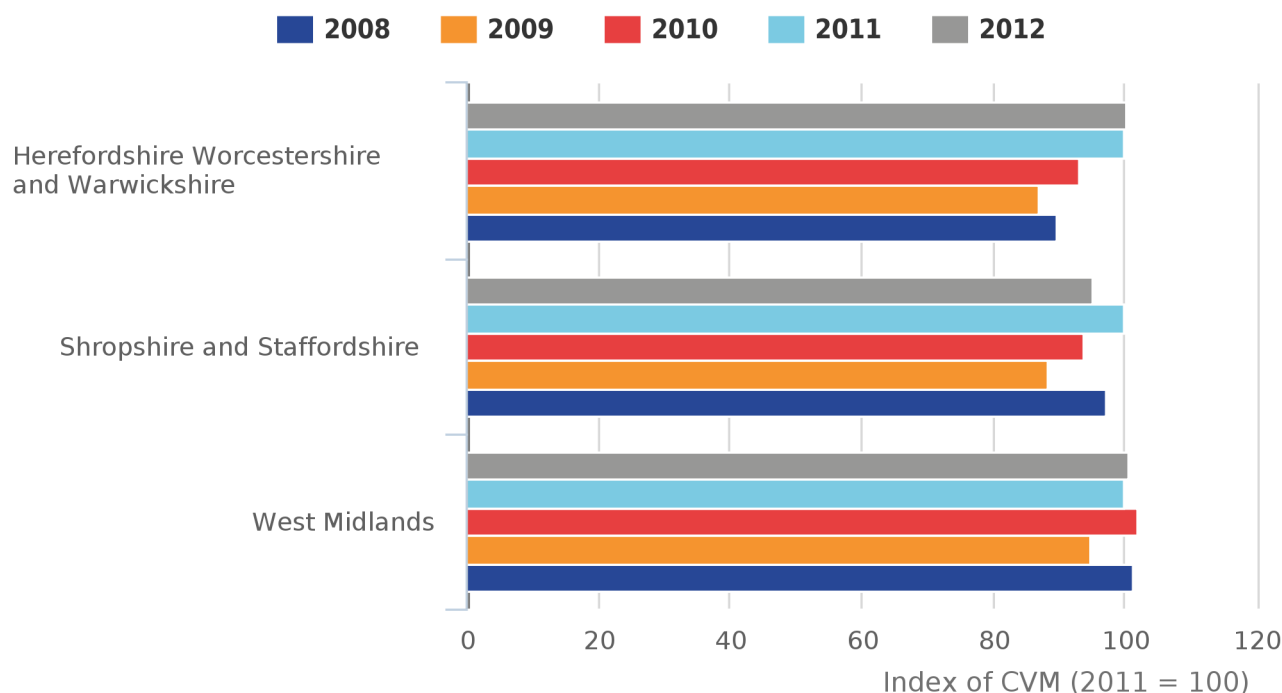
**Source: Office for National Statistics**

Derbyshire and Nottinghamshire had several industries decreasing in 2009 then increasing in 2010, most notably in sections B (mining and quarrying), F (construction), K (financial and insurance activities) and R (arts, entertainment and recreation).

Leicestershire, Rutland and Northamptonshire demonstrated little notable change over the 2008 to 2012 period, although industry section B (mining and quarrying) did fall throughout the period while section Q (human health and social work activities) increased throughout.

In contrast, Lincolnshire had very notable changes through this period. The sub-region decreased to a low of 87.5 in 2010, before recovering to 99.3 in 2012. This pattern was mostly shown by industry sections B (mining and quarrying), G (wholesale and retail trade; repair of motor vehicles) and H (transportation and storage).

**Figure 6: NUTS2 All industry regional CVM indices for the West Midlands**



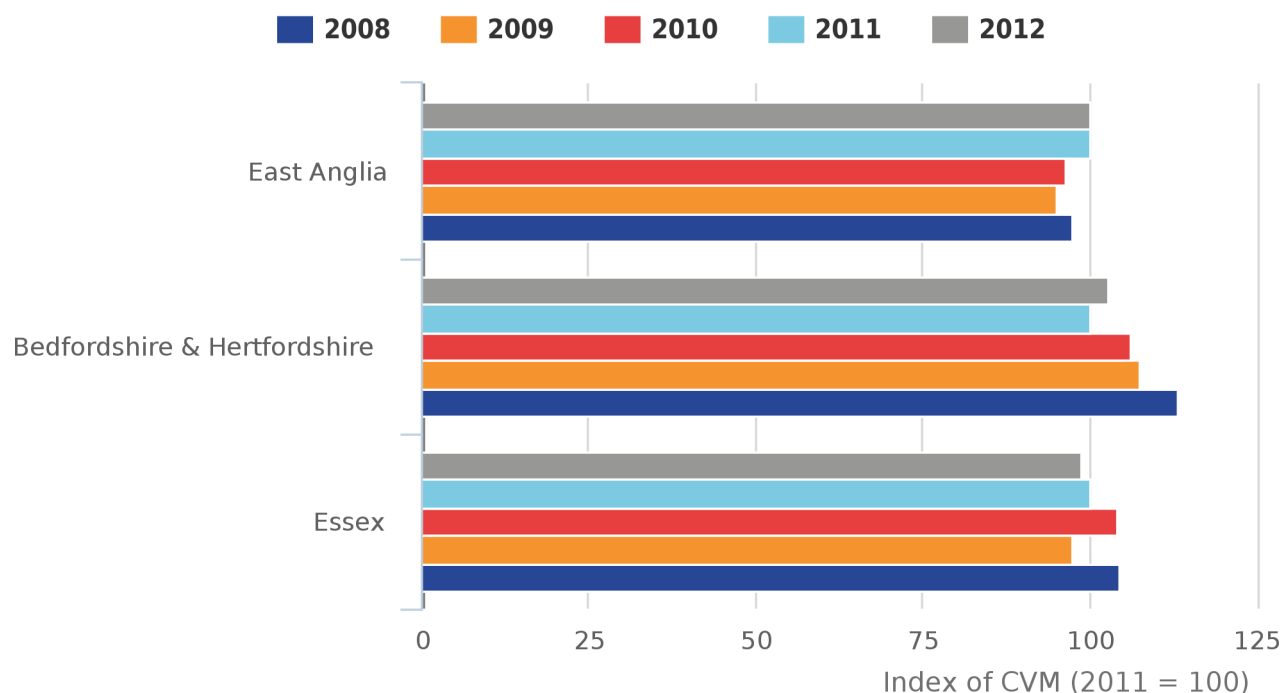
**Source: Office for National Statistics**

The index for Herefordshire, Worcestershire and Warwickshire increased from 2009 to 2012, a pattern shown most strongly by industry sections B (mining and quarrying) and G (wholesale and retail trade; repair of motor vehicles).

The decrease in the index for Shropshire and Staffordshire in 2012 was due to falls across a wide range of industries. Some 12 industry sections decreased, most notably G (wholesale and retail trade; repair of motor vehicles), K (financial and insurance activities), O (public administration and defence; compulsory social security) and S (other service activities).

The West Midlands sub-region also had a wide range of industries showing recovery from the low point in 2009 (94.9) to a peak in 2010 (102.0). These included sections A (agriculture, forestry and fishing), R (arts, entertainment and recreation) and T (activities of households).

**Figure 7: NUTS2 All industry regional CVM indices for the East of England**



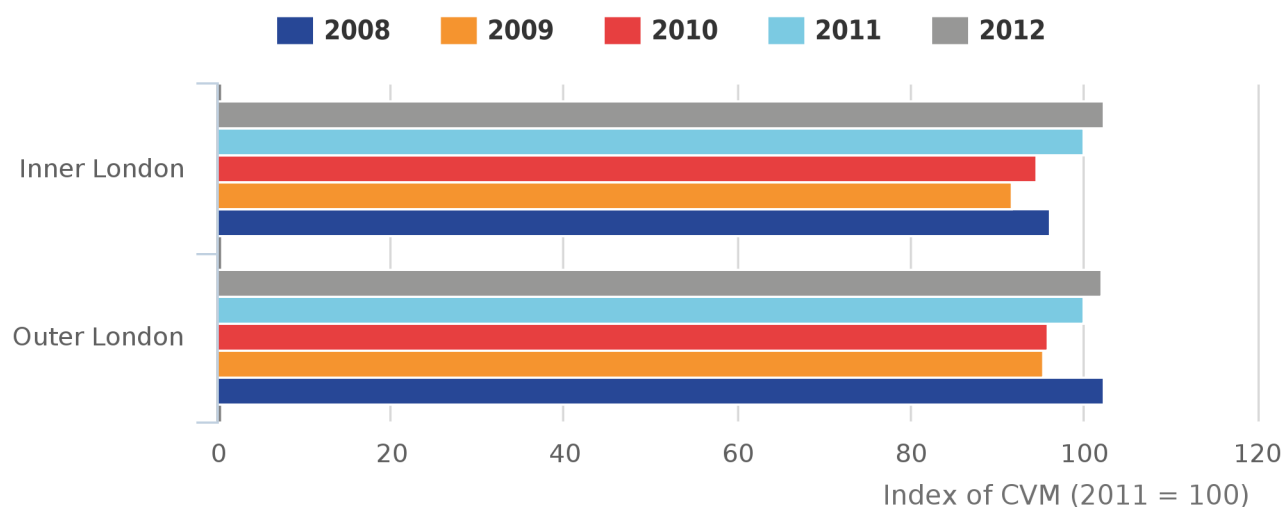
Source: Office for National Statistics

East Anglia demonstrated the typical pattern of recovery with several industry sections showing year on year increases from 2009 to 2012, including I (accommodation and food service activities) and L (real estate activities).

However, the Bedfordshire and Hertfordshire sub-region was not typical in that it had decreases each year from 2008 to 2011. This was mainly driven by industry sections C (manufacturing), D (electricity, gas, steam and air-conditioning supply), H (transportation and storage) and J (information and communication).

Essex was also unusual. After a recovery in 2010 it then decreased each year to 2012. This later decrease was led by industry sections F (construction), G (wholesale and retail trade; repair of motor vehicles) and P (education).

**Figure 8: NUTS2 All industry regional CVM indices for London**



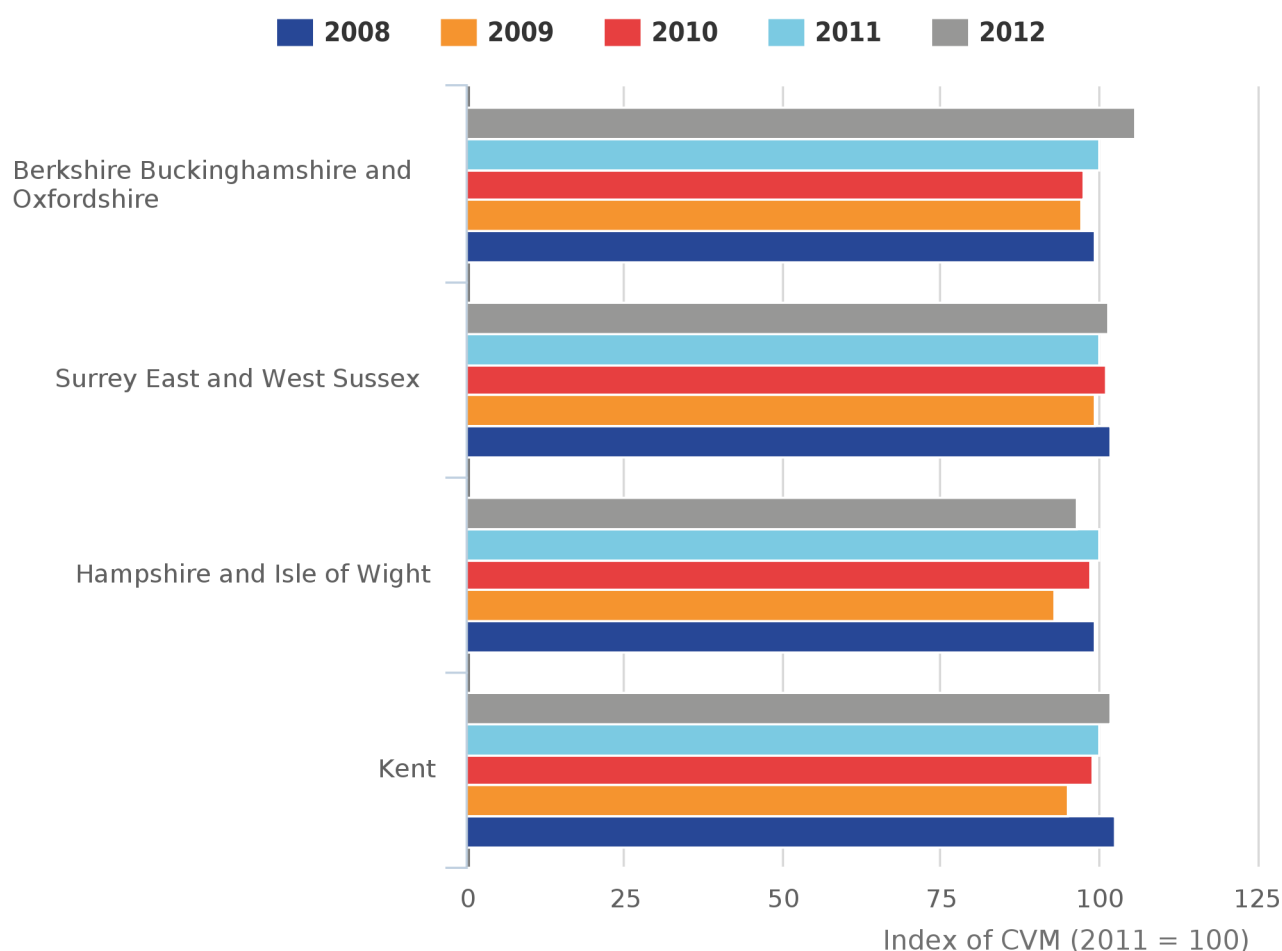
Source: Office for National Statistics

Both Inner and Outer London demonstrated the same pattern. However, different industries drove the increase from 2009 to 2012.

In Inner London the post 2009 increases were largely due to industry sections I (accommodation and food service activities), J (information and communication), L (real estate activities), N (administrative and support service activities) and Q (human health and social work activities).

In Outer London the main drivers were industry sections L (real estate activities), P (education) and T (activities of households).

**Figure 9: NUTS2 All industry regional CVM indices for the South East**



Source: Office for National Statistics

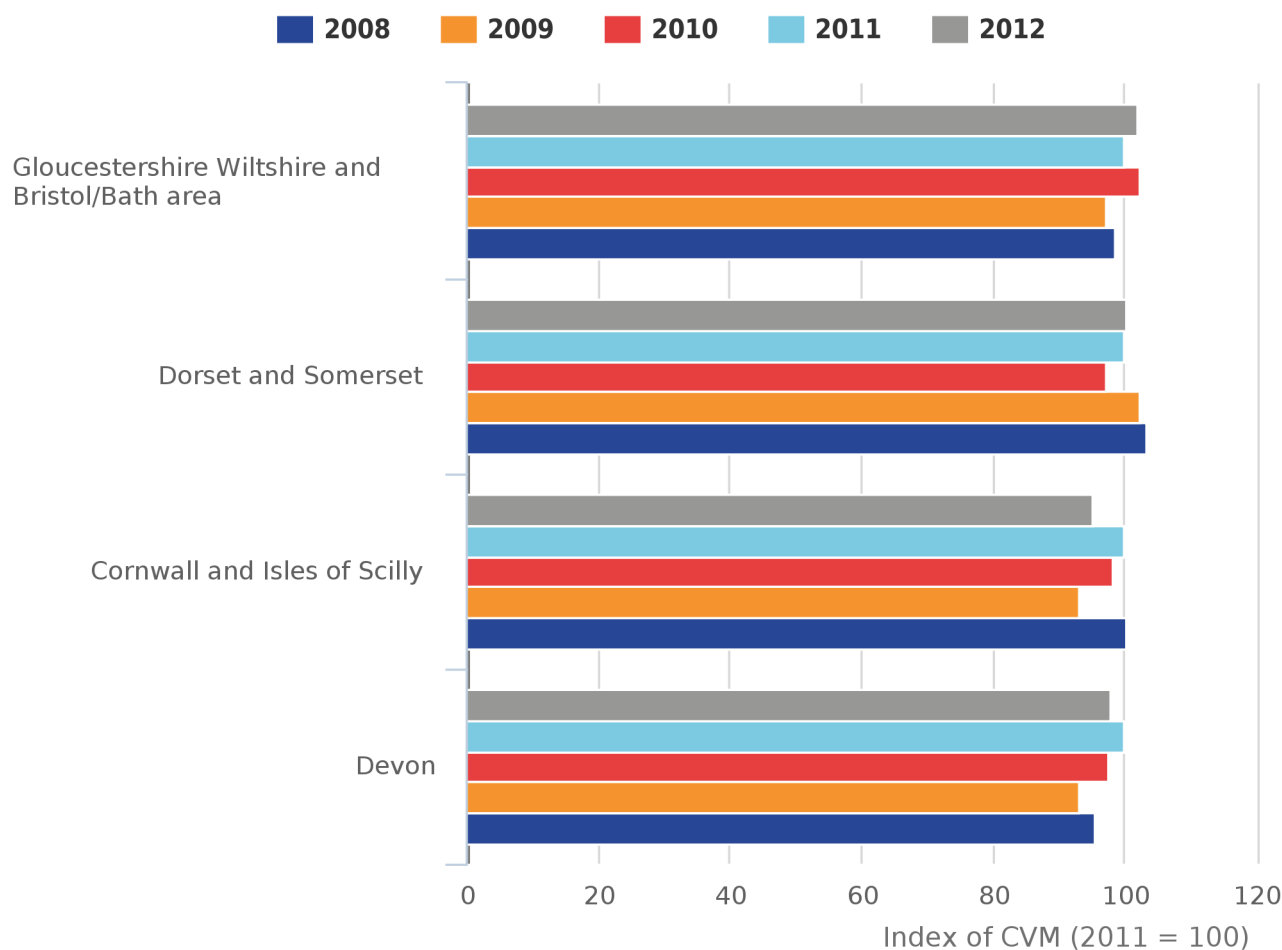
Berkshire, Buckinghamshire and Oxfordshire had a sustained increase from 2009 to 2012. This increase was seen most strongly in industry sections E (water supply; sewerage and waste management), J (information and communication) and L (real estate activities).

In Surrey, East and West Sussex the decrease from 2010 to 2011 was due mainly to industry sections F (construction), H (transportation and storage), K (financial and insurance activities) and O (public administration and defence; compulsory social security).

Hampshire and Isle of Wight had the largest decrease in 2012, falling by 3.3%. This was driven by 15 industries, particularly E (water supply; sewerage and waste management), H (transportation and storage), O (public administration and defence; compulsory social security) and Q (human health and social work activities).

Kent increased from 95.1 in 2009 to 101.9 in 2012. This was due to increases in industry sections B (mining and quarrying), G (wholesale and retail trade; repair of motor vehicles), H (transportation and storage) and L (real estate activities).

**Figure 10: NUTS2 All industry regional CVM indices for the South West**



**Source: Office for National Statistics**

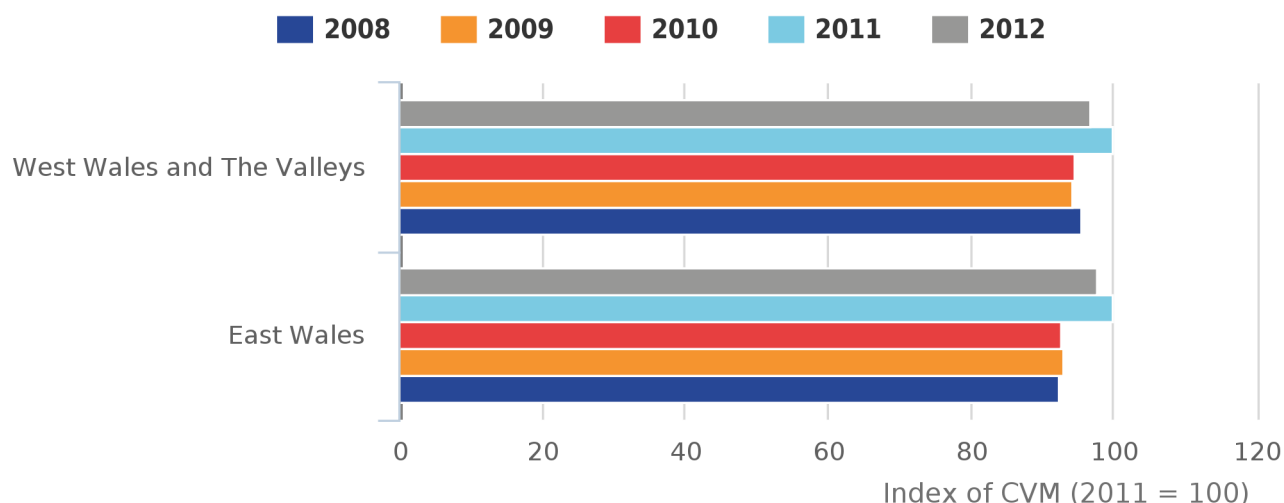
The Gloucestershire, Wiltshire and Bristol/Bath area saw alternating decreases and increases from 2008 to 2012, peaking at 102.4 in 2010. This pattern is shown by industry sections E (water supply; sewerage and waste management) and H (transportation and storage).

Dorset and Somerset, unusually, reached its lowest level (97.1) in 2010. This was largely due to decreases in industry sections D (electricity, gas, steam and air-conditioning supply), K (financial and insurance activities) and N (administrative and support service activities).

From its low point (92.9) in 2009, Cornwall and Isles of Scilly had a number of industries which showed increases through to 2011. These included sections C (manufacturing), D (electricity, gas, steam and air-conditioning supply), I (accommodation and food service activities), M (professional, scientific and technical activities), N (administrative and support service activities) and Q (human health and social work activities). These industries also contributed to the decrease in 2012.

Devon had a peak in 2011 (100.0) with the decrease in 2012 largely due to industry sections B (mining and quarrying), D (electricity, gas, steam and air-conditioning supply), F (construction) and M (professional, scientific and technical activities).

**Figure 11: NUTS2 All industry regional CVM indices for Wales**

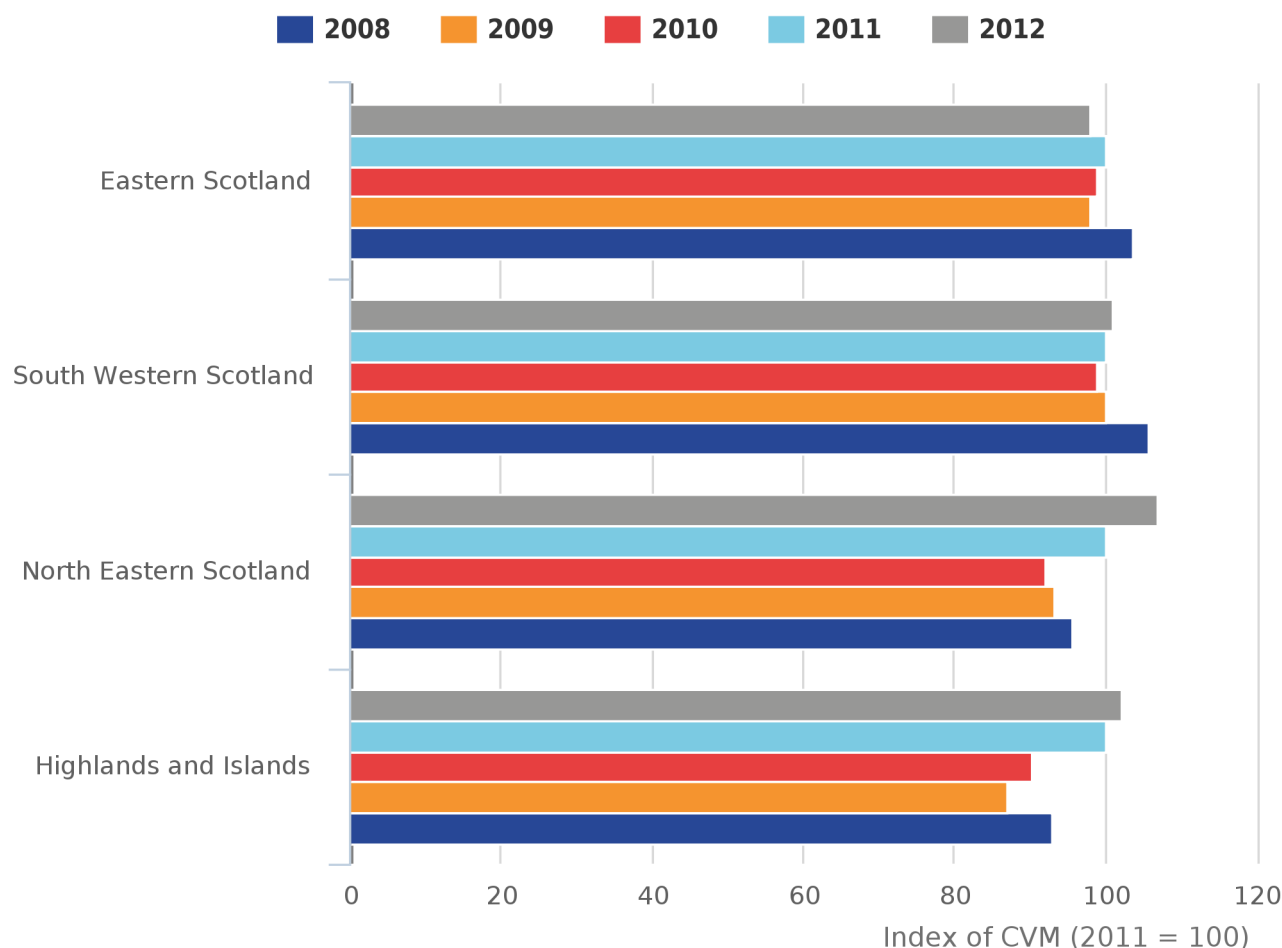


**Source: Office for National Statistics**

East Wales reached its lowest level (92.5) in 2008, earlier than most areas. This was driven by several industries, especially sections B (mining and quarrying), H (transportation and storage) and R (arts, entertainment and recreation). Then, from 2010 to 2011, 16 of the 20 industry sections showed increases, especially sections D (electricity, gas, steam and air-conditioning supply), E (water supply; sewerage and waste management), G (wholesale and retail trade; repair of motor vehicles) and R (arts, entertainment and recreation).

West Wales and The Valleys, like most regions, experienced its lowest point in 2009 (94.1). It then reached a peak in 2011 due to increases in 14 industries, particularly sections A (agriculture, forestry and fishing), I (accommodation and food service activities), P (education) and T (activities of households).

**Figure 12: NUTS2 All industry regional CVM indices for Scotland**



**Source: Office for National Statistics**

The large decrease in Eastern Scotland in 2009 was largely driven by industry sections B (mining and quarrying), F (construction) and N (administrative and support service activities). The fall in 2012 was due mainly to decreases in sections C (manufacturing), E (water supply; sewerage and waste management) and S (other service activities).

South Western Scotland reached the low point of the economic downturn in 2010, a year later than most areas. However, from 2009 it was comparatively stable. Noteworthy was industry section T (activities of households), where the index fell from 334.7 in 2008 to 89.6 in 2012.

Both North Eastern Scotland and the Highlands and Islands showed large increases from 2010 to 2012. In North Eastern Scotland this was driven by industry sections B (mining and quarrying), O (public administration and defence; compulsory social security) and S (other service activities).

In the Highlands and Islands the cause was spread across more industries but most notably in sections D (electricity, gas, steam and air-conditioning supply), G (wholesale and retail trade; repair of motor vehicles) and M (professional, scientific and technical activities).

## NUTS2 All industry regional CVM indices for Northern Ireland

Note: no NUTS2 figure is shown here as Northern Ireland is the same at NUTS1 and NUTS2 (please see Figure 1).

The large decrease in 2009 was mostly driven by industry sections D (electricity, gas, steam and air-conditioning supply), E (water supply; sewerage and waste management), F (construction) and I (accommodation and food service activities). From 2010 to 2011 the largest increases were seen in sections A (agriculture, forestry and fishing), H (transportation and storage) and T (activities of households).

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

This section compares the current price Gross Value Added (Production Approach) (GVA(P)) estimates that underpin the chained volume measures (CVM) with the current price Gross Value Added (Income Approach) (GVA(I)) estimates published on 10 December 2014. The period for comparison is from 1998 to 2012.

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. The reasons for presenting this comparison are to allow users to see where these differences exist, to show the scale of the differences across industries and regions, and to provide advice on the appropriate use of these new experimental statistics. 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.

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

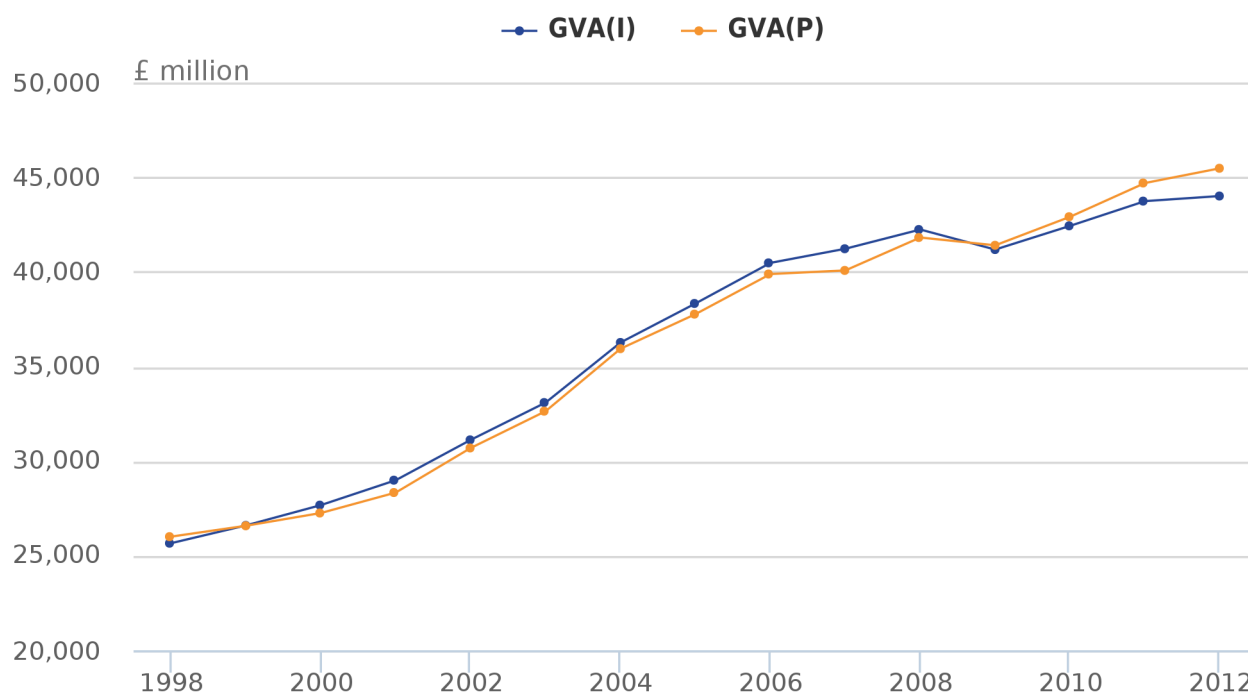
- Section B (mining and quarrying)
- Section G (wholesale and retail trade; repair of motor vehicles)
- Section J (information and communication)
- Section L (real estate activities)
- Section P (education)

In addition to these, there are quality issues affecting some of the manufacturing sub-sections, most notably in sub-sections CD (manufacture of coke and refined petroleum products) and CE (manufacture of chemicals and chemical products), which have resulted in particularly unreliable CVM index values for some regions in some years.

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 begun 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.

The figures that follow show a direct comparison of the current price estimates for all industries for each of the NUTS1 regions. For the most part they show that, at the whole economy level, the two measures are very similar. Even where there are level differences, the overall trend is largely consistent. When comparing the current price GVA(P) with GVA(I), London was the only NUTS1 region where the GVA(P) estimates were consistently higher than the GVA(I) estimates across the entire time series. We have identified the industries within each region where the GVA(I) and GVA(P) estimates are noticeably different. Again, for these industries users are advised to exercise caution in their use of the real GVA(P) estimates.

**Figure 13: Comparison of GVA(I) and current price GVA(P), all industries totals for the North East, 1998 to 2012**



**Source: Office for National Statistics**

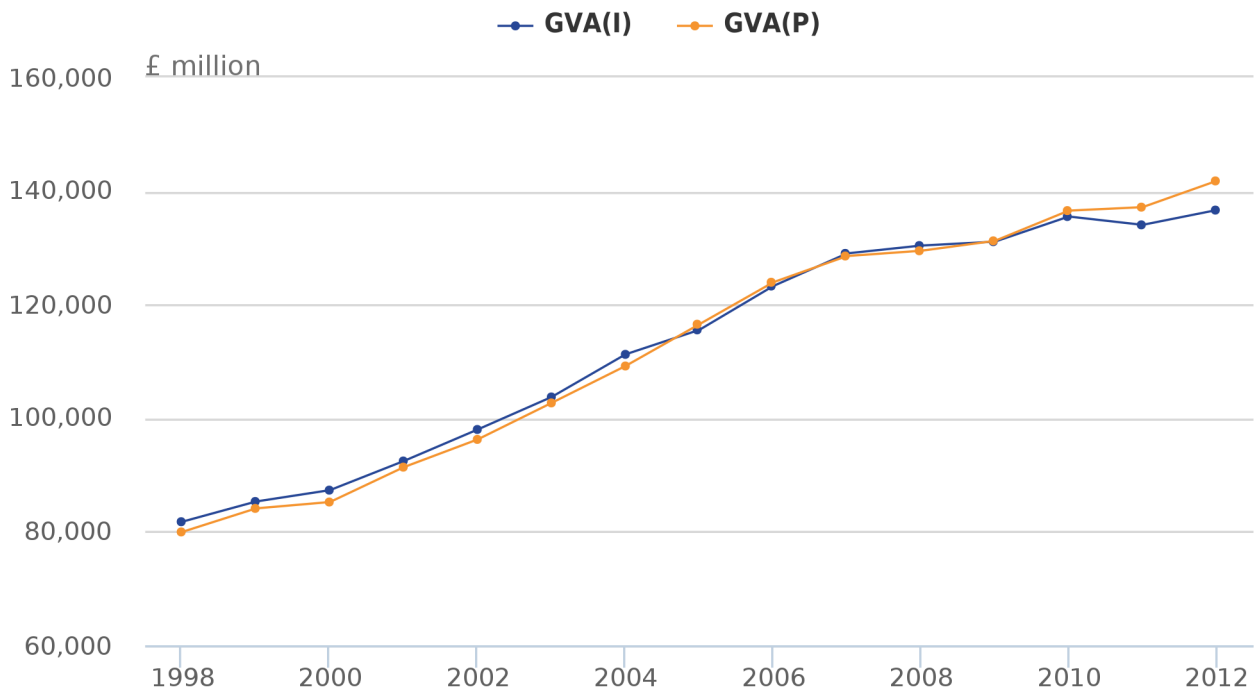
In the North East GVA(I) and GVA(P) were relatively similar throughout the period of comparison.

While the GVA(I) and GVA(P) current price aggregated series were relatively similar, at industry level there were sections which saw notable differences.

GVA(I) was higher than GVA(P) for all years except 2011 and 2012 for section A (agriculture, forestry and fishing), all years except 1998, 2000 and 2002 for section F (construction), and all years for section P (education).

This was offset by sections B (mining and quarrying), M (professional, scientific and technical activities) and R (arts, entertainment and recreation), where GVA(P) was higher than GVA(I) for all years.

**Figure 14: Comparison of GVA(I) and current price GVA(P), all industries totals for the North West, 1998 to 2012**



**Source: Office for National Statistics**

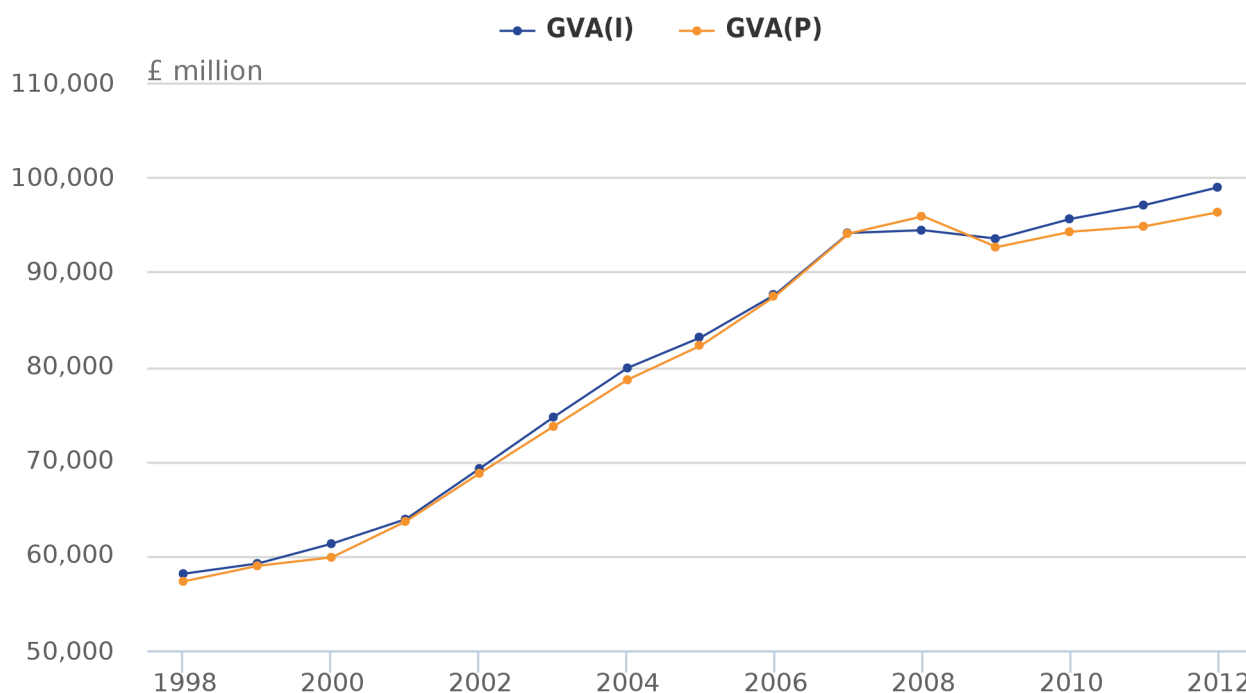
In the North West the GVA(P) and GVA(I) series were very similar throughout the period of comparison.

While the GVA(I) and GVA(P) current price aggregated series were relatively similar, at industry level there were sections which saw notable differences.

Within sections H (transportation and storage) and P (education), the GVA(I) series was higher than GVA(P) for all years.

However, these were offset by sections B (mining and quarrying), O (public administration and defence; compulsory social security) and R (arts, entertainment and recreation), in which the GVA(P) series was higher than GVA(I) for all years.

**Figure 15: Comparison of GVA(I) and current price GVA(P), all industries totals for Yorkshire and The Humber, 1998 to 2012**



**Source: Office for National Statistics**

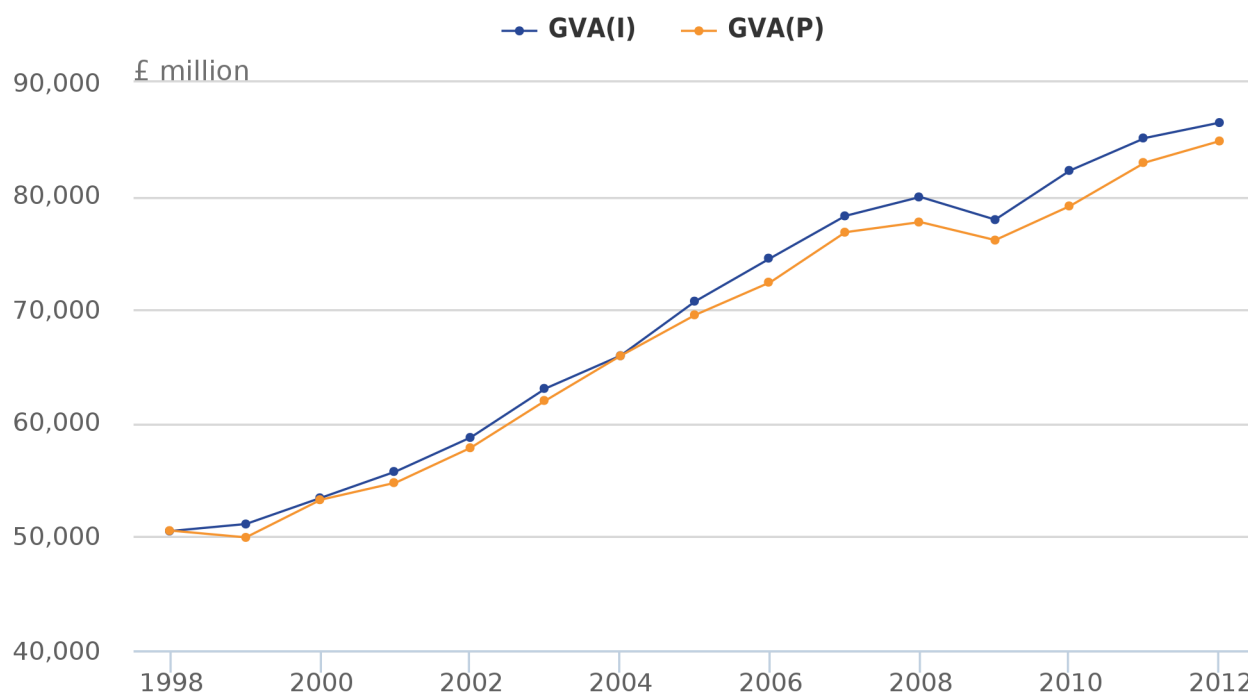
In Yorkshire and The Humber the GVA(P) and GVA(I) series were similar throughout the period of comparison.

While the GVA(I) and GVA(P) current price aggregated series were relatively similar, at industry level there were sections which saw notable differences.

Within sections E (water supply; sewerage and waste management) and L (real estate activities), the GVA(I) series was higher than or equal to GVA(P) for all years.

However, these were offset by section B (mining and quarrying), in which the GVA(P) series was higher than GVA(I) for all years.

**Figure 16: Comparison of GVA(I) and current price GVA(P), all industries totals for the East Midlands, 1998 to 2012**



**Source: Office for National Statistics**

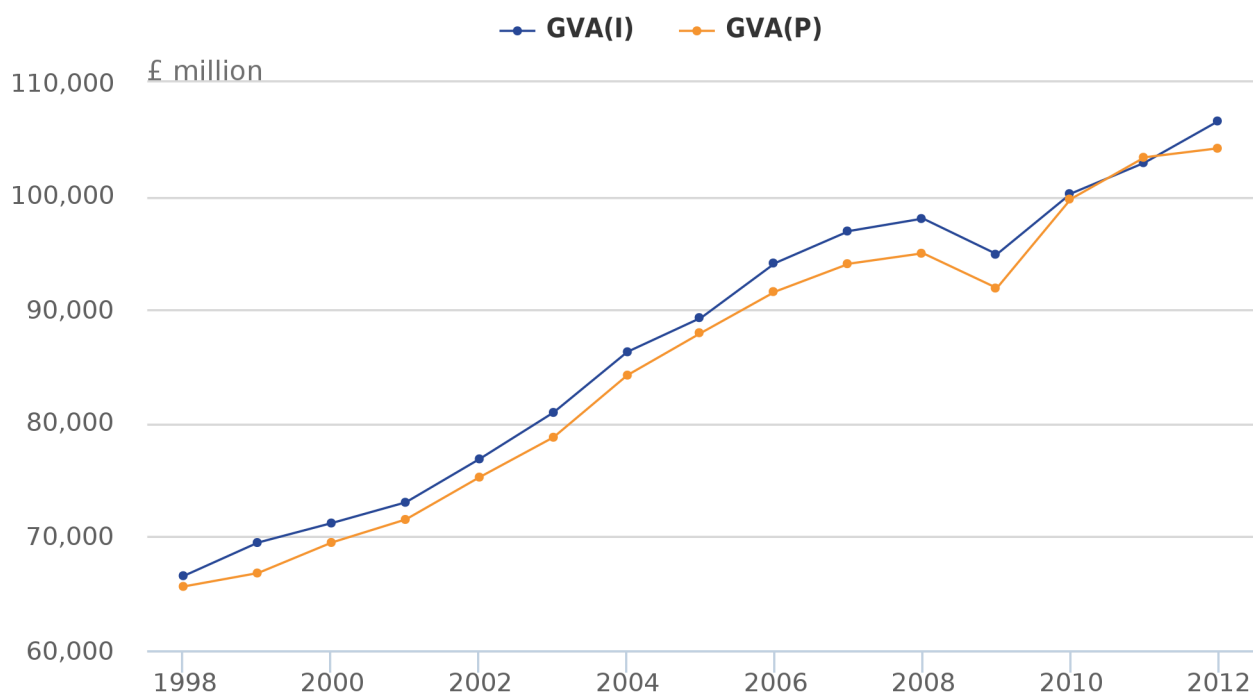
In the East Midlands GVA(I) was slightly higher than GVA(P) throughout the period of comparison. This can be seen within the following industries.

GVA(I) was higher than GVA(P) for all years in sections G (wholesale and retail trade; repair of motor vehicles), J (information and communication) and L (real estate activities).

GVA(I) was also higher than or equal to GVA(P) in section I (accommodation and food service activities), for all years except 2012.

However, GVA(P) was higher than GVA(I) for all years in sections B (mining and quarrying) and C (manufacturing).

**Figure 17: Comparison of GVA(I) and current price GVA(P), all industries totals for the West Midlands, 1998 to 2012**



**Source: Office for National Statistics**

In the West Midlands, throughout most of the period of comparison GVA(I) was higher than GVA(P). The difference was mainly due to the following industries.

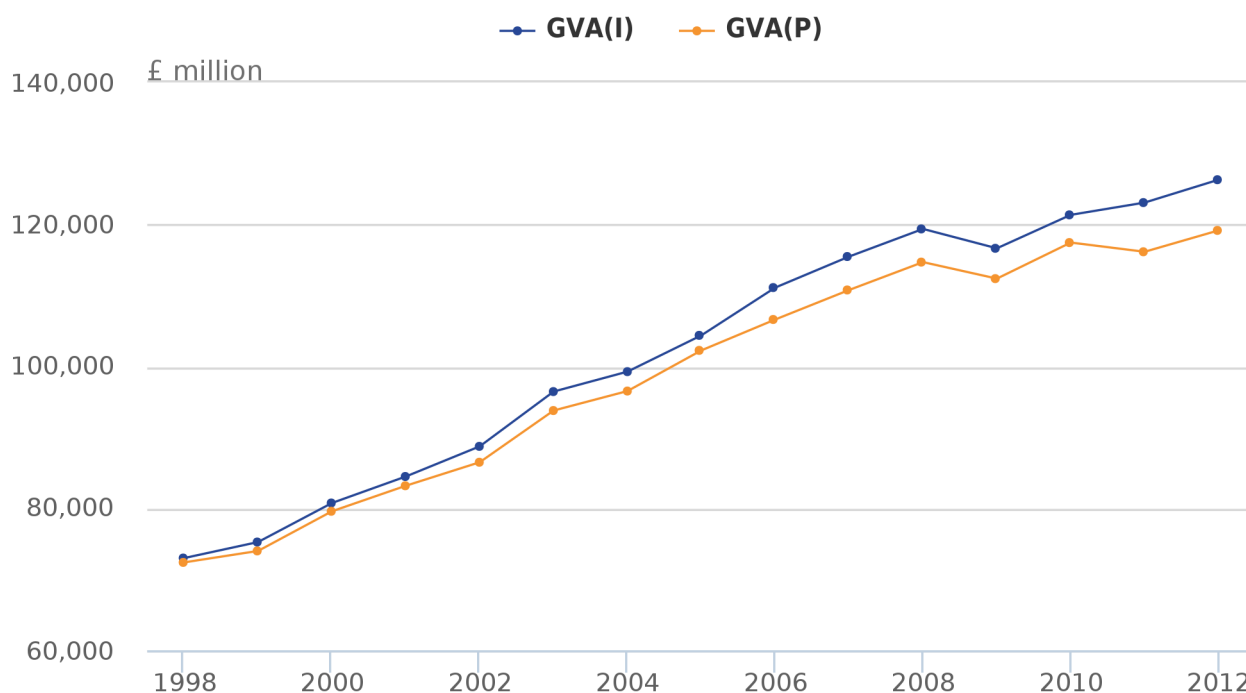
In section H (transportation and storage) GVA(I) was higher than GVA(P) in all years.

In section G (wholesale and retail trade; repair of motor vehicles) GVA(I) was higher than GVA(P) in all years except 2011.

In section P (education) GVA(I) was higher than GVA(P) in all years except 2010 and 2011.

However, GVA(P) was higher than GVA(I) in section O (public administration and defence; compulsory social security) for all years, and in section B (mining and quarrying) for all years except 2000 and 2009.

**Figure 18: Comparison of GVA(I) and current price GVA(P), all industries totals for the East of England, 1998 to 2012**



**Source: Office for National Statistics**

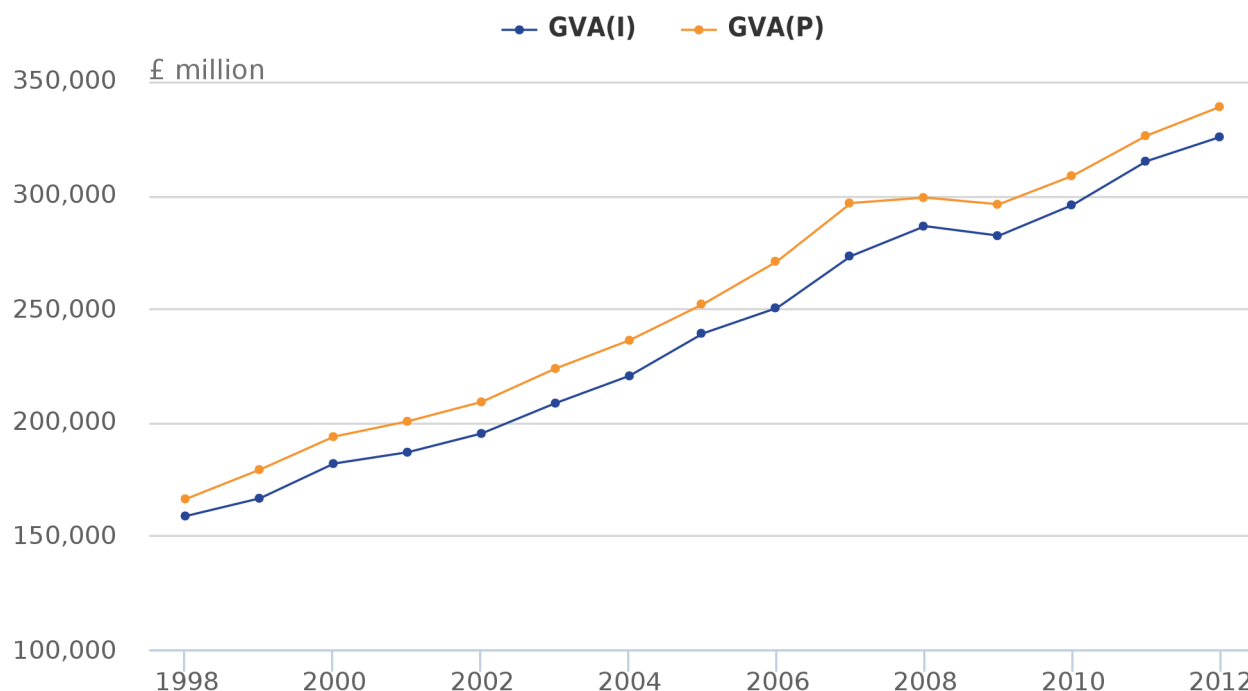
In the East of England GVA(I) was marginally higher than GVA(P) throughout the period of comparison. The difference increased in later years.

For all years the following industry sections saw GVA(I) higher than GVA(P):

- J (information and communication), except in 1998
- L (real estate activities)
- M (professional, scientific and technical activities)
- N (administrative and support service activities)

However, in section B (mining and quarrying) GVA(P) was the higher measure from the year 2000 onwards.

**Figure 19: Comparison of GVA(I) and current price GVA(P), all industries totals for London, 1998 to 2012**



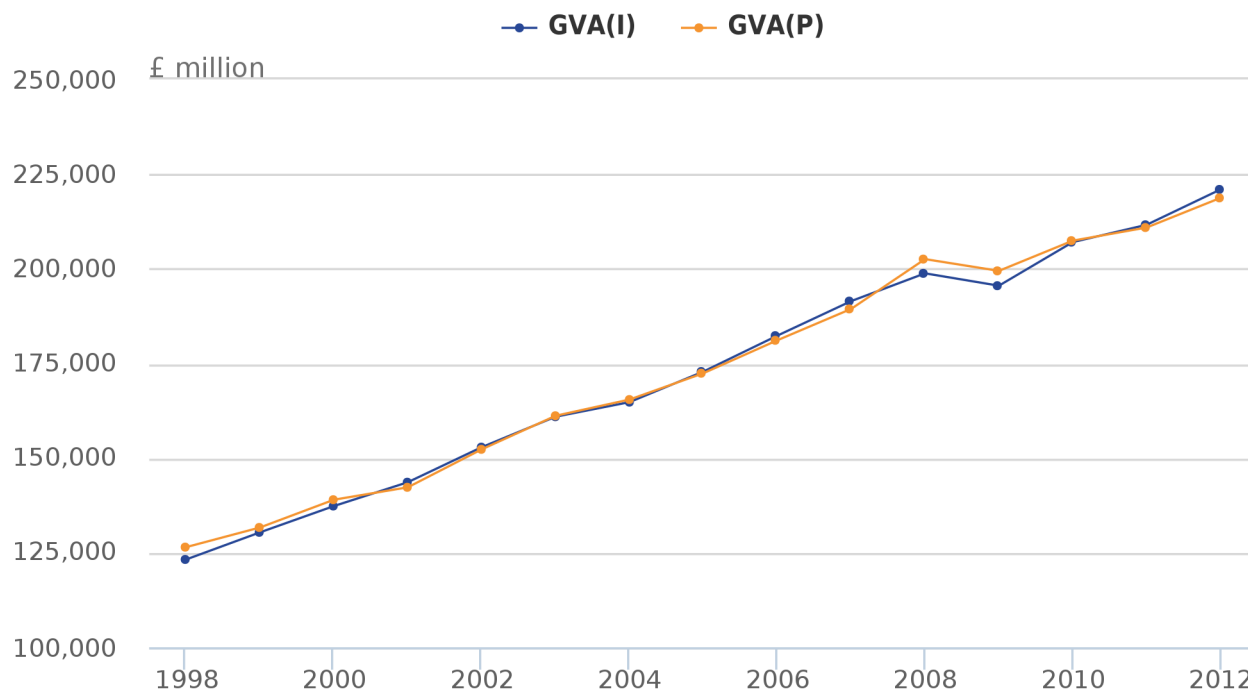
**Source: Office for National Statistics**

In London GVA(P) was noticeably higher than GVA(I) for all years. This was due to GVA(P) being higher than GVA(I) in the following industry sections:

- G (wholesale and retail trade; repair of motor vehicles), from 1998 to 2010
- H (transportation and storage)
- J (information and communication)
- L (real estate activities)
- M (professional, scientific and technical activities)
- N (administrative and support service activities)
- P (education)
- S (other service activities)

However, GVA(I) was higher than GVA (P) in sections B (mining and quarrying), C (manufacturing) and R (arts, entertainment and recreation).

**Figure 20: Comparison of GVA(I) and current price GVA(P), all industries totals for the South East, 1998 to 2012**



**Source: Office for National Statistics**

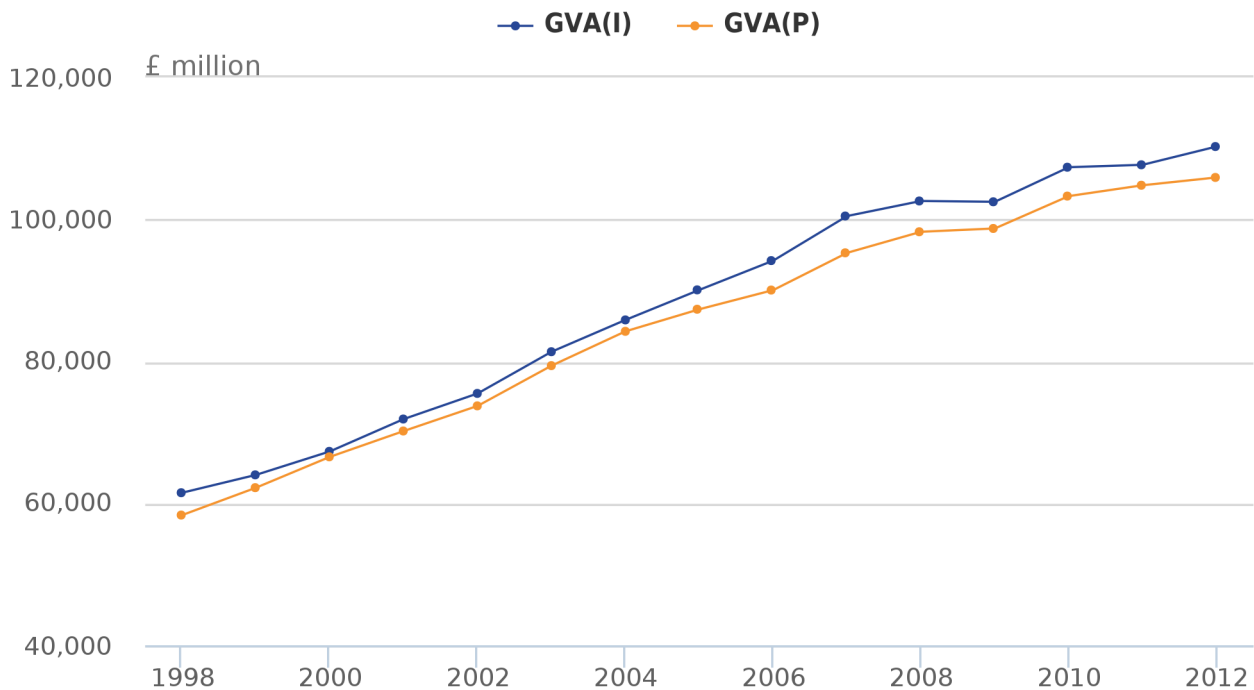
In the South East the two measures were very similar. However, at industry level some differences were observed.

GVA(P) was higher than GVA(I) for all years in the following industry sections:

- G (wholesale and retail trade; repair of motor vehicles)
- H (transportation and storage)
- P (education)

However, GVA(I) was higher in all years for section B (mining and quarrying) and in all years except 1998 and 2010 for section O (public administration and defence; compulsory social security).

**Figure 21: Comparison of GVA(I) and current price GVA(P), all industries totals for the South West, 1998 to 2012**



**Source: Office for National Statistics**

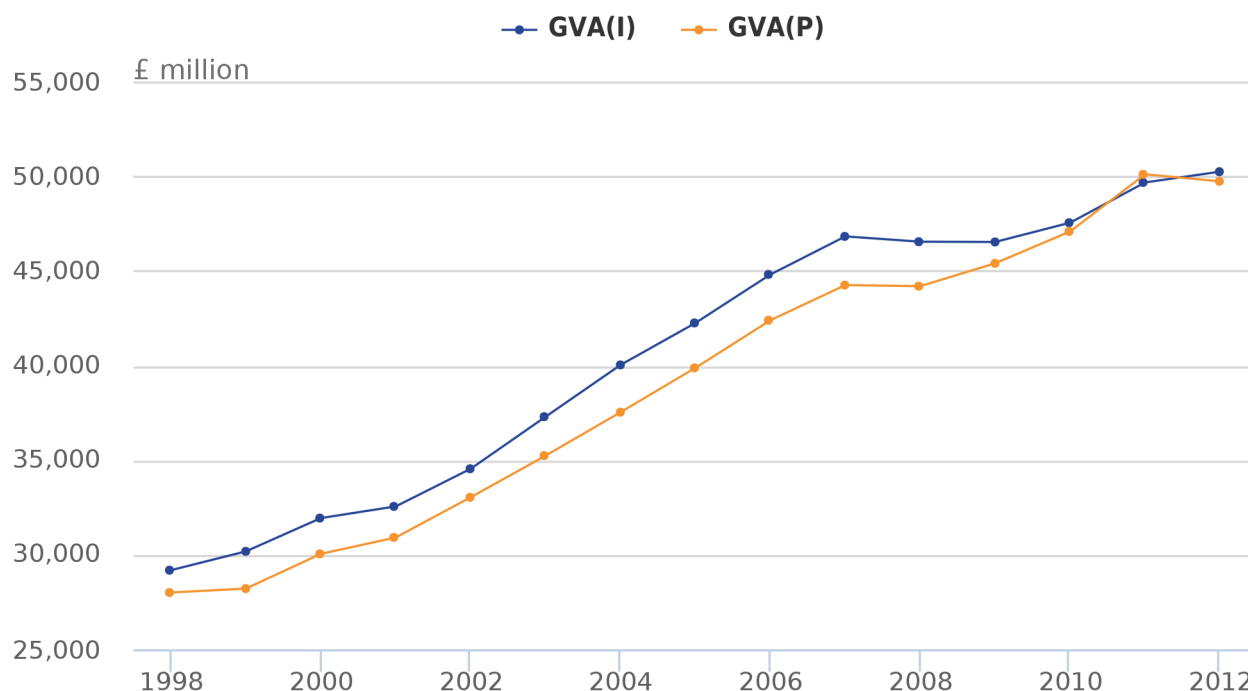
In the South West GVA(I) was higher than GVA(P) across the entire time series.

GVA(I) was notably higher than GVA(P) in the following industry sections:

- G (wholesale and retail trade; repair of motor vehicles)
- H (transportation and storage), except in 1999 and 2000
- J (information and communication)
- L (real estate activities), except in 2000, 2011 and 2012
- O (public administration and defence; compulsory social security)
- R (arts, entertainment and recreation)
- S (other service activities)

However, the GVA(P) series was higher than GVA(I) in all years for section P (education) and in all years except 1999 for section B (mining and quarrying).

**Figure 22: Comparison of GVA(I) and current price GVA(P), all industries totals for Wales, 1998 to 2012**



**Source: Office for National Statistics**

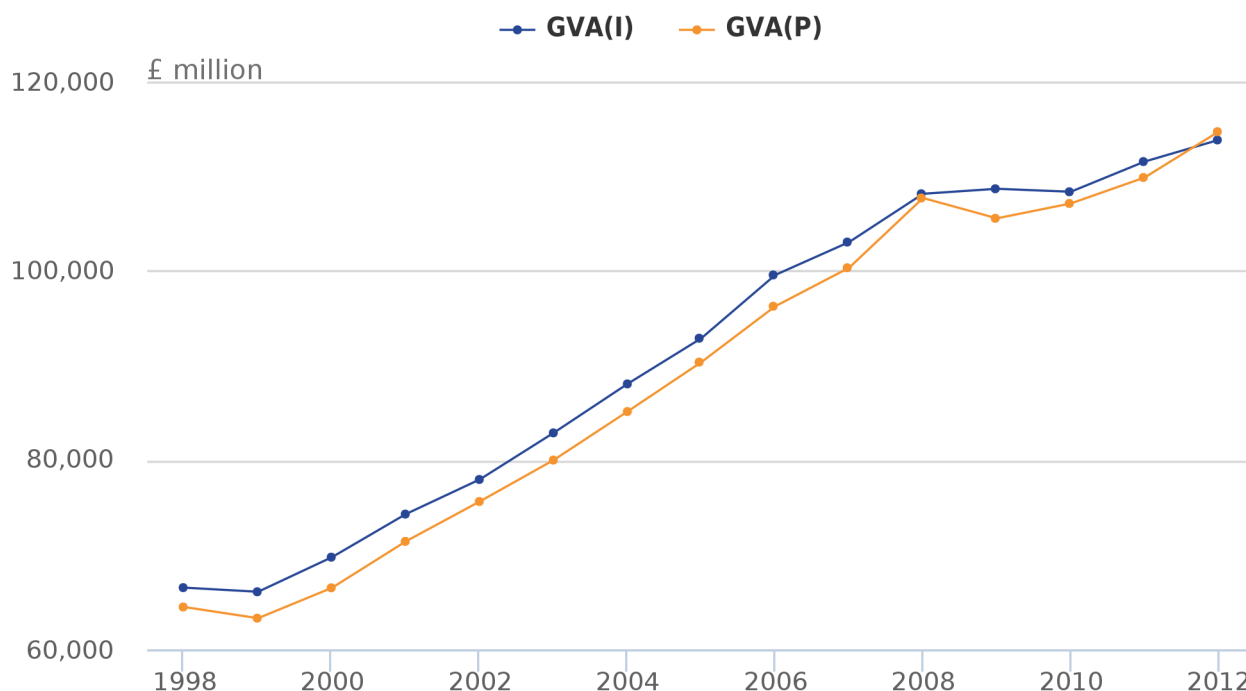
In Wales GVA(P) was lower than GVA(I) until 2010. This was due to GVA(I) being higher than GVA(P) for all years in the following industry sections:

- F (construction)
- G (wholesale and retail trade; repair of motor vehicles), except in 2011
- J (information and communication), except in 2011
- L (real estate activities)
- N (administrative and support service activities), except in 1998
- P (education)

However, GVA(P) was higher throughout in sections B (mining and quarrying) and O (public administration and defence; compulsory social security).

Due to the difference between GVA(I) and GVA(P) current price series for Wales, users are advised to refer also to constant price series produced by Welsh Government when considering the use of the experimental GVA(P) constant price data. These are established constant price series, which are quarterly estimates and are therefore more current than annual regional GVA(P) estimates. Welsh Government (in conjunction with the ONS) produces quarterly 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, and are designated as National Statistics. They can be found at: [Indices of production and construction](#) and [Index of market services](#).

**Figure 23: Comparison of GVA(I) and current price GVA(P), all industries totals for Scotland, 1998 to 2012**



**Source: Office for National Statistics**

In Scotland, throughout the period of comparison GVA(I) was slightly higher than GVA(P) in all years except 2012.

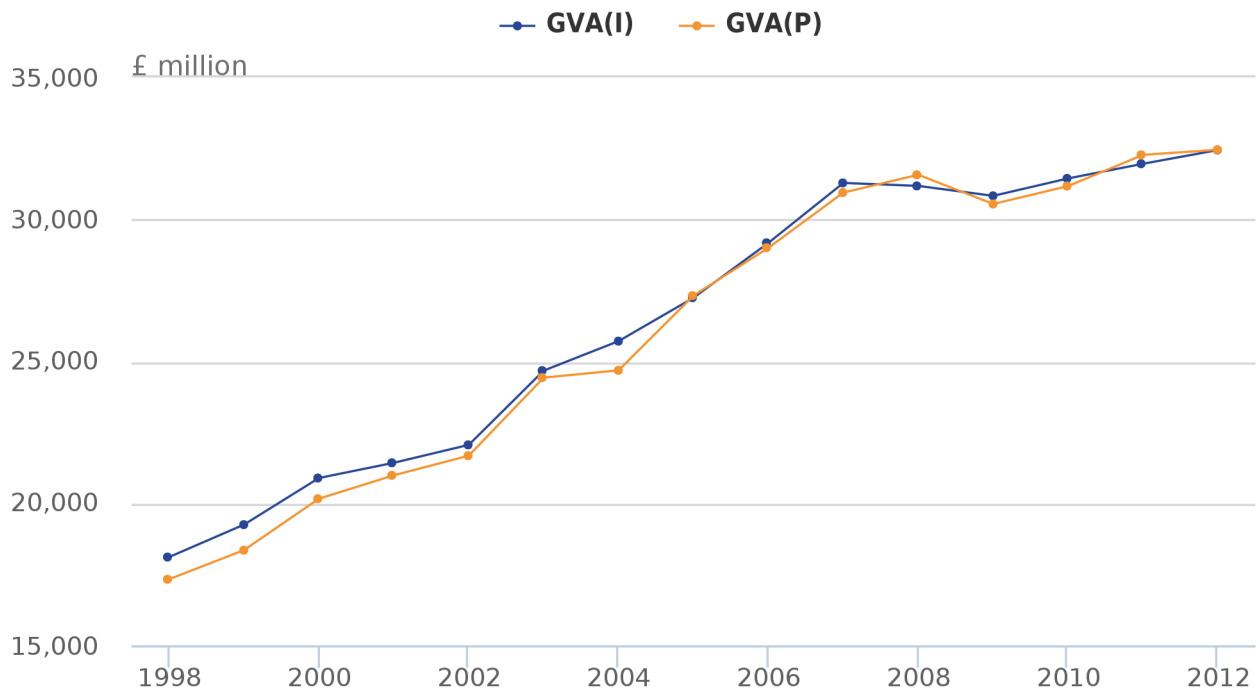
The following industry sections all saw higher GVA(I) than GVA(P) for all years:

- B (mining and quarrying)
- F (construction)
- L (real estate activities)
- P (education)

However, for section A (agriculture, forestry and fishing) GVA(P) was higher than GVA(I) in all years.

Due to the difference between GVA(I) and GVA(P) current price series for Scotland, users are advised to refer also to constant price series produced by Scottish Government when considering the use of the experimental GVA(P) constant price data. These are established constant price series, which are quarterly estimates and are therefore more current than annual regional GVA(P) estimates. [Gross Domestic Product \(GDP\) for Scotland](#) – chained volume measures of GVA at basic prices are produced by Scottish Government. This release uses similar sources and methods to ONS UK GDP at basic prices and is designated a National Statistic.

**Figure 24: Comparison of GVA(I) and current price GVA(P), all industries totals for Northern Ireland, 1998 to 2012**



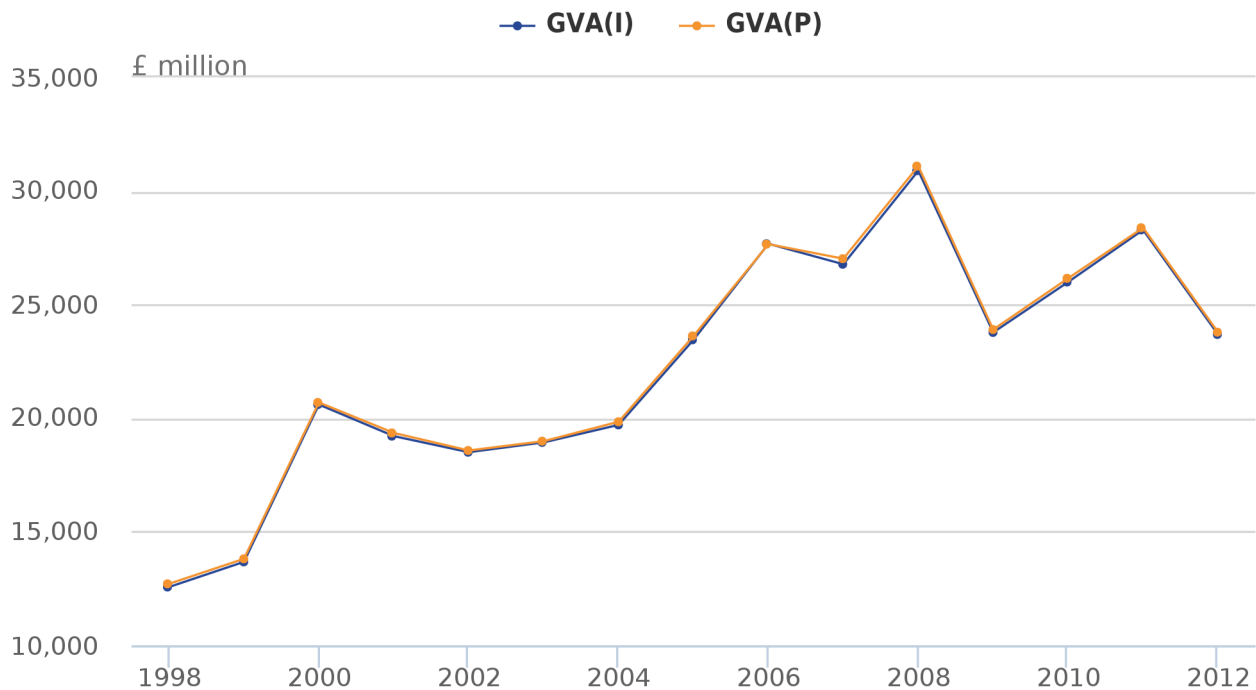
**Source: Office for National Statistics**

In Northern Ireland the two measures were very similar, but at industry level differences could be observed. GVA (I) was higher than GVA(P) in all years except 1998 for section N (administrative and support service activities), and in all years for sections O (public administration and defence; compulsory social security) and P (education).

GVA(P) was higher than GVA(I) in all years except 1999 for section B (mining and quarrying), and in all years for section F (construction).

Due to the difference between GVA(I) and GVA(P) current price series for Northern Ireland, users are advised to refer also to constant price series produced by the Northern Ireland Statistics and Research Agency when considering the use of the experimental GVA(P) constant price data. These are constant price series, which are quarterly estimates and therefore more current than annual regional GVA(P) estimates. 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.

**Figure 25: Comparison of GVA(I) and current price GVA(P), all industries totals for Extra Regio, 1998 to 2012**



**Source: Office for National Statistics**

For the Extra-Regio part of the economy (background note 1) the two measures were almost identical across all years.

The very small differences seen in some years are the result of the different data sources used to allocate research and development activities in industry section B (mining and quarrying) under the income and production approaches.

## 9. Future plans

- In December 2014 we will deliver estimates of real GVA(P) growth to Eurostat in accordance with a legal requirement that requires EU Member States to provide real measures (with the effect of inflation removed) of annual regional GVA
- We plan to publish experimental estimates of regional real Gross Value Added Production Approach (GVA(P)) for 1998 to 2013 in December 2015
- We plan to publish estimates of regional Gross Value Added Income Approach (GVA(I)) for 1997 to 2014 in December 2015
- We plan to publish estimates of regional Gross Disposable Household Income (GDHI) for the period 1997 to 2013 in spring 2015
- Changes in NUTS boundaries arising from the 2013 NUTS review will become active in January 2015. These changes will be implemented in the regional GDHI publication scheduled for spring 2015, and the regional GVA(I) and GVA(P) publications scheduled for December 2015
- During 2015-16 we aim to develop a balancing process, similar in principle to that used to balance the three measures of UK GDP. This will make use of the strengths of both GVA(I) and GVA(P) measures to produce a single balanced measure of regional GVA
- The Data Explorer project will improve access to Regional Accounts data on our website and offer greater facility for users to customise datasets

## 10. 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 estimates are compiled at two levels of NUTS geography:
  - NUTS1: Wales, Scotland, Northern Ireland and the nine English regions
  - NUTS2: 37 areas – mainly groups of counties and unitary authorities; can be referred to as sub-regions

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

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 local authority boundaries for instance, have needed to go through a formal process of application to the EU. Any changes are 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. The contribution of UK embassies abroad, UK forces stationed overseas and activities taking place on the continental shelf (North Sea oil and gas extraction) are treated as 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 \(311.3 Kb Pdf\)](#) 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. 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, the closest corresponding GVA(I) data are used 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).

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' and 'Recent methodological changes' sections of this bulletin for more details) should suitable input price indices become available.

### **Publication policy**

6. Details of the policy governing the release of new data are available by visiting [www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html](http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html) or from the Media Relations Office email: [media.relations@ons.gsi.gov.uk](mailto:media.relations@ons.gsi.gov.uk)