

Statistical bulletin

Regional gross value added (balanced), UK: 1998 to 2016

Annual estimates of economic activity by UK country, region and local area using balanced regional gross value added (GVA(B)). Estimates are available in current basic prices and in chained volume measures. Experimental Statistics.

Contact:
Trevor Fenton
regionalaccounts@ons.gov.uk
+44 (0) 1633 456083

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1 . Main points

- This is the first time the Office for National Statistics (ONS) has released a “balanced estimate” of regional gross value added (GVA(B)); this “balances” the income and production approaches to measuring the economy into a single estimate at a regional level; we believe the UK is the first country to produce a balanced measure of regional GVA.
- This publication has included the use of Value Added Tax (VAT) returns in the compilation of balanced regional GVA estimates for 2016; the first ONS publication to use VAT returns.
- In 2016, GVA for the UK, in chained volume measures, increased by 1.6%; the highest annual “real” growth of NUTS1 areas was in London at 3.0% and the lowest annual growth was in the North East at negative 1.0%.
- GVA for the UK in current basic prices grew by 3.7% between 2015 and 2016; the highest annual nominal growth of NUTS1 areas was in London at 5.1% and the lowest annual growth was in the North East at 1.2%.
- At the NUTS1 level, in 2016, London had the highest GVA per head, in current basic prices, at £46,482 while Wales had the lowest at £19,140.
- In 2016, in current basic prices, all capital cities showed strong growth, with the highest increase in Cardiff at 5.7%, closely followed by London, at 5.1%; Edinburgh has increased by 4.6% while the lowest growth was seen in Belfast at 2.3%.
- In 2016, in current basic prices, all combined authorities have increased, with the strongest growth in the West of England at 5.5%; the lowest growth was in Tees Valley at 0.1%.
- At the NUTS3 level, in terms of GVA per head, the highest growth was in Hounslow and Richmond upon Thames at 8.2%, while the lowest growth was in Darlington at negative 2.5%.
- At the NUTS3 level, in 2016, Camden and City of London had the highest GVA per head, in current basic prices, at £318,673 while the Isle of Anglesey had the lowest at £13,655; both extremes are highly affected by commuting flows.

2 . Things you need to know about this release

Balanced gross value added

Historically we have produced estimates of regional gross value added (GVA) using the income approach (as National Statistics) and the production approach (as Experimental Statistics). In this publication, we have taken the strengths from both approaches and used them to produce a new balanced measure of regional GVA, GVA (B). This will give users a single measure of economic activity within a region, therefore avoiding any confusion from having two different estimates of the same thing.

During summer 2017, a public consultation was conducted regarding the development of a balanced measure of GVA. The [consultation documents](#), along with [our response](#) have been published. Details on the methodology used to produce GVA(B) are included in the paper [Development of a balanced measure of regional gross value added](#).

As a result, individual bulletins for [gross value added income](#) (GVA(I)), and [gross value added production](#) (GVA (P)) have been discontinued. However, we are continuing to produce and publish the individual datasets for GVA (I) and GVA(P) to allow users access to the data in their unbalanced form.

What is gross value added?

Gross value added (GVA) is a measure of the increase in the value of the economy due to the production of goods and services. For the balanced measure, GVA(B), it is measured at current basic prices (value in £ million), which include the effect of inflation, and in “real” terms in chained volume measures (CVM), with the effect of inflation removed.

The CVM are presented as indices referenced to 2015 equals 100 and are consistent with the [UK National Accounts, The Blue Book: 2017](#).

GVA plus taxes (less subsidies) on products is equivalent to gross domestic product (GDP).

For GVA(I), it is measured at current basic prices, which include the effect of inflation, excluding taxes (less subsidies) on products (for example, Value Added Tax). This involves adding up the income generated by UK resident individuals or corporations in the production of goods and services. It is calculated gross of deductions for consumption of fixed capital, which is the amount of fixed assets used up in the process of production in any period.

For GVA(P), GVA is measured at both current prices and in chained volume measures (CVM). It 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 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 that can be broken down into price and volume indices.

These estimates are consistent with the [UK National Accounts, The Blue Book: 2017](#). National aggregates for the components of GVA are allocated to regions using the most appropriate regional indicator available.

Geographic levels for gross value added estimates

GVA estimates in this bulletin are available at three geographic levels, in accordance with the [Nomenclature of Units for Territorial Statistics \(NUTS\) classification](#) that came into force on 1 January 2015. NUTS provides a single uniform breakdown for the production of regional statistics for the EU. In the UK the areas are:

- NUTS1: Wales, Scotland, Northern Ireland and the nine English regions
- NUTS2: 40 sub-regions – mainly groups of counties and unitary authorities
- NUTS3: 173 local areas – principally individual counties and unitary authorities
- the term Extra-Regio is applied to economic activity that cannot be assigned to any specific region within a country

Further information can be found in chapter 1 of the [Regional accounts methodology guide \(PDF, 615.48KB\)](#).

Gross value added (GVA) per head

The GVA(B) estimates presented in this bulletin are compiled on a workplace basis (allocated to the location where the economic activity takes place). GVA per head of population is a useful way of comparing regions of different size and is an important indicator for both domestic and European policy purposes. Total GVA(B) estimates in millions of pounds sterling (£ million) are divided by the total resident population of a region (including the economically inactive) to give GVA per head in pounds sterling (£). While GVA per head can be a useful way of comparing regions of different size, comparisons can be affected by commuting flows into or out of the region. They should therefore be used with caution.

Experimental Statistics

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 to involve users and stakeholders in their development and to build in quality at an early stage.

3 . Wales was the fastest growing country in the UK in 2016

UK gross value added (GVA), in chained volume measures, was estimated to have increased by 1.6% in 2016. Between 2015 and 2016, Wales increased by 1.9%, the highest increase of the four countries in the UK. Northern Ireland had the lowest growth between 2015 and 2016, at 1.1%, while England and Scotland grew by 1.6% and 1.2% respectively.

Table 1: Summary of gross value added (GVA) statistics for the NUTS1 countries and regions, 2016 ^{1,2}

NUTS1 countries and regions	Population ³	Total GVA (£ million) ⁴	Annual growth in total GVA (%) ⁴	Annual growth in 'real' GVA (%) ⁵	GVA per head (£) ^{1,6}	Annual growth in GVA per head (%) ⁶
UK	65,648,054	1,747,647	3.7	1.6	26,339	2.8
England	55,268,067	1,498,221	3.7	1.6	27,108	2.8
North East	2,636,848	50,675	1.2	-1.0	19,218	0.7
North West	7,219,623	166,542	3.5	1.3	23,068	2.9
Yorkshire and The Humber	5,425,741	112,194	2.1	0.0	20,678	1.4
East Midlands	4,724,437	100,087	3.1	0.8	21,185	2.1
West Midlands	5,800,734	126,589	3.9	1.8	21,823	3.0
East of England	6,130,542	147,382	3.9	1.6	24,041	3.0
London	8,787,892	408,479	5.1	3.0	46,482	3.7
South East	9,026,297	258,902	2.8	0.8	28,683	1.9
South West	5,515,953	127,372	4.1	2.0	23,091	3.3
Wales	3,113,150	59,585	4.0	1.9	19,140	3.5
Scotland	5,404,700	134,038	3.0	1.2	24,800	2.4
Northern Ireland	1,862,137	37,237	3.4	1.1	19,997	2.8
Extra-Regio ⁷	n/a	18,565	9.1	1.1	n/a	n/a

Source: Office for National Statistics

Notes:

1. Figures may not sum due to rounding in totals; per head (£) figures are rounded to the nearest pound sterling.
2. 2016 estimates are provisional.
3. Population estimates are sourced from Population Estimates for UK.
4. GVA(B) in current prices.
5. GVA(B) in chained volume measures.
6. Per head figures exclude Extra-Regio: the off-shore contribution to GVA that cannot be assigned to any region.
7. n/a equals not applicable

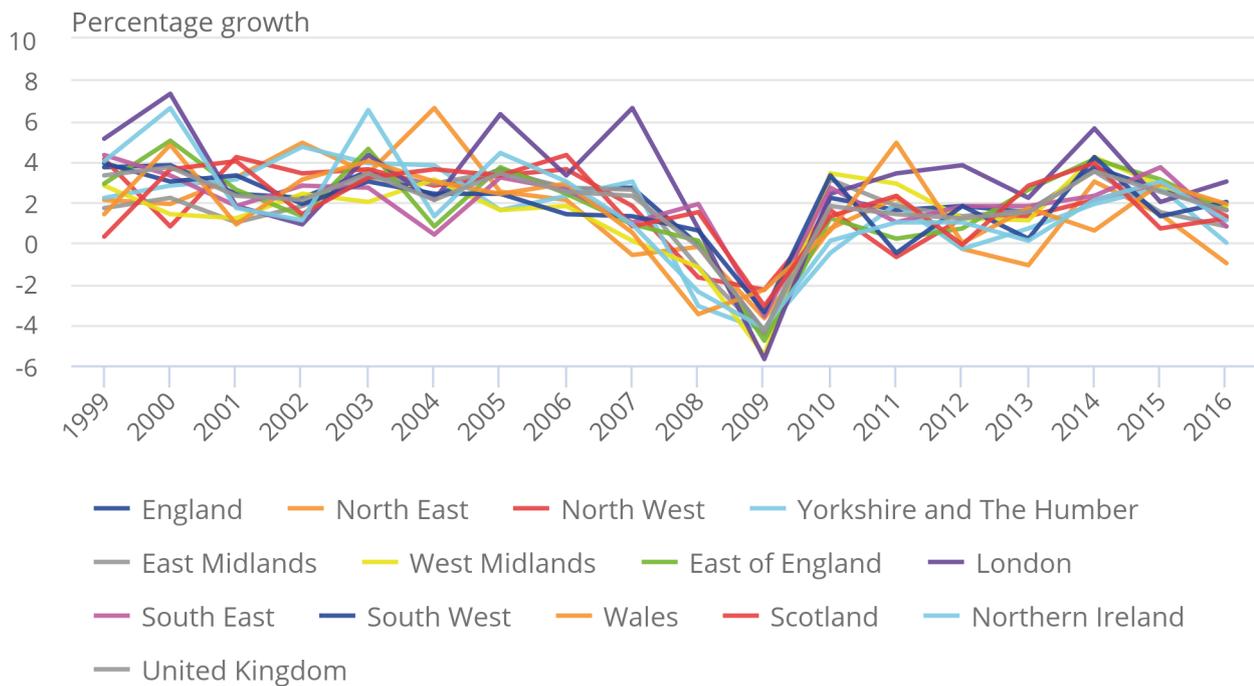
Table 1 shows that in 2016, GVA(B) in chained volume measures increased in all NUTS1 countries and regions with the exception of the North East, which fell by 1.0%, and Yorkshire and the Humber, which remained flat. In 2016, in the North East, there was a decrease in telecommunications (negative 17.9%) and public administration and defence (negative 4.5%).

In 2016, there were increases in GVA(B) in all NUTS1 countries and regions at current basic prices; the highest growth was in London (5.1%) and the lowest growth was in the North East (1.2%).

Figure 1 shows the annual rate of “real” growth in regional GVA(B) in chained volume measures for each NUTS1 country and region across the period 1999 to 2016. Select the region names to toggle the lines on and off.

Figure 1: Growth in the balanced measure of “real” gross value added¹ in NUTS1 countries and regions, 1999 to 2016

Figure 1: Growth in the balanced measure of “real” gross value added¹ in NUTS1 countries and regions, 1999 to 2016



Source: Office for National Statistics

Notes:

- GVA(B) in chained volume measures.

London was the fastest growing NUTS1 region in 2016 at 3.0%, in chained volume measures. Looking at the industrial composition of London for industry groupings, in chained volume measures, financial service activities (7.5%), retail trade (3.6%) and human health activities (2.6%) all performed strongly between 2015 and 2016.

In 2016, at total UK industry level, there were strong increases in GVA(B), in chained volume measures, in head offices and management consultancy (14.5%), programming and broadcasting activities (14.5%) and computer programming and consultancy (11.2%).

Between 2015 and 2016, in chained volume measures, all NUTS1 countries and regions experienced positive growth in head offices and management consultancy, with the North West showing the strongest growth at 22.3%. The slowest growth of 1.7% was in Wales.

In 2016, in chained volume measures, programming and broadcasting activities saw strong growth in all NUTS1 countries and regions, except for the North West (negative 15.3%) and Northern Ireland (negative 17.0%). The fastest growing region was the South West at 55.4%.

There were increases in all NUTS1 countries and regions in computer programming and consultancy, except for the East Midlands (negative 1.8%). The strongest growth was in the North East at 24.5%.

Between 2015 and 2016, at total UK industry level, GVA(B) in chained volume measures also saw strong growth in households as employers and own use production (18.1%), activities of membership organisations (14.0%) and scientific research and development (12.7%). However, as these are smaller industries it should be noted that they have minimal impact on total GVA.

Table 2 shows information for the UK capital cities for 2016; London is a NUTS1 region, Edinburgh is a NUTS3 local area and Cardiff and Belfast are local authority districts. Note that Belfast also appears at the NUTS3 level, but the local authority is a more current administrative geography (and will become the NUTS3 local area from next year). More data at each of these levels can be found in the tables published with this bulletin on 20 December 2017. Real measures are only available at NUTS1 and NUTS2 levels.

Table 2: Summary of gross value added (GVA)¹ statistics for the UK capital cities, 2016^{2,3}

	Population ⁴	Total GVA (£ million) ¹	Annual growth in total GVA (%) ¹	GVA per head (£) ^{2,5}	Annual growth in GVA per head (%) ⁵
London	8,787,892	408,479	5.1	46,482	3.7
Cardiff	361,468	9,933	5.7	27,480	4.5
Edinburgh	507,170	19,942	4.6	39,321	2.9
Belfast	339,579	10,866	2.3	31,999	2.1

Source: Office for National Statistics

Notes:

1. GVA in current prices.
2. Figures may not sum due to rounding in totals; per head (£) figures are rounded to the nearest pound sterling.
3. 2016 estimates are provisional.
4. Population estimates are sourced from Population Estimates for UK.
5. Per head figures exclude Extra-Region: the off-shore contribution to GVA that cannot be assigned to any region.

In 2016, in current basic prices, all capital cities showed strong growth, with the highest increase in Cardiff at 5.7%. Cardiff was closely followed by London, which increased by 5.1%. Edinburgh increased by 4.6% while the lowest growth was seen in Belfast at 2.3%.

At the capital cities level, London had the largest GVA per head at £46,482 while Cardiff had the lowest GVA per head at £27,480. However, Cardiff saw the strongest growth in GVA per head in 2016 at 4.5%.

4 . Focus on combined authorities

Over the past few years, the UK government has granted devolved powers to nine combined authority areas in addition to the longer-standing Greater London Authority. In 2010, the government established a Greater Manchester Combined Authority as an indirectly elected strategic authority for Greater Manchester. In 2014, indirectly elected combined authorities were established for the metropolitan counties of South Yorkshire, called the Sheffield City Region Combined Authority, and West Yorkshire.

Also in 2014, two combined authorities were established that each covered a metropolitan county and adjacent non-metropolitan districts: the Liverpool City Region Combined Authority for Merseyside and the Borough of Halton unitary authority, and the North East Combined Authority for Tyne and Wear and the unitary authorities of County Durham and Northumberland. In 2016, a combined authority was formed for the metropolitan county of the West Midlands, so that all metropolitan counties are now covered by combined authorities.

The first combined authority that did not cover a metropolitan county was Tees Valley, formed in 2016. It covered the area of the former county of Cleveland (now four unitary authorities in the ceremonial counties of Durham and North Yorkshire), together with the unitary authority of Darlington. Two further combined authorities were formed in 2017: West of England, comprising Bristol and two of the three adjacent unitary authorities in Gloucestershire and Somerset, and Cambridgeshire and Peterborough.

Some of these combined authorities cover areas that match the existing Nomenclature of Units for Territorial Statistics (NUTS) regions and sub-regions. The Greater London Authority matches the London NUTS1 region. The combined authorities of Greater Manchester, West Midlands, Sheffield City Region, and West Yorkshire all match NUTS2 sub-regions. Since a boundary change incorporated the Borough of Halton into Merseyside, the Liverpool City Region now also matches a NUTS2 sub-region. Three of the remaining four combined authorities can be constructed from whole NUTS3 areas, and estimates for the West of England can be built from local authority data. Real measures are only available at NUTS1 and NUTS2 levels.

Table 3 shows summary statistics for each of the UK combined authorities for 2016. Between 2015 and 2016, in current basic prices, the fastest growth of 5.5% was in the West of England while the slowest growth of 0.1% was in Tees Valley.

At the combined authority level, Greater London had the largest gross value added (GVA) per head at £46,482 while Sheffield City Region had the lowest at £17,888. The strongest growth in GVA per head in 2016 was in the West of England at 4.3%

Table 3: Summary of gross value added (GVA) statistics for UK combined authorities, 2016 ^{1,2}

Name of combined authority	Population ³	Total GVA (£ million) ⁴	Annual growth in total GVA (%) ⁴	Annual growth in 'real' GVA (%) ^{5,6}	GVA per head (£) ¹	Annual growth in GVA per head (%) ¹
Greater London	8,787,892	408,479	5.1	3.0	46,482	3.7
West Midlands	2,864,925	61,012	3.6	1.3	21,296	2.4
Greater Manchester	2,782,141	63,673	4.2	2.3	22,886	3.2
West Yorkshire	2,299,673	50,766	2.3	0.2	22,075	1.5
North East	1,966,902	37,871	1.5	n/a	19,254	1.0
Liverpool City Region	1,533,350	30,858	1.6	-0.5	20,125	1.0
Sheffield City Region	1,384,969	24,775	1.9	-0.1	17,888	1.1
West of England	919,587	28,390	5.5	n/a	30,872	4.3
Cambridgeshire and Peterborough	849,035	23,743	4.1	n/a	27,965	3.2
Tees Valley	669,946	12,803	0.1	n/a	19,111	-0.2

Source: Office for National Statistics

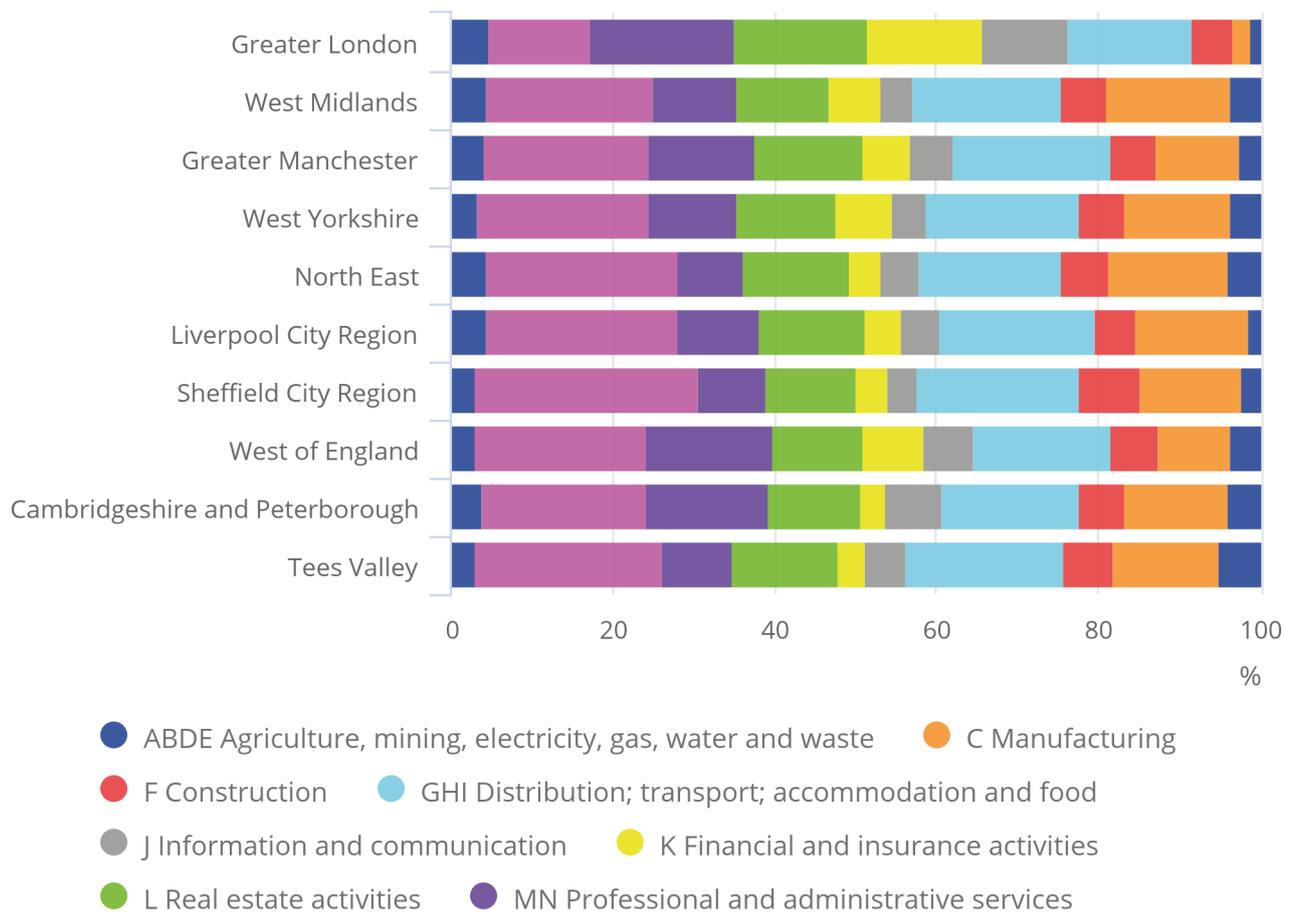
Notes:

1. Data for all NUTS3 local areas are included in tables 1 to 5 in dataset titled Nominal regional GVA(B) per head and income components.
2. 2016 estimates are provisional.
3. Population estimates are sourced from Population Estimates for UK.
4. GVA in current prices.
5. GVA in chained volume measures.
6. n/a equals data not available.

Figure 2 shows the industrial composition of total GVA for each of the UK combined authorities in 2016. London typically has a large proportion of total GVA in the finance industry.

Figure 2: Industrial variation in total gross value added (GVA) for UK combined authorities, 2016

Figure 2: Industrial variation in total gross value added (GVA) for UK combined authorities, 2016



Source: Office for National Statistics

5 . London dominates top five NUTS3 regions

In accordance with the Nomenclature of Units for Territorial Statistics (NUTS) classification, the 10 NUTS3 local areas with the highest gross value added (GVA) per head and the 10 areas with the lowest GVA per head in 2016 are shown in Table 4.

Table 4: Top 10 and bottom 10 NUTS3 local areas¹ by gross value added (GVA)² per head, 2016^{3,4}

NUTS3 local areas	GVA per head (£) 3,5	Annual growth in GVA per head (%) ³	Population ⁶	Total GVA (£m) ²	Annual growth in total GVA (%) ²
United Kingdom	26,339	2.8	65,648,054	1,747,647	3.7
Top ten GVA per head					
Camden and City of London	318,673	6.3	255,582	81,447	8.7
Westminster	238,506	3.4	247,614	59,057	5.7
Tower Hamlets	91,378	-2.2	304,854	27,857	1.0
Kensington & Chelsea and Hammersmith & Fulham	68,675	3.7	336,380	23,101	3.4
Haringey and Islington	46,880	2.4	511,316	23,971	4.6
Milton Keynes	46,780	7.1	264,479	12,372	8.2
Hounslow and Richmond upon Thames	43,463	8.2	466,985	20,297	9.0
Berkshire	41,685	3.3	896,823	37,384	4.1
Edinburgh, City of	39,321	2.9	507,170	19,942	4.6
Belfast	35,791	1.9	285,689	10,225	2.1
Bottom ten GVA per head					
Northumberland	16,140	2.2	316,002	5,100	2.4
Lancaster and Wyre	16,083	-2.3	253,778	4,081	-1.6
Sefton	15,730	1.8	274,261	4,314	2.0
Dudley	15,597	1.5	317,634	4,954	1.9
North of Northern Ireland	15,488	2.2	293,667	4,548	2.6
East Ayrshire and North Ayrshire mainland	15,376	1.7	252,230	3,878	1.7
Wirral	15,237	2.1	321,238	4,895	2.2
Torbay	14,888	-0.2	133,883	1,993	0.2
Gwent Valleys	14,759	4.3	342,142	5,050	4.5
Isle of Anglesey	13,655	2.8	69,723	952	2.4

Source: Office for National Statistics

Notes:

1. Data for all NUTS3 local areas are included in reference tables 1 to 5, in dataset titled Nominal regional GVA(B) per head and income components.

2. GVA at current basic prices on workplace basis.

3. Figures may not sum due to rounding in totals; per head (£) figures are rounded to the nearest pound.

4. 2016 estimates are provisional.

5. Per head figures exclude Extra-Regio: the off-shore contribution to GVA that cannot be assigned to any region.

6. Population estimates are sourced from Population Estimates for UK.

When ordered by GVA per head in 2016, all the top 10 NUTS3 local areas were in the London, South East, Scotland or Northern Ireland NUTS1 areas, the top five of which were in London. The bottom 10 local areas were spread across many countries and regions.

Please note that while GVA per head can be a useful way of comparing regions of different size, it is not such a good indicator for those areas with high net in- or out-commuting. This is because it compares a workplace measure of economic output (GVA), which includes the contribution of in-commuters, with a residence-based denominator (population). For such areas it is advisable to refer to [ONS sub-regional productivity](#) data for a direct measure of economic performance.

GVA per head increased in 157 of the 173 NUTS3 local areas between 2015 and 2016. The largest percentage increases were in:

- Hounslow and Richmond upon Thames (London), 8.2%
- Milton Keynes (South East region), 7.1%
- Falkirk (Scotland), 6.5%

GVA per head decreased in 16 local areas. The largest decreases were in:

- Darlington (North East region), negative 2.5%
- Lancaster and Wyre (North West region), negative 2.3%
- Tower Hamlets (London), negative 2.2%

Figure 3 shows how gross value added (GVA) per head has varied across NUTS3 local areas in the years 1998 to 2016.

Figure 3: Gross value added (GVA) per head for NUTS3 local areas, 1998 to 2016

6 . Links to related statistics

Regional and sub-regional productivity

Gross value added (GVA) per head can be a useful way of comparing regions of different sizes. This is particularly the case where there are no large net commuting effects, when GVA per head can act as a good proxy for measures of economic performance such as productivity. However, it is not such a good proxy for those areas with high net in- or out-commuting. This is because it compares a workplace measure of economic output (GVA), which includes the contribution of in-commuters, with a residence-based denominator (population). For such areas, it is advisable to refer to Office for National Statistics (ONS) productivity data for a direct measure of economic performance. ONS estimates of regional and sub-regional productivity, based on the GVA(B) data in this publication, will follow in a subsequent ONS bulletin to be released on 5 January 2018.

Alternative regional volume measures publications

There are additional regional volume measures publications produced by the devolved administrations of the UK. These are all quarterly estimates and are therefore more current than annual regional GVA(B) estimates. These additional publications are detailed in this section.

[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. Scottish Government publishes several economic measures as part of the [Scottish National Accounts Programme \(SNAP\)](#).

The [Northern Ireland Composite Economic Index \(NICEI\)](#) is an experimental quarterly measure of the performance of the Northern Ireland economy based on official statistics published by the Northern Ireland Statistics and Research Agency (NISRA). 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 [Northern Ireland Economic Accounts Project](#) has developed experimental supply and use tables for Northern Ireland.

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

We work with the devolved administrations through the Inter-Administration Committee (IAC) and its subsidiary the Devolved Economic Statistics Co-ordination group (DESC).

Alternative geographic breakdowns

The regional GVA(B) estimates in this bulletin are presented for NUTS1, NUTS2 and NUTS3 geographies, defined according to the European [Nomenclature of Units for Territorial Statistics \(NUTS\)](#).

We also publish GVA(B) estimates in current prices for local authority areas across the UK and from these we have constructed estimates for the local enterprise partnership (LEP) areas of England. All of these statistics are derived from and are consistent with the data in this bulletin.

Regional gross disposable household income

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

Estimates of [Regional GDHI by local authority in the UK](#) were published for the first time in May 2017. In spring 2018, we will publish data for all UK local authorities for 1997 to 2016, and just as we do for GVA, we will use these data to construct estimates for the LEP areas of England.

7 . What's changed in this release?

By far the greatest change introduced this year is the balanced measure of regional gross value added (GVA(B)) itself. Details of the methodology used to create the new balanced estimates can be found in the "Quality and methodology" section of this bulletin and in the paper [Development of a balanced measure of regional gross value added](#).

The production measure (GVA(P)) was previously a year behind the income measure (GVA(I)) owing to the lack of source data for the latest year. To produce balanced estimates for 2016, we have produced GVA(P) estimates for that year, otherwise an income-only estimate for the latest period may have led to erratic movements in the GVA(B) time series. We have used the annual growth in turnover between 2015 and 2016, as measured by the Value Added Tax (VAT) administrative data that we receive from HM Revenue and Customs, to project forward one year from the survey-based estimates for 2015. Turnover is a reasonable proxy for output and is also used in the quarterly measures of UK gross domestic product. This is the first Office for National Statistics (ONS) publication to make use of this new administrative data source.

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: ESA 2010](#), there have been changes made to the UK National Accounts measure of gross value added (GVA). These impact upon the regional GVA estimates in the form of different national totals for the various components of income, even where no explicit changes to the regional allocation have been needed.

Of these, a new approach for the treatment of private actual rentals brings consistency with the [methods for imputed rentals introduced in Blue Book 2016](#). It also removes the discontinuity in the current price data at 2010, which was due to an interim solution in place since Blue Book 2014. We have taken on an improved method for allocating owner-occupied imputed rental (OOIR) for privately-rented dwellings and have moved to a region-based data source that is consistent with the method used in Blue Book 2017.

In October 2015, housing associations were reclassified from the private sector to the public corporations sector with effect from 22 July 2008. This change was implemented in public sector finances in 2016 and in [Blue Book 2017](#) for the UK National Accounts, which was the earliest opportunity. To ensure consistency, this reclassification has been reflected in the regional GVA estimates. In November 2017, housing associations were reclassified again from the public corporations sector to the private sector with effect from November 2017. This will be incorporated in the UK National Accounts in due course, which has yet to be announced, and in the regional GVA estimates following this.

The UK National Accounts have included in [Blue Book 2017](#) a reclassification of the Light Dues charges from a provision of service to a tax on production. A regional indicator has been compiled using estimates on the tonnage at individual major ports and further work on the regionalising of minor ports will continue for the December 2018 publication.

A new tax, Police Service Agreement, which includes charges for providing policing services on the UK railways, has been included in the UK National Accounts in [Blue Book 2017](#). A regional indicator has been compiled using station usage, which is essentially the footfall at railway stations, obtained from the Office of Rail Regulation. Further work will be carried out to make use of crime statistics alongside station usage for the December 2018 publication.

We have carried out a re-conversion from Standard Industrial Classification (SIC) 2003 to SIC 2007 on the back series (periods 1998 to 2007) of the Annual Business Survey data, which is used to regionalise components in the gross value added income (GVA (I)) approach. By completing this conversion at a more detailed level of industrial disaggregation, we have been able to improve the quality of the data and bring the GVA(I) and gross value added production (GVA (P)) estimates closer together prior to balancing.

Following the first phase of the UK Statistics Authority's [Office for Statistics Regulation \(OSR\) assessment of regional GVA \(PDF, 308.97KB\)](#), one of the requirements was that we should review the current method for deflating regional estimates of imputed rent and plan to introduce a better method if the review determines this to be appropriate. We published a [response](#) and have implemented, within this bulletin, a set of new experimental price indices called the [Index of private housing rental prices \(IPHRP\)](#), which are currently available for the countries and regions of Great Britain.

However, there were some obstacles that we needed to overcome. The IPHRP does not yet include Northern Ireland, although work is underway to expand its coverage. The published price indices do not go back as far as the time series we wish to deflate (2005 as opposed to 1998), so some additional work was needed to provide a longer time series of prices. These issues have been addressed by using private rental data collected for the Consumer Prices Index (CPI) and Retail Price Index (RPI) in the past. Although the quality of these early data is lower than for more recent years, this has allowed us to complete our coverage of all regions in all years. We now have what we judge to be sufficiently good quality regional deflators for imputed rental.

To address a further requirement of the [assessment of regional GVA](#), a review is currently underway to investigate better methods for the regionalisation of the financial and insurance services industry. Although the review is still in progress, one initial improvement identified could be incorporated into this publication. Where employment had been used to regionalise parts of the industry in the production approach (GVA(P)), we have replaced this with compensation of employees (CoE) as the regional indicator, providing a better representation of the value contributed by each person working in the industry. Further improvements to the measurement of the finance industries will be introduced in December 2018.

8 . Future work plans

In the dataset that accompanies this bulletin we have provided estimates of balanced gross value added (GVA (B)) with a far more detailed industrial breakdown than we have ever provided before. This has been made possible by the additional reliability and stability that comes from combining the two existing measures into a single balanced estimate. All of this extra detail is available in both value and volume terms as well. For now, though, we have only been able to provide this extra detail for areas at the NUTS1 and NUTS2 levels of geography, defined according to the [European Nomenclature of Units for Territorial Statistics \(NUTS\)](#).

Next year we intend to expand upon this and provide additional industry detail for NUTS3 and local authority areas across the UK. These will also be made available in both value and volume terms. Because of the need to safeguard against the identification of individual company information, it is unlikely that these smaller areas will have the range of industries available for the larger areas, but we expect to be able to publish considerably greater detail than at present.

We have already published GVA(B) and [gross disposable household income \(GDHI\)](#) for local authorities in the UK. Further work in 2018 will consider the viability of disaggregating these data further using administrative data sources, which are now becoming available to us following enactment of the Digital Economy Act 2017. The idea is that if we can break the data down into small enough areas, we can then use these to construct estimates for any geographic area of interest to our users. Our ultimate ambition is to break the data down into output areas for GDHI and workplace zones (or data zones) for GVA. But how far we can go will depend upon both the quality of the data and the degree of aggregation needed to prevent disclosure of confidential information about individuals or companies.

Last year we published a [feasibility study on regional household final consumption expenditure \(HFCE\)](#). Producing this at a regional level would complete the suite of household accounts by measuring spending on consumer goods and services. It would also pave the way for a regional savings ratio. Further work has been carried out during 2017 to examine data sources and concepts, and we aim to publish an article and hopefully a first set of experimental estimates of regional HFCE for NUTS1 level countries and regions during 2018. If the development proves to be a success we will then move into regular production and publication from 2019, and will look to expand the geographic content to smaller areas.

Work has also been progressing on the development of quarterly output indicators for the nine English regions. Along with the existing quarterly indicators produced by the devolved administrations of Scotland, Wales and Northern Ireland, this will complete the coverage of the UK and provide users with timely indicators of economic growth at the NUTS1 level. The English region measures are planned to be revealed for public consultation during the spring or summer of 2018, with a view to a first live publication by the end of 2018.

Further details about our development programme and other related work going on to meet the growing need for regional statistics can be found in the article [Supporting devolution: developments in regional and local statistics](#).

9 . Quality and methodology

The regional [gross value added income \(GVA\(I\)\) Quality and Methodology Information](#) and [regional gross value added production \(GVA\(P\)\) Quality and Methodology Information](#) reports contain important information on:

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

Figures for 2016 are provisional as national estimates have not been through supply and use balancing at the time of this publication. Regional industry estimates for the components of income and production in 2016 have been calculated by applying growth in gross domestic product (output) industry figures and then constraining these to sum to the income and production component totals. The figures used in this process are consistent with those published in the [UK National Accounts, The Blue Book: 2017](#).

The statistical discrepancy shown in GVA(I) is the difference between the sum of the national income components and the definitive national estimate of GVA. For 2016, this national estimate is a simple average (mean) of the three measures, income, output and expenditure. For the balanced measure of GVA (GVA(B)), we have aligned to this average national total and have subsumed the statistical discrepancy, except where it is needed to maintain the additivity of the detailed income components.

We do not yet have a Quality and Methodology Information report for GVA(B), but in time we intend to replace the two existing reports with a single report incorporating the entire process and all component measures. Since the balancing process uses quality measures to assess the relative quality of the income and production estimates, we are able to share these as an indication of how good the two measures are before they are balanced, and therefore how good the balanced estimate might be. We have published the [aggregate quality metrics](#) that are used to inform the weighted arithmetic mean of the two estimates in balanced regional GVA.

Methodology

Various [guidance and methodology](#) documents relating to both regional GVA(I) and GVA(P) are available. The [Regional accounts methodology guide](#) provides an overview of the methodology used to compile regional accounts outputs. Quality and Methodology Information (QMI) reports are available, covering the relevance, accuracy, timeliness, accessibility and coherence of each of the regional accounts outputs. Other historical guidance, methodology and update documents are also available. After producing the balanced measure (GVA (B)), we will review the methodology guidance and produce an updated version during 2018.

Regional GVA(B) has been produced using a ground-breaking method. To the best of our knowledge nobody has ever done this before, using weighted quality metrics to inform an automated balancing process. The improvement in the reliability and stability of regional GVA estimates underpins an expansion in the level of industrial detail for which we can provide estimates. As a by-product of this development, we have also improved by one year the timeliness of our provision of “real” GVA indices with the effect of price inflation removed. Further details on the methods used to produce GVA(B) are included in the paper [Development of a balanced measure of regional gross value added](#).

Regional GVA(B) is a workplace-based measure. The GVA(I) and GVA(P) estimates that feed into it 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. For GVA(I), similarly to GVA(P), regional proportions are used to allocate the UK total for each industry, but in this case for the income components of GVA and for a reduced set of aggregated industries.

The balanced GVA estimates use a matrix of paired quality metrics for each region, by industry, by year. These quality metrics are compiled by assessing the quality of each component that feeds into either of the two measures and multiplying it by the weight that component represents in the GVA estimate. They provide a simple way to compare the relative quality of the GVA(I) and GVA(P) estimates. The two quality metrics are used to calculate a weighted arithmetic mean of the income and production estimates to produce a single regional GVA estimate. The UK totals are consistent with the [UK National Accounts, The Blue Book: 2017](#).

Constant price GVA(B) 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 UK National Accounts Blue Book 2017 and they are used because no regional price indices are currently available (see the section “What’s changed in this release?” for details of the recent addition of regional housing rental prices). The Eurostat Manual on Regional Accounts (2013) 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.

Once deflation has taken place, the resulting time series are constrained so that they sum to the corresponding national figures in constant prices. In this way we ensure that the regional estimates take account of the expenditure-based deflation that occurs nationally, rather than rely solely on output-based deflation, which can produce a different trend over time. The current price and constant price estimates are both used to aggregate industries together to produce chained volume measures (CVM), which are presented as indices referenced to 2015 equals 100.

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 mostly on national prices, but they do reflect regional differences in the products contributing to GVA. We have included an extra table presenting these implied deflators in the [datasets](#) published with this bulletin.

Revisions

There are no revisions to regional GVA(B) estimates in this statistical bulletin as this is the first time GVA(B) estimates have been published. Revisions to the GVA(I) and GVA(P) estimates that underpin the GVA(B) estimates cover the period 1997 to 2015 and 1998 to 2014 respectively.

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

The main reasons for revisions to the GVA(I) and GVA(P) estimates are detailed in section 7 “What’s changed in this release?”

We have published revisions triangles for [GVA\(I\)](#) and GVA(P):

- [Revisions triangles constrained index of real gross value added \(production approach\) by Standard Industrial Classification \(SIC\) 2007 industry \(chained volume measures\)](#)
- [Revisions triangles gross value added \(production approach\) by SIC 2007 industry in current basic prices](#)
- [Revisions triangles regional gross value added \(production approach\) implied deflators](#)