

Statistical bulletin

# Index of Services, UK: August 2015

Monthly movements in output for the services industries: distribution, hotels and restaurants; transport, storage and communication; business services and finance; and government and other services.



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## Notice

### 29 November 2016

Following a quality review, a processing error has been identified in the compilation of the estimates for the rail transport industry (49.1-2), which affects the period Quarter 1 1997 to Quarter 2 2016. In line with the National Accounts revision policy, this error will be corrected in the Index of Services and Quarterly National Accounts due for publication on 23rd December 2016 for data from Quarter 1 2015 and in the Blue Book 2017 consistent releases for data prior to this period. The average impact over this period on quarter-on-quarter Index of Services and GDP growth is 0.00%. This processing error does not impact quarter on quarter growth into Quarter 3 2016.

# Table of contents

1. [Main points](#)
2. [Understanding the Index of Services \(IoS\)](#)
3. [Main information](#)
4. [Economic background](#)
5. [GDP impact and components](#)
6. [Component analysis](#)
7. [Industry spotlight: Advertising and market research](#)
8. [Background notes](#)

# 1 . Main points

- This release of data is consistent with the Gross Domestic Product Preliminary Estimate Quarter 3 (July to Sep) 2015 released on 27 October 2015
- The Index of Services is estimated to have increased by 2.8% in August 2015 compared with August 2014. All of the 4 main components of the services industries increased in the most recent month compared with the same month a year ago
- The largest contributions came from: business services and finance, which contributed 1.4 percentage points to total growth; and distribution, hotels and restaurants, which contributed 0.7 percentage points to total growth
- The latest Index of Services estimates show that output was flat between July 2015 and August 2015, following an increase of 0.2% between June 2015 and July 2015
- The figures within this release are estimates and are on a seasonally adjusted basis. The earliest period open for revision in this release is July 2015

## 2 . Understanding the Index of Services (IoS)

### About the IoS

The monthly IoS provides a timely indicator of growth in the output of the services industries. The IoS is an important economic indicator and shares exactly the same industry coverage as the corresponding quarterly series within UK [gross domestic product](#) (GDP). The primary purpose of the IoS is to produce a short-term measure of the output of the services industries within the UK economy and show the monthly movements in the gross value added (GVA) of the service industries ([2007 Standard Industrial Classification](#) (SIC 2007) sections G to T).

The 4 main components of the services industries are:

- distribution, hotels and restaurants
- transport, storage and communication
- business services and finance
- government and other services

The IoS is the largest contributor to the output approach to the measurement of GDP, accounting for 78.6% of UK GDP in 2012.

All data in this bulletin are seasonally adjusted estimates and have had the effect of price changes removed (in other words, the data are deflated). Further information on some of the main concepts (including seasonal adjustment and deflation) underlying the estimates can be found in background note 11.

## The quality of the IoS

The IoS is published around 8 weeks after the end of the reference month. There is no simple way of measuring the accuracy of the IoS, that is, the extent to which the estimate measures the underlying “true” value of the output growth (of the services industries) in the UK for a particular period. All estimates, by definition, are subject to statistical uncertainty and for many well-established statistics the Office for National Statistics (ONS) measures and publishes the sampling error associated with the estimate, using this as an indicator of accuracy. However, as IoS is constructed from a wide variety of data sources, some of which are not based on random samples, we don’t publish a measure of the sampling error associated with the IoS.

Reliability is one dimension of measuring accuracy, using evidence from analyses of revisions to assess the closeness of early estimates to subsequent estimated values. Revisions are an inevitable consequence of the trade-off between timeliness and accuracy. Figures for the most recent months are provisional and subject to revision in light of:

- late responses to surveys and administrative sources
- forecasts being replaced by actual data
- revisions to seasonal adjustment factors, which are re-estimated every month and reviewed annually

Revisions to the IoS are typically small (around 0.1 to 0.2 percentage points), with the frequency of upward and downward revisions broadly equal. More information on the most recent revisions analysis can be found in the component analysis section and in background note 11.

It should be noted that care should be taken when using the month-on-month growth rates, due to their volatility (background note 10).

Further information on the quality of the IoS is available in the [Quality of the IoS \(29 Kb Pdf\)](#) report on the [Index of Services Methods](#) page on our website. It should be noted that as part of the IoS [industry review](#) process, we are continually working on methodological changes to improve the accuracy of the IoS.

## 3 . Main information

**Table 1: Index of Services main information, August 2015**

	Percentage change				
	Index number (2012=100)	Most recent month on a year earlier	Most recent 3 months on a year earlier	Most recent month on previous month	Most recent 3 months on previous 3 months
Index of services	109.3	2.8	2.9	0.0	0.9

Source: Office for National Statistics

The Index of Services (IoS) measures the quantity of output from all UK services industries, which account for more than three-quarters of the [output approach to the measurement of gross domestic product](#). Index values are presently referenced to 2012 so that the average for 2012 is equal to 100. Therefore, an index value of 110 would indicate that output is 10% higher than the average for 2012.

As seen in Figure 1, the IoS increased by 2.8% in August 2015 compared with August 2014. In order of their contribution to growth (listed in reference table IOS1):

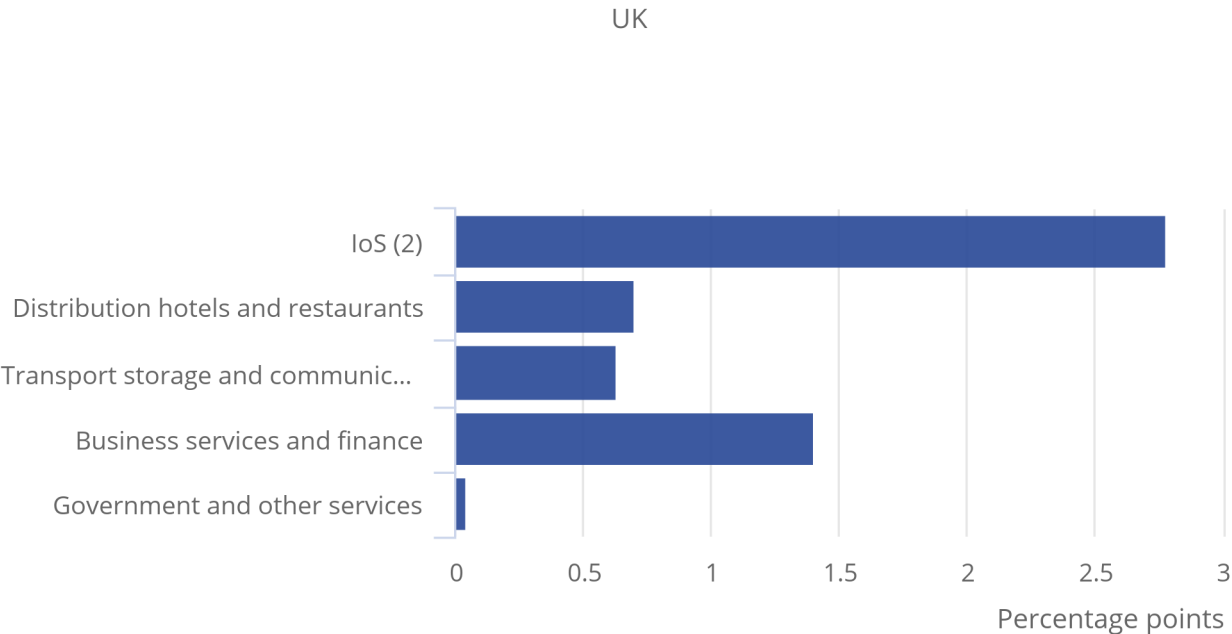
- 1. business services and finance increased by 3.5%
- 2. distribution, hotels and restaurants increased by 3.9%
- 3. transport, storage and communication increased by 4.7%
- 4. government and other services increased by 0.1%

Further detail on these movements can be found in the component analysis section.

**Figure 1: IoS contributions (1) to the month-on-month a year ago percentage change, August 2015**

UK

Figure 1: IoS contributions (1) to the month-on-month a year ago percentage change, August 2015



Source: Office for National Statistics

Notes:

- 1. Individual contributions may not sum to the total due to rounding
- 2. Percentage change

Between July 2015 and August 2015, as seen in Figure 2, IoS output was flat.

Out of the 4 main components of the services industries, 2 increased in the most recent month compared with the previous month. In order of their contribution to growth (listed in reference table IOS1):

- 1. business services and finance increased by 0.2%
- 2. transport, storage and communication increased by 0.2%

In contrast, distribution, hotels and restaurants decreased by 0.4%, while government and other services decreased by 0.1%.

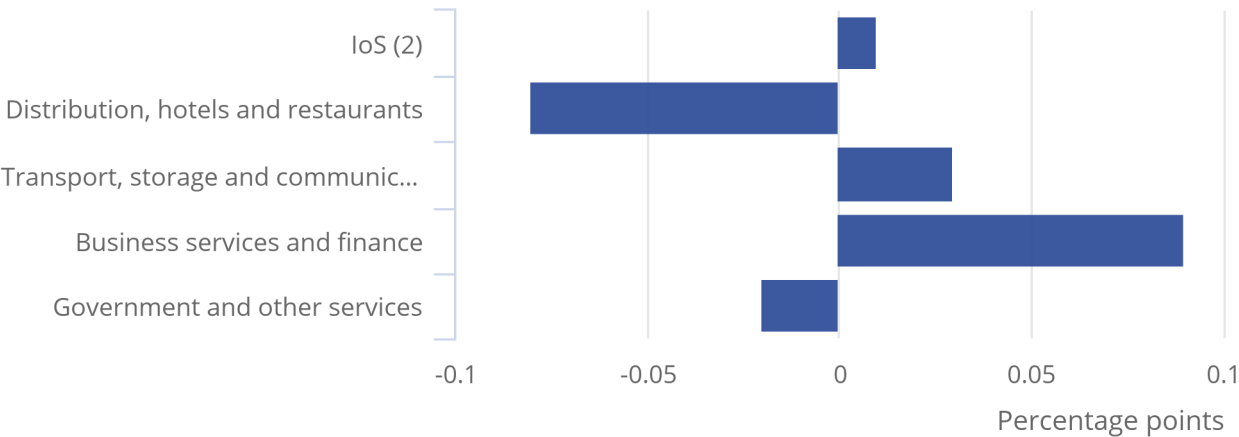
More detail on individual components can be found in the IOSCOMP tables in the data section of this bulletin. The tables also provide information on the growth for the 3 months ending in August 2015 compared with the previous 3 months and compared with the 3 months ending August 2014.

Figure 2: IoS contributions (1) to the month-on-month percentage change, August 2015

UK

Figure 2: IoS contributions (1) to the month-on-month percentage change, August 2015

UK



Source: Office for National Statistics

Notes:

- 1. Individual contributions may not sum to the total due to rounding
- 2. Percentage change

## 4 . Economic background

Output in the services industries grew by 2.8% between August 2014 and August 2015 but was broadly unchanged between July 2015 and August 2015.

Since 1997, the services industries as a whole have grown at a faster rate than all other headline industries. While GDP has grown at a compound average annual growth rate of 2.0% since 1997, services have grown at a compound average growth rate of 2.8% per year (more information can be found in [Gross Domestic Product: Preliminary Estimate - Quarter 3 \(July to Sep\) 2015](#)). This has led to a continuing re-orientation of the economy towards services, despite productivity in the services industries as a whole rising more slowly than in the production industries (and manufacturing in particular) since 1997 (more information can be found in [Labour Productivity, Quarter 2 \(Apr to June\) 2015](#)). The higher output growth, therefore, reflects the increasing share of the labour force employed in services, which has grown from 73% to 79% between 1997 and 2014 ( [Labour Market Statistics, October 2015](#), reference table EMP13).

In addition to strong long-run growth, the services industries as a whole were also less affected by the downturn in 2008 than other industries, such as production and construction, and subsequently recovered more quickly. Relatively strong growth in the services industries has provided the largest contribution to the recovery in the whole economy and has been the only headline industry grouping to have surpassed its pre-downturn peak levels (more information can be found in [Gross Domestic Product: Preliminary Estimate - Quarter 3 \(July to Sep\) 2015](#)).

Even though the services industries as a whole have been performing better than all other headline industries, the growth within the services' sub-components has been quite varied. Figure 3 shows that between 1997 and 2014, transport, storage and communications, and business services and finance grew faster than the services industries as a whole at compound average growth rates of 3.7% and 3.8% per year respectively, while services grew at a compound average growth rate of 2.8% per year over the same period. However, government and other services, and distribution, hotels and restaurants grew at a slower rate than the services industries as a whole (1.7% and 1.8% per year respectively) between 1997 and 2014.

The economy's downturn, Quarter 1 (Jan to Mar) 2008 to Quarter 2 (Apr to June) 2009, impacted the 4 sub-components of the services industries to a different degree. Distribution, hotels and restaurants, and transport, storage and communications were affected the most, with their output falling by 9.1% and 7.5% respectively, while the output of the services industries as a whole contracted by 4.1% over the same period. Business services and finance, and government and other services were impacted less severely, with their output contracting by 3.5% and 0.1% respectively.

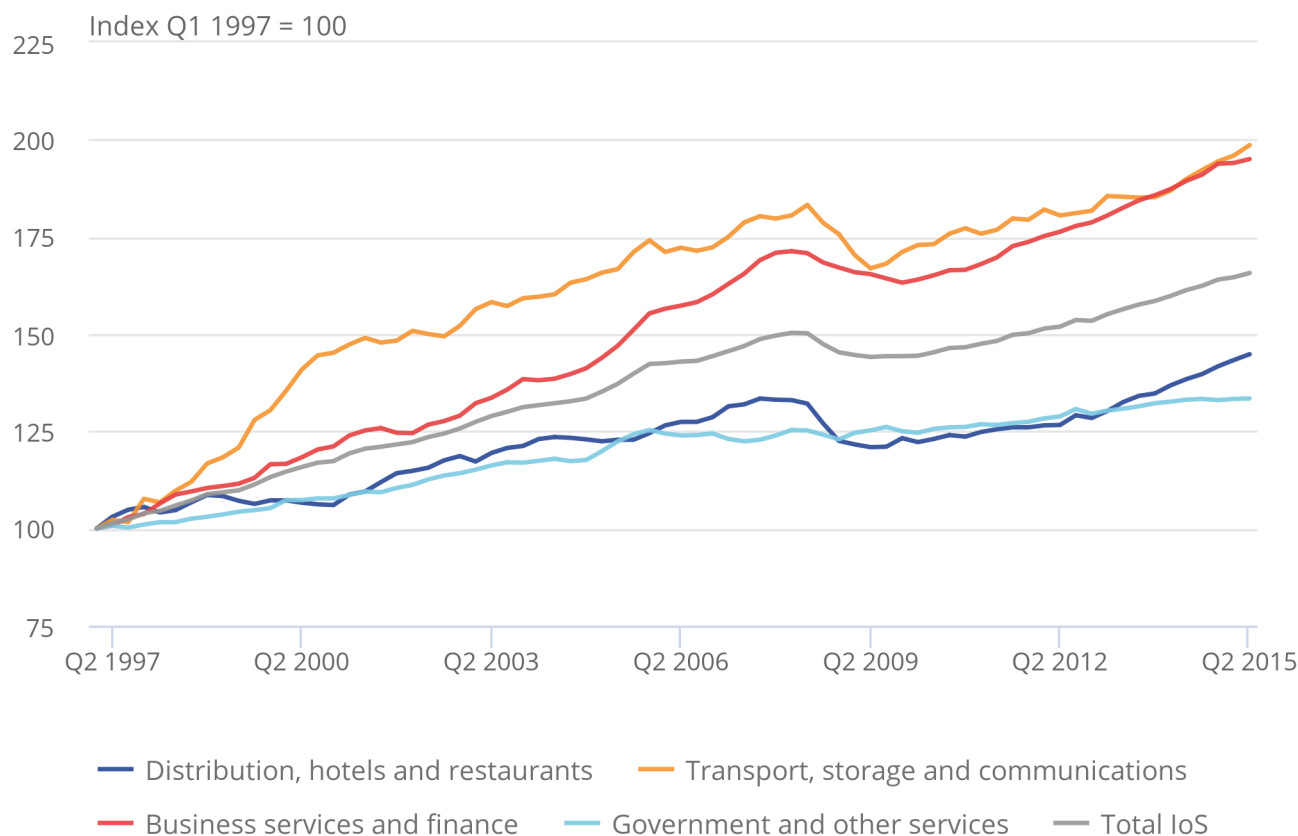
Business services and finance, and transport, storage and communication recovered very strongly following the economy's downturn and in Quarter 2 (Apr to June) 2015, they were 13.9% and 10.0% above their respective values in Quarter 1 (Jan to Mar) 2008. The recovery of distribution, hotels and restaurants was also quite strong and in Quarter 2 (Apr to June) 2015, output was 8.9% above pre-downturn levels. However, the recovery of the government and other services industries was more modest, and in Quarter 2 (Apr to June) 2015, output was 6.5% above its Quarter 1 (Jan to Mar) 2008 value.

**Figure 3: Index of services and sub-components, Quarter 1 (Jan to Mar) 1997 to Quarter 2 (Apr to June) 2015**

UK

Figure 3: Index of services and sub-components, Quarter 1 (Jan to Mar) 1997 to Quarter 2 (Apr to June) 2015

UK



Source: Office for National Statistics

Notes:

1.Q1 is Quarter 1 (Jan to Mar); Q2 is Quarter 2 (Apr to June); Q3 is Quarter 3 (July to Sep); and Q4 is Quarter 4 (Oct to Dec)

Figure 4 shows the share of gross value added accounted for by services in the UK and a selection of other major economies (more information on data for France, Germany, Italy, Japan and the USA can be found on the Organisation for Economic Co-operation and Development ([OECD](#)) website). In 1997, the share of gross value added (GVA) accounted for by services in the UK was just under 70% of nominal GVA, around the middle of the range relative to the other economies shown. By 2013, the UK had become relatively more reliant on services, as its share rose to 78% of nominal GVA.

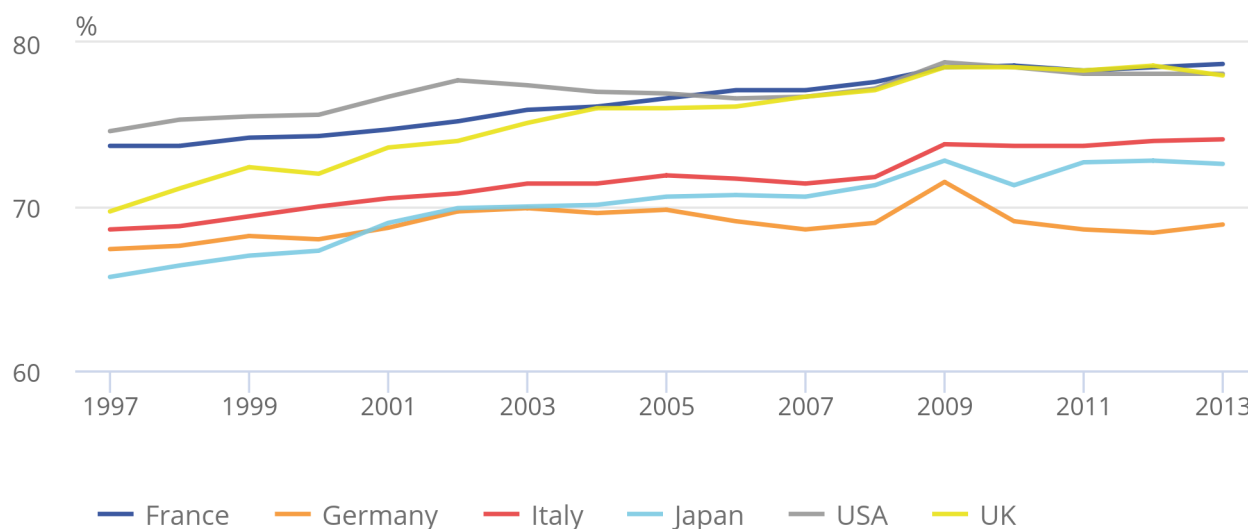


**Figure 4: Services as a percentage of GDP in comparable economies (1) to the UK**

1997 to 2013

**Figure 4: Services as a percentage of GDP in comparable economies (1) to the UK**

1997 to 2013



Source: Office for National Statistics, Organisation for Economic Co-operation and Development

Notes:

1. OECD data correct at 21 October 2015

## 5 . GDP impact and components

With a weight of 78.6%, the services industries are the largest industrial grouping in the output approach to measuring GDP. The releases for the short-term economic indicators that feed directly into the output approach to measuring GDP include a table detailing growth in the 4 main industrial groupings (Table 2). This will aid understanding of the relationship between the individual short-term releases and GDP output.

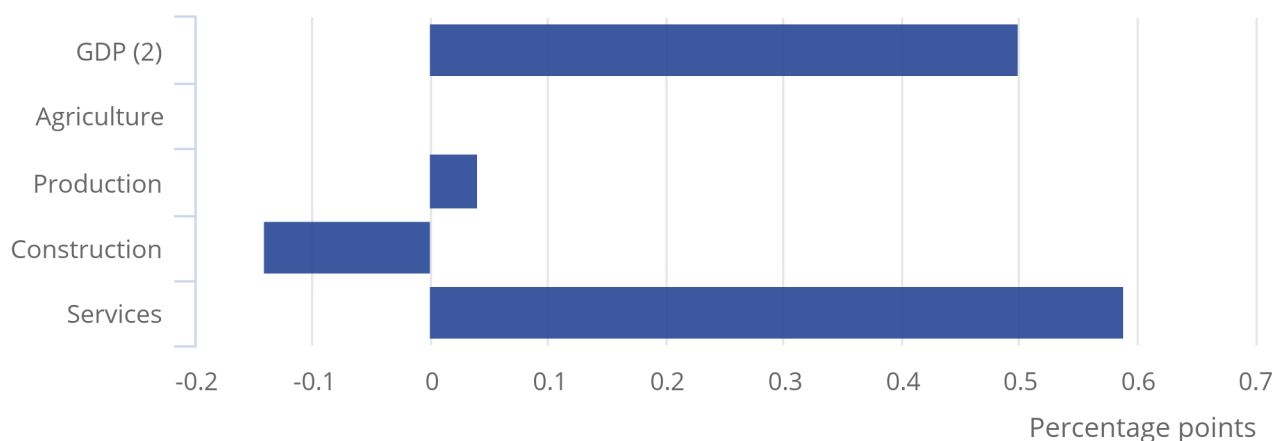
In Quarter 3 (July to Sep) 2015, GDP was estimated to have increased by 0.5% compared with the previous quarter. The contribution an industry grouping makes to the GDP quarterly growth is dependent on the quarterly change in that industry grouping and its weight within the output approach to measuring GDP.

**Figure 5: GDP contribution (1) to the quarter-on-quarter percentage change, Quarter 3 (July to Sep) 2015**

UK

Figure 5: GDP contribution (1) to the quarter-on-quarter percentage change, Quarter 3 (July to Sep) 2015

UK



**Source: Office for National Statistics**

**Notes:**

1. Contributions are to output gross value added and therefore may not sum to the percentage change in GDP. More information on the difference between the 2 measures can be found in the Short Guide to National Accounts
2. Percentage change to 1 decimal place

Monthly estimates are produced for each industrial grouping except agriculture. The August 2015 estimates for [production](#) and [construction](#) were published on 7 October 2015 and 9 October 2015 respectively. The [Gross Domestic Product Preliminary Estimate Quarter 3 \(July to Sep\) 2015](#) release was published on 27 October 2015 alongside this bulletin.

**Table 2: GDP output component tables, Quarter 3 (July to Sep) 2015, chained volume measure, seasonally adjusted**

UK

Publication	% of GDP	Release date	Period of GDP	Percentage change			
				Most recent 3 months on a year earlier	Most recent 3 months on 3 months earlier	Most recent month on the same month a year ago	Most recent month on the previous month
Index of Production	14.9	07 Oct	Aug	1.3	0.1	1.9	1.0
			July	1.2	0.2	0.7	-0.3
Construction output	5.9	09 Oct	Aug	1.8	-0.8	-1.3	-4.3
			July	3.2	0.6	2.0	-1.0
Index of Services	78.6	27 Oct	Aug	2.9	0.9	2.8	0.0
			July	2.7	0.8	2.8	0.2
Retail Sales		22 Oct	Sep	5.0	0.9	6.5	1.9
			Aug	4.1	0.5	3.5	-0.4
			July	4.4	0.7	4.6	0.5
Agriculture	0.7		Q3 <sup>1</sup>	-0.1	0.5	..	..

Source: Office for National Statistics

Notes:

1. Q3 is Quarter 3 (July to Sep)
2. No data represented by ..
3. Individual weights may not sum to the total due to rounding

## 6 . Component analysis

**Table 3: Growth rates and contributions (1) to the Index of Services, August 2015**

UK

Description	% of Services	Month on a year earlier Volume (SA <sup>2</sup> ) (%)	Contribution to services (% points)	Percentage change	
				Month on month growth Volume (SA) (%)	Contribution to services (% points)
Total services industries	100	2.8	2.8	0.0	0.0
Distribution, hotels and restaurants	17	3.9	0.7	-0.4	-0.1
Transport, storage and communication	13	4.7	0.6	0.2	0.0
Business services and finance	40	3.5	1.4	0.2	0.1
Government and other services	30	0.1	0.0	-0.1	0.0

Source: Office for National Statistics

Notes:

1. Individual contributions may not sum to the total due to rounding
2. SA = seasonally adjusted

### Distribution, hotels and restaurants

The index of distribution, hotels and restaurants increased by 3.9% in August 2015 compared with August 2014, following an increase of 4.9% in July 2015 compared with the same month a year earlier. The main contributors to the increase were: retail trade, except of motor vehicles and motorcycles, which rose by 3.6%; and wholesale and retail trade and repair of motor vehicles and motorcycles, which rose by 7.6%.

### Transport, storage and communication

The index of transport, storage and communication increased by 4.7% in August 2015 compared with August 2014, following an increase of 4.9% in July 2015 compared with the same month a year earlier. The main contributors to the increase were: publishing, audiovisual and broadcasting activities, which rose by 13.5%; and computer programming, consultancy and related activities, which rose by 7.2%.

### Business services and finance

The index of business services and finance increased by 3.5% in August 2015 compared with August 2014, following an increase of 3.0% in July 2015 compared with the same month a year earlier. The main contributors to the increase were: other professional service activities, which rose by 5.7%; administrative and support services activities, which rose by 5.5%; and real estate activities, which rose by 2.3%.

## Government and other services

The index of government and other services increased by 0.1% in August 2015 compared with August 2014, following an increase of 0.2% in July 2015 compared with the same month a year earlier. The main contributors to the increase were: human health and social work activities, which rose by 1.4%; and education, which rose by 0.4%.

## Revisions

The Index of Services (IoS) follows the [National Accounts Revisions policy \(41.6 Kb Pdf\)](#). Revisions are caused by a number of factors including, but not limited to:

- revisions to source data due to late responses
- actual data replacing forecast data
- revisions to seasonal factors that are re-estimated every period

More information on IoS revisions is available on the [Index of Services Methods](#) page.

We produce revisions triangles of services growth to provide users with one indication of the reliability of this main indicator. Statistical tests are performed on the average revision to test if it is statistically significantly different to 0. Further information can be found in background note 17.

In this release of data, the earliest period open to revision is July 2015. The growth rate for July 2015 compared with July 2014 (2.8%) was unrevised. The month on month growth rate for July 2015 compared with June 2015 (0.2%) was also unrevised.

Further detail on the revisions to the IoS components can be found in the RIOS1 tables in the [data section](#) of this publication.

## 7 . Industry spotlight: Advertising and market research

According to the UK Standard Industrial Classification 2007 (SIC2007), advertising and market research (industry 73) includes the creation of advertising campaigns and placement of such advertising in periodicals, newspapers, radio, television or other media, as well as the design of display structures and sites.

This industry is divided into 2 divisions: advertising (division 73.1) and market research and public opinion polling (division 73.2) with the former accounting for 84.9% of the industry's turnover in 2013 ( [Annual Business Survey](#)). In 2013, advertising and market research generated £26.9 billion of turnover, which represented 11.8% of the turnover of the professional, scientific and technical activities section (section M) ( [Annual Business Survey](#)). The share of total output attributed to this industry increased slightly between 1997 and 2013 from 0.5% to 0.6%, suggesting that the industry grew slightly faster than the rest of the economy ( [Gross Domestic Product: Preliminary Estimate - Quarter 3 \(July to Sep\) 2015](#)).

In the period from 1997 to 2015, advertising and market research generally underperformed compared with the services industries as a whole. Between Quarter 1 (Jan to Mar) 1997 and Quarter 1 (Jan to Mar) 2008 this industry experienced some volatility but it followed a broadly upward trend growing at a compound rate of 0.4% per quarter, while services experienced more steady growth at a compound rate of 0.9% per quarter over the same period. During the economy's downturn, Quarter 1 (Jan to Mar) 2008 and Quarter 2 (Apr to June) 2009, the output of the services industries as a whole and advertising and market research contracted at different times and to different extents. Services started to contract in Quarter 2 (Apr to June) 2008, and its output fell by 4.1% between the industries' peak in Quarter 1 (Jan to Mar) 2008 and its trough in Quarter 2 (Apr to June) 2009. However, advertising and market research did not begin its downturn until Quarter 3 (July to Sep) 2008, and its output decreased by 17.9% between the industry's peak in Quarter 2 (Apr to June) 2008 and its trough in Quarter 3 (July to Sep) 2009.

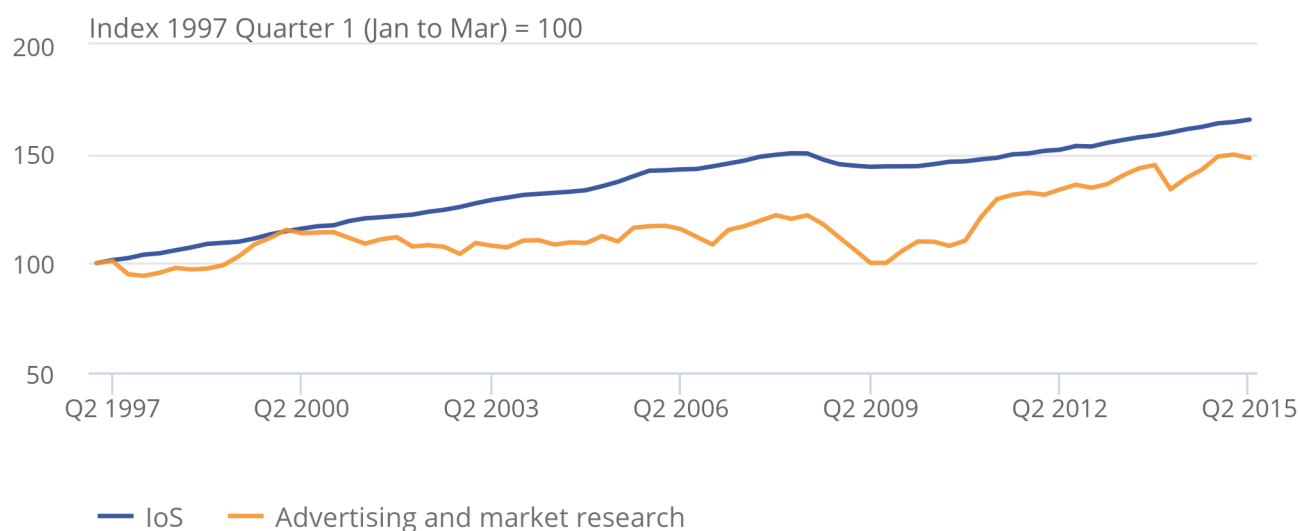
Advertising and market research and the services industries as a whole recovered strongly following their respective periods of contraction. Following the economy's downturn, services returned to relatively strong and consistent growth at a compound growth rate of 0.6% per quarter between Quarter 3 (July to Sep) 2009 and Quarter 2 (Apr to June) 2015. In contrast, advertising and market research experienced some fluctuation in its growth over the same period, but the industry's output grew at a much faster rate (a compound growth rate of 1.7% per quarter). The services industries as a whole surpassed its pre-downturn peak by Quarter 1 (Jan to Mar) 2012 while advertising and market research recovered to its pre-contraction peak by Quarter 2 (Apr to June) 2011. By Quarter 2 (Apr to June) 2015, advertising and market research and the services industries were 21.6% and 10.2% above their respective peaks.

**Figure 6: Index of Services and advertising and market research**

UK, 1997 to 2015

**Figure 6: Index of Services and advertising and market research**

UK, 1997 to 2015



Source: Office for National Statistics

**Notes:**

1. Q1 is Quarter 1 (Jan to Mar); Q2 is Quarter 2 (Apr to June); Q3 is Quarter 3 (July to Sep); and Q4 is Quarter 4 (Oct to Dec)

Advertising and market research are often used in the production process (as intermediate consumption) by a wide range of industries; in 2012 this totalled around £25.1 billion. Around 10.5% of the intermediate consumption of this industry's products can be attributed to the 5 industries, shown in Figure 7.

In 2012 the industries which used the highest amount of advertising and market research products as a share of their total intermediate consumption were publishing activities and manufacture of tobacco products at 8.4% and 7.6% of their total intermediate consumption, respectively ([Input-Output Supply and Use tables, 2014 edition](#)).

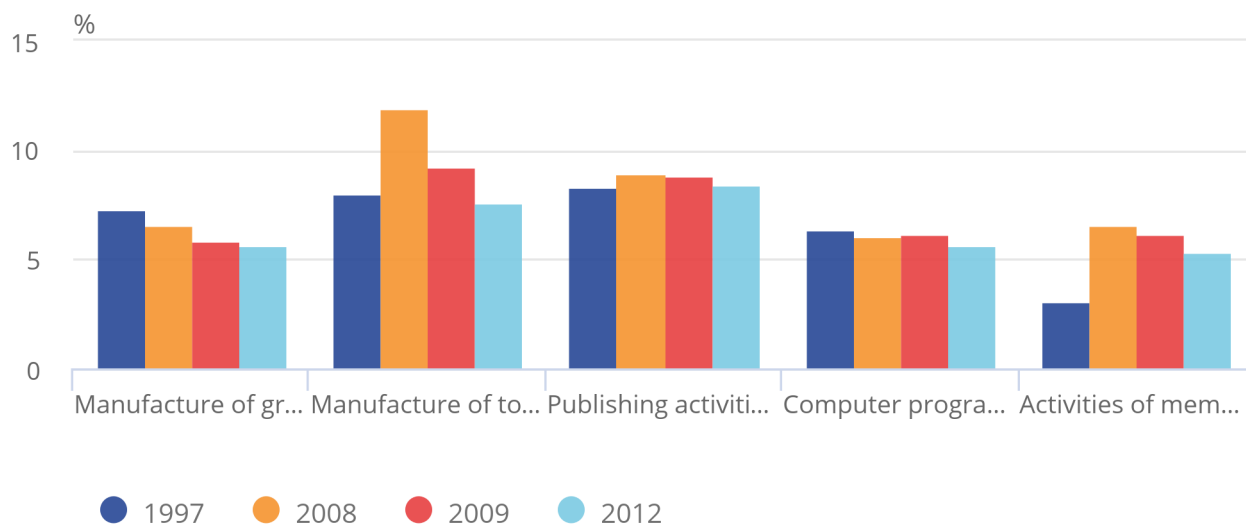
Between 1997 and 2012, the shares of the 5 industries' total intermediate consumption allocated to this industry's products followed different paths. Manufacture of grain mill products, starches and starch products (industry 10.6) saw a consistent reduction in its share of total intermediate consumption devoted to advertising and market research from 7.3% in 1997 to 5.7% in 2012. However, between 1997 and 2008 manufacture of tobacco products (industry 12), publishing activities (industry 58) and activities of membership organisations (industry 94) increased their consumption of the industry's products by 3.9 percentage points, 0.7 percentage points and 3.5 percentage points, respectively. During the economy's downturn their share of total intermediate consumption allocated to advertising and market research fell and continued to decline in 2012. ([Input-Output Supply and Use tables, 2014 edition](#)).

**Figure 7: The top 5 consumers of advertising and market research (percentage of their intermediate consumption)**

UK, 1997 to 2012

Figure 7: The top 5 consumers of advertising and market research (percentage of their intermediate consumption)

UK, 1997 to 2012



Source: Office for National Statistics

## 8. Background notes

### 1. Continuous improvement of GDP

The [GDP Output Improvement Report](#), published on 30 September 2015, provides a detailed update of the implementation of improvements for Blue Book 2015, progress on industry reviews and wider cross-cutting improvements, a comprehensive timetable for the industry review project, and progress on experimental statistics.

To reflect these improvements along with updated weights the [GDP\(O\) source catalogue](#), which will be updated alongside the Blue Book publication on 30 October 2015.

### 2. Experimental statistics

The Index of Services achieved National Statistical status in 2007 due at least in part to a series of industry reviews which underpinned short-term estimates. However, a number of low-level industries remained experimental statistics when the programme of industry reviews paused in 2008 to focus on the transition to SIC2007, improved deflator methodology, and the implementation of a new IT platform.

In 2011, IoS moved to SIC2007 and a reappraisal of the experimental industries was made using detailed comments from methodologists who quality assured the progress of IoS towards the National Statistics label. This review was published in [August 2012 \(249.1 Kb Pdf\)](#) and outlined the 17 industries which remained experimental. A review of the 17 industries has taken place by experts in the business area against the Code of Practice for Official Statistics and, in noting the original comments, we are clear that the issues and requirements have been addressed where appropriate; further details can be found in the



latest [GDP Output Improvement Report](#). Agreement has been given by the Director General for Economic Statistics to officially move these Experimental Statistics to Official Statistics.

### 3. VAT project update

An article titled "[Feasibility study into the use of HMRC turnover data within Short-term Output Indicators and National Accounts](#)" has been published (14 August 2015). The project is exploring ways in which HM Revenue & Customs (HMRC) administrative data could be used to quality assure, supplement or replace the current turnover-based ONS surveys. This article is the first of a series of planned articles into this work.

A second article, "[Exploitation of HMRC VAT data](#)", has been published (7 October 2015). This is an update of the work to exploit HMRC turnover data in short-term economic output indicators and National Accounts. This article explores the international context of the work, previous attempts to use these data in short-term economic output indicators and National Accounts and a high level overview of the process undertaken to arrive at micro-level data each month.

### 4. What do you think?

As a user of our statistics we would welcome your feedback on this publication. If you would like to get in touch please contact us via email: [ios.enquiries@ons.gsi.gov.uk](mailto:ios.enquiries@ons.gsi.gov.uk).

### 5. Special events

We maintain a list of candidate special events in the [Special Events Calendar](#). As explained in our [Special Events policy](#), it is not possible to separate the effects of special events from other changes in the series.

### 6. Understanding the data

#### Short guide to the Index of Services

The Index of Services shows the monthly movements in the gross value added (GVA) of the service industries ([2007 Standard Industrial Classification \(SIC 2007\)](#) sections G to T). These industries account for around 79% of gross domestic product (GDP) in 2012. The index is estimated using the same data sources and national accounts methodology as the quarterly estimate of services industries' gross value added within the output approach to measuring GDP (GDP (O)). These consist of the distribution, hotels and restaurant industries (SIC 2007 sections G and I); transport, storage and communication (sections H and J); business services and finance (sections K to N); and government and other services (sections O to T).

### 7. International comparison

International comparison with the IoS is difficult, as most comparable economies don't produce equivalent estimates. [Eurostat turnover in services](#) estimates are not comparable with the IoS, as they exclude the wholesale and retail trade; furthermore, most of the estimates are only available quarterly. The [USA](#) also produces services output estimates, but only on a quarterly basis, with a 4 month lag time. [Japan](#) has a direct equivalent of the IoS, but the estimates are not seasonally adjusted. The closest equivalent estimates are from [Canada](#), which produces a monthly output estimate of GDP with a breakdown by industry (including an aggregate for services). There are also comparable quarterly estimates from [Sweden](#) and [Ireland](#).

### 8. Short guide to national accounts

The national accounts provide an integrated description of all economic activity within the economic territory of the UK, including activity involving both domestic units (that is, individuals and institutions resident in the UK) and external units (those resident in other countries). In addition to being comprehensive, the accounts are fully integrated and internally consistent. More information can be found in [UK national accounts: a short guide \(105.5 Kb Pdf\)](#).

### 9. How our statistics explain the economy

The IoS is mentioned in an [interactive version of 14 ways ONS statistics help you understand the economy](#), which was released on our website on 27 June 2014, alongside [Quarterly National Accounts for Quarter 1 \(Jan to Mar\) 2014](#).

## 10. Interpreting the data

Some monthly data are volatile. When looking at growth rates, the headline IoS figures focus on the percentage change between the most recent month-on-a-year earlier and the most recent 3 months-on-a-year earlier.

The monthly Index of Services statistical bulletin is usually published on the same days as the Gross Domestic Product Preliminary Estimate statistical bulletin, the Second Estimate of Gross Domestic Product statistical bulletin or the Quarterly National Accounts statistical bulletin.

The data for the IoS in this statistical bulletin are generally consistent with the [Gross Domestic Product Preliminary Estimate](#) for Quarter 3 (July to Sep) 2015, published on 27 October 2015. However, rounding can sometimes cause differences between the 3-monthly growth rates presented in this release, compared with the quarterly growth rates presented in the Quarterly National Accounts. Data for the retail industry are broadly comparable with the [Retail Sales release](#), published on 22 October 2015, but as the 2 series operate under different revisions policies, there can be timing differences in the updating of the 2 series. Also, adjustments to the data within the IoS release are sometimes made at the time of the Blue Book to improve the coherence of the 3 approaches to measuring GDP. Therefore, inconsistencies between the 2 series are not unusual but tend to be small. There are also conceptual and coverage differences between retail sales and retail output which can lead to apparent inconsistencies.

## 11. Definitions and explanations

Definitions found within the main statistical bulletin are listed:

### Index number

An index number is a number which indicates the change in magnitude relative to the magnitude at a specified point, the latter usually taken as 100. For example, the level of services for August 2015 is given in Table 1 as 109.3. This means that services output was 9.3% higher than the average in the reference period, which is currently 2012.

### Seasonal adjustment

The index numbers in this statistical bulletin are all seasonally adjusted. This aids interpretation by removing annually recurring fluctuations, for example, due to holidays or other regular seasonal patterns. Unadjusted data are also available.

Seasonal adjustment removes regular variation from a time series. Regular variation includes effects due to month lengths, different activity near particular events such as shopping activity before Christmas, and regular holidays such as the May bank holiday.

Some features of the calendar are not regular each year, but are predictable if we have enough data, for example, the number of certain days of the week in a month may have an effect, or the impact of the timing of Easter. As Easter changes between March and April, we can estimate its effect on time series and allocate it between March and April depending on where Easter falls. Estimates of the effect of the day of the week and Easter are used respectively to make trading day and Easter adjustments prior to seasonal adjustment.

X-13-ARIMA-SEATS is the current seasonal adjustment software used for the IoS.

### Value (current price)

Economic transactions involve the production of goods and the sale of goods and services (commodities). The monetary value (or current price) of these transactions is a product of the quantity produced or sold and the unit price. In a particular period, the total (aggregate) value of all transactions taking place in the economy is simply the sum of the individual transaction values in that period. The current price is sometimes referred to as the “nominal” price.

### Volume (constant price)

When it comes to comparing the difference in aggregate values between 2 time periods, the observed movement is generally a combination of changes in quantity and changes in price. In a lot of cases, the interest of users of economic data lies in understanding the degree to which economic growth is being driven by changes in quantities (that is, physical volumes of production and consumption). It is standard

practice to present many economic statistics as volume series (showing changes in the level of the series that have not been affected by changes in price) and such series are referred to as “at constant prices” or “real” prices.

## **Deflation**

The process of removing price changes from a value series and converting to a volume series is known as deflation. All index numbers presented in this bulletin are volume measures and have had the effect of price changes removed.

## **Chained volume measures**

The indices in this bulletin are presented as “chained volume” measures, meaning that successive volume estimates have been linked (or chained) together. Annual chain-linking was introduced in 2003 and is considered preferable to producing standard volume series, as chained volume measures more accurately reflect volume changes over time. More information on chain-linking can be found in the [Tuke and Reed \(2001\) \(92.8 Kb Pdf\)](#) article, and a paper on chain-linking weights in the output approach to measuring GDP can be found on the [Methods and Sources](#) page.

## **Gross domestic product (GDP)**

The total value of production activity in the economic territory. It is the balancing item on the production account for the whole economy. Domestic product can be measured gross or net of consumption of fixed capital (or depreciation). It is presented in the accounts at market (or purchasers’) prices. A further distinction is that it can be at current prices or chained volume measures.

## **12. Methods**

[Index of Services methodology](#) can be found on our website.

## **13. Composition of the data**

The IoS uses a wide variety of different data, from many sources, which are produced on either an annual, quarterly or monthly basis.

Some of the indicators are derived using current price turnover deflated by a suitable price index. This includes data from the monthly business survey (MBS): an ONS short-term survey on different parts of the economy. It is one of the main data sources used in the compilation of the IoS.

More information on monthly business survey data can be found within the [Economic and Labour Market Review release \(2.65 Mb Pdf\)](#).

Other sources use direct volume measures that don’t need to be deflated, such as Civil Aviation Authority data for air transport. Other proxies, such as employment numbers, are also used. This is the case with Public Sector Employment and Workforce Jobs data.

Where monthly data are not available (for example, when data are delivered quarterly or annually), monthly estimates are derived by forecasting data. This is done using the X-13-ARIMA-SEATS forecasting method and interpolating a monthly path using a cubic spline.

An X-13-ARIMA-SEATS forecast is also used where actual data at industry level are not available for the latest period (a lower proportion of actual data are available for the latest month). When the forecast is replaced by actual data, this may lead to revisions to the published data.

The IoS adheres to the [Government Statistical Service Disclosure Control Policy \(337 Kb Word document\)](#). More information can be found in the [Quality and Methodology Information \(QMI\) \(207.3 Kb Pdf\)](#) report.

## **14. Response rates**

Approximately 42% of the IoS estimates are based on data collected via our monthly business survey (MBS). In addition, approximately 7% of the IoS estimates are collected via our retail sales inquiry (RSI). The remainder is based on data received from other ONS sources and external data sources. The MBS and RSI response rates for data included in this publication are presented for the current months and the 3 months prior in Table 4. The response rates for the previous periods are updated to reflect the current level

of response, incorporating data from late returns. There are 2 response rates included; the first is a percentage of the sampled turnover returned and the other is a percentage of the amount of questionnaire forms returned.

**Table 4: Survey response rates, August 2015**

UK

Period	Response rates (%)			
	May 2015	June 2015	July 2015	August 2015
Monthly Business Survey (Services)				
Turnover	96.2	95.3	94.0	83.7
Questionnaire	85.7	83.8	81.3	74.3
Retail Sales Inquiry				
Turnover	99.3	99.2	98.7	98.0
Questionnaire	77.3	77.2	77.2	74.8

Source: Office for National Statistics

[Historical MBS response rates](#) for the services industries as at the time of the relevant publication are also available back to 2010.

#### 15. Basic quality information

Some general information on the quality of the Index of Services (IoS) can be found in the “Understanding the Index of Services” section in the main part of this statistical bulletin.

Additionally, a [Quality and Methodology Information \(QMI\)](#) report for the IoS was published on 11 February 2015. The report pulls together qualitative information on the 5 Eurostat criteria of quality: relevance, accuracy, timeliness and punctuality, accessibility and clarity, and comparability and coherence, and provides a summary of the methods used to compile the IoS output, describing the strengths and limitations of the estimates produced.

Further quality information, including details of the quality adjustments process for IoS, was published on 31 October 2014 and can be found on the [Index of Services methods](#) page on our website.

#### 16. National accounts revisions policy

Main documentation explaining the national accounts [revisions policy \(41.6 Kb Pdf\)](#) is available.

## 17. Revisions triangles

SIC 2007 revisions triangles are contained in a zip folder. This folder can be found within the data section of this bulletin.

Revisions to data provide one indication of the reliability of main indicators. A statistical test has been applied to the average revision to find out if it is statistically significantly different from 0. An average revision close to 0 is desirable as it suggests that revisions are not predictable in any one direction. The result of the test is that the average revision is not statistically significantly different from 0.

Table 5 presents a summary of the differences published between September 2009 and August 2014 and the estimates published 12 months later.

**Table 5: Revisions between first publication and estimates 12 months later**

UK

			Percentage change
	Value in latest period	Average over the last 60 months	Average over the last 60 months without regard to sign (average absolute revision)
Index of Services 3 month on 3 month growth rate	0.9	-0.06	0.17
Index of Services 1 month on 1 month growth rate	0.0	-0.02	0.17

Source: Office for National Statistics

## 18. Publication policy

Details of the policy governing the release of new data are available from our media relations office. There is also a [Pre Release Access List](#) of those given pre-publication access to the contents of this release.

## 19. Accessing data

The data presented in the tables of this statistical bulletin are also available to download from the data section of this publication. A complete run of data is available as a [time series dataset](#) on our website.

We provide an analysis of past revisions in the IoS and other statistical bulletins; more information can be found in [Revisions information in ONS First Releases](#).

## 20. Following ONS

You can follow us on [Twitter](#) and [Facebook](#).

## 21. Code of Practice for Official Statistics

National Statistics are produced to high professional standards set out in the Code of Practice for Official Statistics. They undergo regular quality assurance reviews to ensure that they meet customer needs. They are produced free from any political interference.

The UK Statistics Authority has designated these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Designation can be broadly interpreted to mean that the statistics:

- meet identified user needs
- are well explained and readily accessible
- are produced according to sound methods

- are managed impartially and objectively in the public interest

Once statistics have been designated as National Statistics it is a statutory requirement that the Code of Practice shall continue to be observed.

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24. 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)