

Statistical bulletin

Index of Production, UK: May 2015

Movements in the volume of production for the UK production industries: manufacturing, mining and quarrying, energy supply, and water and waste management. Figures are seasonally adjusted.



Contact:
Alaa Al-Hamad
alaa.al-hamad@ons.gsi.gov.uk
+44 (0) 1633 455648

Release date:
7 July 2015

Next release:
6 August 2015

Table of contents

1. [Correction](#)
2. [Main points](#)
3. [Index of Production headline figures](#)
4. [Quality of the Index of Production](#)
5. [Economic context](#)
6. [Gross domestic product \(GDP\) impact and components](#)
7. [Production and sectors supplementary analysis](#)
8. [Industry spotlight: Manufacture of basic metals and metal products](#)
9. [Background notes](#)

1 . Correction

July 7 2015 13:00

An error was found in the Economic context section of the statistical bulletin for Index of Production, May 2015. The error concerns text explaining the other components of GDP for Quarter 1 (Jan to Mar) 2015, whereby construction was misquoted as a second successive quarter of decline. The output in construction was the first quarter of decline. All data regarding construction and Index of Production are correct, and the sizes of the revisions to GDP are unaffected.

2 . Main points

- Total production output is estimated to have increased by 2.1% in May 2015 compared with May 2014. There were increases in 3 of the 4 main sectors, with the largest contribution coming from mining & quarrying, which increased by 7.3%
- Manufacturing output increased by 1.0% in May 2015 compared with May 2014. The largest contribution to the increase came from the manufacture of transport equipment, which increased by 11.0%, due to a rise in the manufacture of air & spacecraft and related machinery
- Total production is estimated to have increased by 0.4% in May 2015 compared with April 2015. There were increases in 3 of the 4 main sectors, with the largest contribution coming from mining & quarrying, which increased by 4.9%
- Manufacturing output decreased by 0.6% in May 2015 compared with April 2015. The largest contribution to the decrease in manufacturing came from basic metals & metal products, which decreased by 3.7%
- In the 3 months to May 2015, production and manufacturing were 9.2% and 4.6% respectively below their figures reached in the pre-downturn gross domestic product (GDP) peak in Quarter 1 (Jan to Mar) 2008
- In this release, the earliest period open for revision was April 2015, in line with the National Accounts revisions policy. There was no impact on previously published GDP estimates resulting from revisions to this period

3 . Index of Production headline figures

This bulletin presents the monthly estimates of the Index of Production (IoP) for the United Kingdom production industries, May 2015. The IoP is one of the earliest indicators of growth and it measures output in the manufacturing (the largest component of production), mining & quarrying, energy supply and water supply & waste management industries. The production industries account for 14.6% of the [output approach to the measurement of gross domestic product](#).

IoP values are referenced to 2011 so that the average for 2011 is equal to 100. Therefore, currently an index value of 110 would indicate that output is 10% higher than the average for 2011. The index estimates are mainly based on a monthly business survey (MBS) of approximately 6,000 businesses, covering all the territory of the UK without geographical breakdown. The total IoP estimate and various breakdowns are widely used in private and public sector institutions. Care should be taken when using the month-on-month growth rates due to their volatility. All figures contained within this release are seasonally adjusted estimates, unless otherwise stated.

Table 1 shows the main figures for this release. Figure 1 shows the production and manufacturing series from February 2013 to May 2015. This release also presents the economic context to the IoP; GDP impact and components; a supplementary analysis to the IoP; industry spotlight; and a background notes section for an assessment of the quality of the IoP, as well as an explanation of the terms used in this bulletin.

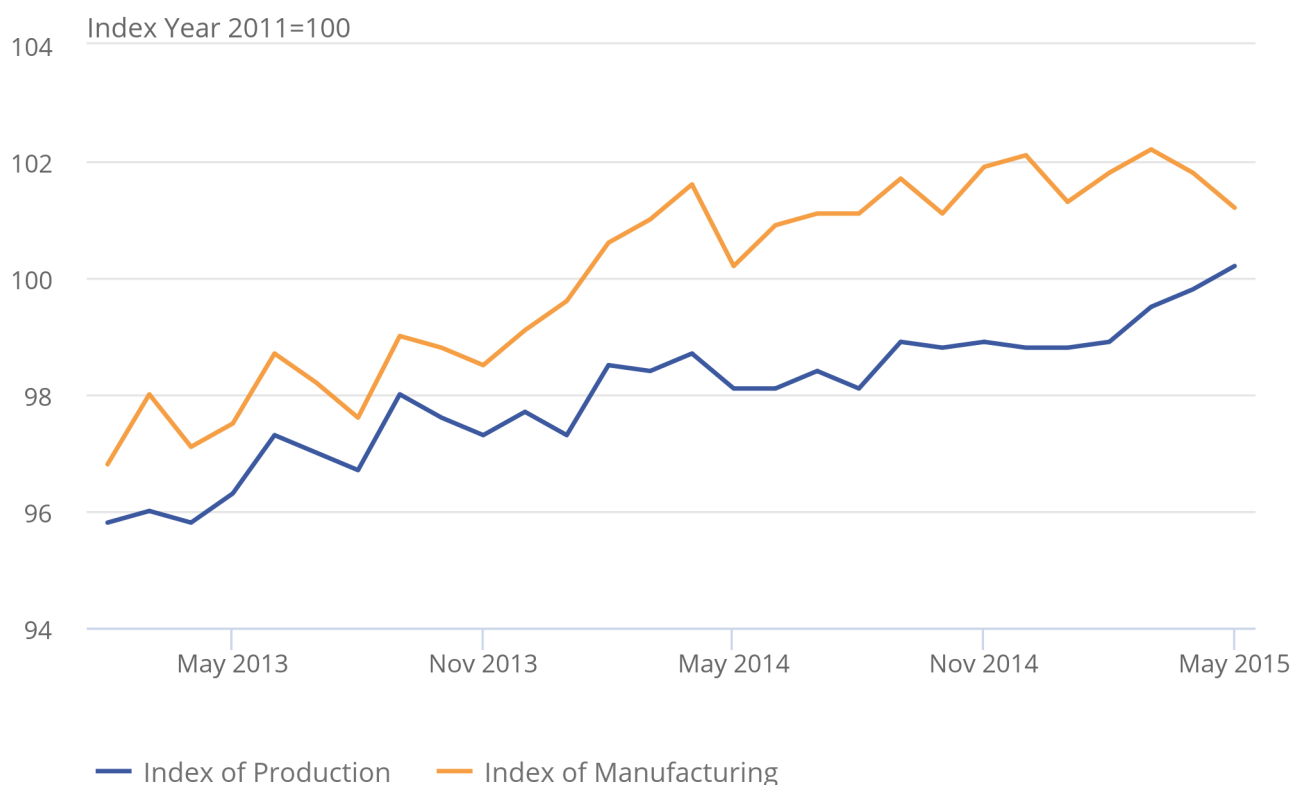
Table 1: Index of Production main figures, May 2015, UK

	Index number 2011=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
Production	100.2	2.1	1.4	0.4	1.0
Manufacturing	101.2	1.0	0.8	-0.6	0.0

Source: Primarily Monthly Business Survey (Production and Services) - Office for National Statistics

Figure 1: Seasonally adjusted production and manufacturing, February 2013 to May 2015, UK

Figure 1: Seasonally adjusted production and manufacturing, February 2013 to May 2015, UK



Source: Primarily Monthly Business Survey (Production and Services) - Office for National Statistics

4 . Quality of the Index of Production

We have developed [guidelines for measuring statistical quality \(1.22 Mb Pdf\)](#); these are based upon the 5 European Statistical System (ESS) quality dimensions. The IoP in its current form adheres to these requirements. One important dimension for measuring statistical quality is accuracy. That is, the extent to which the estimate measures the underlying "true" value of the output growth (of the production industries) in the UK for a particular period. Although the IoP meets its legal requirements for statistical accuracy, still as in all survey-based estimates, by definition, its estimates are subject to statistical uncertainty or errors. These errors consist of 2 main elements; the sampling error and the non-sampling error.

For many well-established statistics we measure and publish the sampling error associated with the estimate, using this as an indicator of accuracy. The IoP however, is constructed from a variety of data sources, some of which are not based on random samples. As a result, we currently do not publish a measure of the sampling error associated with the IoP underlying data, mainly the monthly business survey (MBS). However, research is currently under way to attempt to measure the standard error and the results of this will be published on completion.

Non-sampling errors are not easy to quantify but can be caused by coverage issues, measurement, processing and non-response. The response rate gives an indication of the likely impact of non-response error on the survey estimates. From January 2015, the MBS response rates for data included in the IoP publication were published in the background methods section of the statistical bulletin. This is to give further information of the percentages of the amount of turnover and questionnaire forms returned. We publish [MBS historical response rates back to 2010 \(34 Kb Excel sheet\)](#).

A further dimension of measuring accuracy is reliability, which can be measured 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 IoP are typically small (around 0.1 to 0.2 percentage points), with the frequency of upward and downward revisions broadly equal.

Further information on the most recent revisions analysis can be found in the revisions to IoP section and in the [revision triangles \(4.43 Mb ZIP\)](#) section in the bulletin background note.

It should be noted that care should be taken when using the month-on-month growth rates, due to their volatility. Further information on the latest quality and methodology information (QMI) for the IoP can be found in the QMI paper. Furthermore, the IoP is constantly being reviewed and improved for accuracy and uncertainty as part of the GDP(O) improvement project; further details of improvements are published each year as part of a suite of Blue Book articles. A full list of the GDP(O) improvement project articles can be found on the [Improvements](#) page of our website.

5 . Economic context

Figure 2 shows that the pace of growth in manufacturing exceeded that of total production between 2003 and 2006. This trend was, however, temporarily interrupted following the economic downturn in 2008, when manufacturing fell by a greater extent than total production.

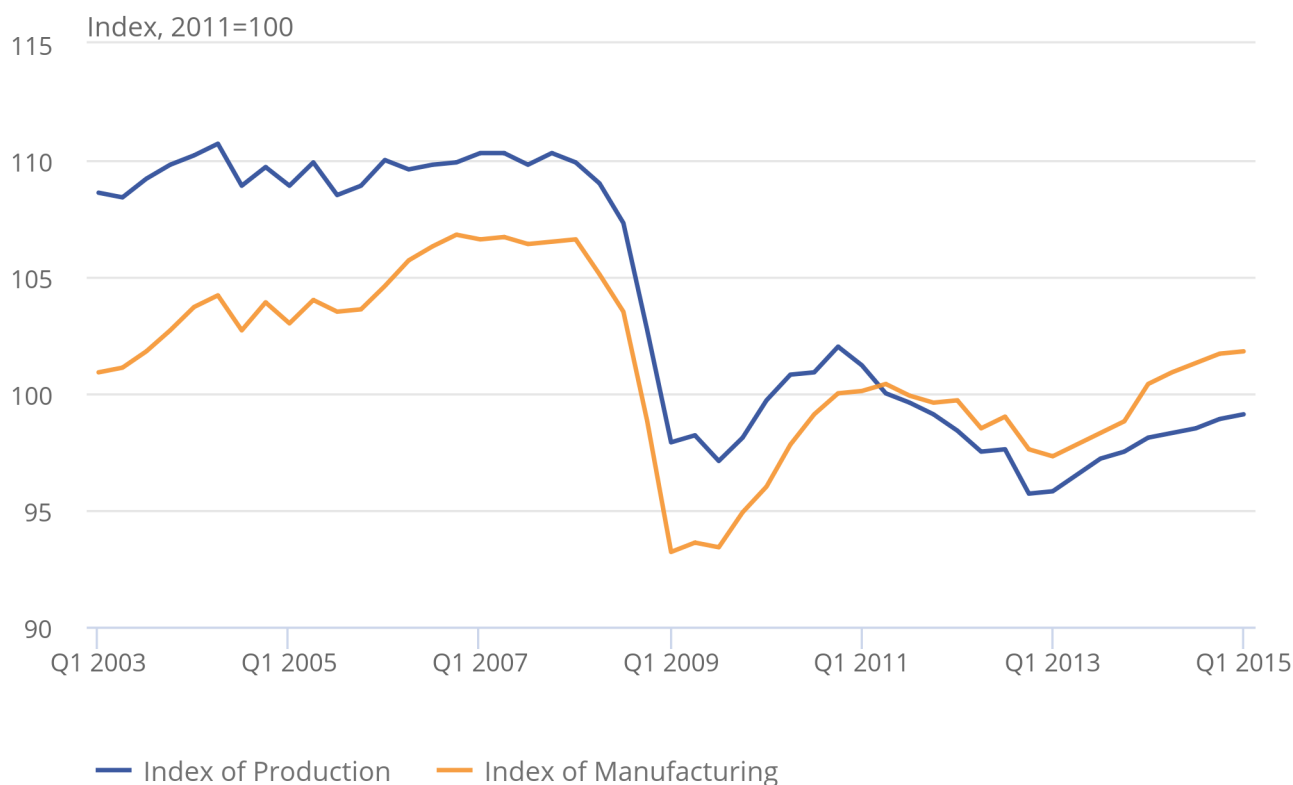
Following the 2008 to 2009 downturn, total production and manufacturing returned to growth for a short period, before falling again in 2011 and 2012. This coincided with falling gross domestic product (GDP) in the euro area. Total production was particularly affected, falling below its downturn trough in Quarter 4 (Oct to Dec) 2012, while manufacturing fell by a smaller amount.

For production and manufacturing, conditions have improved since the start of 2015. The [Quarterly National Accounts](#) reported that GDP rose by 0.4% in Quarter 1 (Jan to Mar) 2015, marking a ninth consecutive quarter of expansion, mainly due to the services industries which grew by 0.4% on the quarter. Looking at the other components of GDP, agriculture experienced a marked 2.3% contraction in output, while construction fell by 0.2%.

The production industry continued to show growth on an annual basis. Output was 1.0% higher in Quarter 1 (Jan to Mar) 2015 compared with Quarter 1 (Jan to Mar) 2014, with manufacturing 1.4% higher, however, this represents the weakest quarter-on-same quarter of the previous year growths since Quarter 3 (July to Sep) 2013 and Quarter 4 (Oct to Dec) 2013 respectively.

Figure 2: Quarterly seasonally adjusted production and manufacturing, Quarter 1 (Jan to Mar) 2003 to Quarter 1 (Jan to Mar) 2015, UK

Figure 2: Quarterly seasonally adjusted production and manufacturing, Quarter 1 (Jan to Mar) 2003 to Quarter 1 (Jan to Mar) 2015, UK



Source: Primarily Monthly Business Survey (Production and Services) - Office for National Statistics.

Notes:

1. Throughout this chart Q1 refers to Quarter 1 (January to March), Q2 refers to Quarter 2 (April to June), Q3 refers to Quarter 3 (July to September) and Q4 refers to Quarter 4 (October to December)

According to the Quarterly National Accounts, headline GDP surpassed its pre-downturn peak in Quarter 3 (July to Sep) 2013 and in Quarter 1 (Jan to Mar) 2015, services (which account for over 78% of total GDP) remained the only headline industry grouping to have done so. Output in the production and manufacturing industries in Quarter 1 (Jan to Mar) 2015 remained below levels experienced just before the onset of the downturn, by 9.8% and 4.5% respectively (according to the Quarterly National Accounts). Construction output has performed more favourably compared with these industries; however, output still remained 3.2% below pre-downturn levels.

The recent period of rising manufacturing output has coincided with low price inflation in the manufacturing industry, both in terms of the prices manufacturers pay for materials and fuels used in the production process (input prices) and the prices they charge for the goods they produce (output prices). We publish both measures in the [Producer Price Inflation bulletin](#). Input prices marked their 19th successive month of deflation in the year to May 2015, with prices falling by 12.0%, down from a fall of 11.0% in the year to April 2015. Output prices have also experienced deflation, falling by 1.6% on an annual basis.

International perspective

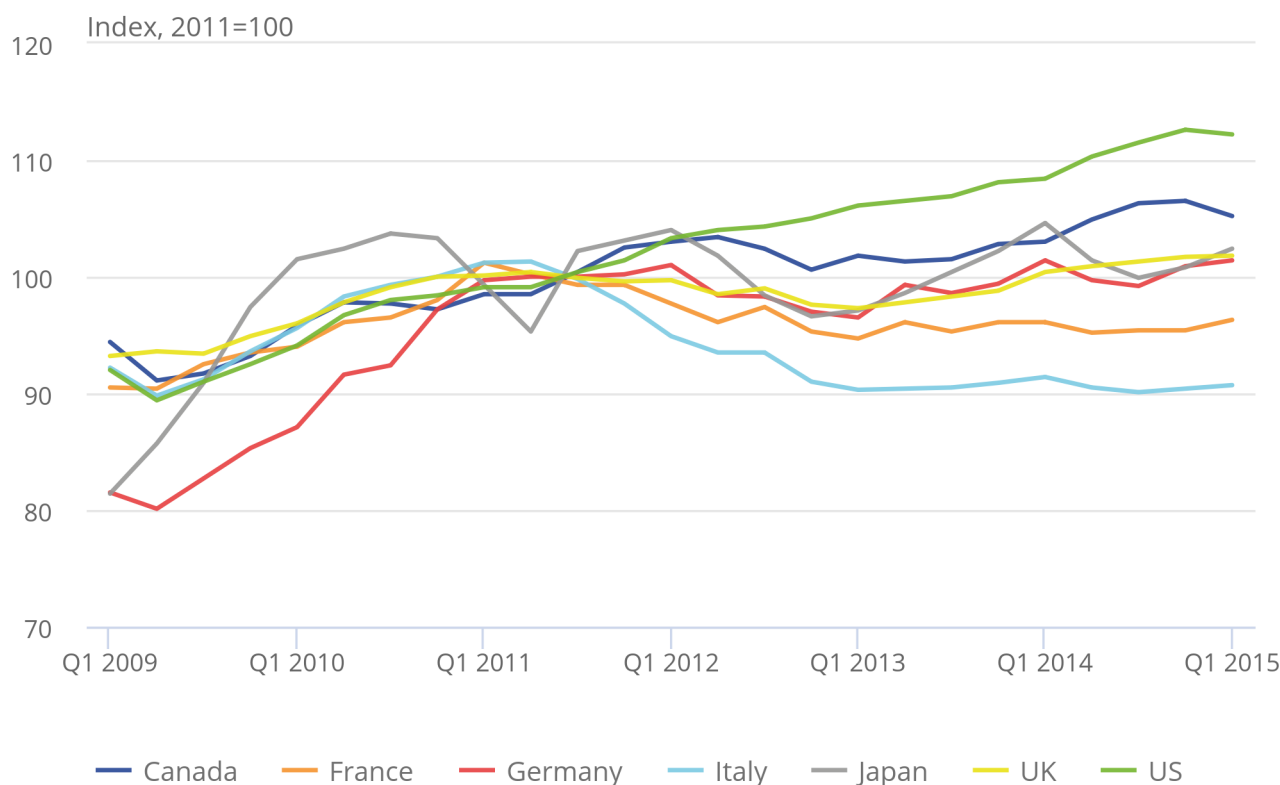
Globally, the performance of manufacturing output has varied across G7 nations since the onset of the economic downturn (Figure 3). Japan experienced the largest average annual fall in output over 2008 and 2009 (12.5% per annum), whereas the smallest decline was in the UK (6.1% per annum).

Following the 2008 to 2009 economic downturn, all [G7 nations' manufacturing industries][3] returned to growth. However, except for the USA, all members experienced further declines between the second half of 2012 and the first half of 2013, particularly in Italy and Japan. More recently, in Quarter 1 (Jan to Mar) 2015, France, Germany, Italy, Japan and the UK experienced growth in manufacturing output, although this has been to varying degrees. Japan experienced the strongest growth on a quarterly basis (1.6%), France and Germany grew by 0.9% and 0.5% respectively, while growth was relatively modest in Italy and the UK. Canada and the USA both experienced a decline in manufacturing output, the former by a marked 1.2%.

For most member states, manufacturing output remained below their respective pre-downturn levels experienced in 2007. Output in Italy, France and Japan remained a marked 23.3%, 15.3% and 12.7% below respective pre-downturn levels. However, in Quarter 3 (July to Sep) 2014, the USA did surpass its pre-downturn level and exceeded it by 1.2% in Quarter 1 (Jan to Mar) 2015, while Germany was also above its respective pre-downturn level, by 2.6%.

Figure 3: Quarterly international manufacturing output, Quarter 1 (Jan to Mar) 2009 to Quarter 1 (Jan to Mar) 2015

Figure 3: Quarterly international manufacturing output, Quarter 1 (Jan to Mar) 2009 to Quarter 1 (Jan to Mar) 2015



Source: Monthly Business Survey (Production and Services) - Office for National Statistics, Organisation for Economic Co-operation and Development

Notes:

1. Data for the UK are consistent with the April ONS Index of Production bulletin, while data for all other remaining G7 economies have been sourced from OECD
2. Throughout this chart Q1 refers to Quarter 1 (January to March), Q2 refers to Quarter 2 (April to June), Q3 refers to Quarter 3 (July to September) and Q4 refers to Quarter 4 (October to December)

Figure 4 presents month-on-same month of the previous year percentage growth rates in 8 of the 13 UK manufacturing sub-industries for April 2015, alongside comparable growth rates achieved in Germany, France, Italy and the euro area. This shows that the UK experienced slower manufacturing growth at 0.1%, compared to total euro area manufacturing growth of 0.08%. Manufacturing output fell in France by 0.4%, while Germany and Italy both experienced rising output over the same period.

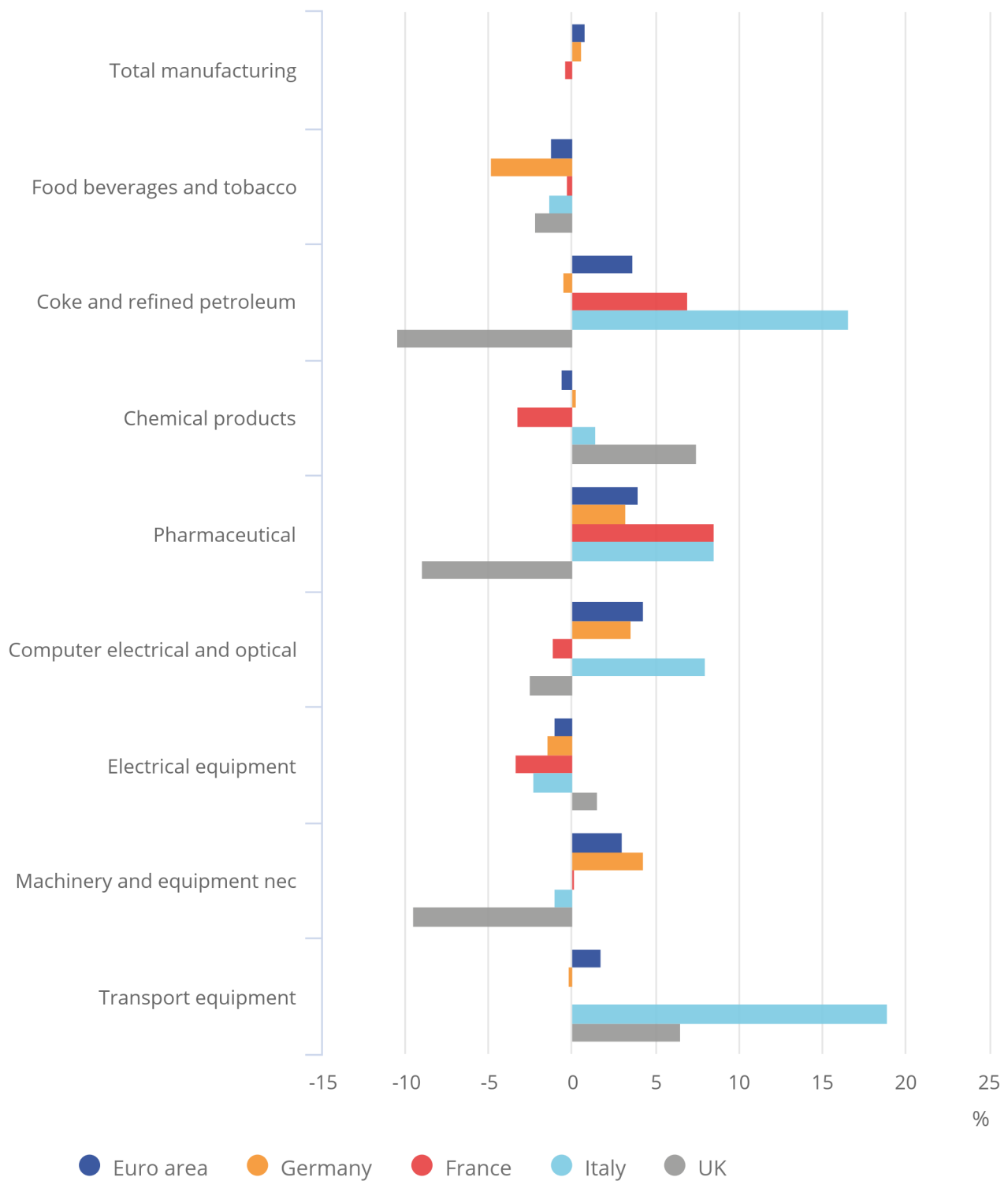
Figure 4 shows that the UK's comparable strength is currently concentrated in manufacture of chemical products; partially offset by relative weakness in the manufacturing of coke & refined petroleum products, as well as machinery & equipment not elsewhere classified. The latter includes general purpose machinery such as engines, turbines, pumps, compressors and gears among other products.

Figure 4: Month on a year ago manufacturing sub-industry percentage growth in the UK and the euro area

April 2015 compared with April 2014

Figure 4: Month on a year ago manufacturing sub-industry percentage growth in the UK and the euro area

April 2015 compared with April 2014



Notes:

1. Data for the UK are consistent with the March ONS Index of Production bulletin, while data for all other remaining economies have been sourced from Eurostat

[3]: <http://stats.oecd.org/index.aspx?queryid=90> "G7 nations manufacturing industries!"

6 . Gross domestic product (GDP) impact and components

In this release, the earliest period open for revision was April 2015, in line with the [National Accounts revisions policy \(41.6 Kb Pdf\)](#).

The estimates for the production industries are generally the first of the main components for the output approach to the measurement of GDP to be published (agriculture, [construction](#) and [services](#) are the other components). All the components are already available for Quarter 1 (Jan to Mar) 2015. Details of the data already published can be found in Table 2. [The Retail Sales Index](#) reported in Table 2 is not a direct component of the output approach to measuring GDP. It does, however, feed into estimates of GDP in 2 ways. Firstly, it feeds into the services industries when GDP is measured from the output approach. Secondly, it is a data source used to measure household final consumption expenditure which feeds into GDP estimates when measured from the expenditure approach.

Output in the construction industry for May 2015 will be published on 10 July 2015 and services output for the same period on 28 July 2015.

Table 2: GDP component table, May 2015, UK

Publication	Percentage of GDP	Release date	Month or quarter 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 ¹	14.6	07 Jul	May	1.4	1.0	2.1	0.4
			Apr	0.9	0.6	1.2	0.3
Construction	6.4	12 Jun	Apr	3.7	-0.4	1.5	-0.8
			Mar	4.4	-0.2	5.0	1.4
Index of services	78.4	30 Jun	Apr	3.0	0.5	2.8	0.2
			Mar	3.1	0.4	2.9	0.1
Retail sales		18 Jun	May	4.5	0.6	4.6	0.2
			Apr	4.8	0.6	4.6	0.9
Agriculture	0.6		Q1 2015 ₂	2.5	-2.3
			Q4 2014 ₂	10.2	1.2

Source: Office for National Statistics

Notes:

1. The data for the index of production reflects the latest revisions published as part of this release

2. Q1 = Jan to Mar, Q4 = Oct to Dec

7 . Production and sectors supplementary analysis

Table 3: Headline growth rates and contributions to the Index of Production, May 2015, UK

Description	Percentage of production	Month on same month a year ago growth (Percentage)	Contribution to production (Percentage points)	Month on previous month growth (Percentage)	Contribution to production (Percentage points)
IoP	100.0	2.1	2.10	0.4	0.4
Sector B	15.7	7.3	1.04	4.9	0.7
Division 06	12.9	12.8	1.33	7.3	0.8
Sector C	69.4	1.0	0.70	-0.6	-0.4
Sector D	7.1	-0.5	-0.04	0.6	0.0
Sector E	7.9	4.6	0.38	0.8	0.1

Source: Office for National Statistics

Notes:

1. Headline figures for the Index of Production are: Total Index of Production; Sector B Mining & quarrying; and within this Division 06 Oil & gas extraction; Sector C Manufacturing; Sector D Electricity, gas, steam & air conditioning; and Sector E Water supply, sewerage & waste management

Figure 5: Contribution to production percentage growth, between May 2014 and May 2015, UK

Figure 5: Contribution to production percentage growth,
between May 2014 and May 2015, UK

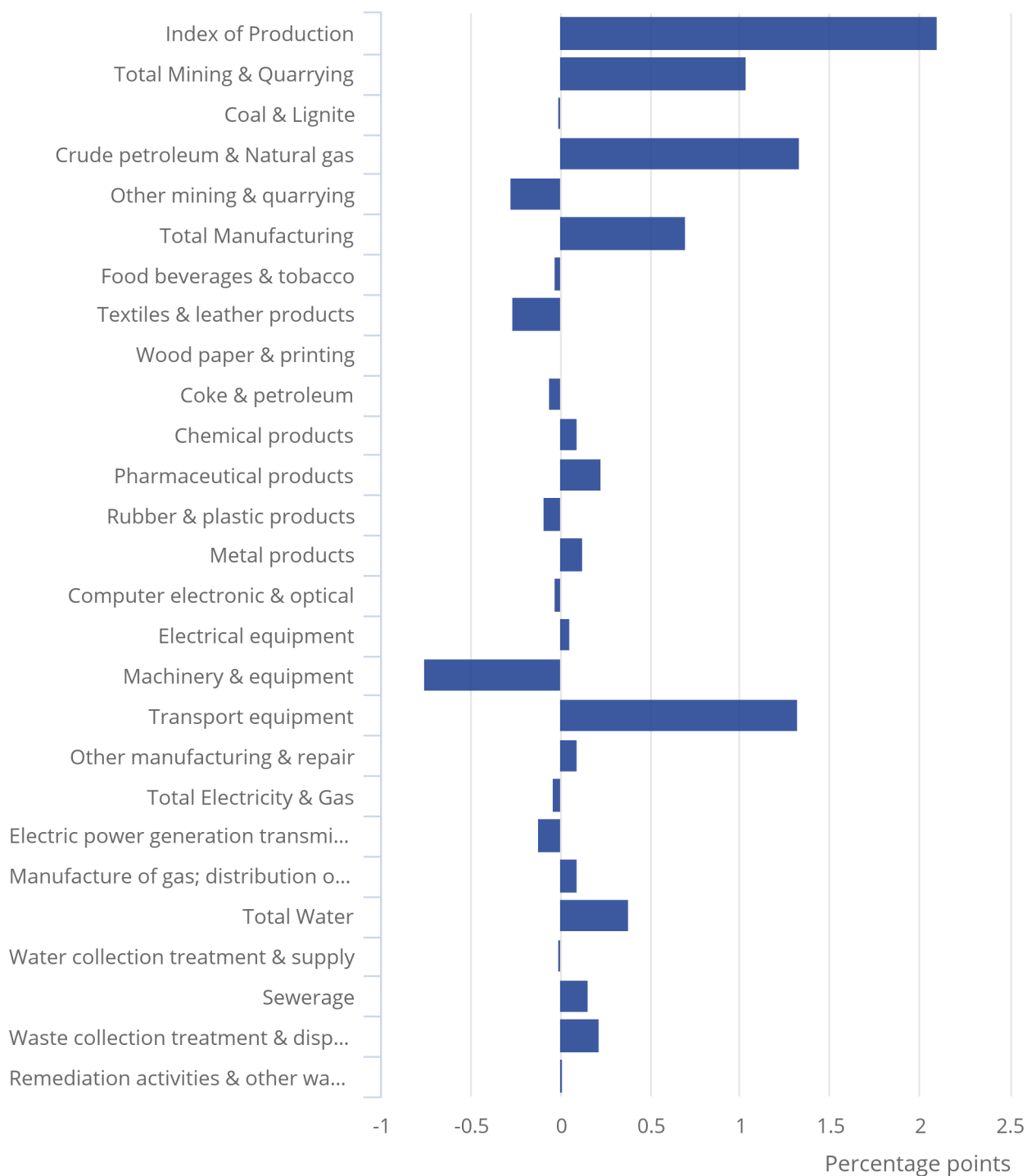
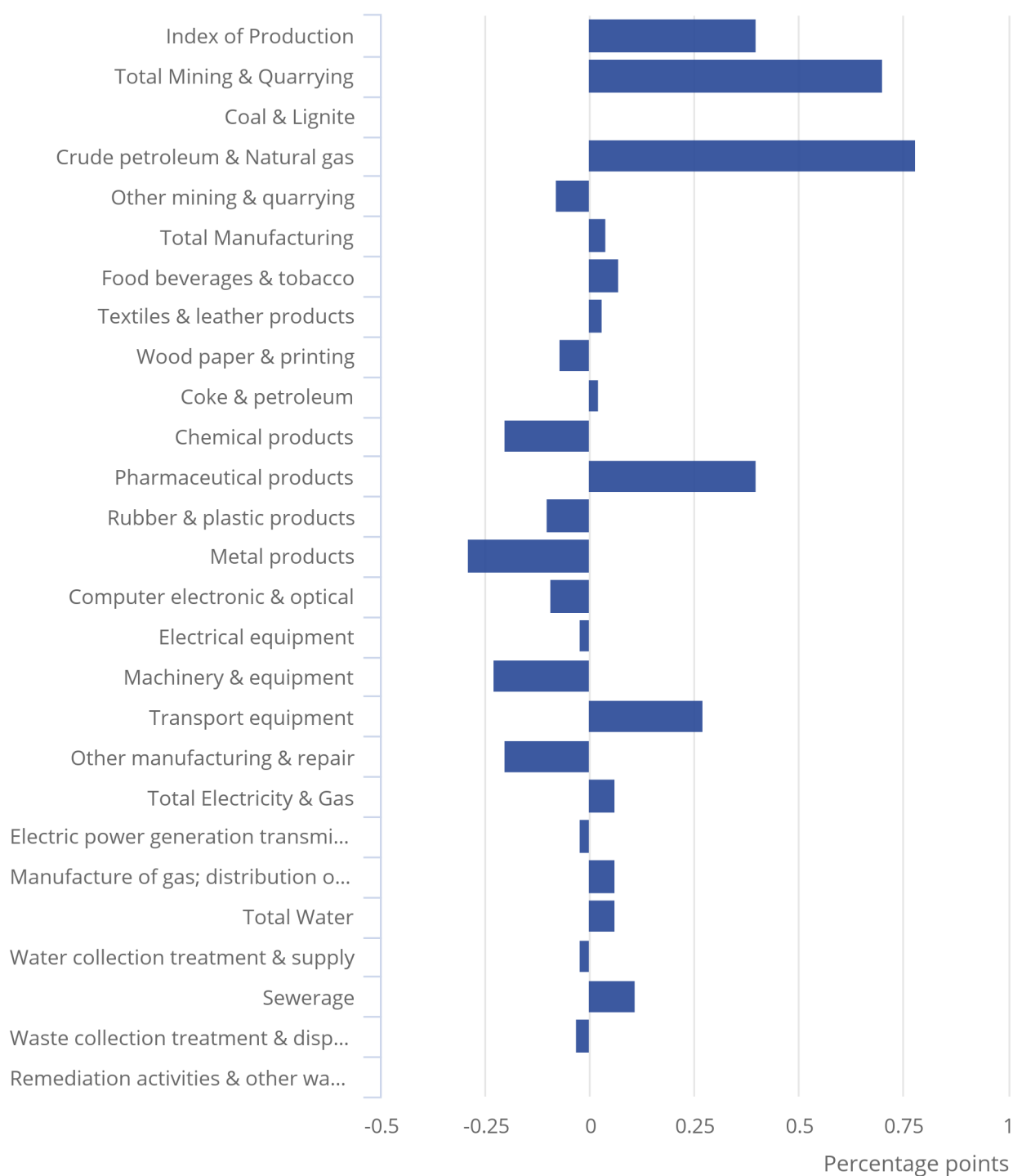


Figure 6: Contribution to production percentage growth, between April 2015 and May 2015, UK

Figure 6: Contribution to production percentage growth,
between April 2015 and May 2015, UK



Total production

Total production output in May 2015 increased by 2.1% compared with May 2014 (Table 3). This is the highest increase compared with a year ago since April 2014, when output increased by 3.0%. This increase reflected rises in 3 of its 4 main sectors with mining & quarrying, having the largest contribution, increasing by 7.3% and contributing 1.0 percentage points to total production. There were also increases in manufacturing of 1.0% and in water supply, sewerage & waste management of 4.6%. In contrast, electricity, gas, steam & air conditioning decreased by 0.5%, with a negligible contribution to total production.

Between April 2015 and May 2015, total production increased by 0.4% (Table 3). There were increases in 3 of its 4 main sectors. The largest upward contribution came from mining & quarrying, which increased by 4.9% and contributed 0.7 percentage points to total production. Partially offsetting the increases was a decrease in manufacturing, which decreased by 0.6% and had a downward contribution of 0.4 percentage points to total production.

Manufacturing

Manufacturing output increased by 1.0% between May 2014 and May 2015 and contributed 0.7 percentage points to total production growth. Output increased in 6 of the 13 manufacturing sub-sectors compared with a year ago (Figure 5). The manufacturing sub-sector with the largest upward contribution to total production growth was the manufacture of transport equipment, which increased by 11.0% and contributed 1.3 percentage points. The main contributor within this sub-sector was the manufacture of air, spacecraft and related machinery, which increased by 19.7% and contributed 0.9 percentage points to total production. This is mainly a contract-driven industry and anecdotal evidence suggested that increased exports were a contributing factor compared with a year ago.

In contrast, the manufacturing sub-sector with the largest downward contribution to total production compared with a year ago was the manufacture of machinery & equipment not elsewhere classified, which decreased by 14.6% and contributed 0.8 percentage points to total production. This was the eighth consecutive decrease compared with a year ago and weakness in the global market and a decrease in exports were cited as possible contributing factors compared with a year ago.

Manufacturing output decreased by 0.6% between April 2015 and May 2015, having decreased by 0.4% the previous month. There were decreases in 8 of the 13 manufacturing sub-sectors (Figure 6). The manufacturing sub-sector with the largest contribution to the decrease in total production was the manufacture of basic metals & metal products, which decreased by 3.7% and had a downward contribution of 0.3 percentage points to total production. This weakness followed a slight increase in output of 0.3% in the previous month. The main contributor within this sub-sector was the manufacture of weapons and ammunition, which decreased by 21.5%, following an increase of 3.8% in the previous month. This industry is contract-based, hence monthly volatility is expected.

In contrast to the above decreases, the manufacturing sub-sector with the largest upward contribution to total production was basic pharmaceutical products & pharmaceutical preparations, which increased by 7.9% and contributed 0.4 percentage points to total production, having decreased by 6.6% in the previous month. Anecdotal evidence suggested strong export sales were a contributing factor to the strength in this industry.

Mining & quarrying

Mining & quarrying output increased by 7.3% between May 2014 and May 2015 and contributed 1.0 percentage points to total production. The sub-sector with the largest upward contribution was the extraction of crude petroleum & natural gas, which increased by 12.8% and contributed 1.3 percentage points to total production (Figure 5). This increase compared with a year ago was the highest since September 2013, when output increased by 13.7%.

Mining & quarrying output increased by 4.9% in May 2015 compared with April 2015 and contributed 0.7 percentage points to total production. This was the third consecutive monthly increase. The sub-sector with the largest upward contribution was the extraction of crude petroleum & natural gas, which increased by 7.3% and contributed 0.8 percentage points to total production (Figure 6). This was also the third consecutive increase and the highest monthly growth since February 2014, when output increased by 10.5%. This was due to increases in crude oil production, gas and NGL (natural gas liquids) from offshore pipelines and offshore loaders in some of the North Sea terminals. Evidence from the Department of Energy and Climate Change (DECC) suggested the recent tax incentive announced in the March budget could be a contributing factor.

Electricity, gas, steam & air conditioning

Electricity, gas, steam & air conditioning output decreased by 0.5% in May 2015 compared with May 2014 and had a negligible contribution to total production (Figure 5). This reflected a decrease in 1 of its 2 sub-sectors, electric power generation, transmission & distribution, which decreased by 2.6% and had a downward contribution of 0.1 percentage points to total production. Anecdotal evidence suggested a fall in demand and a reduction in exports were contributing factors.

Electricity, gas, steam & air conditioning output increased by 0.6% in May 2015 compared with April 2015 and had a negligible contribution to total production (Figure 6), having had a decrease of 3.3% in the previous month. The increase was in 1 of its 2 sub-sectors, the manufacture of gas & distribution of gaseous fuels through mains, which increased by 3.0% and contributed 0.1 percentage points to total production. The monthly increase in this sub-sector followed a decrease of 5.9% in the previous month. Anecdotal evidence suggested a reduction in demand for domestic space heating and an increase in gas used for electricity generation could be contributing factors.

Water & waste management

Water supply, sewerage & waste management output increased by 4.6% in May 2015 compared with May 2014 and contributed 0.4 percentage points to total production. This increase reflected a rise in 3 of its 4 sub-sectors (Figure 5), with the largest upward contribution coming from waste collection, treatment & disposal activities, which increased by 6.6%, the fourth consecutive increase, and contributed 0.2 percentage points to total production.

Water supply, sewerage & waste management output increased by 0.8% between April 2015 and May 2015, the fifth consecutive increase since December 2014. This increase reflected a rise in 1 of its 4 sub-sectors (Figure 6), with the largest contribution coming from sewerage, which increased by 4.5% and contributed 0.1 percentage points to total production.

Revisions to IoP

Revisions to the Index of Production follow the [National Accounts Revisions policy](#). Revisions are caused by a number of factors including, but not limited to revisions to source data due to late responses to the monthly business survey (MBS), actual data replacing forecast data and revisions to seasonal factors that are re-estimated every period. We produce revisions triangles of production and manufacturing growth to provide users with an indication of the reliability of this key indicator. Statistical tests are performed on the average revision to test if it is statistically significantly different from zero. Further information can be found in background note 5.

In this release of data, the earliest period open for revision was April 2015. The month-on-month growth rate for loP in April 2015 was revised downwards by 0.1%. Further details on the revisions to loP components can be found in the loP5R tables, located within the data section of this release.

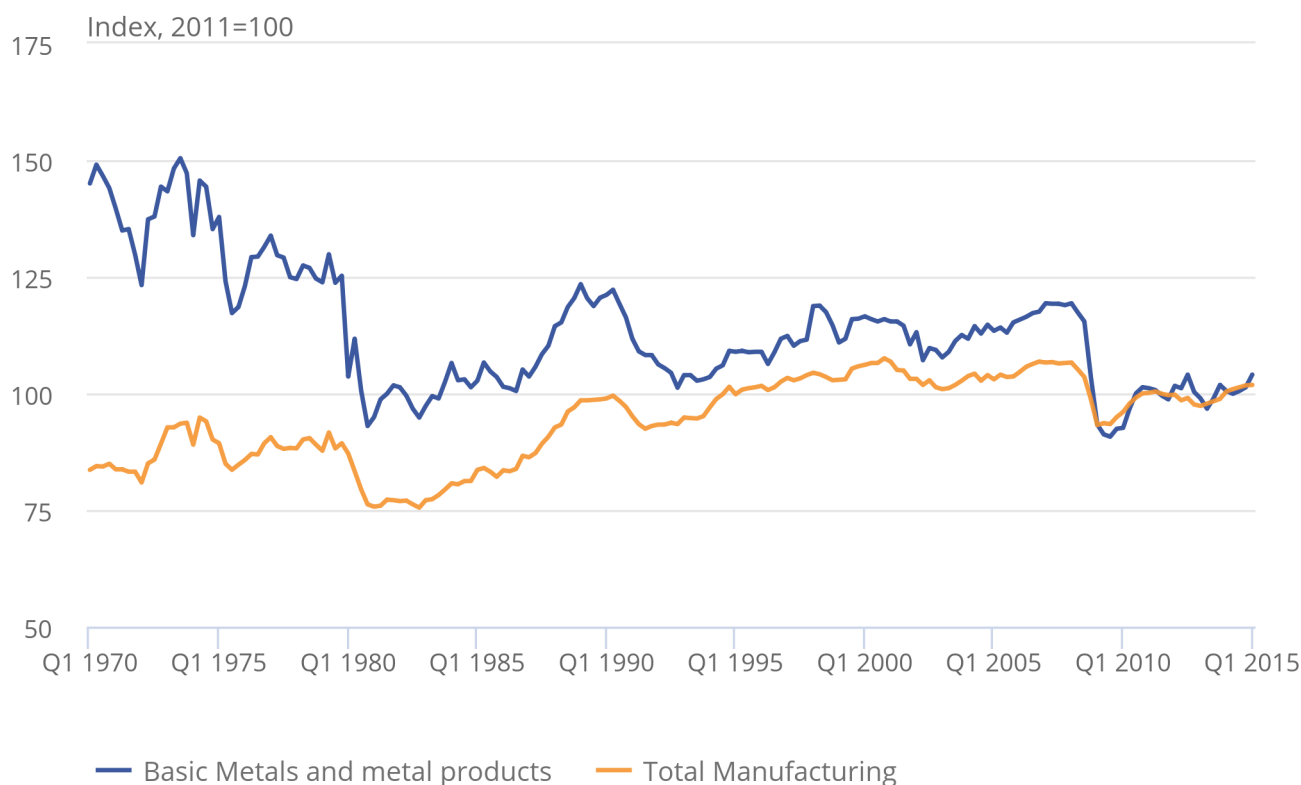
8 . Industry spotlight: Manufacture of basic metals and metal products

Industry CH covers “basic metals and metal products” in the Index of Production data and accounts for around 10.6% of manufacturing output. According to the Standard Industrial Classification (SIC07), industry CH includes the manufacture of basic metals (division 24), which covers the activities of basic iron and steel, and other basic metals and castings. The industry also includes the “manufacture of fabricated metal products except machinery and equipment” (division 25), which consists of “fabricated metal products” and “weapons & ammunition”. Division 24 and Division 25 account for 20% and 80% of the total industry respectively.

Industry CH currently produces a markedly lower level of output compared to its peak level seen in Quarter 3 (July to Sep) 1973. A historical look at the “basic metals and metal products” industry shows a downward trend in contrast to the upward trend observed in total manufacturing (Figure 7). Industry CH experienced strong growth from Quarter 1 (Jan to Mar) 1972 to its peak in Quarter 3 (July to Sep) 1973, rising at an average rate of 3.5% per quarter. However, output in the industry then started following a downward trend before falling by 24.0% between Quarter 1 (Jan to Mar) 2008 and Quarter 3 (July to Sep) 2009. The subsequent recovery has been erratic and output remains 12.8% below Quarter 1 (Jan to Mar) 2008 levels.

Figure 7: Quarterly manufacturing output of basic metals and metal products and total manufacturing, seasonally adjusted, Quarter 1 (Jan to Mar) 1970 to Quarter 1 (Jan to Mar) 2015, UK

Figure 7: Quarterly manufacturing output of basic metals and metal products and total manufacturing, seasonally adjusted, Quarter 1 (Jan to Mar) 1970 to Quarter 1 (Jan to Mar) 2015, UK



Source: Primarily Monthly Business Survey (Production and Services) - Office for National Statistics

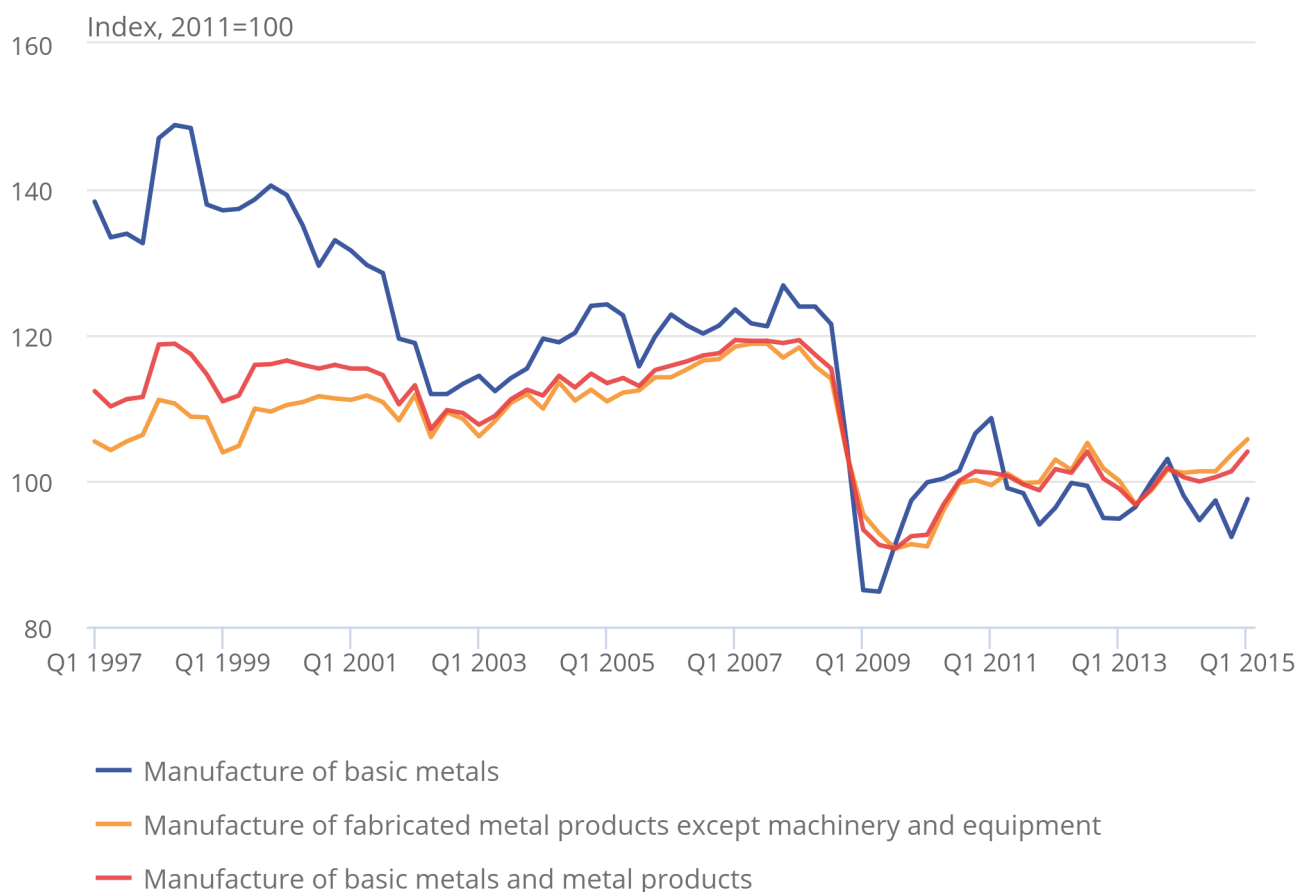
Notes:

1. Throughout this chart Q1 refers to Quarter 1 (January to March), Q2 refers to Quarter 2 (April to June), Q3 refers to Quarter 3 (July to September) and Q4 refers to Quarter 4 (October to December)

The manufacture of basic metals and the manufacture of fabricated products except machinery and equipment are currently below the peak levels experienced before the downturn. The quarterly paths of Divisions 24 and 25 since Quarter 1 (Jan to Mar) 1997 have been following a downward trend, which is more pronounced for Division 24 (Figure 8). Divisions 24 and 25 were strongly affected during the downturn, with output contracting by 26.3% and 23.3% respectively between Quarter 1 (Jan to Mar) 2008 and Quarter 3 (July to Sep) 2009. The contraction of Division 24 over this period was sharper followed by a quicker but more volatile recovery than the one seen in Industry 25. Despite the erratic recovery, both divisions remain below their Quarter 1 (Jan to Mar) 2008 level, by 21.3% and 10.7% respectively.

Figure 8: Comparison between divisions 24, 25 and the manufacture of basic metal and metal products, Quarter 1 (Jan to Mar) 1997 to Quarter 1 (Jan to Mar) 2015, UK

Figure 8: Comparison between divisions 24, 25 and the manufacture of basic metal and metal products, Quarter 1 (Jan to Mar) 1997 to Quarter 1 (Jan to Mar) 2015, UK



Source: Primarily Monthly Business Survey (Production and Services) - Office for National Statistics

Notes:

1. Throughout this chart Q1 refers to Quarter 1 (January to March), Q2 refers to Quarter 2 (April to June), Q3 refers to Quarter 3 (July to September) and Q4 refers to Quarter 4 (October to December)

9. Background notes

1. What's new?

Some news articles that provide supplementary information regarding the Energy sector, which may be of interest:-

Last month [70 countries including UK met to agree on energy cooperation and investment](#). Source: Offshore Energy Today.com.

[Norway experienced increases in terms of oil production last month as did the UK](#). Source: Offshore Energy Today.com.

[The Queen's speech](#) and March budget announced measures to improve energy security. Source: Offshore Energy Today.com.

[The Assessment of Short-Term Economic Output Indicators: Preliminary Estimate of GDP, Indices of Production and Services, and Retail Sales](#) has been published on the UK Statistics Authority website. See assessment report number 278 for further details.

On 7 January 2015, the following papers were published on our website:

[Impact of quarterly employment question on monthly survey response \(163.7 Kb Pdf\)](#).

[Monthly Business Survey variance of change \(110 Kb Pdf\)](#).

Upcoming changes

The Index of Production release for June 2015, to be published on 6 August 2015, will have a revisions period back to April 2015.

In September 2014 the industry review timetable was published as part of the GDP(O) Improvement Report stating that during July 2015, 4 industry reviews would be published. However, the publication of these reviews will now be delayed. The 4 industry reviews are:

- professional services
- water transport
- social care
- post and courier services

The National Accounts (NA) work plan will be published early summer, outlining future priorities for NA and this project. An update to users will follow the agreement of the NA work plan and will provide further information of the progress of industry reviews. Should you have any queries please contact us at STOI.Development@ons.gov.uk.

2. 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.

3. Understanding the data

Short guide to the Index of Production

This statistical bulletin gives details of the index of output of the production industries in the United Kingdom. Index numbers of output in this statistical bulletin are on the base 2011=100 and are classified to the 2007 [Standard Industrial Classification \(SIC\)](#). The production industries, which accounted for 14.6% of gross domestic product in 2011, cover mining & quarrying (Section B), manufacturing (Section C), gas & electric (Section D), and water supply & sewerage (Section E).

Interpreting the data

The non-seasonally adjusted series contain elements relating to the impact of the standard reporting period, moving holidays and trading day activity. When making comparisons it is recommended that users focus on seasonally adjusted estimates as these have the seasonal effects and systematic calendar related components removed.

Figures for the most recent months are provisional and subject to revision in light of:

- late responses to surveys and administrative sources
- revisions to seasonal adjustment factors which are re-estimated every month and reviewed annually (changes from the latest review are included in this release)

Definitions and explanations

Definitions found within the main statistical bulletin are listed:

- chained volume measure - an index number from a chain index of quantity. The index number for the reference period of the index may be set equal to 100 or to the estimated monetary value of the item in the reference period
- index number - a measure of the average level of prices, quantities or other measured characteristics relative to their level for a defined reference period or location. It is usually expressed as a percentage
- seasonally adjusted - seasonal adjustment aids interpretation by removing effects associated with the time of the year or the arrangement of the calendar, which could obscure movements of interest

Use of the data

The IoP is a key economic indicator and one of the earliest short-term measures of economic activity. The main output is a seasonally adjusted estimate of total production and broad sector groupings of mining & quarrying, manufacturing, energy and water supply & sewerage. The total IoP estimate and various breakdowns are widely used in private and public sector institutions, particularly the Bank of England, Her Majesty's Treasury and the Office for Budget Responsibility, to assist in informed policy and decision making.

4. Methods

An article about the [Index of Production methodology \(78.4 Kb Pdf\)](#) is available on our website.

Composition of the data

The Index of Production uses a variety of different data from sources which are produced on either a quarterly or monthly basis.

Most of the series are derived using current price turnover deflated by a suitable price index. This includes the monthly business survey (MBS) data; Our short-term survey of various industries in the economy. It is one of the main data sources used in the compilation of the Index of Production.

Approximately 70% of the IoP estimates are based on data collected through our monthly business survey (MBS). The remainder are based on data received from external sources. The MBS response rates for data included in this publication are presented in Table 4 for the current month and the 3 months prior. The response rates for the historical periods are updated to reflect the current level of response, incorporating

data from late returns. Two response rates are included with one percentage for the amount of turnover returned and the other percentage for the amount of questionnaire forms. We have also published [MBS historical production industries response rates back to 2010 \(34 Kb Excel sheet\)](#).

Table 4: Monthly business survey (MBS) response rates, May 2015, UK

	Percentage			
	Year Period		Turnover	Questionnaire
MBS overall	2015	Apr	87.9	75.4
		Mar	94.5	82.4
		Feb	96.9	85.5
		Jan	96.1	86.9
MBS production only	2015	Apr	88.5	78.2
		Mar	95.0	85.4
		Feb	96.6	87.7
		Jan	98.4	89.4

Source: Office for National Statistics

Seasonal adjustment

The index numbers in this statistical bulletin are all seasonally adjusted in line with international best practise using software called X-13-ARIMA-SEATS. 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 effects of day of the week and Easter are used respectively to make trading day and Easter adjustments prior to seasonal adjustments.

Although leap years only happen every 4 years, they are predictable and regular and their impact can be estimated. Hence, if there is a leap year effect, it is removed as part of regular seasonal adjustment.

Deflation

It is common for the value of a group of financial transactions to be measured in several time periods. The values measured will include both the change in the volume sold and the effect of the change of prices over that year. Deflation is the process whereby the effect of price change is removed from a set of values.

All series, unless otherwise quoted, are chained volume measures. Deflators adjust the value series to take out the effect of price change to give the volume series.

5. Quality

Basic quality information

A common pitfall in interpreting data is that expectations of accuracy and reliability in early estimates are often too high. Revisions are an inevitable consequence of the trade off between timeliness and accuracy. Early estimates are based on incomplete data.

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 inherent 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 failures, and such mistakes are made quite clear when they do occur.

Quality and methodology information report

A quality and methodology information report for this statistical bulletin can now be found on our website.

Revision triangles

One indication of the reliability of the key indicators in this bulletin can be obtained by monitoring the size of revisions. Table 5 is based on the revisions which have occurred over the last 5 years. Please note that these indicators only report summary measures for revisions. The revised data may, themselves, be subject to sampling or other sources of error.

Table 5 presents a summary of the differences between the first estimates published between June 2008 and May 2014 and the estimates published 12 months later.

Table 5: Revisions, May 2015, UK

Growth rates	Value in latest period	Percentage change	
		Revisions between first publication and estimates 12 months later	
		Average over the last 60 months	Average over the last 60 months without regard to sign (average absolute revision)
Production - 3 month	1.0	-0.14	0.28
Manufacturing - 3 month	0.0	-0.15	0.28
Production - 1 month	0.4	-0.10	0.27
Manufacturing - 1 month	-0.6	-0.08	0.27

Source: Office for National Statistics

[Spreadsheets give revisions triangles \(4.5 Mb ZIP\)](#) of estimates for all months from March 1998 through to the current month.

A statistical test has been applied to the average revisions to find out if they are statistically significantly different from zero. An asterisk (*) indicates if a figure has been found to be statistically significant from zero.

The table uses historical data for the most recent 60 months, comparing the estimate at first publication with the estimate as published 12 months later. The numbers which underpin these averages include normal changes due to late data and re-seasonal adjustment, but also significant methodological changes, the most recent being the introduction of the 2007 standard industrial classification in October 2011.

The result presented in Table 5 suggests that the average revision for our 3 monthly estimates is not statistically significantly different from zero and that there are small downward revisions for our monthly production estimates over 12 months. In other words, the initial estimates for any given period provide a good indication of the later IoP estimates once more data have become available.

6. Publication policy

Details of the policy governing the release of new data are available from our media relations office. Also available is a [list of those given pre-publication access](#) to the contents of this release. A complete set of series in the statistical bulletin are available to download free of charge on the Data section of the Office for National Statistics website. Alternatively, for low-cost tailored data, call Online Services on 0845 601 3034 or email [Customer Contact Centre](#).

7. Accessing data

The complete run of data in the tables of this statistical bulletin is also available to view and download in electronic format free of charge using the [ONS Time Series Data service](#). Users can download the complete bulletin in a choice of zipped formats, or view and download their own selections of individual series.

We provide an [analysis of past revisions in the IoP and other statistical bulletins \(244.6 Kb Pdf\)](#) which present time series. Details can be found on our website.

We publish [revisions triangles \(65.8 Kb Pdf\)](#) for all the main published key indicators on our website.

8. Relevant links

In November 2014, [Government Statistical Service \(GSS\) uncertainty guidance](#) was published.

The Changing Shape of UK Manufacturing, an event coordinated jointly with the Department for Business, Innovation and Skills, took place on 22 October 2014. The event featured a range of talks from users, producers and suppliers of manufacturing statistics, not just from government, but also business representatives and academics. To view the content of the day, please visit Storify

[Disclosure control policy \(337 Kb Word document\)](#)

[The UK has one of the fastest growing economies in the G7](#)

We have [published a short story](#) describing how the pharmaceuticals industry has changed over time.

[Impact on National Accounts of Producer Price Index Rebasing](#)

On 17 September 2014 a [Summary of upcoming changes to GDP](#) was published.

An article titled [Impact of upcoming improvements on estimates of real and nominal annual and quarterly GDP: 1997 to 2012](#) was published on 3 September 2014.

On 31 October 2014, we published [updated methodology](#) for the IoP on the guidance and methodology web pages. The updated documentation includes a new and comprehensive source catalogue detailing the methods, data and weights used to compile IoP, IoS and GDP(O).

The [GDP Output Improvement Report](#), published on 30 September 2014, provides a detailed update of the implementation of improvements for Blue Book 2014, progress on industry reviews and wider cross-cutting improvements, a comprehensive timetable for the industry review project, an update of industry quality ratings and progress on experimental statistics.

On 6 November 2014 we published a short story looking at the changing shape of the UK aerospace manufacturing industry.

9. Customer feedback

We have received some comments from users regarding the Index of Production. These have mainly been in 3 areas and the bullet points detail the action we have taken, or plans to take, to address these concerns:

- users commented that longer timeseries would be useful so [long run timeseries](#) of data for the main IoP industries are available. Furthermore, [data at 4 decimal places for IoP and the main sub-sectors is now available \(56 Kb Excel sheet\)](#)
- users would like more information on data content. From the bulletin published on 11 March 2015, response rates for the Monthly Business Survey data feeding in to IoP were included

- users also raised concerns that the IoP is not benchmarked to annual data through the supply and use framework. This is being addressed as part of our [response \(875 Kb Pdf\)](#) to the [National Statistics Quality Review of National Accounts \(570.9 Kb Pdf\)](#).

As a reader and user of our statistics we would welcome your feedback on the content of this publication, your views for improvement and on the way you currently use our statistics. If you would like to get in touch or to send your feedback please contact us via email: indexofproduction@ons.gsi.gov.uk.

10. Following ONS

Follow @ONS on [Twitter](#) and receive up to date information about our statistical releases.

Like our [Facebook page](#) to receive our updates in your newsfeed and to post comments on our page.

11. Next publication: Thursday 6 August 2015 Issued by :

Office for National Statistics
Government Buildings
Cardiff Road
Newport
NP10 8XG

Media contact: Tel: Media Relations Office +44 (0) 845 6041858 Emergency on-call +44 (0) 7867 906553
Email: [Media Relations Office](#)

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