

Statistical bulletin

UK index of production: Dec 2016

Measures the volume of production at base year prices for the manufacturing, mining and quarrying, energy supply, and water and waste management industries. These are seasonally adjusted figures on the index of output of the production industries.



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Release date:
10 February 2017

Next release:
10 March 2017

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1 . Main points

- The Index of Production for Quarter 4 (Oct to Dec) 2016 was estimated to have increased by 0.3%, revised upwards from 0.0% in the [Gross domestic product preliminary estimate: Oct to Dec 2016](#).
- Manufacturing provided the largest contribution to quarterly growth, largely due to a strong increase in the volatile pharmaceuticals industry.
- In December 2016, total production was estimated to have increased by 1.1% compared with November 2016; the only contribution to the increase came from manufacturing.
- Total production output for 2016 as a whole is estimated to have increased by 1.2%, with manufacturing providing the largest contribution, which increased by 0.7%.

2 . Things you need to know about this release

The Index of Production (IoP) is an important economic indicator and one of the short-term measures of economic activity in the UK. It is used in the compilation of gross domestic product (GDP); the production industries' weight accounts for 14.6% of the [output approach to the measurement of GDP](#).

The IoP measures the UK output in the mining and quarrying; manufacturing; energy supply; and water supply and waste management industries. The IoP estimates are mainly based on the Monthly Business Survey (MBS) of approximately 6,000 businesses. For the mining and quarrying and energy supply sectors, and 2 manufacturing industries namely coke and refined petroleum and basic iron and steel, we receive volume data from the [Department for Business, Energy and Industrial Strategy \(BEIS\)](#) and the [International Steel Statistics Bureau \(ISSB\)](#) respectively. Unless otherwise stated all estimates included in this release are based on seasonally adjusted data. The current price non-seasonally adjusted estimates of industries collected by the MBS can be found in today's publication of [TOPSI: Production and services turnover](#).

As part of the short-term economic indicators theme day, IoP produces the [proportion of turnover from exports](#), by industry. [Level of exports \(£ millions\)](#) is published in TOPSI. However, this is not always comparable with UK trade statistics, for a number of reasons. These include, but are not limited to:

- different data sources – IoP and TOPSI are based on a survey of businesses; UK trade in goods uses administrative data collected by HM Revenue and Customs (HMRC)
- different concepts being measured – IoP reports the value of exports as a proportion of the industry's turnover; UK trade in goods reports the change in ownership between the UK and other countries
- time lag – there can be time lags between the sale of a product reported in IoP and the movements of that product reported by UK Trade

Further information on UK trade and how their data are compiled can be found in the 'Things you need to know' section of the [UK trade](#) release.

This release has a revisions period back to January 2016. Revisions can be made for a variety of reasons, the most common include:

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

This revisions period is consistent with the National Accounts [revisions policy](#).

Care should be taken when using the month-on-month growth rates as data can often be volatile; longer-term growth rates and examination of the time series allow for better interpretation of the statistics.

Summary information can be found in the [Quality and Methodology Information](#) report.

3 . Index of Production (IoP) main figures and the longer-term trend

Table 1 shows the growth rates and contributions for the IoP and main sectors for December 2016. The monthly estimate of total production increased by 1.1%. There were mixed performances across the 4 production sectors; manufacturing provided all the growth, increasing by 2.1%.

The 3 months-on-previous 3 months estimate of total production increased by 0.3% in December 2016, with increases in 3 of the 4 main sectors. The largest contribution came from manufacturing, with growth of 1.2%.

Table 1: Index of Production headline growth rates and contributions, December 2016, UK

Description ¹	% of production ²	Month on previous month growth (%)	Contribution to production (% points)	Most recent 3 months on previous 3 months growth (%)	Contribution to production (% points)
IoP	100.0	1.1	1.09	0.3	0.34
Sector B	12.0	-1.1	-0.14	-7.0	-0.93
Sector C	70.0	2.1	1.43	1.2	0.83
Sector D	10.4	-2.0	-0.19	3.1	0.29
Sector E	7.5	0.0	0.00	2.0	0.16

Source: Office for National Statistics

Notes:

1. IoP Total Index of Production; Sector B mining and quarrying; and within this, Division 06 oil and gas extraction; Sector C manufacturing; Sector D electricity, gas, steam and air conditioning; and Sector E water supply, sewerage and waste management.

2. "% of production" column does not add up to 100 due to rounding.

Figure 1: Seasonally adjusted index of manufacturing, December 2006 to December 2016, UK



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

Notes:

1. Quarter 1 (Jan to Mar) 2008 to Quarter 2 (Apr to June) 2009 – UK economic downturn.
2. 24 Jun 2016 – the result of the EU referendum was announced.

Figure 1 shows that both the Index of Production and Index of Manufacturing followed a broadly upward trend following the economic downturn. Growth was more pronounced from the beginning of 2010, as the economy recovered, before a slight downturn during 2012. Since then, both production and manufacturing output have steadily risen but remain well below their level reached in the pre-downturn gross domestic product (GDP) peak in Quarter 1 (Jan to Mar) 2008 by 7.6% and 4.2% respectively.

When examining the production and manufacturing 3 months-on-previous 3 months growth rates, their pre-downturn peak was in the 3 months to February 2008. In the 3 months to December 2016, production and manufacturing were 8.1% and 4.7% lower when compared with the pre-downturn peak in February 2008.

4 . What is contributing to the quarterly increase?

The largest contribution to the increase of 0.3% in the 3 months-on-previous 3 months to December 2016 came from manufacturing, which rose by 1.2%. The increase of 1.2% in manufacturing was mainly due to a large growth of 9.8% in pharmaceuticals, which can be highly erratic. The energy supply and water supply sectors provided additional upward pressure.

This growth is largely offset by a decrease of 7.0% in the mining and quarrying sector mainly due to decreased oil and gas output, as the [Buzzard oil field](#) was shut down for maintenance during October.

Table 2: Growths and contributions to production, 3 months-on-previous 3 months, December 2016, UK

Sector	Summary description	3 months on previous 3 months growth (percentage)	Contribution to production (percentage points)
IoP	Index of Production	0.3	0.34
Sector B	Total Mining and Quarrying	-7.0	-0.93
5	Coal and Lignite	1.9	0.00
6	Crude petroleum and Natural gas	-8.1	-0.90
789	Other mining and quarrying	-1.5	-0.03
Sector C	Total Manufacturing	1.2	0.83
CA	Food, beverages and tobacco	-0.1	-0.01
CB	Textiles and leather products	-2.1	-0.05
CC	Wood, paper and printing	0.9	0.04
CD	Coke and petroleum	3.9	0.03
CE	Chemical products	-0.7	-0.03
CF	Pharmaceutical products	9.8	0.53
CG	Rubber and plastic products	0.6	0.03
CH	Metal products	1.1	0.09
CI	Computer, electronic and optical	2.3	0.08
CJ	Electrical equipment	4.6	0.08
CK	Machinery and equipment	0.5	0.02
CL	Transport equipment	0.3	0.03
CM	Other manufacturing and repair	-0.6	-0.04
Sector D	Total Electricity and Gas	3.1	0.29
35.1	Electric power generation, transmission and distribution	0.7	0.05
35.2-3	Manufacture of gas; distribution of gaseous fuels through mains; steam and aircon supply	8.2	0.24
Sector E	Total Water	2.0	0.16
36	Water collection, treatment and supply	0.7	0.02
37	Sewerage	3.2	0.07
38	Waste collection, treatment and disposal activities; materials recovery	2.0	0.07
39	Remediation activities and other waste management services	2.0	0.00

Source: Office for National Statistics

5 . What is contributing to the month-on-month increase?

The monthly estimate of total production increased by 1.1% in December 2016 (Table 3). This followed an increase of 2.0% in the previous month. The increase in total production was due to broad-based increases in manufacturing. Pharmaceuticals (which can be highly erratic) provided the largest contribution to the growth, increasing by 8.3%. Other large contributions to the increase came from basic metals and other manufacturing and repair not elsewhere classified, which increased by 4.5% and 3.7% respectively.

In contrast, the electricity, gas, steam and air conditioning sector provided the largest downward contribution to IoP, with both sub-sectors providing a similar downward contribution. Feedback from the Department for Business, Energy and Industrial Strategy (BEIS) suggested the increase in temperature (from 4.9 degrees Celsius to 5.9 degrees Celsius (source: [Met Office](#)) between November and December was a contributing factor to the decrease.

Table 3: Growths and contributions to production, month-on-previous month, December 2016, UK

Sector	Summary description	Month on previous month growth (percentage)	Contribution to production (percentage points)
IoP	Index of Production	1.1	1.09
Sector B	Total Mining and Quarrying	-1.1	-0.14
5	Coal and Lignite	-10.2	0.00
6	Crude petroleum and Natural gas	-1.1	-0.11
789	Other mining and quarrying	-1.4	-0.03
Sector C	Total Manufacturing	2.1	1.43
CA	Food, beverages and tobacco	1.0	0.11
CB	Textiles and leather products	2.3	0.05
CC	Wood, paper and printing	-0.1	-0.01
CD	Coke and petroleum	-4.3	-0.04
CE	Chemical products	0.7	0.03
CF	Pharmaceutical products	8.3	0.49
CG	Rubber and plastic products	-0.5	-0.03
CH	Metal products	4.5	0.35
CI	Computer, electronic and optical	3.7	0.13
CJ	Electrical equipment	-1.9	-0.04
CK	Machinery and equipment	1.0	0.05
CL	Transport equipment	0.9	0.09
CM	Other manufacturing and repair	3.7	0.24
Sector D	Total Electricity and Gas	-2.0	-0.19
35.1	Electric power generation, transmission and distribution	-1.6	-0.11
35.2-3	Manufacture of gas; distribution of gaseous fuels through mains; steam and aircon supply	-2.7	-0.09
Sector E	Total Water	0.0	0.00
36	Water collection, treatment and supply	0.3	0.01
37	Sewerage	-0.2	0.00
38	Waste collection, treatment and disposal activities; materials recovery	0.0	0.00
39	Remediation activities and other waste management services	-1.8	0.00

Source: Office for National Statistics

6 . What is contributing to the month-on-same-month a year ago increase?

Table 4 shows that in December 2016 compared with December 2015, total production output increased by 4.3%. All main sectors increased, with the largest contribution provided by manufacturing. Within manufacturing, pharmaceuticals, basic metals and transport equipment were the main contributors to growth. The increased level (£ millions) of exports compared with the same month on a year ago was a factor in the increases in pharmaceuticals and motor vehicles, trailers and semi-trailers within transport equipment. The non-seasonally adjusted level data for turnover and exports (£ millions) for both of these industries as well as others collected by Monthly Business Survey (MBS) can be seen in [TOPSI: Production and services turnover](#), published alongside this release. We also publish non-seasonally adjusted [export proportions](#) in current prices as part of this release, which also show increased exports in both of these industries.

Table 4: Growths and contributions to production, month-on-same month a year ago, December 2016, UK

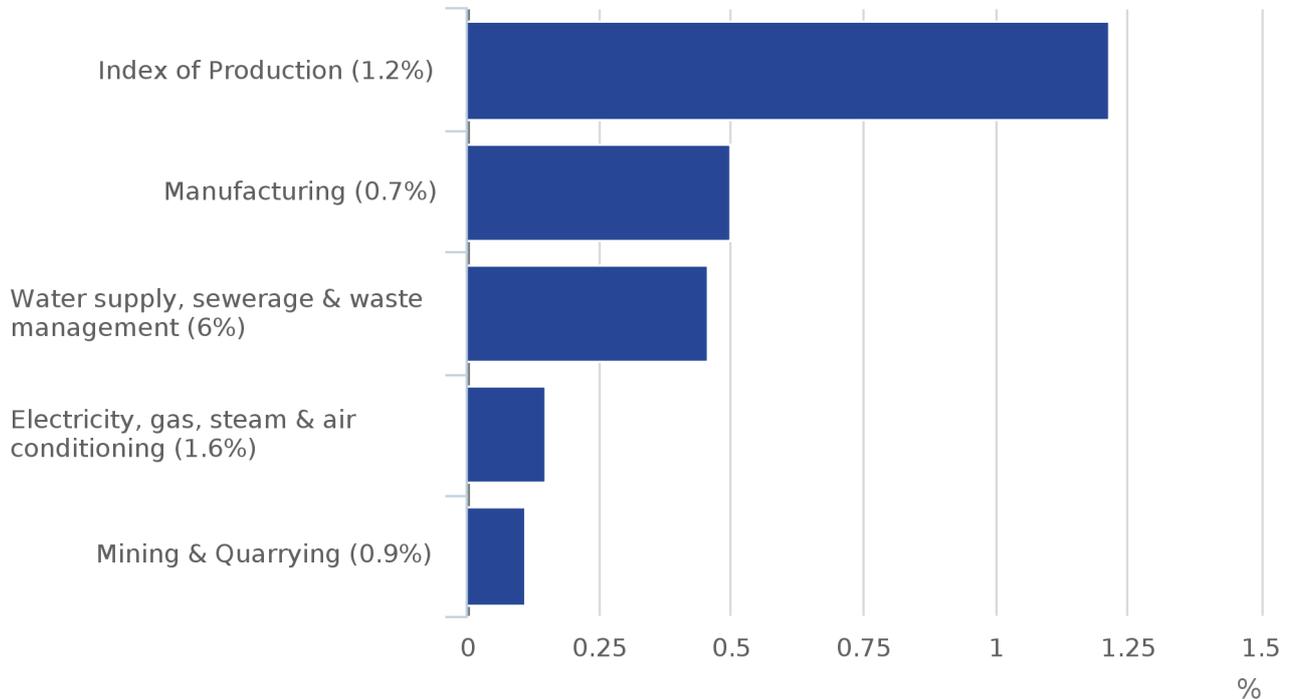
Sector	Summary description	Month on same month a year ago growth (percentage)	Contribution to production (percentage points)
IoP	Index of Production	4.3	4.33
Sector B	Total Mining and Quarrying	1.9	0.24
5	Coal and Lignite	-42.6	-0.01
6	Crude petroleum and Natural gas	5.0	0.52
789	Other mining and quarrying	-10.8	-0.26
Sector C	Total Manufacturing	4.0	2.84
CA	Food, beverages and tobacco	1.0	0.11
CB	Textiles and leather products	-0.8	-0.02
CC	Wood, paper and printing	1.9	0.10
CD	Coke and petroleum	-4.5	-0.04
CE	Chemical products	0.8	0.03
CF	Pharmaceutical products	19.1	1.06
CG	Rubber and plastic products	2.7	0.16
CH	Metal products	6.3	0.51
CI	Computer, electronic and optical	4.1	0.15
CJ	Electrical equipment	-2.0	-0.04
CK	Machinery and equipment	3.1	0.14
CL	Transport equipment	3.6	0.37
CM	Other manufacturing and repair	4.7	0.31
Sector D	Total Electricity and Gas	9.3	0.84
35.1	Electric power generation, transmission and distribution	1.1	0.07
35.2-3	Manufacture of gas; distribution of gaseous fuels through mains; steam and aircon supply	31.3	0.77
Sector E	Total Water	5.2	0.41
36	Water collection, treatment and supply	2.9	0.06
37	Sewerage	4.9	0.12
38	Waste collection, treatment and disposal activities; materials recovery	7.0	0.23
39	Remediation activities and other waste management services	7.0	0.01

Source: Office for National Statistics

7 . Annual summary, 2016

The IoP annual growth for 2016 compared with 2015 was 1.2%. All main sectors support the growth (Figure 2). By order of contribution the largest growth came from manufacturing, 0.7%; water supply, sewerage and waste management, 6.0%; electricity, gas, steam and air conditioning, 1.6%; followed by mining and quarrying, 0.9%.

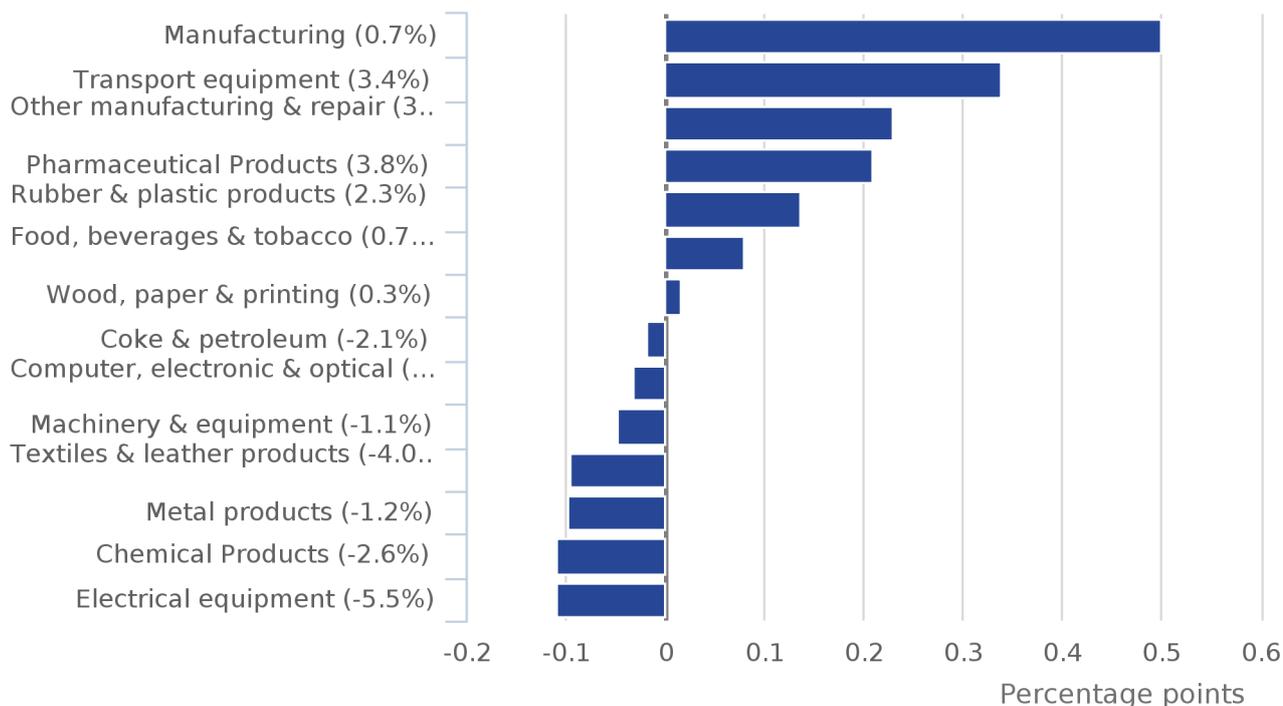
Figure 2: Growths and contributions to total production, year-on-year, 2016, UK



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

Figure 3 shows that within manufacturing, the largest contribution to the annual growth came from transport equipment; increased exports were reported in the Monthly Business Survey data when compared with 2015. (See [TOPSI exports](#) table 29 for the annual level (£ millions) increases.)

Figure 3: Growths and contributions to manufacturing, year-on-year, 2016, UK



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

8 . Links to related statistics

The corresponding price indices used to deflate the Index of Production are published in the monthly publication of [UK producer price inflation](#). Product sales by manufacturers are published on an annual basis in [UK manufacturers' sales by product \(PRODCOM\)](#); estimates are in current prices, unlike the chained volume measures published in the IoP release.

The Index of Production follows the [Eurostat Short Term Statistics \(STS\)](#) regulation for measuring output in production. The latest release of [output in production](#) and [output in manufacturing](#) are available from Eurostat and updated monthly. It should be noted that an accurate comparison cannot be made between our publication and the Eurostat publication, without re-indexing the data to the same base year as Eurostat data are calculated on a 2010 = 100 basis, while UK data are calculated on a 2013 = 100 basis.

Outside of the EU, the US Census Bureau releases [Manufacturing and Trade Inventories and Sales](#). Accurate comparisons cannot be made between our publication and the US Census Bureau release as the UK data are calculated at chained volume indices which takes into account price changes, while the US publication is not adjusted for price changes.

9 . What's new?

Please provide us with your feedback on our new style statistical bulletin in our short [online survey](#).

Short-term indicators economic commentary was published alongside this release, presenting new information on economic conditions in December 2016, with data available for output in production, construction and the trade balance.

10 . Quality and methodology

The majority of data used to compile the manufacturing sector, and thus the Index of Production (IoP), is collected via the Monthly Business Survey (MBS). The MBS samples around 6,000 businesses every month. The data collected are turnover excluding Value Added Tax (VAT) and exports for some applicable industries. This data is then deflated using [Producer Price Indices \(PPI\)](#). Within the manufacturing sector we also receive direct volume data from: [Department for Business, Energy and Industrial Strategy \(BEIS\)](#) for fuel industries and the [International Steel Statistics Bureau \(ISSB\)](#) for steel industries.

The mining and quarrying sector is mainly comprised of data from BEIS, including volume of oil and gas extraction and coal extraction. The data used to produce the energy sector is also from BEIS and includes energy and gas supply output. A comprehensive list of the IoP source data can be found in the [GDP\(O\) source catalogue](#).

Within the suite of datasets published monthly alongside this release, you will find:

- [Output of the Production Industries](#) (IOP5) publication tables
- [Revisions to Output of the Production Industries](#) (IOP5R)
- [Monthly Business Survey response rates](#) for production industries for this publication
- [Revision triangle](#) – monitors the size of monthly and 3-monthly revisions
- [Export proportions for manufacturing industries](#)
- [Index of Production weights 2013 equals 100](#)
- [Index of Production and sectors to 4 decimal places](#)

The [TOPSI: Production and services turnover](#) is published alongside this release, providing current price estimates for industries collected by the MBS.

The [Index of Production Quality and Methodology Information](#) document contains important information on:

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

A revised version of this document is available this month.