

Statistical bulletin

Producer price inflation, UK: May 2023

Changes in the prices of goods bought and sold by UK manufacturers including price indices of materials and fuels purchased (input prices) and factory gate prices (output prices).



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1 . Main points

- Producer input prices rose by 0.5% in the year to May 2023, down from a rise of 4.2% in the year to April 2023.
- Producer output (factory gate) prices rose by 2.9% in the year to May 2023, down from a rise of 5.2% in the year to April 2023.
- Inputs of crude oil and petroleum products provided the largest downward contributions to the change in the annual rates of input and output inflation, respectively.
- While annual producer price inflation rates have been slowing in recent months, the index levels for both input and output prices have been broadly stable since June 2022.
- On a monthly basis, producer input prices fell by 1.5% and output prices by 0.5% in May 2023.

2 . Producer price inflation rates

The annual rate of the input Producer Price Index (PPI) has now been positive for 30 consecutive months, although it has been slowing for the past 11 months. The annual rate is now 23.9 percentage points below its record annual high of 24.4% in June 2022 (Figure 1).

The annual rate of the output PPI has now been positive for 29 consecutive months, but it has been slowing for the past 10 months. It is down 16.7 percentage points from its recent peak of 19.6% in July 2022.

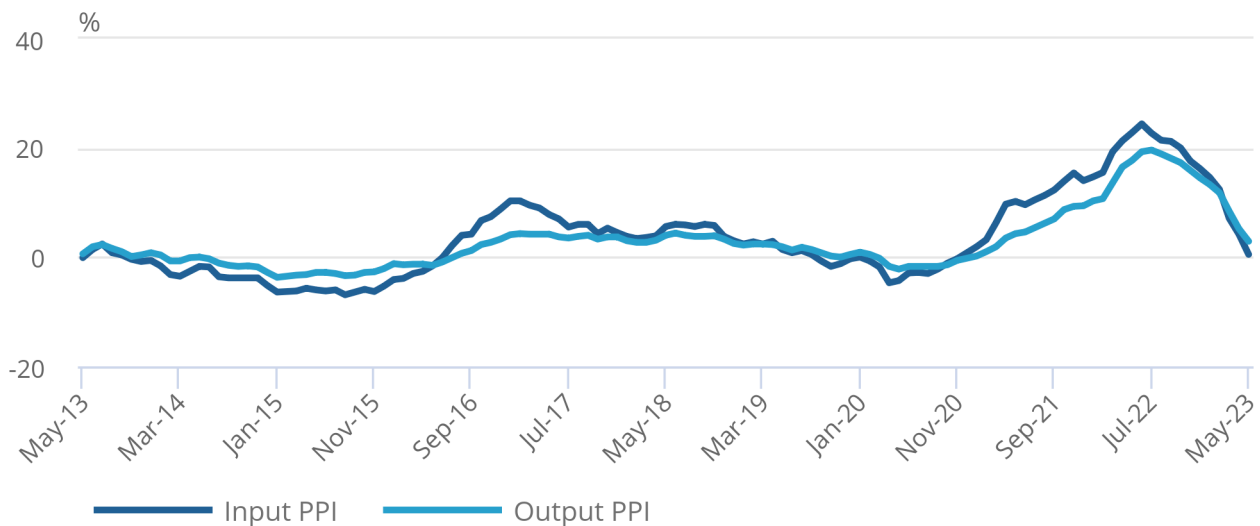
The index levels for both input and output prices have been broadly stable since June 2022 after a period of rapid increase starting in 2021 and continuing into early 2022 (Figure 2). This levelling out, when compared with the rapid increases seen last year, has the effect of creating a fall in the annual inflation rate (Figure 1), as explained in our [Beware base effects blog](#).

Figure 1: Annual input and output PPI inflation rates have continued to slow in May 2023

Input and output Producer Price Index (PPI) annual inflation rates, UK, May 2013 to May 2023

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Input and output Producer Price Index (PPI) annual inflation rates, UK, May 2013 to May 2023



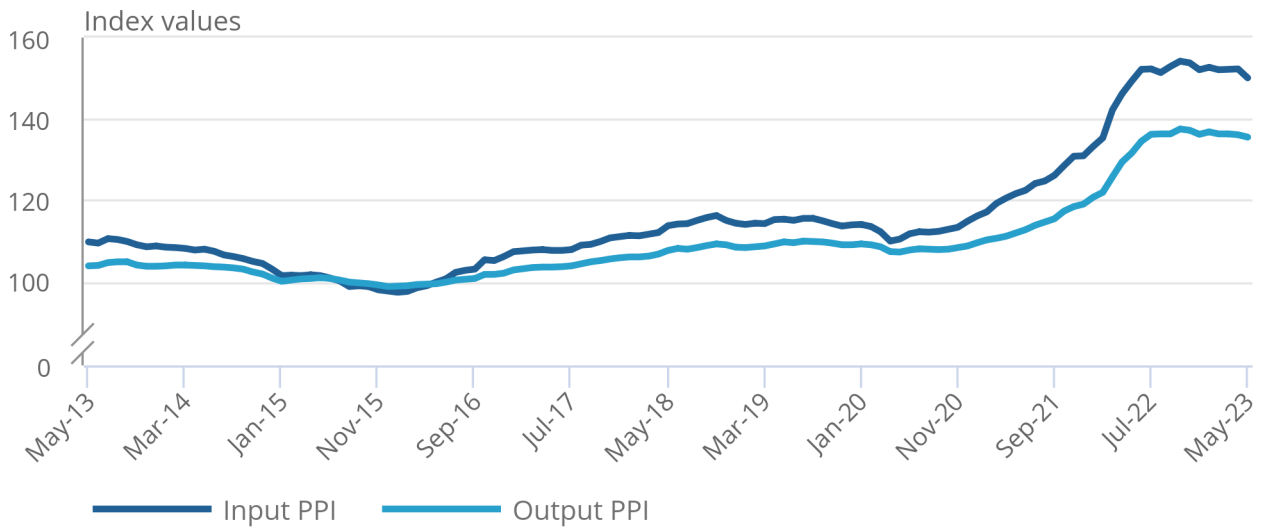
Source: Producer Price Index (PPI) from the Office for National Statistics

Figure 2: Input PPI and output PPI levels both fell slightly between April and May 2023

Input and output Producer Price Index (PPI) values, UK, May 2013 to May 2023

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Input and output Producer Price Index (PPI) values, UK, May 2013 to May 2023



Source: Producer Price Index (PPI) from the Office for National Statistics

3 . Input producer price inflation

The annual inflation rate of producer input prices decreased by 3.7 percentage points from 4.2% in April 2023 to 0.5% in May 2023, the lowest the annual rate has been since November 2020 (see our [Producer price inflation records dataset](#)).

The monthly producer input inflation decreased by 1.5% in May 2023, following an increase of 0.1% in April 2023 (Table 1). This is the biggest monthly decrease since April 2020 and is notably down from the record monthly increase of 5.1% in April 2022 as a result of the conflict in Ukraine and the immediate impact this had on crude oil prices. See our [Growth rates of output and input producer price inflation dataset](#). The figures for both April and May 2023 are provisional and therefore may be revised as additional survey data come in.

Table 1: Input prices, index values, inflation rates and percentage point change to the annual inflation rate, UK, May 2022 to May 2023

All materials and fuels purchased (GHIP)

	PPI Index (2015=100)	Monthly rate	Annual rate	Change in the annual rate (percentage points)
2022 May	149.3	2.1	22.8	1.5
June	152.2	1.9	24.4	1.6
July	152.3	0.0	22.7	-1.7
Aug	151.4	-0.6	21.4	-1.3
Sept	152.9	1.0	21.2	-0.2
Oct	154.2	0.9	20.0	-1.2
Nov	153.8	-0.3	17.6	-2.4
Dec	152.1	-1.1	16.2	-1.4
2023 Jan	152.7	0.4	14.6	-1.6
Feb	152.1	-0.4	12.4	-2.2
Mar	152.2	0.1	7.1	-5.3
Apr	152.3	0.1	4.2	-2.9
May	150.1	-1.5	0.5	-3.7

Source: Producer Price Index (PPI) from the Office for National Statistics

Notes

1. Rates may not correspond to index value changes because of rounding.

The most significant contribution to the annual input inflation rate in May 2023 came from inputs of crude oil, which had a negative contribution of 2.92 percentage points (Figure 3). Crude oil saw a fall in the year to May 2023 of 34.7% (Table 2) and this is the most dominant slowing effect on the annual input inflation rate.

This is being offset by upward contributions from inputs of other parts and equipment as well as inputs of fuel, which contributed 1.83 and 1.43 percentage points respectively. Inputs of other parts and equipment continues to be driven by imported inputs of air and spacecraft and related machinery, while inputs of fuel reflects the ongoing impact of electricity and gas prices.

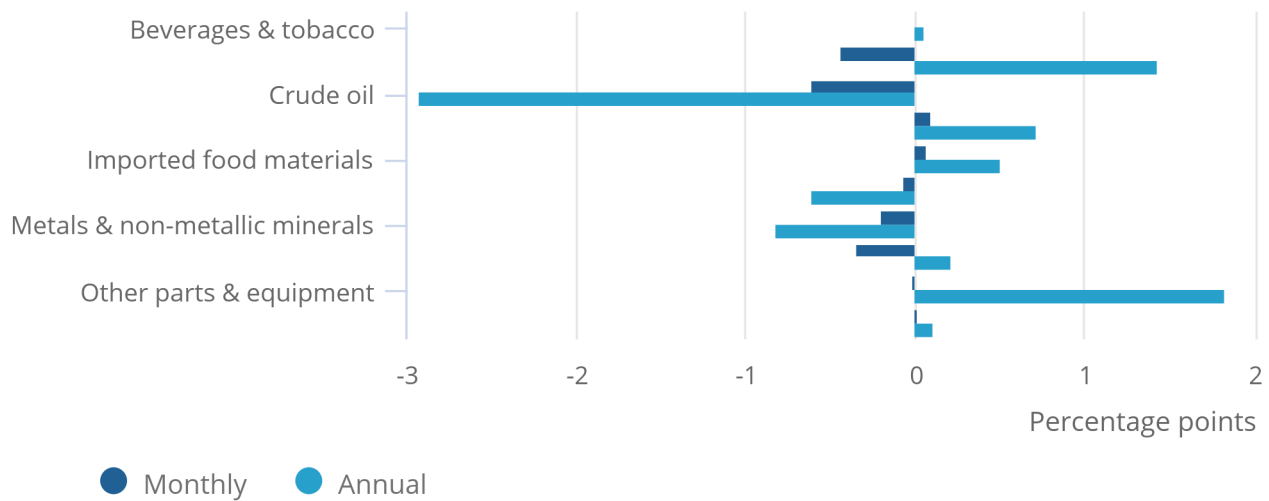
The [Energy Price Guarantee and Energy Bill Relief Scheme \(EBRS\)](#) came to an end on 31 April 2023 and was superseded by the Energy Bills Discount Scheme (EBDS). As indicated in our [Classification review of the Energy Bills Discount Scheme statement](#), the data relating to the inputs of fuel now reflect the impact of the EBDS.

Figure 3: Crude oil provided the most significant downward contribution to the input PPI annual inflation rate in May 2023; other parts and equipment and fuels had offsetting upward contributions

Input Producer Price Index (PPI), contribution to monthly and annual inflation rate, UK, May 2023

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Input Producer Price Index (PPI), contribution to monthly and annual inflation rate, UK, May 2023



Source: Producer Price Index (PPI) from the Office for National Statistics

Notes:

1. Contributions to the rate may not add up to the rate exactly because of rounding.

Table 2: Input prices, inflation rates, UK, April and May 2023

Product group	Percentage change		Percentage change	
	April 2023		May 2023	
	Monthly rate	Annual rate	Monthly rate	Annual rate
Beverages & tobacco	-0.1	15.3	0.6	15.1
Fuel excluding Climate Change Levy	13.4	42.3	-7.8	39.7
Crude oil	0.2	-18.4	-10.4	-34.7
Home-produced food materials	-1.3	7.7	0.7	5.9
Imported food materials	0.4	24.5	2.6	24.0
Other produced materials	-1.6	-1.3	-0.6	-4.4
Metals & non-metallic minerals	0.0	1.1	-0.9	-0.7
Chemicals	-1.2	3.9	-2.0	0.0
Other parts and equipment	-0.3	6.6	-0.1	5.1
Other inputs	0.2	5.5	0.4	5.4
All manufacturing	0.1	4.2	-1.5	0.5

Source: Producer Price Index (PPI) from the Office for National Statistics

Of the 10 product groups, 9 showed downward contributions to the change in the annual inflation rate, with crude oil providing the largest, at 1.49 percentage points (Figure 4).

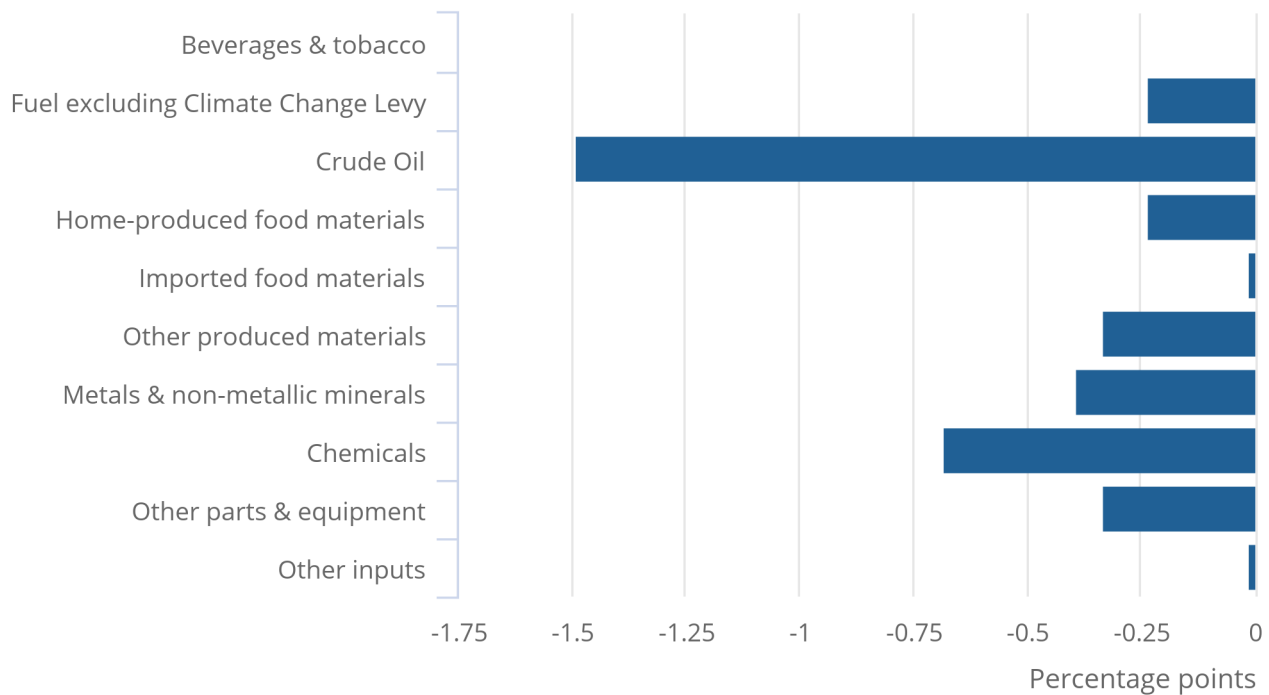
In the year to May 2023, crude oil prices fell 34.7%, down from a fall of 18.4% in April 2023. This is the lowest the annual rate has been since September 2020. Crude oil prices fell 10.4% between April and May 2023, compared with a monthly increase of 12.0% in May 2022.

Figure 4: Crude oil provided the largest downward contribution to the change in the annual inflation rate of input PPI

Input Producer Price Index (PPI), contribution to change in the annual inflation rate, UK, May 2023

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Input Producer Price Index (PPI), contribution to change in the annual inflation rate, UK, May 2023



Source: Producer Price Index (PPI) from the Office for National Statistics

Notes:

- Contributions to the rate may not add up to the rate exactly because of rounding.

The monthly inflation rate of materials and fuels imported by UK manufacturing decreased by 0.2% in May 2023, up from a decrease of 1.0% in April 2023. The annual rate was 2.4% in May 2023, down from 5.4% in April 2023 and 22.0 percentage points lower than its peak of 24.4% in September and October 2022 (Table 3).

Table 3: Imported materials and fuels purchased and sterling effective exchange rate, index values, inflation rates and percentage point change to the annual inflation rate, UK, May 2022 to May 2023
 Producer Price Index (PPI) from the Office for National Statistics and the sterling effective exchange rate from the Bank of England

	Imported materials and fuels purchased (GD74)				Sterling effective exchange rate - month average (BK67)		
	PPI Index (2015=100)	Monthly rate	Annual rate	Change in the annual rate (percentage points)	Sterling Index (Jan 2005=100)	Monthly rate	Annual rate
2022 May	140.2	2.7	18.7	3.2	79.9	-1.6	-2.4
June	143.5	2.4	21.1	2.4	79.3	-0.8	-3.3
July	143.0	-0.3	19.6	-1.5	78.9	-0.5	-3.5
Aug	143.8	0.5	20.8	1.2	79.1	0.3	-3.4
Sept	149.8	4.2	24.4	3.6	76.3	-3.5	-6.4
Oct	150.7	0.6	24.4	0.0	77.0	0.9	-6.1
Nov	147.1	-2.4	19.8	-4.6	78.1	1.4	-4.2
Dec	144.1	-2.1	16.7	-3.1	79.0	1.2	-2.9
2023 Jan	145.5	1.0	17.3	0.6	78.3	-0.9	-5.3
Feb	146.0	0.4	14.7	-2.6	77.8	-0.6	-5.8
Mar	145.3	-0.5	8.6	-6.1	78.3	0.6	-4.3
Apr	143.9	-1.0	5.4	-3.2	79.3	1.3	-2.3
May	143.6	-0.2	2.4	-3.0	80.1	1.0	0.3

Notes

1. Rates may not correspond to index value changes because of rounding.
2. Total imports (GD74) represents roughly one-fifth of overall materials and fuels (input prices) in terms of index weight.

4 . Output producer price inflation

The annual inflation rate of producer output (factory gate) prices decreased by 2.3 percentage points from 5.2% in April 2023 to 2.9% in May 2023, the lowest annual rate since March 2021.

The monthly producer output inflation decreased by 0.5% in May 2023, following a 0.2% decrease in April 2023 (Table 4).

Table 4: Output prices, index values, inflation rates and percentage point change to the annual inflation rate, UK, May 2022 to May 2023

All manufactured products (GB7S)

	PPI Index (2015=100)	Monthly rate	Annual rate	Change in the annual rate (percentage points)
2022 May	131.6	1.7	17.7	1.2
June	134.5	2.2	19.3	1.6
July	136.2	1.3	19.6	0.3
Aug	136.3	0.0	18.9	-0.7
Sept	136.3	0.0	18.1	-0.8
Oct	137.5	0.9	17.3	-0.8
Nov	137.2	-0.2	15.9	-1.4
Dec	136.2	-0.8	14.5	-1.4
2023 Jan	136.8	0.5	13.3	-1.2
Feb	136.3	-0.4	11.8	-1.5
Mar	136.3	0.0	8.4	-3.4
Apr	136.1	-0.2	5.2	-3.2
May	135.5	-0.5	2.9	-2.3

Source: Producer Price Index (PPI) from the Office for National Statistics

Notes

1. Rates may not correspond to index value changes because of rounding.

The largest downward contribution to the annual output inflation rate in May 2023 came from refined petroleum products, at 3.42 percentage points (Figure 5). Refined petroleum products saw a fall in the year to May 2023 of 30.6% (Table 5) and this is the most dominant slowing effect on the annual output inflation rate.

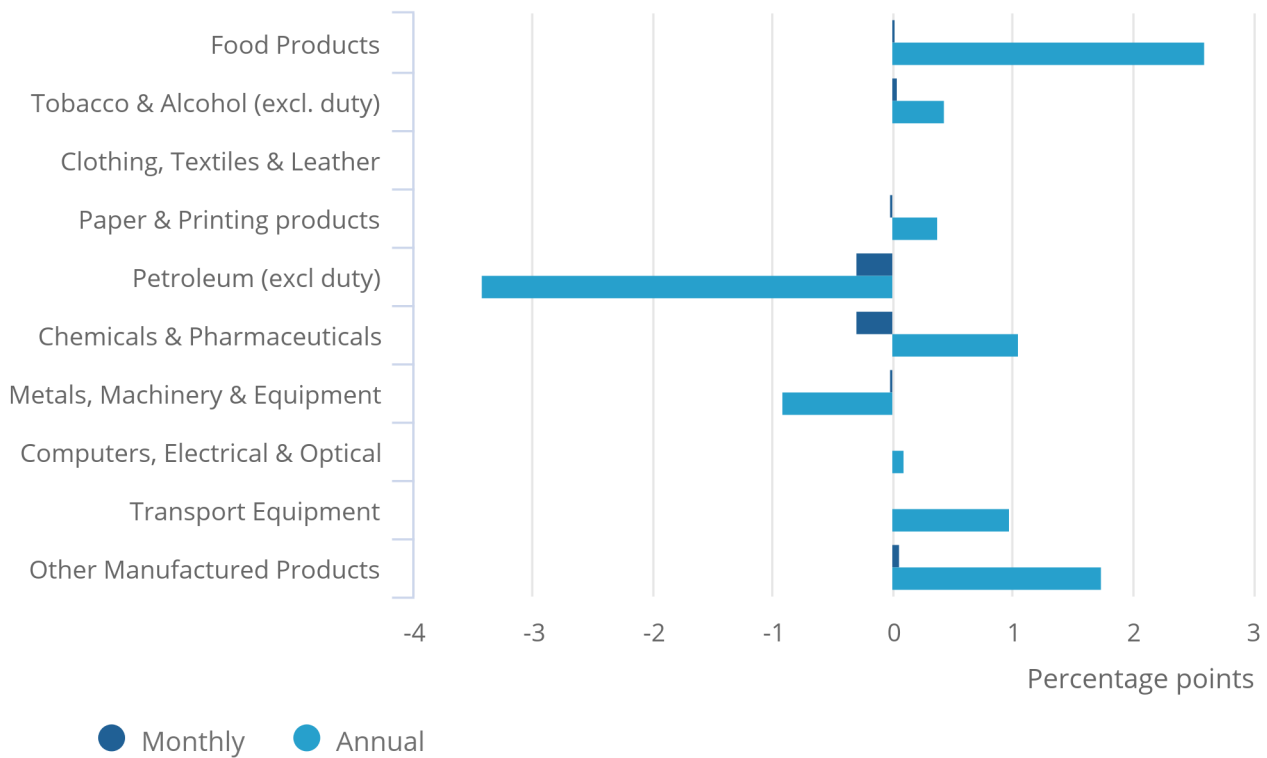
This was more than offset by upward contributions from food products as well as other outputs from manufacturing, which contributed 2.60 and 1.74 percentage points respectively. Food product inflation was driven by prepared meals and dishes as well as bakery goods. Other outputs of manufacturing continues to be driven by the energy intensive production of articles of concrete, cement and plaster.

Figure 5: Petroleum provided the most significant downward contribution to the annual inflation rate of output PPI in May 2023, with the largest offsetting upward contribution coming from food products

Output Producer Price Index (PPI), contribution to monthly and annual inflation rate, UK, May 2023

Figure 5: Petroleum provided the most significant downward contribution to the annual inflation rate of output PPI in May 2023, with the largest offsetting upward contribution coming from food products

Output Producer Price Index (PPI), contribution to monthly and annual inflation rate, UK, May 2023



Source: Producer Price Index (PPI) from the Office for National Statistics

Notes:

- Contributions to the rate may not add up to the rate exactly because of rounding.

Table 5: Output prices, inflation rates, UK, April and May 2023

Product group	Percentage change		Percentage change	
	April 2023		May 2023	
	Monthly rate	Annual rate	Monthly rate	Annual rate
Food products	0.6	13.7	0.1	11.5
Tobacco and alcohol (excl. duty)	-0.7	17.2	2.0	18.3
Clothing, textile and leather	0.7	9.6	0.7	8.6
Paper and printing	-0.7	7.3	-0.4	5.2
Petroleum products (excl. duty)	-5.0	-25.0	-4.8	-30.6
Chemical and pharmaceutical	-1.3	3.6	-4.2	-2.0
Metals, machinery and equipment	0.5	5.6	-0.1	4.2
Computer, electrical and optical	0.4	6.3	0.2	5.6
Transport equipment	0.0	2.8	0.1	1.6
Other manufactured products	0.5	8.7	0.3	7.4
All manufacturing	-0.2	5.2	-0.5	2.9

Source: Producer Price Index (PPI) from the Office for National Statistics

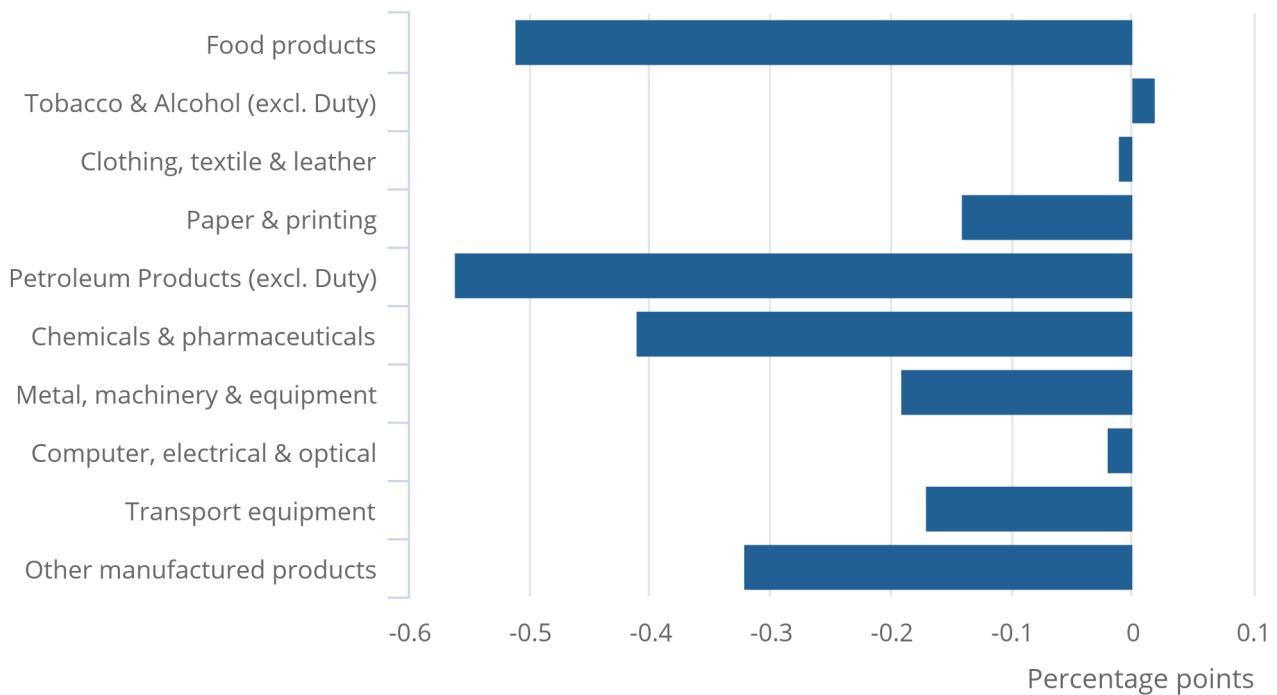
Of the 10 product groups, 9 showed downward contributions to the change in the annual inflation rate, with petroleum products providing the largest, at 0.56 percentage points (Figure 6). Petroleum products saw a monthly decrease of 4.8% in price in May 2023, compared with an increase of 3.0% in May 2022.

Figure 6: A monthly fall in petroleum prices resulted in it providing the largest downward contribution to the change in the annual output inflation rate

Output Producer Price Index (PPI), contribution to change in the annual inflation rate, UK, May 2023

Figure 6: A monthly fall in petroleum prices resulted in it providing the largest downward contribution to the change in the annual output inflation rate

Output Producer Price Index (PPI), contribution to change in the annual inflation rate, UK, May 2023



Source: Producer Price Index (PPI) from the Office for National Statistics

Notes:

1. Contributions to the rate may not add up to the rate exactly because of rounding.

5 . Producer price inflation data

[Producer price inflation time series](#)

Dataset | Released 21 June 2023

A comprehensive selection of data on input and output indices. Contains producer price indices of materials and fuels purchased and output of manufacturing industry by broad sector.

[Input and output producer price inflation: contributions to the annual rates](#)

Dataset | Released 21 June 2023

Contributions to the annual inflation rates of input and output producer price inflation by component and overall inflation rates.

[Producer price inflation](#)

Dataset MM22 | Released 21 June 2023

UK price movement data at all manufacturing, aggregated industry and product group levels. Data supplied from individual manufacturers, importers and exporters. Monthly, quarterly and annual data.

6 . Glossary

Weight

This is the importance of the price of interest relative to other prices collected. With annual chain-linking, this is updated every year using business turnover data.

Index value

Price level in a specific basket of goods.

Annual growth rate

The annual inflation rate.

Link factor

A smoothing factor applied to create a continuous series following a weights change.

Contribution

A measure of influence that the index has on the overall growth rate. This depends on both the magnitude of the weight and the inflation rate. A positive contribution is an index that is driving a change in the annual growth rate value. Where the contribution is positive but the growth is negative, this indicates that the index is reducing the annual growth rate (for example, the growth rate would be higher if this index had a lower weight).

Producer price inflation

Changes in the prices of goods bought and sold by UK manufacturers, including price indices of materials and fuels purchased (input prices) and factory gate prices (output prices).

Input prices

The input price measures the price of materials and fuels bought by UK manufacturers for processing. It includes materials and fuels that are both imported or sourced within the domestic market. It is not limited to materials used in the final product but includes what is required by businesses in their normal day-to-day running, such as fuels.

Output prices

The factory gate price (output price) is the amount received by UK producers for the goods that they sell to the domestic market. It includes the margin that businesses make on goods, in addition to costs such as labour, raw materials and energy, as well as interest on loans, site or building maintenance, or rent.

Services producer price inflation

Quarterly estimates monitoring the changes in prices charged for services provided to UK-based customers for a range of industries.

7 . Measuring the data

The Producer Price Index (PPI) uses contributions to identify how indices influence the overall inflation rate. This section gives additional information on the calculation and how to interpret it.

Example scenarios

The following gives examples of how weight and inflation rate changes most commonly affect the contribution. In PPI, the weights usually have greater influence on the contribution as these tend to show greater change than the annual inflation rate:

- decrease in weight and in inflation rate – contribution is negative
- decrease in weight, increase in inflation rate – contribution is usually negative
- no change in weight or inflation rate – no change
- no change in weight, increase in inflation rate – contribution is usually positive
- increase in weight, decrease in inflation rate – contribution is usually positive
- increase in weight, no change in inflation rate – contribution is positive
- increase in weight, increase in inflation rate – contribution is positive

Contributions are calculated using the following formula:

$$\frac{(\textit{weight} \times \textit{index value} \times \textit{link factor})\textit{for current year} - (\textit{weight} \times \textit{index value} \times \textit{link factor})\textit{for previous year}}{\textit{chain linked value for the overall index}}$$

Quality and methodology information (QMI) on strengths, limitations, appropriate uses, and how the data were created is available in our [Producer price indices QMI report](#) and our [Services Producer Price Inflation QMI report](#).

Other useful documentation for the PPI and the Services Producer Price Index (SPPI) are:

- [Producer Price Indices methods changes article](#)
- [Chain-linking in business prices article](#)
- [Producer price weight changes article](#)
- [Services producer price weight changes article](#)
- [Guidance on using indices in Indexation Clauses \(PDF, 197KB\)](#)
- [PPI methods and guidance \(PDF, 1.14MB\)](#)
- [SPPI user guidance and methodology article](#)
- [PPI standard errors: 2017 datasets](#)
- [UK SPPI standard errors: 2016 to 2017 article](#)

Sterling effective exchange rate

The sterling effective exchange rate measures changes in the strength of sterling relative to baskets of other currencies. The sterling effective exchange rate is only indicative of the rates applied to producer prices. This is because the sterling effective exchange rate is a trade-weighted index that represents all UK trade, whereas producer prices reflect transactions in the manufacturing sector.

Data revisions policy

Figures for the latest two months are provisional, and the latest 12 months are subject to revisions in light of late and revised respondent data. The PPI revision policy is now in line with that of the national accounts. Published information on the [revisions policy](#) and revisions triangles shows how estimates are revised over time.

8 . Strengths and limitations

Strengths

These data:

- provide users with valuable insight into the changes in the prices of goods and services bought and sold by UK manufacturers
- are comprehensive, covering many products at a much greater level of detail than other surveys
- are internationally comparable with any country using the classification by product activity (CPA) or the central product classification (CPC) systems
- are created using a rotational sampling method to enable many new products and new respondents to be included
- are chain-linked annually to improve results in deflation by reducing substitution bias

Limitations

The limitations are that:

- some products are produced by only a small number of manufacturers, meaning that there may not be enough manufacturers for a detailed and robust analysis, and the sector may be volatile, requiring some estimation
- the data can be revised for 12 months
- the data for the latest two months of the Producer Price Index (PPI) and two quarters of the Services Producer Price Index (SPPI) are provisional

Response rates in May 2023

The response rate for the domestic PPI shows a slight decrease between April and May 2023, whereas the response rate for the Import Price Index (IPI) and Export Price Index (EPI) show an increase for the same period (Table 6).

Table 6: Producer Price Index (PPI), Import Price Index (IPI), and Export Price Index (EPI) overall effective response rates at time of first publishing
Percentage, UK, May 2022 to May 2023

	Weighted response		
	PPI (domestic)	IPI	EPI
May 2022	71.7	76.1	74.1
June 2022	74.0	78.0	69.5
July 2022	67.7	73.0	73.3
August 2022	71.6	71.6	72.0
September 2022	71.9	74.8	78.2
October 2022	73.3	61.3	71.6
November 2022	78.0	73.3	71.7
December 2022	78.2	72.9	73.7
January 2023	77.9	71.7	73.9
February 2023	78.1	78.9	78.2
March 2023	77.8	75.4	74.7
April 2023	78.9	79.3	74.6
May 2023	78.3	82.2	75.8

Source: Producer Price Index (PPI) from the Office for National Statistics

Notes

1. Effective response rates exclude items permanently not available for collection.

9 . Related links

[Consumer price inflation, UK](#)

Bulletin | Released monthly

Price indices, percentage changes, and weights for the different measures of consumer price inflation.

[UK House Price Index](#)

Bulletin | Released monthly

Monthly house price inflation in the UK, calculated using data from HM Land Registry, Registers of Scotland, and Land and Property Services Northern Ireland.

[Construction output in Great Britain: March 2023, new orders and Construction Output Price Indices, January to March 2023](#)

Bulletin | Released 12 May 2023

Short-term measures of output by construction industry in March 2023, contracts awarded for new construction work in Great Britain and a summary of the Construction Output Price Indices (OPIs) in the UK for Quarter 1 (Jan to Mar) 2023.

[GDP monthly estimate, UK](#)

Bulletin | Released monthly

Gross domestic product (GDP) measures the value of goods and services produced in the UK. It estimates the size of and growth in the economy.

10 . Cite this statistical bulletin

Office for National Statistics (ONS), released 21 June 2023, ONS website, statistical bulletin, [Producer price inflation, UK: May 2023](#)