Office for National Statistics

Article

Analysis of wage and price increases, UK: 2011 to 2023

Analysis of the relationship between recent wage and price increases, in selected industry sectors.

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1 . Main points

- The annual growth rate of regular private sector pay was 8.1% in May to July 2023; we examine wage increases and price increases in a selection of industry groups over the period 2019 to June 2023.
- In manufacturing and some services industries, even after large wage increases between 2019 and June 2023, we find that labour costs have largely been stable as a fraction of output, and industry output price growth has appeared to be mainly caused by other factors.
- In several services industries, labour costs are important and pass-through of wage rises could explain most output price growth since 2019.
- In a sample of large manufacturing businesses, there was generally no clear positive correlation between the amount of a business's annual wage increases and the size of output price increases in the same business; while there was limited evidence of a positive correlation between business-level annual wage growth and price growth in manufacturing in Quarter 1 (Jan to Mar) 2023, this correlation had fallen back in Quarter 2 (Apr to June) 2023.
- In a sample of businesses from the Business Insights and Conditions Survey, if a business reported an increase in wages over the month, it was 59% more likely to also report an increase in output prices over the month, controlling for whether the firm also experienced an increase in input prices.
- Businesses that reported difficulty filling vacancies were more likely to also raise prices, as were businesses that reported facing an increase in demand.

2 . Rounds of inflation

The period following the coronavirus (COVID-19) pandemic has seen high levels of inflation, unprecedented in the UK for several decades. Previous analysis showed the effects of the re-opening of economies in 2021, including large demand changes in the level and composition of spending, and how supply bottlenecks had formed in the global economy. For further information, see our Demand and supply factors in CPI inflation, UK: 2021 to 2022 article.

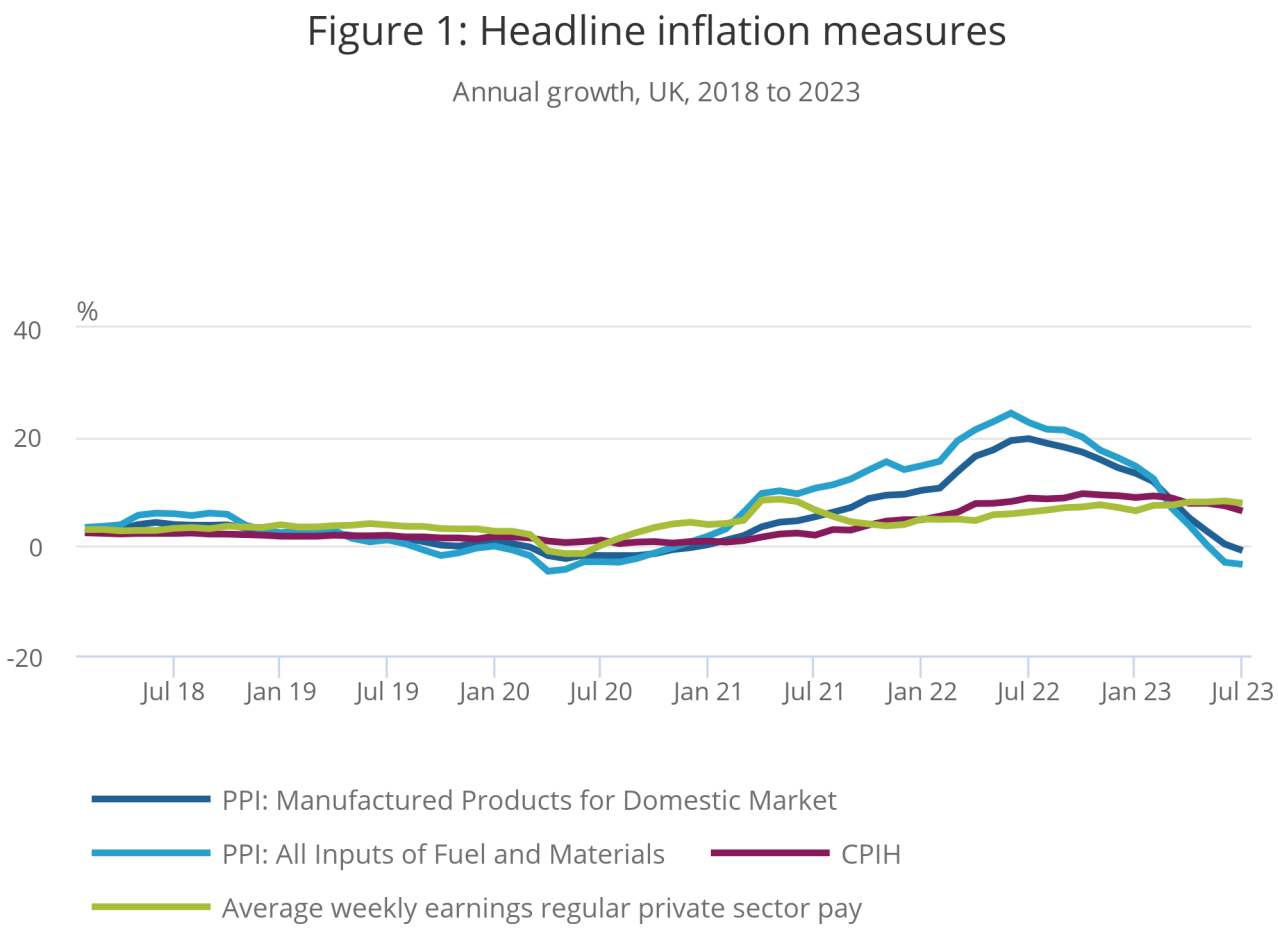
Natural gas prices increased in autumn 2021 as the price of Russian exports increased and the Russia-Ukraine crisis developed, and then a large number of energy and commodity prices jumped following the Russian invasion of Ukraine in 2022. Aside from its role in energy, natural gas is an important input into the production of fertiliser, and so increased costs of fertiliser and food production have been seen across Europe. Some products are particularly energy intensive (such as glass, basic metals, and so on), and were strongly affected by increases in energy prices.

The UK labour market also remains tight by historical standards, where the number of available vacancies is high relative to the number of unemployed people. This underpins the recent high in wage inflation. In May to July 2023, annual growth in private sector regular pay (excluding bonuses) was 8.1%.

Figure 1 shows how producer input and output price inflation, earnings inflation and consumer price inflation have evolved over the last few years for the whole economy. UK input producer price inflation peaked in June 2022 at 24.3%. UK output producer price inflation peaked in July 2022 at 19.7%, and the level of output prices in July 2023 is now slightly lower than the level in July 2022. The UK Consumer Prices Index including owner occupiers' housing costs (CPIH) peaked in October 2022 at 9.6%.

Figure 1: Headline inflation measures

Annual growth, UK, 2018 to 2023



Source: Consumer price inflation and producer price inflation from the Office for National Statistics

Given these price pressures, this has caused interest about a potential second round of price increases, which would in part depend on how firms and workers respond to higher prices. Labour costs are an important direct cost for businesses, while the price of other inputs have also increased, which could lead to changes in how firms set their prices. We provide new firm-level insights into these cost and price pressures to show how businesses have responded to higher labour costs through their selling prices.

3 . Pass-through of input costs

Businesses have many ways to react to higher prices of inputs, including:

- reducing the profit margin to cover higher costs
- passing on costs to consumers with higher prices
- reducing purchases of inputs and reducing output
- substituting away from more expensive types of inputs
- increasing productivity

Businesses across the UK have likely acted in all these ways, to varying extents, to deal with higher input prices. Even if a business has relatively low input cost increases, it might still raise prices if its competitors are also raising prices, or if it learnt that it has stronger pricing power than it expected, from its experience during recent economic events.

In February 2023, businesses were asked about the proportion of total input price rises passed on to customers in the previous six months. Businesses were not asked to distinguish the cause of the input price increases, such as energy, materials or labour, and so on.

Figure 2 shows that less than 15% of businesses considered that they had passed on the majority of input price increases, while 23% of businesses considered they had absorbed all input price increases - that is, none of the input prices have been passed on to consumer prices. Pass-through has varied by industry group. For example, wholesale and retail businesses are much less likely to have absorbed input price rises. It is still likely that more businesses will pass on more input price increases over a longer time horizon.

Figure 2: Proportion of businesses reporting rates of pass-through of input costs in the Business Insights and Conditions Survey, all businesses

UK, six months to February 2023

Notes:

1. Response to question "How much of your business's input price increases have been passed on to customers over the last six months?", asked in February 2023

Download the data

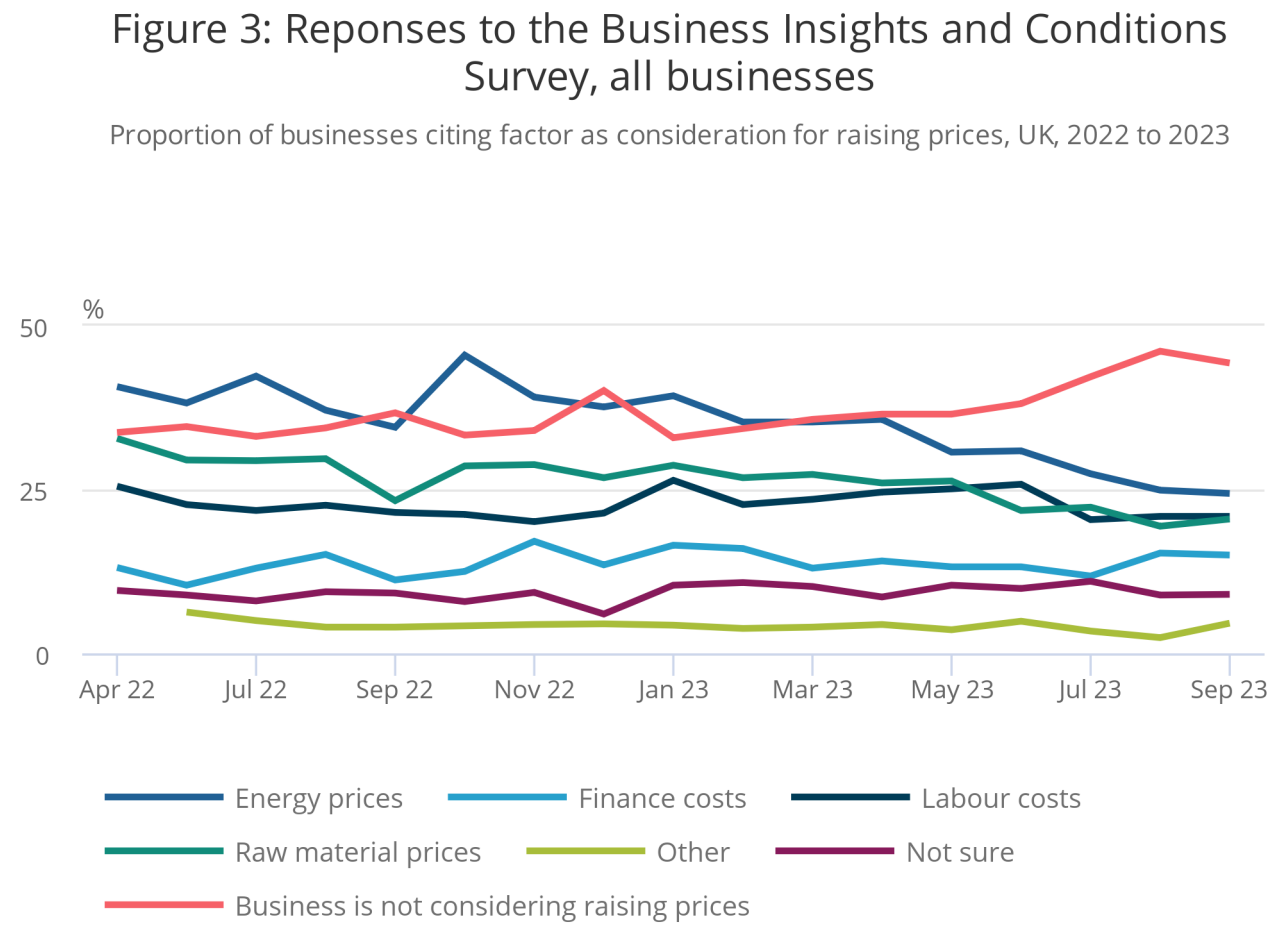
.xlsx

Figure 3 shows the extent to which different factors have made businesses consider raising their prices. Since March 2022, around 20% to 25% of businesses have cited higher labour costs as a cause of considering raising prices in the subsequent month, which has been consistent over time. Energy prices have been the main cause of considering price rises, and were the most common factor in 2022, but fell back to be a factor for around 25% of businesses in 2023, as energy prices returned to 2021 levels.

From May 2023, labour costs have become a more important factor than raw material price increases. In comparison, 35% of businesses did not expect to raise prices in the next month throughout 2022, increasing to 45% of businesses by summer 2023.

Figure 3: Reponses to the Business Insights and Conditions Survey, all businesses

Proportion of businesses citing factor as consideration for raising prices, UK, 2022 to 2023



Source: Business Insights and Conditions Survey from the Office for National Statistics

To understand how businesses have responded to higher prices of inputs, we would need business-level information on the full range of input costs, intermediate inputs, turnover, and the price of their final products. These data will only become available at a lag, when businesses have compiled annual accounts and responded to more detailed Office for National Statistics (ONS) surveys.

We can use the monthly business surveys to estimate the importance of labour as an input cost, and to understand the adaptation of businesses to higher labour costs more recently. This provides new insights into how businesses have responded to the increase in labour costs, specifically the extent to which their selling prices have changed relative to higher labour costs.

Figure 4 shows industry-level labour costs as a share of turnover for industries at the three-digit level, based on new experimental statistics from the Monthly Wages and Salaries Survey, and monthly turnover. It compares the labour cost share for the most recent 12 months with the historical average labour cost share for the industry.

If the labour cost share is higher for the most recent 12 months, it is an indication that businesses have likely adapted to higher wages by lowering profit margins and reducing other inputs more strongly than the other types of adjustment. Lower labour cost shares suggest the reverse.

Figure 4 shows that most industries are close to their historical labour cost shares. Some industries have had low wage increases relative to others. Other industries will have adapted by reducing other inputs, increasing labour productivity and increasing output prices, to differing degrees.

Law (industry group 691), accounting (692) and management consultancy (702) have seen the highest rises in wages as a share of turnover. These industries have experienced particularly strong wage growth. Other industries are below their historical wage shares, in particular other personal services (96).

Figure 4: Wages as a share of turnover, most recent 12 months compared with historical average, selected industries

UK, six months to February 2023

Notes:

1. Wages are from the Monthly Wages and Salaries Survey, turnover from each sector's Monthly Business Survey and the Retail Sales Inquiry.
2. In some cases an industry division or group is not covered in the Monthly Business Survey, or an industry division cannot be broken down because of small sample size or statistical disclosure.
3. The size of each point represents total turnover over the period July 2022 to June 2023.

Download the data

.xlsx

Table 1 compares wage increases with output price increases.

Table 1 shows the size of labour costs as a proportion of total output produced in an industry. We use the Monthly Wages and Salaries Survey to estimate how much labour costs have increased in recent years in that industry. We can then estimate how much an industry's costs would have increased if other factors were kept the same and labour costs were fully passed through. We can compare this with how much the output price actually changed over the same period to get an idea of the relative importance of higher labour costs.

For most manufacturing industries, employment costs are usually a smaller proportion of total output. The three years of wage increases do not add to much, even if they were to be fully passed through to output prices.

Table 1: In-industry price and wage increases, 2019 to May 2023, selected manufacturing industries and products

	Labour cost share of output, 2019	Wage increase, 2019 to June 2023	Theoretical wage shock under full pass-through	Output price increase, 2019 to June 2023	Theoretical proportion of output price increase due to wage increase, under full pass-through
Industrial gases, inorganics and fertilisers	15%	-1%	0%	57%	0%
Other non-metallic mineral products	25%	14%	4%	46%	8%
Basic metals	21%	12%	3%	43%	6%
Wood, wood products except furniture	26%	22%	6%	36%	16%
Prepared animal feeds	14%	19%	3%	35%	8%
Grain mill products, starches and starch products	14%	19%	3%	35%	8%
Fabricated metal products, except machinery and equipment	36%	20%	7%	31%	23%
Dairy products	13%	3%	0%	30%	1%
Refined petroleum products	3%	5%	0%	30%	0%
Other chemical products	18%	20%	4%	30%	13%
Printing and recording services	33%	16%	5%	30%	18%
Rubber and plastic products	28%	18%	5%	29%	17%
Dyestuffs and agro-chemicals	25%	-1%	0%	29%	-1%
Preserved meat and meat products	25%	18%	4%	28%	16%
Petrochemicals	17%	-1%	0%	28%	-1%
Paints, varnishes and similar coatings, printing ink and mastics	32%	7%	2%	27%	9%

Bakery and farinaceous products	30%	17%	5%	25%	21%
Paper and paper products	29%	12%	3%	24%	14%
Furniture	38%	19%	7%	24%	31%
Electrical equipment	31%	20%	6%	24%	26%

Source: Monthly Wages and Salaries Survey and producer price inflation from the Office for National Statistics

Notes

1. Industry and product groups selected as those experiencing the highest PPI output price growth. CPIH increased by 19% in the same period.

2. Column 3 equals column 1 multiplied by column 2. Column 5 equals column 3 divided by column 4.

3. Columns 3 and 5 illustrate a theoretical scenario where there is no change in the ratio between unit output and unit labour, and all of an industry's wage increases are passed through to customers, based on an industry's "normal" cost structure in 2019.

4. Most businesses report that they do not pass through all input cost increases over a short time period (Figure 2), however, this proportion is likely to be higher over a longer time period.

5. Table 1 shows the theoretical effect of an industry's own wage increases on its own output prices, however, the full effect on prices across the economy will also include the effect from raising intermediate consumption costs in downstream industries.

For example, bakery products manufacturing has had relatively high wage growth, for manufacturing industries. But even with full pass through, wages would be responsible for around 6 percentage points of the 27% total increase in output prices.

As energy prices have fallen back in 2023, one product where the price is most elevated relative to 2019 is concrete, within other non-metallic mineral products – for this industry grouping, wage increases have been below inflation, and under full pass through would only have contributed 4 percentage points of the 44% output price increase.

Table 2 shows the increases in wages in services industries, compared with increases in output prices from the Services Producer Price Index. It is based on the same framework as Table 1, where we look to estimate the relationship between changes in labour costs and changes in prices by comparing observed changes with those under where there is full pass-through. For legal services, almost all of the wage increases are passed on to output price increases. For accounting, the wage increase multiplied by the historical wage share is higher than the output price increase; firms appear to be using the other margins of adjustment to accommodate higher wages.

Table 2: In-industry price and wage increases, 2019 to June 2023, selection of services industries

	Labour cost share of output, 2019	Wage increase, 2019 to June 2023	Theoretical wage shock under full pass-through	Output price increase, 2019 to June 2023	Theoretical proportion of output price increase due to wage increase, under full pass-through
Hotels and accommodation	34%	22%	7%	38%	20%
Veterinary services	50%	17%	8%	31%	27%
Warehousing and transportation support services	40%	2%	1%	28%	3%
Residential care activities for the elderly and disabled	62%	33%	20%	26%	78%
Air transport services	18%	13%	2%	23%	10%
Legal activities	35%	49%	17%	21%	82%
Motor vehicles and motorcycles repair	42%	20%	8%	20%	43%
Publishing services	31%	26%	8%	19%	42%
Libraries, archives, museums and other cultural activities	45%	17%	8%	19%	41%
Accounting, audit, tax consultancy	49%	49%	24%	18%	133%
Food and beverage serving	43%	17%	7%	17%	41%
Water transport	24%	-6%	-1%	17%	-9%
Land transport	37%	18%	7%	16%	42%
Architecture and engineering	42%	26%	11%	15%	74%
Sports, amusement and recreation	41%	36%	14%	15%	100%
Child day-care and other social work without accommodation	62%	25%	15%	14%	111%
Computer programming	51%	34%	17%	14%	127%
Technical testing and analysis	42%	20%	8%	12%	67%
Services to buildings and landscape	37%	26%	10%	12%	79%
Employment activities	64%	28%	18%	11%	162%

Management consultancy	38%	30%	11%	11%	106%
Advertising	31%	34%	11%	11%	99%
Postal and couriers	50%	11%	5%	10%	51%
Security and investigation	45%	22%	10%	10%	99%
Office administrative and business support	38%	24%	9%	9%	99%
Market research and public opinion polling	31%	64%	20%	7%	271%
Information service activities	36%	32%	12%	5%	213%
Rental and operation of real estate; other real estate	12%	20%	3%	2%	141%
Real estate agency services	42%	16%	7%	-4%	-152%
Telecommunications	35%	38%	13%	-20%	-67%

Source: Monthly Wages and Salaries Survey and producer price inflation from the Office for National Statistics

Notes

1. Selected services industries where output prices and wages can be most easily measured and aligned. Table 2 is not comprehensive for the total services sector. For referenceCPIH grew 19% in the same period.

2. Column 3 equals column 1 multiplied by column 2. Column 5 equals column 3 divided by column 4.

3. Columns 3 and 5 illustrate a theoretical scenario where there is no change in the ratio between unit output and unit labour, and all of an industry's wage increases are passed through to customers, based on an industry's "normal" cost structure in 2019.

4. Most businesses report that they do not pass through all input cost increases over a short time period (Figure 2), however, this proportion is likely to be higher over a longer time period.,Table 2 shows the theoretical effect of an industry's own wage increases on its own output prices, however, the full effect on prices across the economy will also include the effect from raising intermediate consumption costs in downstream industries.

5. Price increases are taken from services producer prices, except 75, 873, 891, 91 and 93 where the price growth is taken from consumer prices – in these cases the product is not in services producer prices, but is well-defined in consumer prices.

Prices of residential care activities have risen 26% – as an industry with high labour cost share and wage growth of 33%, under full pass through wage increases could account for almost 80% of the increase in prices.

Labour costs are a clear minority in other services industries with high output price growth – hotels, warehousing and air transport all have combinations of lower wage growth, lower labour costs shares and increases in other input prices.

For many cases in professional and similar services, the labour share is substantial, and we see that labour costs have likely been passed through completely. In accountancy, law, management consultancy, advertising, architecture and engineering, technical testing, security and office administration, output prices have increased almost exactly in line with the theoretical scenario impact of labour costs. However, these industries still have relatively low price increases, in the range of 9% to 15%. This is a higher range than would be expected in the 2010s, but lower than overall price growth since 2019 as measured by CPIH or the GDP deflator.

We also see several cases of very strong wage growth – especially computer programming and consultancy, and market research – where output price rises are lower than the effect of higher wages in the theoretical scenario. It is likely that higher wages are being offset by lower profits, and lower amounts spent on other inputs, as part of business adaption.

4 . Business-level relationship between wages and prices in manufacturing

We look at the firm-level relationship between changes in wages and changes in output prices, specifically if this has changed in recent times. We can link returns from the Monthly Wages and Salaries Survey, and the Producer Price Inquiry, for an average of 313 manufacturing businesses each month, from 2018 to 2023.

While only a small number of businesses are in both surveys, these businesses are relatively large. On average, each linked sample business has 805 workers and annual sales of £252 million. The linked sample accounts for 10% of total manufacturing employment and 16% of total manufacturing sales per month, on average.

We construct a business-level proxy measure for output price growth. Businesses provide price quotes each month for a small number of representative products (in the linked sample this is 2.4 items per business, on average). We take the arithmetic mean of the annual growth rates of each product, where a growth rate exists and is not imputed. Although we do not weight individual items, an index created from the business-level output price proxy tracks the actual producer price index relatively closely.

For each business we also construct a rolling 12-month average pay as total monthly pay over 12 months divided by total employee-months reported. This method ensures the cost is captured over the year as annual bonuses are substantial in many firms.

We calculate the correlation between wage growth and output price growth over time in Figure 5, using a regression model in each month. This shows that usually there is no correlation between output price growth and wage growth. The coefficient hovers around zero. A company with a growing wage bill is no more likely to raise than to lower prices. Given that labour costs account for a small part of the costs for most businesses, it is likely that many other factors are responsible for changes in output prices.

In 2022, the correlation becomes negative, although there is only minor evidence that the correlation is statistically significantly negative. We are possibly seeing the effect of some businesses being badly hit by the high materials and energy price increases, causing these businesses both to raise output prices and lower wage increases to accommodate, thus creating the negative correlation.

Figure 5: Rolling regression of effect of wages on output price proxy, manufacturing

UK, monthly, January 2018 to June 2023

Notes:

1. The graph shows the regression coefficient and 95% confidence interval shaded.

2. For each month, we regress log proxy output price growth as the dependent variable, on log wage growth as the explanatory variable, plus two-digit industry fixed effects. The comparison is 12 months of wages against the output price at the end of 12 months.

3. Each month contains 2 digit industry fixed effects.

4. For example, in March 2023, the coefficient is 0.32 (t=2.04). If the growth rate between wages April 2021-March 2022 and wages April 2022-March 2023 was 10% higher, this would be associated with a 3.2% higher price increase between March 2022 and March 2023. (For most time periods however, this correlation is nil.)

Download the data

.xlsx

In Quarter 1 (Jan to Mar) 2023, we see the correlation become positive, which could indicate that firms are responding to the increase in labour costs by passing on the increase to output prices. The businesses with the highest growth of wages between financial year ending (FYE) 2022 and FYE 2023 have the highest price growth. From 20% to 30% is also the range for labour costs as share of output, and the fact that the correlation is roughly this size implies that wage increases are largely being passed on fully into output prices during this period.

However, for April and May 2023, the correlation has dissipated. Despite wage increases, there are enough products where the output price has stopped growing or started falling so that we do not see a correlation.

5 . Business-level relationship between wages and prices in the Business Insights and Conditions Survey

The Business Insights and Conditions Survey can provide further context for price increases. This survey has a larger sample size and industry coverage, although it has less detail on the scale of changes.

We examine factors correlated with a higher likelihood of a business raising prices. Table 3 shows that if a business reports an increase in wages over the month, it is around 59% more likely to also report an increase in output prices, taking into account if the firm is also experiencing an increase in input prices.

The correlation between wage and price increases is much stronger in the Business Insights and Conditions Survey than in the smaller sample used for Figure 5, and holds throughout the time period. This is because Table 3 uses a binary response for any increase or not in prices, and categorical responses to the explanatory variables, rather than quantitative detail on the size of a change. With less granularity it is easier to find a stronger correlation.

Table 3: Logistic regression models of the increase in probability of raising output prices, Business Insights and Conditions Survey, March 2022 to July 2023

Logistic regressions. Dependent variable: business reports an increase in the price of goods and services sold, compared with previous month

	(1)	(2)	(3)
Wage change, compared with previous month	59%	59%	59%
	(57%, 61%)	(56%, 61%)	(56%, 62%)
Goods and services bought price change, compared with previous month	74%	74%	73%
	(74%, 74%)	(71%, 74%)	(71%, 75%)
Difficulties recruiting employees in last month		59%	60%
		(57%, 61%)	(57%, 62%)
Increase in domestic demand for goods and services, compared with previous month			56%
			(54%, 58%)
Industry fixed effects	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes
Sizeband fixed effects	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes
N	24,321	18,449	13,412

Source: Business Insights and Conditions Survey from the Office for National Statistics

Notes

1. Businesses report whether wages and input prices have increased, stayed the same or decreased, in a similar way to a PMI. These have been coded as -1, 0 and 1 respectively.

2. Results are reported as the effect on probability of raising output prices, for reporting the presence of each factor, with 95% confidence intervals in parentheses. For example, if a business reports that it has increased wages versus the previous month rather than kept wages the same, this is correlated with being 59% more likely to also report an increase in output prices versus the previous month (95% confidence interval 57% to 61%), holding other factors constant.

3. Not all questions are asked in each two-week wave. Regressions are for businesses with consecutive responses, using the input price (goods and services bought) response from the first wave, the wage change from the second wave, and the recruitment difficulty, domestic demand change and output price (goods and services sold) change from the third wave.

Table 3 also shows that if a business reports an increase in the costs of its intermediate inputs over the month, it is around 73% more likely to also report an increase in output prices, taking into account if the firm is also experiencing an increase in labour costs. The higher relative importance of intermediate input price increases is still borne out, although labour costs are still important.

We also see that a measure of capacity -- difficulty in recruitment -- correlates strongly with price increases. Businesses with difficulty filling vacancies are more likely to increase prices even in addition to reporting higher wages. This is potentially because they believe they are in a market with stronger customer demand relative to workforce and will have more pressure on wages for longer. Businesses that report they face higher demand are also more likely to report increasing prices.

Further investigation is required, using more detailed data on the vacancy rate, and other data on business sentiment, to understand the effects of specific labour shortages in causing wage increases, as well as any effect causing output price increases in turn.

6 . Analysis of wage and price increases data

Analysis of wage and price increases
Dataset | Released 15 September 2023
Experimental statistics of detailed industry wages from the Monthly Wages and Salaries Survey, with comparison industry output price data, from the article "Analysis of wage and price increases, UK: 2011 to 2023

7 . Glossary

Pass-through

If the price of an input of a business increases, the business may raise output prices to compensate. Many businesses will not pass through the whole of an input price increase to output prices or will do so at a delay. An input may be one of many inputs, each of which are changing.

Logistic regression

A statistical model used to measure the correlation between explanatory variables in a set and the probability of an event occurring, in each case controlling for the effects of the other explanatory variables. In this instance, the event is a business reporting that it has increased prices in a month.

95% confidence interval

We are trying to estimate an unknown value. For 95% of the time, we expect the true unknown value to be within the given confidence interval. The confidence intervals in Figure 5 are often wide, and we do not have data to rule out that there is no correlation. For more information, see our methodology page on statistical uncertainty.

8 . Data sources and quality

In this release, "business" refers to an Inter-Departmental Business Register (IDBR) reporting unit. A small number of large companies are subdivided into multiple reporting units, however for the majority of companies, the company is a full reporting unit.

Monthly Wages and Salaries Survey

The Office for National Statistics (ONS) Monthly Wages and Salaries Survey is used for our Average Weekly Earnings national statistics bulletin series. For further information about the data, see our Average Weekly Earnings quality and methodology information.

For this release, we have published new experimental statistics estimates of earnings at a detailed industry level using the Monthly Wages and Salaries Survey. Estimates at lower levels of industry detail rely on smaller sample sizes and have higher sampling error. These are not published as national statistics and are not intended to replace the national statistics. Instead these are published with the experimental statistics label to indicate the greater level of uncertainty in estimates to users.

The estimates provided for total and average pay at 2-digit industry and 3-digit industry groups are published as experimental statistics. At lower levels of industry detail, the sample size is smaller and estimates will be less representative and with higher sample error, particularly at 3-digit level, as the survey is stratified at 2-digit level. Nonetheless, the survey also has good coverage of large businesses that employ the most workers. In certain cases, months have been suppressed from statistical disclosure concerns. In Figure 4, Table 1, and Table 2, pay in a small number of industries has been linearly interpolated where the true value is suppressed.

Other data sources

Our Business Insights and Conditions Survey quality and methodology information provides more detail on the survey. More information on industry level turnover can be found in the Index of Production, Construction Output, Index of Services and Retail Sales Index bulletin pages, including links to further information on quality and methodology.

The labour cost share in Table 1 and Table 2 is taken from the supply and use table in 2019 as compensation of employees divided by industry output at basic prices. This ratio is then multiplied by 1/(1-alpha), where alpha is the share of domestically-produced own-industry products in total output, to account for wage increases at each point in the supply chain inside an industry. For more information on the supply and use tables and the input-output analytical tables, see our Input-output analytical tables: guidance for use article.

The Producer price inflation, UK bulletin contains further details, and quality and methodology information, for the Producer Price Indices data and the Services Producer Price Indices data. This release uses domestic market output prices, and not export market prices, as the relevant data for domestic purchases throughout.

Consistency of the Business Insights and Conditions Survey and other surveys

On the Business Insights and Conditions Survey, the proportion of businesses not considering raising prices next month increased from about 35% to 45% between March 2022 and August 2023. On a separate question asking if businesses expect prices to stay the same or decrease, the proportion is 43% in March 2022 increasing to 61%.

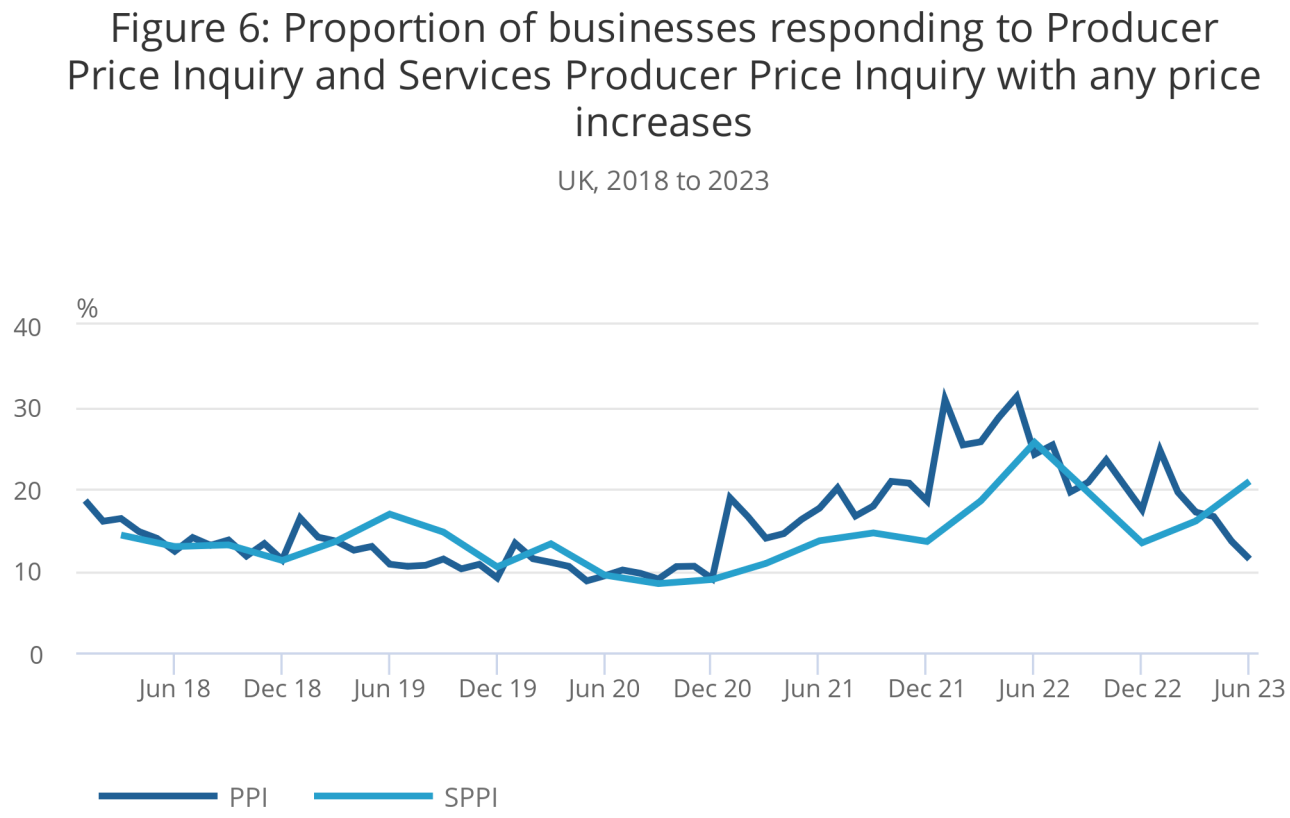
Only a smaller fraction of businesses go through with the price rises they are considering. The proportion of businesses reporting that prices decreased or stayed the same relative to the previous month increased from 52% to 71% between March 2022 and August 2023.

The Producer Price Inquiry and Services Producer Price Inquiry largely confirm these rates, and some evidence suggests prices were raised at a slower rate.

At its peak in January 2022, only 28% of tracked prices in manufactured goods in the Producer Price Inquiry were raised in the month. Some 69% of businesses kept all of their tracked prices constant for the month.

Figure 6: Proportion of businesses responding to Producer Price Inquiry and Services Producer Price Inquiry with any price increases

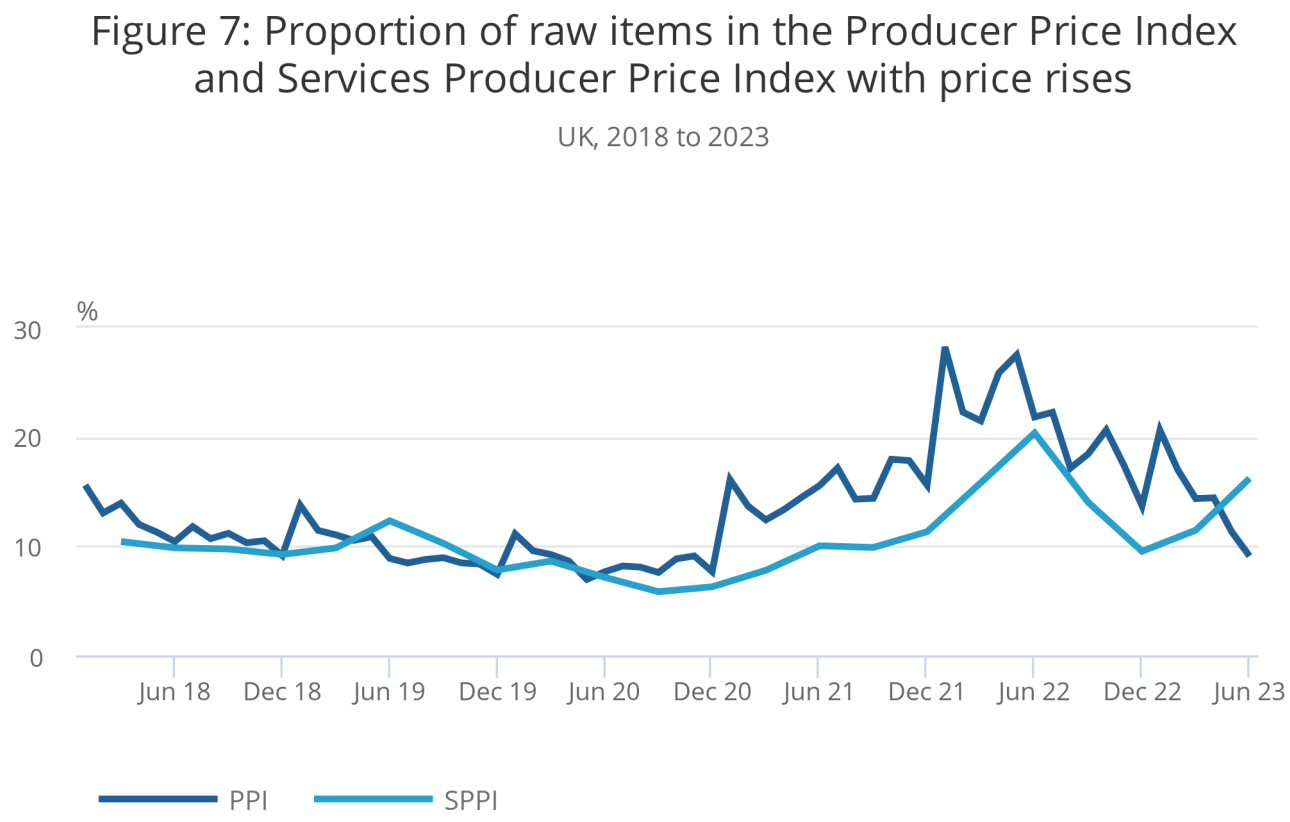
UK, 2018 to 2023



Source: Producer price inflation and services producer price inflation from the Office for National Statistics

Figure 7: Proportion of raw items in the Producer Price Index and Services Producer Price Index with price rises

UK, 2018 to 2023



Source: Producer price inflation and services producer price inflation from the Office for National Statistics

Notes:

Services producer prices are collected quarterly. The rate is divided by three to approximate monthly changes.

Consistency of business-level output price proxy

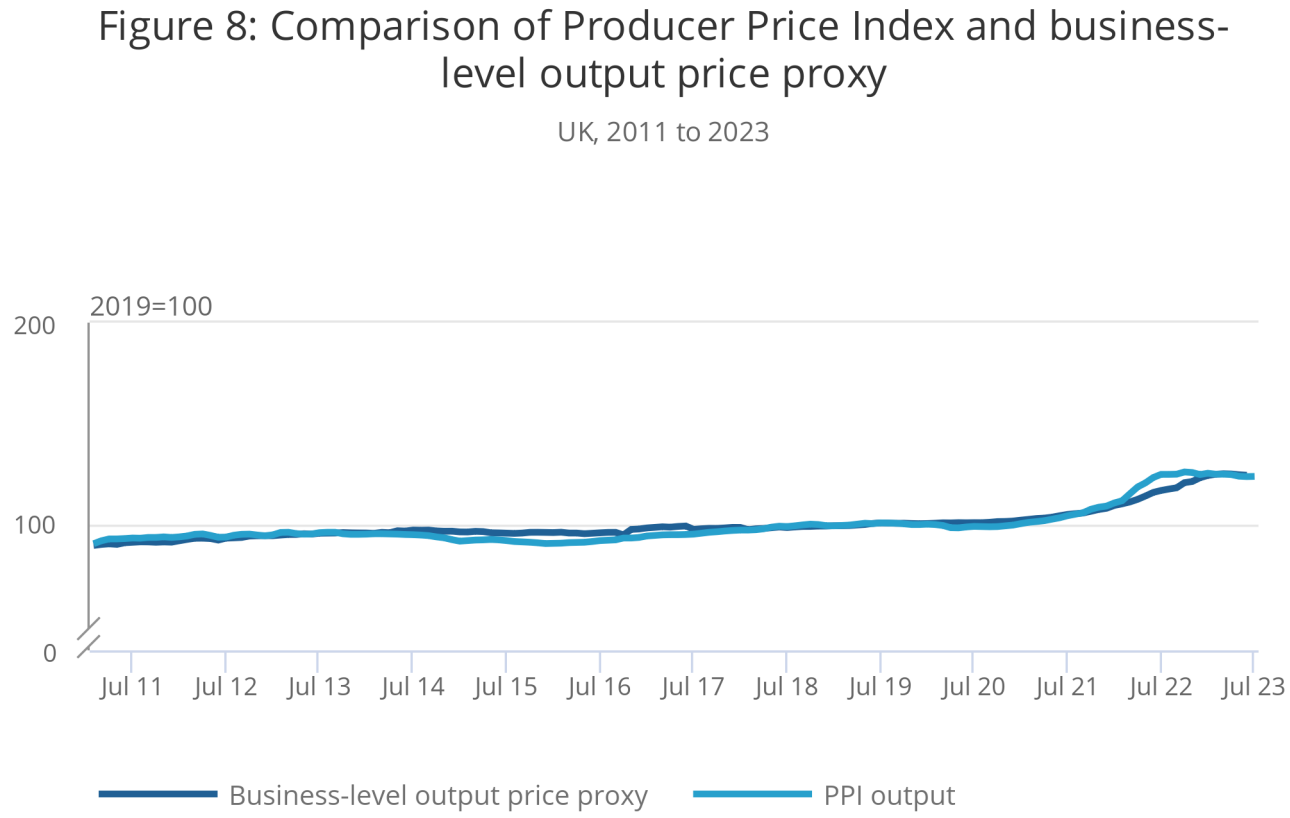
Figure 8 shows an index created from the business-level output price proxy used in the regressions in Figure 6. In Figure 8 each business's output price proxy is weighted by the business's turnover, and then rebased to 2019.

The actual producer price index has additional layers to weight products in relation to the total amount produced of each product by the manufacturing sector.

The output price proxy is slow to accelerate in 2022, likely because it does not give high enough weight to the natural gas and petrochemical-related products that increased most quickly in price. However, the business-level proxies match the overall producer price growth rates between different points in time reasonably well.

Figure 8: Comparison of Producer Price Index and business-level output price proxy

UK, 2011 to 2023



Source: Producer price inflation and business-level output price proxy from the Office for National Statistics

Consistency of services producer prices and consumer prices

Many products are in consumer prices, and also in producer prices and services producer prices in similar forms. Table 4 shows the price increase of the products in Table 2, where there is a similar product in the Consumer Prices Index including owner occupiers' housing costs (CPIH). For car repairs, the Services Producer Price Index (SPPI) aligns almost exactly with consumer prices. For air travel, there is a large difference, which is likely because consumer prices has a larger sample with more product detail.

In this article we have used producer prices collected from businesses, because this makes it easier to align to business and industry-level wages collected from businesses. However, this is only a proportion on total prices data, and not the full set of prices experienced by consumers.

Table 4: Price increase, 2019 to June 2023, selected products in Services Producer Price Index and Consumer Prices

	SPPI output price increase	Similar CPIH item price increase
Accommodation Services	38.3%	30.6%
Publishing Services	19.5%	22.9%
Air Transport Services	23.4%	66.2%
Post and Courier Services	10.4%	25.8%
Car repair and retail	19.6%	19.1%

Source: Consumer price inflation and producer price inflation from the Office for National Statistics

9 . Related links

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10 . Cite this article

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