GROSS INPUT PRICE INFLATION

Updated wholesale and retail forecasts

Wessex Water | July 2019

Economic Insight

This note updates our forecasts for gross wholesale and retail input price inflation (IPI) for Wessex Water, based on more recently published data from: BEIS; DWP; the IMF; the OBR; and the World Bank. The relevant input data generally shows a slight increase in projected inflationary pressure, resulting in a slight upward revision to our forecasts over the PR19 price control period.

1. Overview

In February 2018, Economic Insight provided Wessex Water with two reports[1] containing analysis and evidence to forecast wholesale and retail IPI – the 'February 2018 reports'. These were based on Wessex-specific input cost indices, driven off publicly available data, which were then forecast forward using a range of methods (set out below). Several of our methods themselves relied on existing independent forecasts – such as the OBR's forecasts for gross domestic product (GDP); average earnings; and the consumer price index (CPI).

For our February 2018 reports, we used the latest available independent forecasts at that time (which, for example, in the case of the OBR, were those released in November 2017). Since our 2018 reports, however, most of the independent forecasters have updated their projections (for example, the OBR's most recent release is now March 2019). As such, we have updated our forecasts for Wessex, reflecting the most recently available input data and assumptions.

We find that, generally, the more up-to-date independent forecasts for various input assumptions used in our analysis are 'higher' than those we relied upon in the February 2018 reports. Consequently, our ensuing gross IPI forecasts are also slightly higher.

The following table summarises the different forecasts used in our February 2018 reports, as well as the ones used for this July 2019 update.

[1] *See: Economic Insight (February 2018), 'PR19 Real Price Effects Analysis for the Wholesale Price Controls: A report for Wessex Water'; and Economic Insight (February 2018), 'PR19 Retail Household IPP Analysis and Evidence: A report for Wessex Water'.*

Table 1: Overview of forecasts used in February 2018 reports and July 2019 update

	February 2018 forecasts	July 2019 forecasts
Wholesale		
Labour costs	OBR November 2017	OBR March 2018 OBR March 2019
Chemical costs	World Bank Commodities Price Forecast 2017 IMF 2017	World Bank Commodities Price Forecast 2019 IMF 2019
Energy costs	BEIS 2016 Updated Energy & Emissions Projections	BEIS 2018 Updated Energy & Emissions Projections
Capital costs	OBR November 2017	OBR March 2018 OBR March 2019
Retail		
Labour costs	OBR November 2017	OBR March 2018 OBR March 2019
Bad debt costs	OBR November 2017 DWP Spring 2017	OBR March 2018 OBR March 2019 DWP Spring 2019
IT, postage and other costs	OBR November 2017	OBR March 2018 OBR March 2019

Source: Economic Insight

2. Summary of methodology

As per our initial February 2018 reports, all of our gross inflation forecasts start from a detailed mapping of the key categories of wholesale and retail costs incurred to independent inflation data. For example, in relation to labour costs, we asked Wessex and Pelican Business Services (who provides retail services to both Wessex and Bristol Water) to provide us with a full list of staff roles, including associated costs and headcounts. We then mapped each individual role to occupational level wage inflation data from the ONS (i.e. by SOC code), to create a Wessex specific wage index. For the other key wholesale and retail cost categories, we similarly sought to identify the most relevant historical data from the ONS and other credible sources at a very granular level. Here, our key objective was to avoid basing forecasts on the 'actual' costs incurred by Wessex – as this might embed a degree of inefficiency. Rather, for each cost category, we have created a bespoke inflation 'index', which avoids any conflation with inefficiency.

Having created our bespoke inflation indices, we project IPI over the price control period (2020/21 to 2024/25). We have utilised three broad types of method in order to forecast gross IPI:

- **Economic fundamentals.** This is based on the analysis of the relationship between input costs and key economic indicators.
  - Some methods are based on the **'wedge'** between input costs and other inflation indicators, such as the CPI.
  - Other methods are based on **statistical analysis** of the relationship between input costs and economic fundamentals, such as GDP.

- **Extrapolations.** Here, we extrapolate existing trends in input costs forward. This approach was widely used by companies at PR14.

- **Independent third-party forecasts**. There are independent third-party forecasts for certain input costs, such as labour, which themselves are a source of evidence in their own right.

The updated publicly available forecasts will affect all our estimates using the first and last methods – the economic fundamentals and independent third-party forecasts. For example, all February 2018 forecasts for labour; capital; bad debt; IT; postage; and other costs were (in part) based on the November 2017 OBR forecasts. As such, this note updates them, using the most recent OBR publication from March 2019.

The differences between the two OBR forecasts are set out in the following table. As can be seen, the OBR has revised upwards its projections for GDP and average earnings for the UK in each year. In relation to CPI, the OBR is generally expecting this to remain at around 2.0%, although its forecast for 2019/20 is slightly *higher,* relative to its November 2017 forecast; and is slightly *lower* for 2020/21. In the round, the slight 'upwards revision' to expected UK economic performance similarly drives a modest increase in our projected inflation measures for Wessex.

Table 2: Comparison of November 2017 and March 2019 OBR forecasts

	Nominal GDP		Average earnings		CPI	
	Nov-17	Mar-19	Nov-17	Mar-19	Nov-17	Mar-19
2018/19	2.80%	**3.08%**	2.17%	**2.91%**	2.18%	**2.28%**
2019/20	2.73%	**3.25%**	2.44%	**2.95%**	1.82%	**2.03%**
2020/21	3.07%	**3.41%**	2.69%	**3.06%**	2.00%	**1.90%**
2021/22	3.36%	**3.54%**	3.11%	**3.12%**	2.00%	**2.00%**
2022/23	3.35%	**3.60%**	3.07%	**3.17%**	2.00%	**2.00%**
2023/24	*3.35%*	**3.64%**	*3.07%*	**3.29%**	*2.00%*	**2.00%**
2024/25	*3.35%*	***3.64%***	*3.07%*	***3.29%***	*2.00%*	***2.00%***

Source: OBR[2]

[2] *The November 2017 publication only provides forecasts up to 2022/23, whereas the March 2019 publication only provides forecasts up to 2023/24. We have always assumed that the forecasts from the previously available year holds, where there was missing data, illustrated by numbers in italics in the table.*

Annex B to this paper contains details of updates to other independent forecasts, which are used as inputs in our analysis. Key points to highlight from these are as follows:

- The IMF has revised upwards its forecasts for US and World GPD (2019 data release, relative to the 2017 data release on which we previously relied).
- BEIS has revised upwards its reference case forecasts for inflation for: electricity; gas; and petroleum (2018 release, compared to 2016 release on which we previously relied).
- The World Bank has (fractionally) revised downwards its forecasts for chemical prices (2019 release relative to 2017 release on which we previously relied).

The results of our updated central-case forecasts for Wessex over PR19 are summarised in the following section (see overleaf). Annex A to this note contains our updated 'high' and 'low' case forecasts.

3. Results

Updating and drawing together the various analyses we have developed, the following tables summarise our central estimates of *gross* IPI[3] by wholesale price control area.

3.1 Forecast gross wholesale IPI

Table 3: Gross input price inflation - wholesale **water resources** (central case)

Year / cost category	2020-21	2021-22	2022-23	2023-24	2024-25	Average
Operating expenditure	2.54%	2.39%	2.38%	2.44%	2.55%	2.46%
Maintaining the long-term capability of the assets infrastructure	3.06%	3.19%	3.25%	3.29%	3.29%	3.22%
Maintaining the long-term capability of the assets non-infrastructure	3.06%	3.19%	3.25%	3.29%	3.29%	3.22%
Other capital expenditure ~ infrastructure	3.21%	3.33%	3.39%	3.43%	3.43%	3.36%
Other capital expenditure ~ non-infrastructure	3.21%	3.33%	3.39%	3.43%	3.43%	3.36%

Source: Economic Insight analysis

Table 4: Gross input price inflation - wholesale **water network plus** (central case)

Year / cost category	2020-21	2021-22	2022-23	2023-24	2024-25	Average
Operating expenditure	2.12%	2.12%	2.12%	2.15%	2.19%	2.14%
Maintaining the long-term capability of the assets infrastructure	3.00%	3.12%	3.18%	3.22%	3.22%	3.15%
Maintaining the long-term capability of the assets non-infrastructure	3.00%	3.12%	3.18%	3.22%	3.22%	3.15%
Other capital expenditure ~ infrastructure	3.04%	3.17%	3.23%	3.27%	3.27%	3.19%
Other capital expenditure ~ non-infrastructure	3.04%	3.17%	3.23%	3.27%	3.27%	3.19%

Source: Economic Insight analysis

[3] *Note, by 'gross' IPI, we are referring to underlying input inflation before any deduction for efficiency.*

Table 5: Gross input price inflation - wholesale **wastewater network plus** (central case)

Year / cost category	2020-21	2021-22	2022-23	2023-24	2024-25	Average
Operating expenditure	2.41%	2.29%	2.28%	2.34%	2.43%	2.35%
Maintaining the long-term capability of the assets infrastructure	3.23%	3.36%	3.42%	3.46%	3.46%	3.38%
Maintaining the long-term capability of the assets non-infrastructure	3.23%	3.36%	3.42%	3.46%	3.46%	3.38%
Other capital expenditure ~ infrastructure	3.04%	3.17%	3.23%	3.27%	3.27%	3.19%
Other capital expenditure ~ non-infrastructure	3.04%	3.17%	3.23%	3.27%	3.27%	3.19%

Source: Economic Insight analysis

Table 6: Gross input price inflation - wholesale **wastewater bioresources** (central case)

Year / cost category	2020-21	2021-22	2022-23	2023-24	2024-25	Average
Operating expenditure	2.01%	1.98%	1.98%	2.02%	2.07%	2.01%
Maintaining the long-term capability of the assets infrastructure	2.97%	3.10%	3.16%	3.20%	3.20%	3.13%
Maintaining the long-term capability of the assets non-infrastructure	2.97%	3.10%	3.16%	3.20%	3.20%	3.13%
Other capital expenditure ~ infrastructure	2.93%	3.06%	3.12%	3.16%	3.16%	3.09%
Other capital expenditure ~ non-infrastructure	2.93%	3.06%	3.12%	3.16%	3.16%	3.09%

Source: Economic Insight analysis

3.2 Forecast gross retail IPI

Over the period 2020/21 to 2024/25, we estimate that Wessex's gross IPI in HH retail will be between 2.03% to 2.44% per annum on average. This is slightly higher than our previous estimates of gross IPI in HH retail between 1.85% and 2.38% per annum, as both the more recent OBR and DWP forecasts have been higher.

The table below sets out the results for the high, medium and low cases for gross IPI based on these assumptions.

Table 7: Gross input price inflation - retail

Year / cost category	2020-21	2021-22	2022-23	2023-24	2024-25	Average
High	2.34%	2.43%	2.45%	2.50%	2.50%	2.44%
Medium	1.83%	2.07%	2.16%	2.28%	2.21%	2.11%
Low	1.76%	1.99%	2.08%	2.20%	2.13%	2.03%

Source: Economic Insight analysis

4. Annex A – 'high' and 'low' case wholesale forecasts

4.1 Forecast gross wholesale IPI – high estimates

Updating and drawing together the various analyses we have developed, the following tables summarise our **high estimates** of IPI by wholesale price control area.

Table 8: Gross input price inflation - wholesale **water resources** (high case)

Year / cost category	2020-21	2021-22	2022-23	2023-24	2024-25	Average
Operating expenditure	2.68%	2.52%	2.50%	2.55%	2.68%	2.59%
Maintaining the long-term capability of the assets infrastructure	4.03%	4.03%	4.03%	4.03%	4.03%	4.03%
Maintaining the long-term capability of the assets non-infrastructure	4.03%	4.03%	4.03%	4.03%	4.03%	4.03%
Other capital expenditure ~ infrastructure	4.17%	4.17%	4.17%	4.17%	4.17%	4.17%
Other capital expenditure ~ non-infrastructure	4.17%	4.17%	4.17%	4.17%	4.17%	4.17%

Source: Economic Insight analysis

Table 9: Gross input price inflation - wholesale **water network plus** (high case)

Year / cost category	2020-21	2021-22	2022-23	2023-24	2024-25	Average
Operating expenditure	2.19%	2.19%	2.19%	2.21%	2.26%	2.21%
Maintaining the long-term capability of the assets infrastructure	3.96%	3.96%	3.96%	3.96%	3.96%	3.96%
Maintaining the long-term capability of the assets non-infrastructure	3.96%	3.96%	3.96%	3.96%	3.96%	3.96%
Other capital expenditure ~ infrastructure	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Other capital expenditure ~ non-infrastructure	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%

Source: Economic Insight analysis

Table 10: Gross input price inflation - wholesale **wastewater network plus** (high case)

Year / cost category	2020-21	2021-22	2022-23	2023-24	2024-25	Average
Operating expenditure	2.54%	2.42%	2.41%	2.45%	2.56%	2.48%
Maintaining the long-term capability of the assets infrastructure	4.19%	4.19%	4.19%	4.19%	4.19%	4.19%
Maintaining the long-term capability of the assets non-infrastructure	4.19%	4.19%	4.19%	4.19%	4.19%	4.19%
Other capital expenditure ~ infrastructure	3.93%	3.93%	3.93%	3.93%	3.93%	3.93%
Other capital expenditure ~ non-infrastructure	3.93%	3.93%	3.93%	3.93%	3.93%	3.93%

Source: Economic Insight analysis

Table 11: Gross input price inflation - wholesale **wastewater bioresources** (high case)

Year / cost category	2020-21	2021-22	2022-23	2023-24	2024-25	Average
Operating expenditure	2.12%	2.09%	2.08%	2.11%	2.17%	2.11%
Maintaining the long-term capability of the assets infrastructure	3.93%	3.89%	3.89%	3.89%	3.89%	3.89%
Maintaining the long-term capability of the assets non-infrastructure	3.93%	3.89%	3.89%	3.89%	3.89%	3.89%
Other capital expenditure ~ infrastructure	3.89%	3.89%	3.89%	3.89%	3.89%	3.89%
Other capital expenditure ~ non-infrastructure	3.89%	3.89%	3.89%	3.89%	3.89%	3.89%

Source: Economic Insight analysis

4.2 Forecast gross wholesale IPI – low estimates

Drawing together the various analyses we have developed, the following tables summarise our **low estimates** of IPI by wholesale price control area.

Table 12: Gross input price inflation - wholesale **water resources** (low case)

Year / cost category	2020-21	2021-22	2022-23	2023-24	2024-25	Average
Operating expenditure	2.23%	2.07%	2.03%	2.08%	2.20%	2.12%
Maintaining the long-term capability of the assets infrastructure	2.03%	2.13%	2.13%	2.13%	2.13%	2.11%
Maintaining the long-term capability of the assets non-infrastructure	2.03%	2.13%	2.13%	2.13%	2.13%	2.11%
Other capital expenditure ~ infrastructure	1.95%	2.05%	2.05%	2.05%	2.05%	2.03%
Other capital expenditure ~ non-infrastructure	1.95%	2.05%	2.05%	2.05%	2.05%	2.03%

Source: Economic Insight analysis

Table 13: Gross input price inflation - wholesale **water network plus** (low case)

Year / cost category	2020-21	2021-22	2022-23	2023-24	2024-25	Average
Operating expenditure	2.00%	2.00%	1.98%	2.01%	2.05%	2.01%
Maintaining the long-term capability of the assets infrastructure	1.99%	2.09%	2.09%	2.09%	2.09%	2.07%
Maintaining the long-term capability of the assets non-infrastructure	1.99%	2.09%	2.09%	2.09%	2.09%	2.07%
Other capital expenditure ~ infrastructure	1.92%	2.02%	2.02%	2.02%	2.02%	2.00%
Other capital expenditure ~ non-infrastructure	1.92%	2.02%	2.02%	2.02%	2.02%	2.00%

Source: Economic Insight analysis

Table 14: Gross input price inflation - wholesale **wastewater network plus** (low case)

Year / cost category	2020-21	2021-22	2022-23	2023-24	2024-25	Average
Operating expenditure	2.14%	2.01%	1.98%	2.03%	2.12%	2.06%
Maintaining the long-term capability of the assets infrastructure	1.98%	2.08%	2.08%	2.08%	2.08%	2.06%
Maintaining the long-term capability of the assets non-infrastructure	1.98%	2.08%	2.08%	2.08%	2.08%	2.06%
Other capital expenditure ~ infrastructure	1.92%	2.02%	2.02%	2.02%	2.02%	2.00%
Other capital expenditure ~ non-infrastructure	1.92%	2.02%	2.02%	2.02%	2.02%	2.00%

Source: Economic Insight analysis

Table 15: Gross input price inflation - wholesale **wastewater bioresources** (low case)

Year / cost category	2020-21	2021-22	2022-23	2023-24	2024-25	Average
Operating expenditure	1.85%	1.82%	1.80%	1.84%	1.89%	1.84%
Maintaining the long-term capability of the assets infrastructure	1.98%	2.09%	2.09%	2.09%	2.09%	2.07%
Maintaining the long-term capability of the assets non-infrastructure	1.98%	2.09%	2.09%	2.09%	2.09%	2.07%
Other capital expenditure ~ infrastructure	1.91%	2.01%	2.01%	2.01%	2.01%	1.99%
Other capital expenditure ~ non-infrastructure	1.91%	2.01%	2.01%	2.01%	2.01%	1.99%

Source: Economic Insight analysis

5. Annex B – updates of independent forecasts

The following charts show the 'updated' independent forecasts / data – which we have used in order to revise our own forecasts in this note – and compares these to the previous forecasts, as used in our February 2018 reports for Wessex. As follows:

- We first set out how the OBR's most recent forecasts (March 2019) for nominal GDP, average earnings and CPI compare to the ones used previously (November 2017).

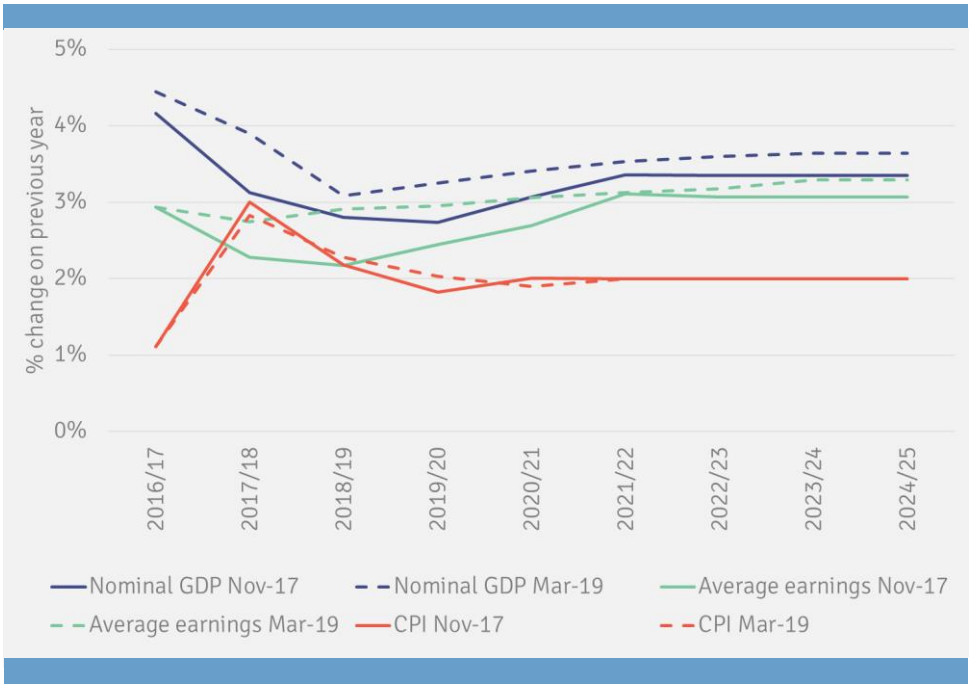
- We then show how the World Bank's previously used chemical prices forecasts (2017) for: diammonium phosphate; phosphate rock; potassium chloride; triple superphosphate; and urea, compare to the most recent ones (2019). Relatedly, we also illustrate the IMF's nominal GDP forecasts for the world, the US and the UK, as these have also been updated.

- Our energy costs forecasts were based on 8-year rolling averages of BEIS' projections for electricity; gas; and petroleum prices. As such, we also compare how the previously used projections (2016) compare to the most recent ones (2018).

- Finally, for the retail input costs, our bad debt model was based on benefits expenditure, as forecast by the DWP. Hence, we also present how the most recent forecast compares to the one used in our February 2018 report.

5.1 OBR forecasts

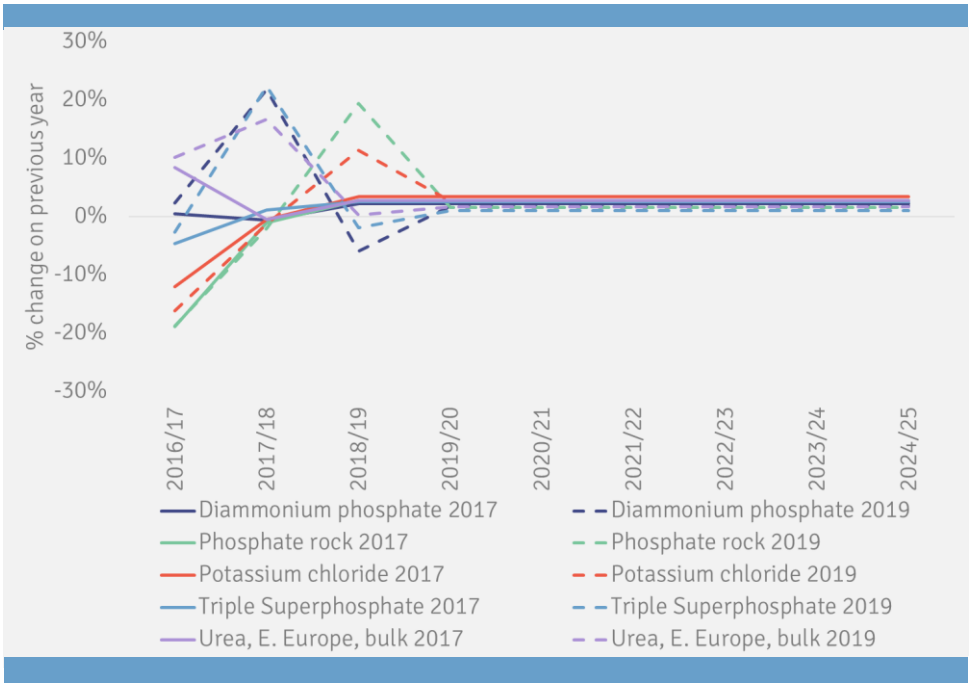
Figure 1: Nominal GDP, average earnings and CPI forecasts



Source: OBR November 2017, March 2018 and March 2019 forecasts

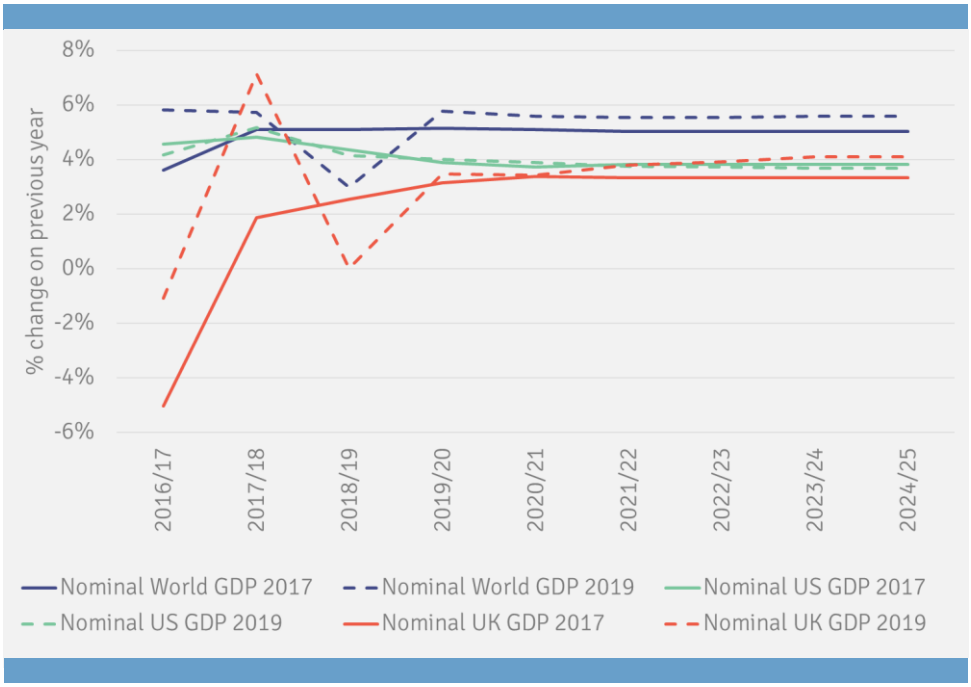
5.2 Chemical costs forecasts

Figure 2: World Bank chemical prices forecasts



Source: World Bank Commodities Price Forecast 2017 and 2019

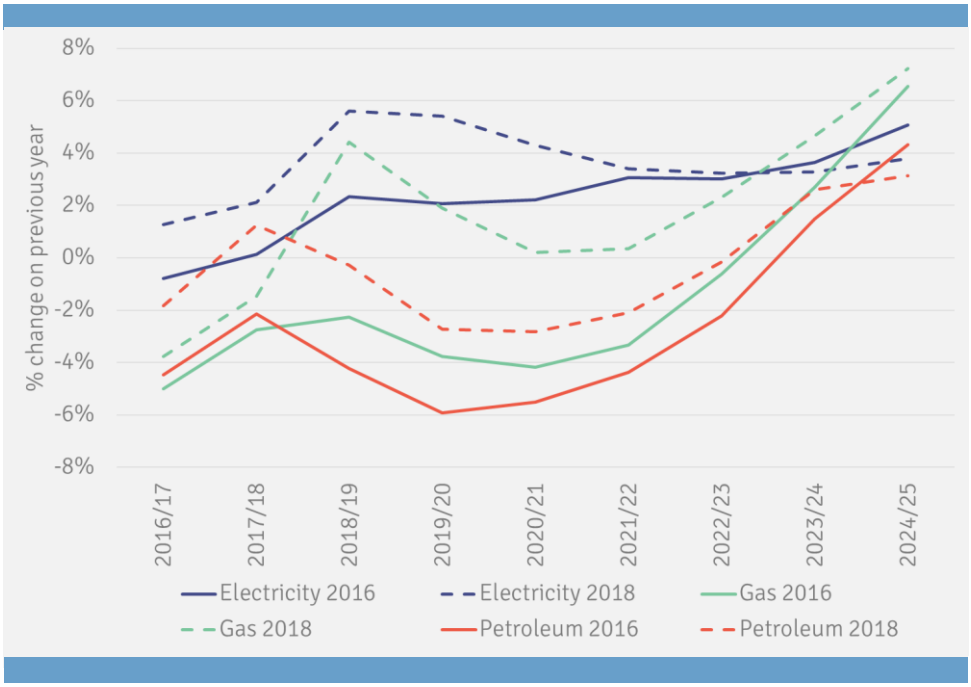
Figure 3: IMF nominal GDP forecasts



Source: IMF 2017 and 2019 forecasts

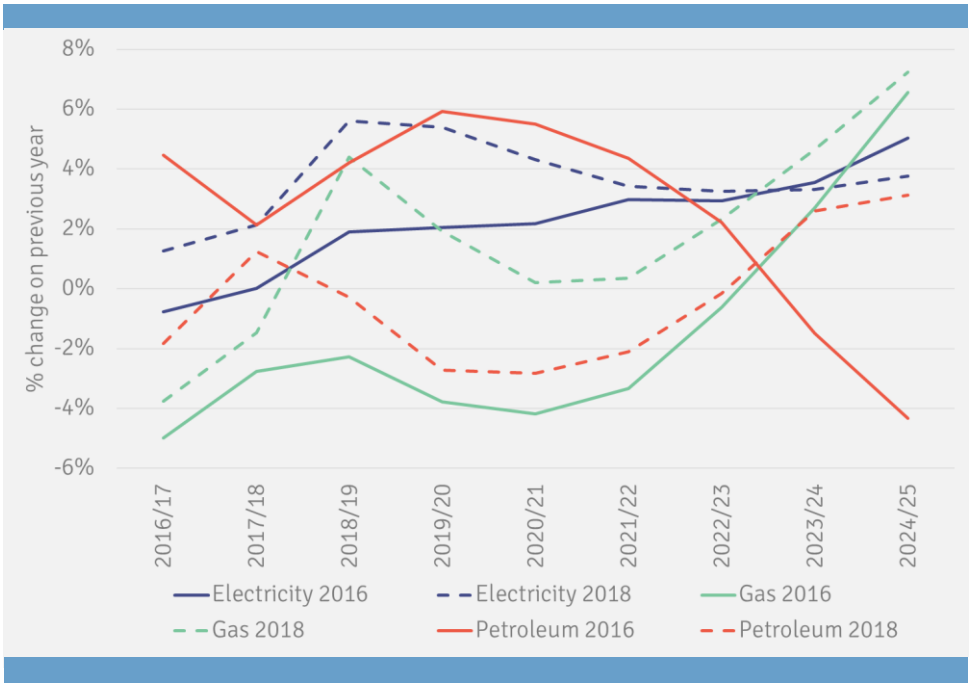
5.3 Energy costs forecasts

Figure 4: BEIS reference case forecasts (8-year rolling average)



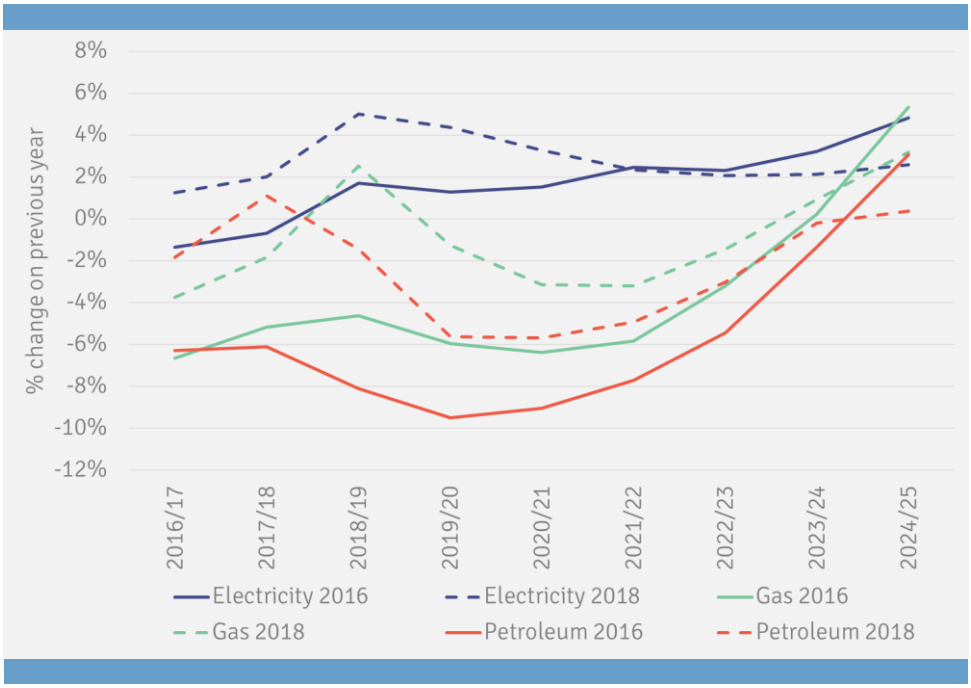
Source BEIS 2016 and 2018 Updated Energy & Emissions Projections

Figure 5: BEIS low growth case forecasts (8-year rolling average)



Source BEIS 2016 and 2018 Updated Energy & Emissions Projections

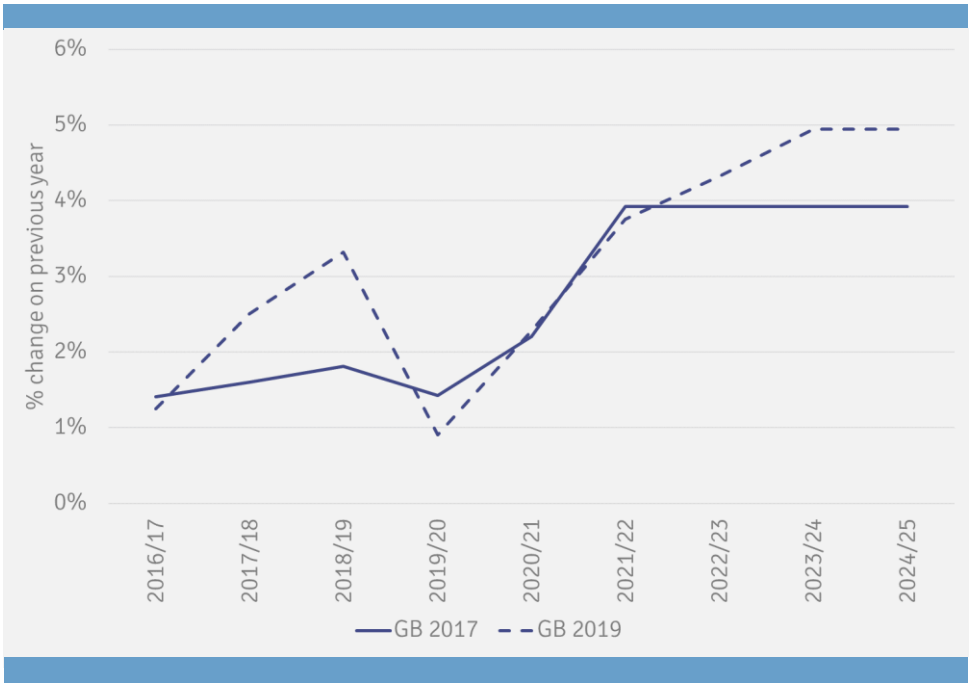
Figure 6: BEIS low prices case forecasts (8-year rolling average)



Source BEIS 2016 and 2018 Updated Energy & Emissions Projections

5.4 DWP forecasts

Figure 7: Benefits forecasts



Source: DWP Spring 2017 and 2019 forecasts

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