

Comments on Frontier Shift and Real Price Effects

PR24 Draft Determination Representations – August 24



Overview

In this document we respond to Ofwat's proposals on Frontier Shift and Real Price Effects. We summarise our view in Chapter 6 Driving cost efficiency – base.

Comments on Frontier Shift and Real Price Effects

We are disappointed that Ofwat has chosen to apply a frontier shift estimate of 1 percent per annum (pa) despite:

- the consensus of the majority of companies (in the context of a business plan ambition assessment) that a reasonable forecast is well below 1 percent pa;
- the high quality evidence presented in reports produced by Economic Insight, supported by the leading UK academics in the field of productivity;
- the analysis of numerous independent bodies about levels of productivity in the UK economy.

In our revised plan, we have used Ofwat's draft determination (DD) on this subject and applied a frontier shift of 1 percent pa to all of our relevant costs. However, we disagree with Ofwat's assessment and set out our views below. In doing so, we do not intend to raise every detailed point of dispute but note the following important points:

We are concerned about the weight applied to the productivity growth rate applied to chemicals in CEPA's analysis

We accept that there is a degree of judgement involved in the selection of comparators chosen to benchmark productivity growth rates. However, we are sceptical about the inclusion of any comparator whose productivity growth rate is very different from those of other sectors. This concern is heightened when the weight allocated to that comparator is disproportionate to the relevance that comparator might have to water companies. In this context, we note from tables 4.6 and 4.7 in CEPA's report that Chemicals and chemical products is a notable outlier in terms of average annual productivity growth rate over the time period chosen for analysis. On a Gross Output (GO) basis the rate for chemicals is a whole percentage point higher than the rate for the next highest comparator while on a Value Added (VA) basis the comparable gap is three percentage points.

Moreover, in its analysis of Real Price Effects (figures 3.6 and 3.7) CEPA shows that chemicals account for a very small proportion of companies' expenditure plans over the 2025-30 period. This makes a material difference because of the contribution of the chemicals growth rate to the unweighted average which is used to inform CEPA's overall conclusion.

We reproduce and modify figures 3.6 and 3.7 below. These tables show that removing chemicals and chemical products from the analysis reduces the unweighted average growth rate from 0.6 percent pa to 0.3 percent pa for the Total Factor Productivity (TFP) GO estimates and from 1.7 percent to 1.0 percent for the TFP VA estimates. By applying some indicative weightings, we also show that on a weighted basis (reflecting, for example, that our expenditure on construction in 2023/24 was approximately 20 times higher than our spend on chemicals) the overall productivity estimates fall to 0.12 percent and 0.55 percent pa respectively.

Re-worked version of CEPA figure 3.6

Table 1: re-working of CEPA's table(GO)

	Annual productivity 1996-2019	Without chemicals	Weights
<i>Chemicals and chemical products</i>	2.1%		1%
Construction	-0.4%	-0.4%	20%
Machinery and equipment	0.9%	0.9%	25%
Manufacture of furniture etc, including repair and installation of machinery and equipment	0.9%	0.9%	10%
Professional, Scientific, Technical etc	-0.3%	-0.3%	40%
Total manufacturing	1.1%	1.1%	0%
Transportation and storage	-0.3%	-0.3%	4%
Unweighted average of all industries	0.6%	0.3%	100%
Unweighted average of all of the 4 highest performing industries	1.3%		
Weighted average of all industries			0.12%
Weighted average of the 4 highest performing industries			0.34%

Re-worked version of CEPA figure 3.7

Table 2: re-working of CEPA's table(VA)

	Annual productivity 1996-2019	Without chemicals	Weights
<i>Chemicals and chemical products</i>	5.9%		1%
Construction	-0.5%	-0.5%	20%
<i>Machinery and equipment</i>	2.4%	2.4%	25%
<i>Manufacture of furniture etc. including repair and installation of machinery and equipment</i>	2.0%	2.0%	10%
Professional, Scientific, Technical etc.	-0.5%	-0.5%	40%
<i>Total manufacturing</i>	2.9%	2.9%	0%
Transportation and storage	-0.3%	-0.3%	4%
Unweighted average of all industries	1.7%	1.0%	100%
Unweighted average of the 4 highest performing industries	3.3%		
Weighted average of all industries			0.55%
Weighted average of the 4 highest performing industries			086%

On a related point, we are surprised that CEPA excludes 'Construction' and 'Professional, scientific, technical, administrative and support activities' from its '4 highest performing Industries' analysis, when it had already criticised the omission of these sectors by Economic Insight. The figure calculated from the '4 highest performing Industries' analysis (in the tables these industries are shown in italics) forms the upper bound of CEPA's TFP GO range and the exclusion of 'Construction' and 'Professional, scientific, technical, administrative and support activities' has a very material bearing on the outcome. This is evident from the tables above by comparing the average productivity improvement of the four highest performing industries which exclude construction and professional etc. services and the averages which include them.

We are concerned about the reliance on other regulators' decisions

A frontier shift estimate of 1 percent pa has become something of a regulatory standard over the last decade. We have noticed a tendency among regulators to justify their choice of 1 percent pa on the

basis that other regulators have also used it. Where comparison is relevant, there is value in consistency across regulatory jurisdictions but at the same time there is danger that in pursuit of consistency a decision can become ossified and continues to be made long after it has ceased to be justified by the real evidence.

The top end of CEPA's 'plausible' range for Frontier Shift (1.2 percent pa) 'is aligned with the highest frontier shift challenges set in recent GB price reviews - namely those set by Ofgem in RII0-GD2 and T2 at 1.25 percent pa for opex and 1.15 percent for capex and repex'. We note that at appeal the CMA threw out these figures as categorically "wrong" so it is hard to see how Ofwat can rely on them in any way.

Industry totex for AMP8 is estimated by Ofwat in the DDs to be £88 billion. This is arrived at after imposing Frontier Shift of over £2 billion on the industry, a figure that is conservatively around twice as high as is warranted by any level of productivity gain which companies forecast in their business plan (0.6 percent pa when weighted by company totex). Our share of that additional £1 billion of imposed cost would, for example, cover the additional permit fees we expect in AMP from the Environment Agency.

We are concerned that water is deemed to be completely immune from the factors which have affected the rest of the UK economy

We accept Europe Economics' argument that regulated monopolies have been shielded to some degree from some of the factors that will continue to drag on future productivity improvement in the UK economy. However, it overlooks the point that the majority of water companies' enhancement programmes, which constitute a large percentage of water company totex, are delivered by a contractor market which is outside the regulatory framework and decidedly not immune from economy-wide headwinds. The more relevant factor for the supply chain is the substantial demand for their services over the next five years from the water industry and other sectors. The competition for the supply chain, whose capacity concerns many stakeholders, is likely to reduce the cost pressure on contractors rather than increase it.

CEPA says: "the 'productivity puzzle' should not be fully reflected in the scope for productivity gains in regulated sectors where there is greater certainty of investment and longer planning horizons." The reality is that CEPA and Ofwat have not, in fact, reflected the slowdown at all.

We are surprised that OBR forecasts of higher future productivity are still being relied on for setting the frontier shift rate

Europe Economics invokes forecasts from both Bank of England and Office of Budget Responsibility reports in support of an optimistic view of future productivity improvement. However, we note that these bodies have been predicting a return to pre-global financial crash levels of productivity since 2008. Time has repeatedly shown their optimism to be mis-placed. The following two graphs, taken from the OBR Economic and Fiscal Outlook reports for 2021 and 2022 clearly illustrate this. After March 2022, the OBR stopped including this graph.

Figure 1: OBR March 2021 report: output per hour

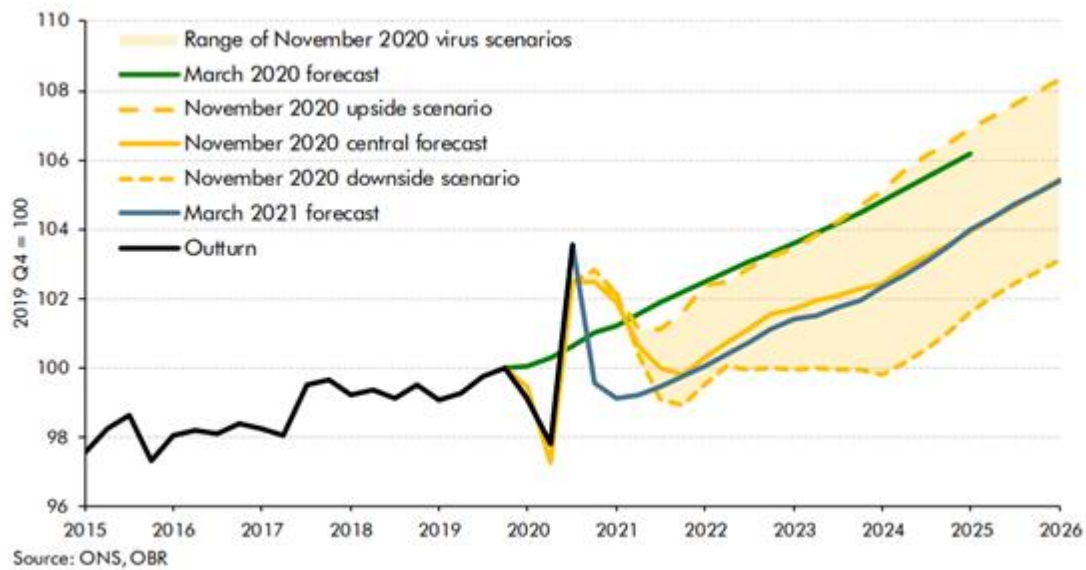
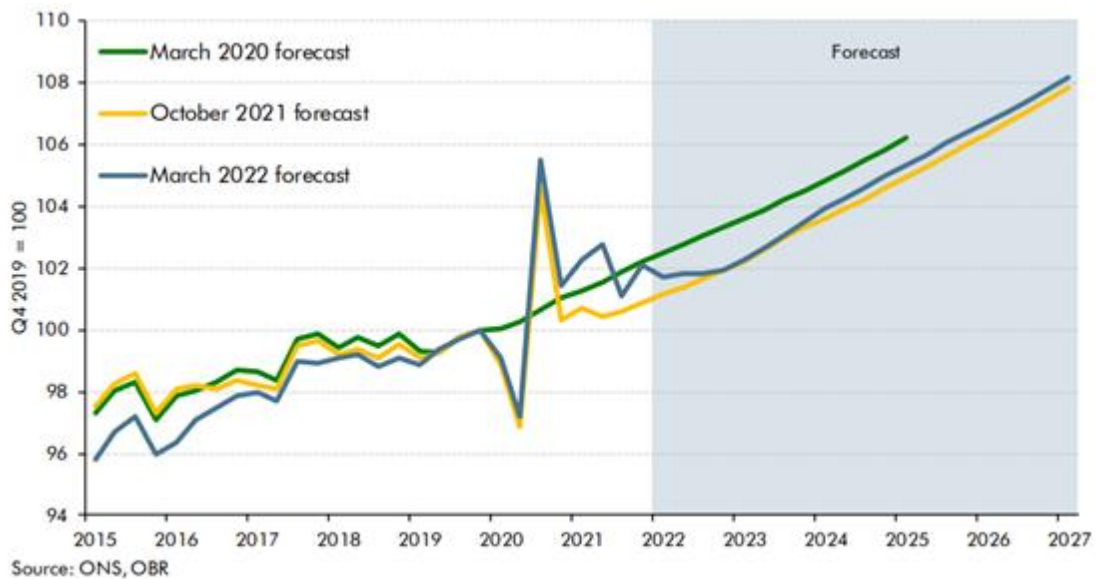


Figure 2: OBR March 2022 report: productivity (output per hour)



Europe Economics lists a number of factors which it says will deliver higher future productivity: tightening monetary policy, artificial intelligence and emerging technologies. However, estimates of the scale of the contribution of these factors is completely speculative. If anything, where uncertainties have been resolved the effect is to *reduce* expected productivity growth: Europe Economics cites 'levelling up' and HS2, but the first of these policies has disappeared with the previous Conservative government and the scale of the second has been significantly reduced. It seems unreasonable to continue to rely on speculative drivers of increased productivity.

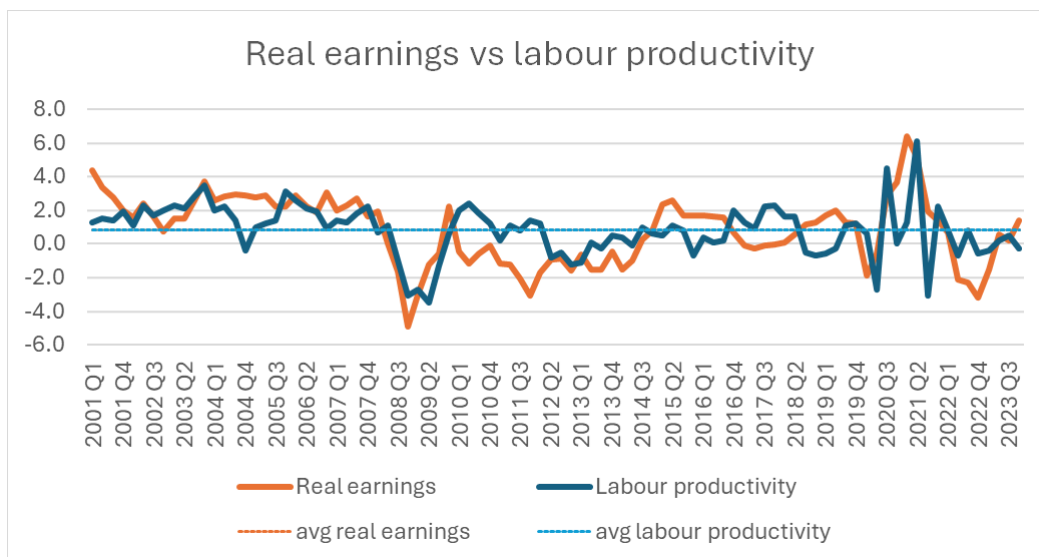
Ofwat’s revised view of Value Added (VA) measures of productivity is not justified

At PR19 Europe Economics said: “In our view, the most appropriate measure of TFP growth for the regulatory purpose of estimating frontier shift is TFP growth in gross output (GO) terms. This is because Ofwat intends to apply the frontier shift estimates to totex or botex, both of which include expenditure on intermediate inputs. A gross output measure of TFP is also less sensitive to changes in the degree of outsourcing over time. Therefore, for sectors in which outsourcing is important, the gross output TFP measure is typically preferable.” In CEPA’s analysis the GO and much higher VA estimates have been given equal weight and we believe this to be more appropriate than Ofwat’s approach, for the reasons explained by Europe Economics.

There is an inconsistency between Ofwat’s estimate of Frontier shift and its estimate of the real price effect for labour

A forecast of 1 percent pa productivity growth is incompatible with CEPA’s projected real wage growth rate of ~0.5 percent per annum. Over the last decade countless reports from bodies such as the OBR and Bank of England have linked low real wage growth and slow improvement in living standards more generally to slow productivity growth. Without any justification, CEPA is effectively forecasting that this link will disappear. If the productivity improvements that CEPA forecasts were to materialise, we would expect demands for much higher wage growth than CEPA’s RPE estimate suggests.

This link between real earnings and labour productivity is starkly illustrated in the graph below.



The table below shows the very close match between the annual growth in real earnings and labour productivity since January 2001, so much so that the average labour productivity is superimposed on top of the average real earnings line.

Table 3: Relative changes in real earnings growth and labour productivity growth 2001-2023

	Average annual % change
Real Earnings Growth	+0.823%
Labour Productivity Growth	+0.817%
Difference	0.006%

Given this congruence, Ofwat's Frontier Shift is in line with a labour RPE of 1 percent pa across AMP8. Conversely, Ofwat's labour RPE is in line with a productivity forecast of 0.8 percent pa. In the long run, one or other of the two predictions can be true but not both.

Economic Insight report on Ofwat's DD decision on frontier shift

With other companies, we asked Economic Insight to review Ofwat's DD decision on frontier shift and the consultants' reports that informed their decision. Rather than challenge every detail of analysis that Ofwat has published, we asked Economic Insight to test the intuition of their conclusion against independent observable evidence. The overall findings of Economic Insight's work are set out below:

"When one focuses on the core intuition, and appraises the evidence in a balanced way, it remains the case that frontier shift for the water industry at PR24 should be set at a substantially lower level than currently proposed by Ofwat (i.e. should be in line with our previous reports). This is because:

- i. we would expect frontier shift to be higher at times of high productivity, and lower at times of low productivity*
- ii. data shows that over PR14 and PR19, the water industry delivered low productivity, in-line with the low and flat productivity performance of the UK; and*
- iii. the water industry is not 'high-tech'.*

The additional evidence set out in this report provides no basis for us to revise our recommended (focused) range for frontier shift at PR24 of 0.3 percent-0.7 percent pa.

A frontier shift challenge of 1.0 percent pa assumes the water sector will outperform anything that the UK water industry (including unregulated firms) has been able to achieve at any point in the last 20 years by more than an entire percentage point."

A copy of Economic Insight's The importance of a balance approach to frontier shift report is included as part of our representations as ANH_DD_055.

Real Price Effects (RPEs)

Labour RPEs

In our revised data tables, we have chosen to follow the approach Ofwat has taken within its DDs. In this, we are following the same approach as we have with Frontier Shift.

The labour RPEs provided to Ofwat by CEPA are very definitely at the bottom end of market expectations. The following analysis illustrates this, based on a review of market forecasts published by HM Treasury in May 2024. The market data can be found on [Table M6, page 20](#) of this report.

Table 4: Range of forecasts for labour RPEs

Real annual percentage change	2024	2025	2026	2027	2028
OBR †	1.6	0.1	0.0	0.3	0.6
Independent analysts: High	3.9	2.3	1.9	2.2	2.5
Independent analysts: Low	1.0	0.1	0.4	0.7	0.7
Independent analysts: Average	2.4	1.1	1.0	1.1	1.1
Ofwat: Real (financial year)	1.48	0.30	0.29	0.59	0.67

†: Converted from nominal using Ofwat's CPIH expectations

The geometric mean of Ofwat's labour RPEs is 0.8 percent. This suggests Ofwat's proposed 1 percent pa productivity gain is too high. The mean of the OBR's RPE is 0.6 percent pa, which broadly matches its expectation for productivity growth.

Energy RPE

In line with Ofwat's approach to addressing energy costs within the DD, our handling of energy RPEs is bound up in our section on the energy modelled cost adjustment.

Materials Plant and Equipment (MPE) RPE

We support Ofwat's proposal for an ex-post true-up for the costs of materials, plant and equipment used in our enhancement programme, taking into account the scale of the relevant expenditure and the differences between the items involved and those in the CPIH basket.

We do not agree that the new infrastructure construction output price index provides a suitable index for the purposes of the true-up. Firstly, as Ofwat notes, it is based entirely on the construction of roads and bridges, which make up only a small proportion of companies' enhancement programmes. Secondly, the proposal to use an output price index results in a double count of the productivity growth which has already been factored into Ofwat's separate frontier shift allowance.

Thirdly, there is another double-count because the costs it encompasses include labour, which is also covered by Ofwat's RPE proposals.

We suggest that an input price index (or a combination of indices) needs to be used for the true-up. The ONS publishes regular updates for these indices, which cover a range of specific plant and material categories which appear relevant to water company enhancement programmes, such as:

- C2420: tubes, pipes, hollow profiles and related fittings, of steel
 - C2711: electric motors, generators and transformers
 - C2812: fluid power equipment
 - C2813: other pumps and compressors
 - C2814: other taps and valves
 - C2815: bearings, gears, gearing and driving elements
 - C2892: machinery for mining, quarrying and construction
- They also include indices which are more broad, such as:
- GHIP: inputs into production of manufactured products.

Research needs to be conducted to assess which of these indices would be most suitable for an MPE true-up. We have not had capacity in the time available to do this but would be pleased to work with Ofwat to select an index, or develop a composite index, that would work best for this purpose. We would want to engage with the ONS for this exercise to understand the detail of their indices.

We propose that a deadband should not be applied to this true-up. In theory the presence of a deadband reduces regulatory burden as adjustments within the deadband are waived but in practice there is no administrative saving because the scale of the adjustment still has to be calculated. Absence of an MPE deadband would also be consistent with the AMP7 labour RPE and the proposed AMP8 true-ups for labour and energy RPE.

Ofwat proposes not to apply an ex-post true up for base MPE costs because there is no material wedge between its chosen index and CPIH. However, the index it has proposed is also an output price index and suffers from the same double-count issues that are referenced above. Although MPE comprise a smaller proportion of base costs they are still material at around 20 percent (Ofwat's estimate). The draft decision not to apply a true-up should be re-considered after a review of the input price indices that might be good benchmarks for companies' maintenance programmes. Again, we have not had time to work on this in the short representations window but would be pleased to work with Ofwat on this before the final determination.