A COST-QUALITY APPROACH TO PRODUCTIVITY AND PC MARGINAL COST ESTIMATES AT PR24

Response to Ofwat draft methodology

September 2022

Economic Insight

On behalf of a consortium of water companies, Economic Insight has been asked to develop a robust approach for deriving best-practice marginal cost estimates; a framework for establishing what level of performance is funded in cost allowances; and quality-adjusted measures of productivity. In this note, we briefly outline the purpose and scope of our work – and how it relates to the proposals in Ofwat's Draft PR24 Methodology.

1 Introduction

At PR19, Ofwat's outcomes targets represented a "*step change*" in improvement for the industry. For the most part, these targets were set independent of cost allowances. For example, companies were challenged to deliver at least a 15% reduction in leakage, largely within their existing cost allowances.[1]

In this context, Economic Insight has been commissioned by a consortium of 14 water companies to develop a best-practice method for establishing:

(i) robust estimates of the marginal cost of improvement across 7 PCs (leakage, PCC, water supply interruptions, pollution incidents, internal sewer flooding, external sewer flooding, and treatment works compliance);

(ii) a quality-adjusted measure of the productivity gains applicable for cost allowances; and

(iii) a framework for ensuring outcomes targets are funded appropriately, in light of (i) and (ii).

This work is currently on-going. Therefore, in this note, we set out a summary of the scope and purpose of our work in relation to marginal costs – and how it relates to the proposals in Ofwat's methodology. The remainder of this document is structured as follows.

- In Section 2 we step back and consider the key '**economics principles**'.

[1] *A summary of Ofwat's approach to leakage is set out on its website, where the regulator states: "As part of PR19, we challenged water companies to reduce leakage by at least 15%. We asked companies to do this without putting extra costs on customers". See: https://www.ofwat.gov.uk/nonhouseholds/supply-and-standards/leakage, accessed July 13 2022.*

- In Section 3 we summarise the proposals set out in **Ofwat's Draft PR24 Methodology.**

- In Section 4 we set out the **purpose and aims of our work**.

2 Economics principles

The underlying rationale for outcomes incentives is to address the allocative (and, potentially, technical) inefficiency of a natural monopoly. A 'good' incentive, designed to address this problem, should meet three simple criteria, as set out below.

- Firstly, the outcome being incentivised **must be (highly) valued by customers – and / or valuable from a societal or environmental perspective** (i.e. if the outcome 'doesn't matter,' or is of 'low value' to customers, the benefit of incentivising it is small, relative to alternative outcomes they do care about).

- Secondly, the outcome **must be (mainly) within company control**. That is, an incentive will only lead to better outcomes *'if companies can do something about it'*.

- Thirdly, **both the outcome itself, and the associated costs of delivering it, must be robustly measurable.** If one cannot accurately measure the outcome, or its marginal costs, one cannot determine whether the:
  - outcome is being achieved;
  - 'cost-benefit' of **achieving it is worthwhile for customers** or society (because one cannot determine the point at which the costs of improvement outweigh the benefits); or
  - **regulated companies are being over, or under, funded and / or incentivised** to meet the targets that have been set (because without being able to measure the cost of meeting an outcomes target, by definition one cannot determine what level of performance is funded within a price control).

In the water industry, the measurement of the 'marginal costs' of delivering outcomes within the outcomes framework has proved particularly challenging. At PR19, Ofwat's methodology included the use of marginal cost estimates in determining the incentive rates companies faced for underperformance. The marginal cost estimates were derived by companies individually, and assessed by Ofwat. In its Draft PR24 Methodology, Ofwat has said it found these challenging to assess. Ofwat cites variation between companies as a key driver of these difficulties. On this basis, at PR24 Ofwat is proposing to drop the explicit use of marginal cost estimates from its methodology. We discuss Ofwat's methodology further in the following section.

Whilst these challenges are understandable, when considered in the context of the outcomes framework as it currently functions, the inability to robustly measure marginal cost has profound implications. For example, one cannot objectively say whether targets are being set at the efficient level; whether companies are being under or over rewarded for delivering on them; and / or whether the cost to customers and society of any targets might be in excess of the benefits. Stepping back, if we cannot measure the cost of delivering something for customers or society, there is actually no in-principle basis of incentivising it at all (i.e. we cannot even say that the 'right' things are being incentivised).

Following from the above, in practical terms, marginal cost estimates have three key applications relevant to the regulatory framework at PR24:

- The setting of 'target levels' (PCLs) and their associated incentive rates.
- Determining 'what' level of performance is funded within cost allowances.
- Determining the totality of the efficiency challenge (catch up and frontier combined) that is set for companies – recognising the productivity gains embedded in any outcomes targets.

3 Ofwat's Draft PR24 Methodology

In this section, we set out how Ofwat is proposing to approach the key considerations identified above absent the relevant information on marginal costs at PR24.

Ofwat is proposing to set PCLs, in the context of what can be delivered through base costs. Ofwat sets out that: *"we are intending to set performance commitment levels that align with our cost allowances, rather than attempt to set every performance commitment level at the exact point at which marginal costs equal marginal benefits, which is challenging to achieve".*[2] From the draft methodology, we understand that for each PC Ofwat will:

- determine the level of performance funded by base (with reference to a baseline, and expected improvement over PR24);
- allow enhancement funding allowances where companies can evidence customer support for moving away from performance level funded by base, or where it aligns to long-term government targets; and
- set the PCL at the level funded by base, plus an adjustment to reflect enhancement cost allowances where applicable.[3]

Ofwat is proposing to calculate symmetrical incentive rates based on the following formula.[4]

PR24 ODI standard out/underperformance rates =
Marginal Benefit x Benefits sharing rate (%)

Where, Ofwat will determine (i) the *marginal benefit* through a combination of customer research, market values, and third party research (depending on the PC

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[2] *Creating tomorrow, together: consulting on our methodology for PR24, Ofwat (July 2022), Appendix 8, page 13.*
[3] *Ibid., Appendix 9, Figure 4.1, and Section 4.4.1.*
[4] *Ibid., Appendix 8, page 8.*

type);[5] and (ii) the *benefit sharing rate* on the basis of relevant considerations (e.g. the degree of confidence Ofwat has in its marginal benefit estimates).[6]

In setting frontier shift, Ofwat intends to take account of improvements delivered by the £200 million innovation fund and any additional efficiency gains that might be possible as "*the water sector 'catches up' to the productivity in competitive sectors*".[7] However, Ofwat is not proposing to take account of its service targets in setting the frontier shift. Ofwat's intention at PR24 is to set a **stretching but achievable level of catch-up efficiency.** Here, Ofwat will use its regulatory judgement to consider whether to set a more stretching catch-up efficiency benchmark than the upper quartile at PR24.[8]

4 Purpose and scope of our work

We agree with Ofwat that estimating efficient marginal costs for outcomes in the water industry is challenging. However, as set out in Section 2, we consider that to the extent that outcomes are being incentivised, the marginal costs associated with any improvements need to be established.

Therefore, we have developed a best-practice methodology for estimating marginal costs. The key elements of our approach are summarised below.

- For each PC we have developed **an activity map** which sets out the activities that directly contribute to performance. Here, we stepped back from existing company allocations and derived these from 'scratch' such that all of the relevant expenditure is captured. These have been developed through: desk-based research; workshops with the relevant operational teams at multiple water companies; and input from Turner and Townsend, our engineering partner.

- Using these activity maps, we developed **PC specific RFIs.** These request costs at the level of specific activities, and we have also asked companies to provide these split by maintain / improve and cost types (e.g. labour, power, etc.). These were issued in June, and we are due to receive responses shortly.

- The responses to the RFIs will be subject to a **thorough QA,** by both ourselves and Turner and Townsend. This is to ensure we are only capturing expenditure which directly impacts performance – and there is read-across between companies. We consider this is a critical part of our analysis, and all of the information provided by companies will be sense-checked from both an economic and engineering perspective to ensure it is reliable.

5 *Ibid., Appendix 8, Section 2.*
6 *Ibid., Appendix 8, page 11.*
7 *Ibid., Appendix 9, page 46.*
8 *Ibid., Appendix 9, page 46.*

- The QA'd expenditure will then be used to **derive individual company efficient marginal cost curve estimates using a methodology that is applied consistently across the industry.** This will also involve allocating expenditure that relates to joint and common activities between PCs (e.g. based on customer valuations, or equi-proportional allocations).

- Whilst our focus will be on individual company curves (acknowledging the challenges in comparing these estimates noted above), we will also undertake comparative industry analysis. This will allow us to explore the relationship between costs and outcomes at the industry level.

Building on the above, as part of our work we will also develop:

  - a framework for ensuring outcomes targets are efficiently funded; and
  - cost-quality productivity measures – which recognise the productivity gain embedded in any outcomes targets.

5 Timings

As set out above, we have issued our RFIs to the companies and are currently awaiting responses. On this basis we expect to publish the results of our analysis in Early November – ahead of Ofwat publishing its Final PR24 Methodology.