Cost Assessment and Service Performance – False Frontiers That Regulation Demands but Competition Could Not Deliver

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Introduction

As Ofwat's David Black succinctly put it in in the Beesley Lecture on 9th November 2017, *"….the aim of monopoly regulation is to imitate the outcomes of competitive markets, where competition is not possible"*. This relatively uncontroversial principle ran through much of "*Refining the Balance of Incentives for PR19*" prepared by PWC for Ofwat in June 2017, and Ofwat's subsequent draft and final methodology publications[1]. It has shaped the way that Ofwat and other regulators (as well as the CMA) have approached their functions over the last thirty years or so. It is also squarely in line with the suite of statutory duties to which Ofwat is subject under the Water Industry Act 1991.

Though the underlying principle is simple, the very absence of the market forces which transmit the information that drives optimal outcomes in competitive sectors means that its practical application by regulators entails a careful "unpacking" of individual cost and service performance elements that are individually analysed and judged, before being carefully "re-assembled" in the form of price controls. Now that the April draft determinations and the January IAP have given effect to the methodological proposals set out in 2017, it is clear that in "unpacking and re-assembling" those elements, Ofwat's approach has given rise to inconsistencies, which in turn have led to significant departures from the underlying principle. In other words, looked at as a whole, Ofwat's methodology does *not* mimic the effects of a competitive market, most notably by proposing combinations of cost and service performance that are both artificial and infeasible.

The purpose of this short paper is to provide a "thumbnail sketch" of the observations on which this conclusion is based in relation to wholesale water and wholesale wastewater. As many of the points made have already been raised, both in response to the IAP and following the "fast track" draft determinations, Ofwat will have had the opportunity to consider them carefully in advance of the publication of the main draft determinations in mid-July

Relevant Features of the Competitive Markets which Regulators Seek to Mimic

Although the underlying principle is well-understood, it is worth drawing out those characteristics of competitive markets and what they deliver that represent the goals towards which regulators strive.

First, good firms in competitive markets generally operate at the **efficiency frontier**, because if they did not they would be sanctioned by market forces, i.e lose money and go bankrupt.

Second, firms provide **packages of service and cost/price** that meet the preferences and requirements of their customers. Importantly, though, these "bundles" may differ from one efficient firm to another: a successful restaurant may specialise in pizza, whilst its equally successful

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[1] See "*Delivering Water 2020: Consulting on our Methodology for the 2019 Price Review*": 11th July 2017, and "*Delivering Water 2020: Our Final Methodology for the 2019 Price Review*": 17th December 2017.

neighbour may specialise in burgers. They may also differ *within* a single firm: what a Tesco supermarket offers in Norwich can be different from what it offers in Northwich, because the preferences and requirements of the customers in the two areas may be different.

Third, efficient packages of service and cost/price never stand still. Pressures to **innovate** throw up opportunities either to reduce cost or provide new or improved services, perhaps as **consumer preferences** evolve, or a combination of both. Underlying movements in **relative prices** also exert an important influence on competitive outcomes, both through effects on the costs of production which may affect choice of production technique, and through effects on customer choice. Over a period of time, the rate of movement in the competitive "efficiency frontier" arising as a consequence of these factors can be estimated. So, for example, in a sector characterised by rapid technological progress that drives down unit costs and creates opportunities for new goods and service that customers want, the rate of movement in the efficiency frontier may be expected to be comparatively high. Where such conditions are not present, the rate of movement in the efficiency frontier is likely to be more modest.

Broadly speaking, then, it would appear that the challenge for a regulator that seeks to make projections of cost and service that might be expected to mimic competitive outcomes is to identify the position of the efficiency frontier today, and to estimate how it can be expected to move over the period covered by a price determination. In fact, however, where regional monopolies are concerned there are potentially multiple efficiency frontiers to consider. This is because the notional competitive markets the regulator is seeking to mimic are each effectively limited to the geographical region of a single undertaker. It would be pointless to seek to emulate a hypothetical competitive market that could deliver Severn Trent standards of bathing beach quality in the South West.[2] Indeed, this crucial distinction is a theme that runs through much of the material that follows: in competitive markets firms have to match or beat what others are offering, and if they are unable to do so or face specific disadvantages, then "tough". But in *separate* competitive markets[3] things are different, and the signals transmitted in one market are not conveyed into another. In particular, the preferences and tastes of consumers in one market do not drive outcomes in another. So, whilst it is legitimate and sensible for a regulator to seek the mimic the effects of hypothetical competitive markets in general, it is *not* legitimate to postulate a single hypothetical England-and-Wales-wide market and to use that to guide decisions on allowable cost and service performance.

How Ofwat Meets the Challenge

Whilst Ofwat has been committed to the achievement of the underlying principle throughout the 30 years of its existence, its approach at price reviews has evolved. For wholesale services at PR19, this comprises the following elements:

- cost assessment modelling of "botex" is used to identify the "least cost" frontier "today". In practice, given the intrinsic uncertainty in the results of this modelling, "upper quartile" efficiency performance is chosen to denote the "frontier";[4]

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2 Severn Trent has no coastline, so the achievement of perfect bathing beach quality is costless.

3 For example, markets that are effectively separated by geographical or regulatory barriers.

4 See, for example, "*IAP Technical Appendix 2: Securing Cost Efficiency*" page 11, which states "*The upper quartile level recognises imperfections of statistical analysis".*

- it is estimated that the efficient cost frontier has the potential to improve at the rate of CPIH-1.5% per annum over the AMP7 period, and this is the assumption that is built into expenditure projections. No allowance is made for real movements in input prices: in other words, all input prices are assumed to move in line with CPIH (i.e at a rate of approximately RPI-1%);

- a very significant improvement in service performance is also projected. For a suite of "common performance commitments" companies are to be set essentially uniform targets derived as the "upper quartile" of companies' own forward- looking performance projections. For other performance commitments "stretching" improvements are to be delivered. As a rule, it is assumed that no incremental expenditure is required to deliver these improvements;

- however, "enhancement expenditure" for specified other purposes is to be allowed only in certain circumstances where companies' proposals meet strict criteria.[5]

Assessment of Ofwat's Approach Against the Aim of Mimicking Competitive Market Outcomes

Now that the practical manifestation of Ofwat's approach has become evident through the publication of the January IAP and April draft determinations, it is possible to evaluate how, in the round, it meets the underlying principle of mimicking competitive markets. There are three areas of concern, namely:

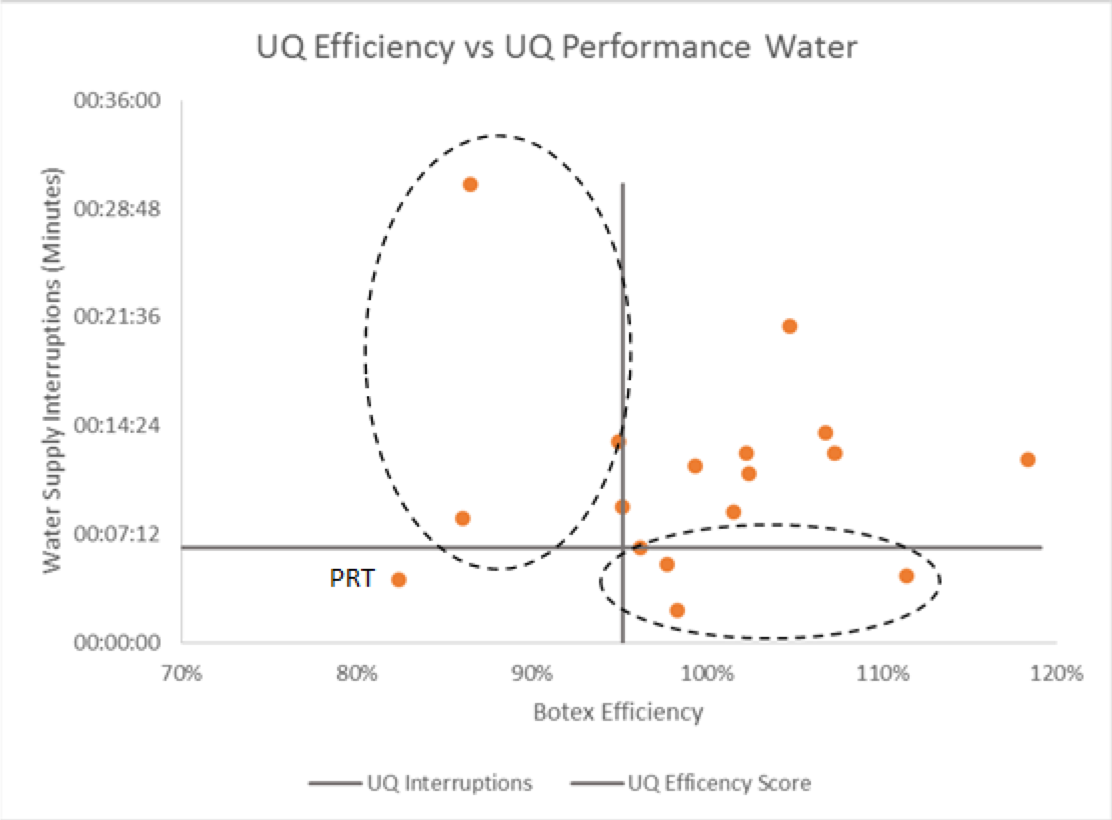
- the "partial" approach to the identification of the position of the frontier "today";
- the considerable speed at which the frontier is expected to shift in the immediate future; and
- the imposition of uniform service performance commitments as though the competitive markets that the regulator is seeking to mimic were in fact one single market.

Establishing the starting position of "the frontier"

First, in seeking to identify the position of the frontier "today", Ofwat unpacks cost and service and examines them separately. Since, *a priori*, the true frontier can be expected to exhibit a trade-off between cost and service, examining cost alone risks creating a false picture of the frontier. As we argued in our IAP response (Ref B2.8.WSH.CE.A1), the firms that constitute the "cost frontier" (as represented by the upper quartile) generally deliver service performance that is worse than upper quartile, and those that constitute the equivalent "service" frontier generally deliver cost performance that is worse than upper quartile.

The following chart illustrates the point for one of Ofwat's common performance commitments, namely supply interruptions.

[5] In fact, as it stands, enhancement expenditure that is classed as operating expenditure has not been allowed by Ofwat at all, but it is assumed for the purposes of this paper that this is a technical oversight that will be rectified in the July draft determinations.



In general the companies that perform on costs are not those that perform best on service and *vice versa*. Whilst one company, Portsmouth Water, achieves upper quartile performance on cost and supply interruptions, Ofwat examines the service frontier separately for each performance measure and does not take into account any interactions.[6]

Of course, there is nothing wrong in principle with analysing cost and service performance separately, but if the trade-offs and interactions between the two are not recognised, and due allowance is not made for their effects, the resulting "re-assembled" frontier is likely to represent a package that does not represent the optimal position that a competitive market could deliver, and is infeasible.

The Projected Rate of Movement in the Cost/Service Frontier

Under Ofwat's methodology, the starting cost frontier is rolled forward by CPIH-1.5% per annum over the AMP7 period for the purposes of arriving at figures for allowable expenditures. This is equivalent to about RPI-2.5% per annum, given the "wedge" between the respective rates of growth in RPI and CPIH, which is generally accepted to be about 1%. This is markedly more aggressive than the range of assumptions that other regulators, including Ofwat, have made in the past. For example, in the most recent price determination in the water sector, the CMA's re-determination of Bristol Water's price controls in 2015, the CMA used a projection of RPI-1% applied to an *average* efficiency benchmark (i.e no separate "catch-up" adjustment was made).

[6] And, in fact, Portsmouth's performance on other measures such as leakage falls some way short of upper quartile.

Again, we set out in our IAP response (Ref B2.8.WSH.CE.A1) a summary of the strong concerns we have with the derivation of the RPI-2.5% assumption, which clearly goes beyond what competitive markets could reasonably be expected to achieve. Amongst the most important points we noted were the following:

- Ofwat's comparatively "bullish" view of the rate of productivity improvement in the UK economy over the coming years is at odds with the projections of respected authorities such as the Bank of England and the Office of Budget Responsibility. It implies that, from the present position where productivity is more or less stagnant, productivity growth at a rate not seen since before the 2008 financial crisis will suddenly resume, but no reason is given for this. Ofwat's view also contradicts both its own assessment of the prospects for the market cost of equity, which are based on continued stagnant productivity,[7] and its view on input price pressures, for which no allowance is made;

- in any event, there appears to be an element of "double-counting" in Ofwat's (separate) treatment of economy-wide productivity growth, efficiency catch-up, and the impact it believes the totex/outcomes framework will have. Overall productivity growth at the macroeconomic level is the average effect of firms that are innovating and forging ahead, firms that are catching up, firms that are standing still, and firms that are falling behind. To some degree at least, then, an element of "efficiency catch-up" is already reflected in economy-wide productivity performance. Equally, changes in market and regulatory structures such as the introduction of the totex/outcomes framework occur in other sectors of the economy as well, so their effects such as they are will already have been "baked" into productivity figures;[8] and

- the blanket assertion that input prices during AMP7 will move in line with CPIH. This is a somewhat extreme position for a sector regulator to take, and contrasts sharply with the projections of organisations that specialise in macroeconomic forecasts such as the Office for Budget Responsibility. It also creates contradictions with other elements of Ofwat's position: for example, the assumption that real wage inflation will be zero does not sit well with the expectation of rapid economy-wide productivity growth.[9]

In addition, the real cost/service performance frontier shift that Ofwat is proposing to build into its allowances is actually even more challenging than RPI-2.5%. Companies are to be set service performance targets which generally entail significant improvements from where they are today (without commensurate allowed expenditure), so the true overall frontier shift that is being presumed is more rapid than the RPI-2.5% movement in the cost frontier, and could even be as tight

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7 See Appendix 12 to "*Delivering Water 2020: Our Final Methodology for the 2019 Price Review*" (December 2017), chapter 5: *"Our Approach to the Cost of Equity"*.

8 In addition, as noted in our IAP response, we are highly sceptical of Ofwat's claims for the impact of the totex/outcomes framework on costs in AMP7. On Ofwat's own case, if there is such an effect it would be expected to increase botex in AMP7, not reduce it, since (better) opex solutions would be replacing (inferior) capex ones.

9 For further details, see our IAP response "*Ref B2.8.WSH.CE.A1: Cost Assessment Methodology*": 1st April 2019, and Earwaker, J (2019) "*A Review of Ofwat's PR19 Approach to Estimating Frontier Shift*": http://www.first-economics.com/PR19frontiershift.pdf.

as RPI-5% or more.[10] Whilst some competitive markets (e.g some technology sectors in recent decades) may have achieved improvements at this rate, it is fairly exceptional, and could not be regarded as a realistic view of what a utility sector could achieve, even with the full benefit of competitive forces. Put simply, the rapid movement in the overall cost/service frontier envisaged by Ofwat goes beyond what could be described as "legitimately challenging", and fails the "common sense test".

The Imposition of Uniform Service Targets to Mimic a Single National Market

As a separate matter from the effect on potential frontier movement of Ofwat's approach to service performance projections, the imposition of uniform service performance targets across the industry on important measures clearly departs from what "mimicking" competitive markets would be expected to deliver. As noted above, the notional competitive market equivalents are geographically distinct, and cannot be treated as a single seamless whole. Ofwat/the CMA have allowed companies different levels of expenditure historically to achieve different levels of service, whether in original price determinations or by means of "rewards". Further, companies have implemented extensive, in-depth customer engagement strategies which have demonstrated that priorities and valuations vary from region to region.

So there is no presumption that all companies should be starting at the same level of performance (even if they are all efficient). Indeed, the PR19 methodology proposes to perpetrate this feature by allowing some companies higher levels of expenditure in AMP7 (through the earning of rewards) to achieve higher service performance levels than others, so that by 2024 both service performance levels and the amount that customers have paid to achieve them are likely once again to vary across the sector. In these circumstances, it does not make sense to assume that the operation of separate geographical markets would or should produce convergence in service levels, especially in the face of evidence from customer engagement to the contrary.

Summary

At the level of the individual components of Ofwat's PR19 methodology it can be seen that features have been adopted that seek to mimic the effects of competitive markets. Costs are driven down, service performance responds to the preferences of customers, and innovation enables incremental improvements to be made each year in the "best available" packages of price and service performance.

However, because of the way that the methodology dis-assembles and subsequently re-assembles the cost/service package, it effectively demands more of water companies than would be feasible in the competitive markets that Ofwat rightly seeks to mimic. Whilst cost/service performance frontiers in competitive markets are constantly on the move, as a result of the effects of innovation, customer preferences, and in response to changes in relative prices, the way in which the methodology "compartmentalises" costs and service performance means that a rate of movement in

[10] In one of the documents submitted in response to its draft determination (D003 – Cost Assessment), United Utilities notes that Wessex has estimated the additional frontier movement associated with the service performance improvements required by Ofwat to be 3%, and states that from its own perspective this figure could be an understatement. It concludes that the total productivity improvement required by Ofwat could well exceed 6.5% once all the elements of efficiency improvement demanded by Ofwat are accounted for.

the optimal cost/service frontier has been presumed that substantially exceeds what could reasonably be expected to be achieved in competitive markets. Further, it appears that in seeking to mimic competitive markets Ofwat has adopted the mindset of a single unitary national market as opposed to distinct regional ones, which does not sit well with the different cost, price, and service levels that have prevailed and will continue to do so given the sector's history and structure.

Finally, this conclusion begs the question – how can flaws in the application of the methodology be addressed at this stage of the price review? From the perspective of a regulator, there is always uncertainty regarding the point beyond which the re-assembled cost/service package goes from being challenging to becoming infeasible, and it is necessary to apply a degree of judgement. Historically, Ofwat (and others) has often taken a pragmatic view in the past, by focusing more on ensuring that the dynamics that will most vigorously generate and reveal frontier movement going forward for the long term are in place, rather than trying to fine-tune five year projections to eliminate every last element of "slack". The draft determination stage provides an opportunity to re-visit the application of the PR19 methodology "in the round", to ensure that the balance that best meets the long term interests of customers has been struck.