

The Role of Benchmarking in Incentive Regulation: Lessons from electricity distribution

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This paper discusses experiences with the use of benchmarking by electricity regulators to set revenue controls for electricity distribution utilities. Benchmarking often involves comparing the costs of electricity distribution utilities and assessing the scope for efficiency improvement in the context of an RPI-X revenue formula which determines inflation indexed utility revenue for an upcoming revenue control period. Often, firms are given individual X factors on the basis of firm specific estimates of under-performance.

We begin with discussing the relationship between benchmarking and incentive regulation. We then outline the options for comparative benchmarking and efficiency benchmarking approaches. We go on to discuss the choices faced by a regulator in implementing a chosen efficiency technique. We review the experiences in Great Britain, The Netherlands and Germany with benchmarking. This allows us to consider the future of benchmarking and to offer some conclusions for regulators. Some conclusions are reported in what follows.

Electricity distribution firms benchmark themselves (or should do), therefore there would need to be a good reason for a regulator not to periodically check the relative efficiency of its regulated firms, against each other and international benchmarks. Any regulator which is not undertaking comparative efficiency analysis (e.g. New Zealand) of its electricity distribution utilities should do so. A one-off benchmarking exercise for such a regulator might be useful in establishing whether there are currently wide divergences in performance and hence whether future use of comparative benchmarking might be useful.

A variety of benchmarking techniques exist, from activity benchmarking to frontier efficiency analysis (such as DEA and SFA). It is good practice to use several techniques to cross-reference the results. This is because this will enhance confidence in the efficiency targets set, either by suggesting that alternative methods give similar results or that there is a good reason why the methods relied on are more reliable. It is recommended that where multiple methods are used and considered equally reliable the highest efficiency score is used in X factor calculations.

A regulator can and should do reasonable data cleaning in order to ensure improved comparability between its regulated firms. This has the additional advantage of better understanding regulated firm costs and financial reporting.

Whichever frontier efficiency techniques for efficiency and productivity calculation are adopted, some allowance should be made for errors in measurement and representativeness of potential non-representativeness of benchmarked years. This can be done statistically within the chosen technique or via adjustments ex post (e.g. setting a maximum value of X or assuming less than 100% closure of the efficiency gap by the end of the regulatory period) or a combination of two.

Direct translation of frontier efficiency scores into allowed revenue without adjustment or allowance of some time to reach 100% efficiency is not to be recommended. Any given X factor is a combination of backward-looking analysis of relative inefficiency and a projection of potential future frontier shift. Hence, it is inherently uncertain and open to legal challenge if it is too onerous.

Over time, any given benchmarking approach is likely to decline in efficacy. This is because benchmarking is likely to produce the strongest and most reliable guidance on relative efficiency in its earliest price control periods.

Finally, energy regulators exist, inter alia, to benchmark the performance of regulated electricity distribution networks. However, regulatory use of benchmarking should evolve over time in line with best practice. Firm specific X factors should be more important in the earlier periods of the use of benchmarking, where there is both greater scope for efficiency improvement and greater variation in efficiency between firms. However, 'simpler' benchmarks (e.g. a common general productivity determined X factor with revenue sharing) can maintain incentives and may achieve the similar results for customers in the long-run. Certain regulators might therefore need to undertake a 'benchmarking of benchmarking' where their current increasingly complex and difficult to defend techniques are directly compared with simpler techniques to assess whether these might be equally or more effective.

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