



Strategic behaviour under regulatory benchmarking

Tooraj Jamasb^{a,*}, Paul Nillesen^{b,1}, Michael Pollitt^c

^a*Department of Applied Economics, University of Cambridge, Sidgwick Avenue,
Austin Robinson Building, Cambridge CB3 9DE, UK*

^b*NUON NV, Netherlands*

^c*Judge Institute of Management, University of Cambridge, UK*

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Abstract

In order to improve the efficiency of electricity distribution networks, some regulators have adopted incentive regulation schemes that rely on performance benchmarking. Although regulation benchmarking can influence the “regulation game,” the subject has received limited attention. This paper discusses how strategic behaviour can result in inefficient behaviour by firms. We then use the Data Envelopment Analysis (DEA) method with US utility data to examine implications of illustrative cases of strategic behaviour reported by regulators. The results show that gaming can have significant effects on the measured performance and profitability of firms.

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1. Introduction

Since 1990, a liberalisation trend has transformed the structure, operating environment, and governance of the electricity sector in many countries around the world. An important aspect of this trend has been the establishment of regulatory agencies or, where a regulator already existed, a shift from rate-of-

* Corresponding author. Tel.: +44-1223-335271; fax: +44-1223-335299.

E-mail address: tooraj.jamasb@econ.cam.ac.uk (T. Jamasb).

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return (ROR) regulation of vertically integrated utilities, to regulation of diverse unbundled activities. In liberalised sectors, the potentially competitive generation and supply activities increasingly operate in a market-oriented environment. In addition, many transmission and distribution networks, generally viewed as natural monopolies, have undergone regulatory reform.

Opportunistic behaviour by regulated firms, including electric utilities, has been discussed extensively in the literature in the context of ROR regulation and asymmetric information between firm and regulator (see, e.g., [Armstrong et al., 1994](#); [Vickers and Yarrow, 1993](#)). More recently, the notion of strategic behaviour by generating companies in the form of exercising market power in competitive wholesale electricity markets has attracted considerable interest. Market power in the generation market can arise from ownership concentrations, lack of access to and constraints in transmission networks, tight supply–demand conditions, and flawed trading and regulatory arrangements. This interest has arisen from the failure of some reforms to ensure effective competition, the recent electricity crisis in California, and, to some extent, from the collapse of the energy trading firm Enron ([Borenstein et al., 2002](#); [Joskow and Kahn, 2002](#)).

In the post-reform era, some countries and jurisdictions have moved away from ROR regulation of transmission and distribution utilities and adopted incentive-based models. Some regulators, in particular those in Europe and Australia, have adopted benchmarking as a tool in the incentive regulation of network utilities ([Jamasb and Pollitt, 2001](#)). This development can affect the nature of the “regulation game” played between regulator and network utilities. However, this emerging aspect of regulatory gaming or strategic behaviour has received relatively little attention.

This paper focuses on strategic behaviour, or gaming, in the context of benchmarking in incentive regulation of distribution utilities. We refer to strategic behaviour or gaming as the type of behaviour that aims to increase profits without achieving real efficiency gains, i.e., they defy the incentive purpose of benchmarking, the regulatory objectives of efficient operation, and protection of public interest. It should be noted that “gaming” behaviour is not necessarily illegal and should be viewed within the regulatory context, as the optimisation process must remain within general accounting, fiscal, legal, and corporate governance statutes and policies.

In this study, we identify and examine the ways in which regulatory benchmarking can influence firm behaviour and analyse some possible implications. We then, utilising a data set of distribution activities of a sample of US electric utilities, illustrate strategic issues that a Public Utility Commission overseeing few electric utilities may encounter when using frontier-based benchmarking methods in incentive regulation. The purpose of the exercise is to examine the main issues involved and general lessons that are applicable to other regulatory settings.

The next section reviews the gaming aspects of regulatory benchmarking. Section 3 presents the data and methodology used in this study. Section 4 describes the main findings of a quantitative analysis of various gaming strategies on the outcome of regulatory benchmarking. Section 5 is a discussion of lessons and conclusions.

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