

Regulación y Eficiencia en el Sector Eléctrico Español: 1988-2004

Blázquez Gómez, Maria Leticia

Abstract

The general objective of this thesis is to study the Spanish electricity companies' behaviour as a reaction to the regulative reforms implemented in the sector since 1987 to 2004. Specifically, we intend to link the legislative initiatives adopted with companies' efficiency performance. After a first introductory chapter and a second one in which we offer a brief revision of the electricity sector regulation since the forties until nowadays, Chapter III, IV and V constitute the main body of the thesis. Finally, Chapter VI summarizes the main conclusions.

Chapter III examines how the companies' revenues obtained from the regulator for the distribution activity have evolved during the 1987-1997 period, when they were submitted to the regulation known as Marco Legal Estable (MLE). To do so, an analysis is proposed based on a Bennet-type indicator (1920), which allows us to identify the variations in the revenues for each of the companies and each one of the outputs. This indicator is decomposed into a quantity effect and a reimbursement effect. Modern production theory is used to explain the quantity indicator by means of a productivity and activity effect. Lastly, the productivity indicator is broken down into their sources. We have observed that companies have exploited the weaknesses of the system by identifying and applying pressure to its weakest points, which only affect partial aspects of the regulatory system. This fact led to the companies to bring forward investments which would not be needed until well into the future. This caused a systematic loss of productivity in the sector. Furthermore, we found that during the MLE no technical change took place. Finally, the high levels of allocative inefficiency found point to the regulator being incapable of providing the companies with a adequate reimbursement mechanism.

Chapter IV evaluates the actions of the Spanish regulator as far as the activity of electricity distribution is concerned. To this end, we shall firstly analyze whether the legislative changes introduced by the regulator have led to the distribution companies improving their efficiency levels; secondly, whether the benefits they have obtained have been linked to these levels; and lastly, whether the consumer has shared in these improvements. The analysis was carried out by comparing the income obtained by the companies as compensation for their electricity distribution activity during the 1988-2002 period with those they would have received had the regulation model proposed by Bogetoft (1997) been applied to them. The results show that the Spanish electricity regulator has not linked the compensation given to the companies with their efficiency, and in addition, they have benefited at the expense of the interests of the consumer.

In Chapter V we analyse the Spanish electricity sector performance during the 1991-2004 period from a financial, economic and distributional point of view. Our main purpose is to identify the changes in companies' performance caused by the liberalizing process initiated in 1998. To do that, we link electricity sector and companies' productivity changes to their profit trends. In addition, we identify and quantify the economic sources of the productivity changes. Lastly, we analyse how the companies' profits have been distributed among the different stakeholders. We make a detailed decomposition of year-to-year profit change at electricity companies. Our results show: (i) Companies have increased their economic profits after

liberalization; (ii) The profit increases caused by productivity improvements and margins have been altogether much higher than the profits transferred to consumers; therefore (iii) Shareholders and not consumers have been the main beneficiaries of the sector liberalization and privatization.

The implementation of the analysis has been carried out using mathematical programming techniques based on 'Data Envelopment Analysis' (DEA) models.