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MARKET POWER AND INTEGRATED REGIONAL MARKETS OF ELECTRICITY: A SIMULATION OF THE MIBEL

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Overview

One of the proclaimed aims of economic and political integration of European Union (EU) is liberalization and integration of energy national markets (gas and electricity). A way of achieving greater integration is through gradual integration of regional markets as happened with Nordpool (Norway, Sweden, Finland and Denmark) and with MIBEL - Iberian Electricity Market (Portugal and Spain). MIBEL as a process of integration can be a field for studying all the advantages of the integration process, prior to the European Electricity integration process, namely the procompetitive effects of integration, and then try to take some conclusions that can be useful for the larger integration that is the Electricity Internal European market. To achieve effectively the goal of a more efficient electricity market one of the main issues is to mitigate abuse of market power.

The effects of market integration have been studied before, either in partial equilibrium literature or in general equilibrium literature. Therefore, the purpose of this paper is to give a contribution to the existent literature by studying integration of two oligopolistic markets that are not symmetric (in number of firms, in demand and market dimension) and its effect on the presence of market power.

The rest of the paper is organized as follows. Section II describes some features of electricity markets in general and the Iberian market in particular. In section III we justify why we choose to model the large electricity generators as Cournot quantity setters, with a brief survey of the literature. In section IV, we present the model and specifications of costs and demand. The results of the simulation exercise are shown in section V. In section VI, we conclude and give suggestions for future research and extensions.

Methods

The main idea is comparing the Portuguese and Spanish electricity market in a particular year considering two cases (with and without integration process) concerning presence of market power and effects for consumers and firms in both countries. The model can be included on partial equilibrium models literature.

In our simulation model the role of marginal cost curves of each firm and the specification of demand are very important and the main concern is the accuracy on the assumptions assumed. Consequently we do not assume smooth and well-behaved cost curves and we use detailed data on generators to evaluate the likelihood of significant market power problems once the market is fully integrated. Since price elasticity influences the incentives to exercise market power heavily, our first concern was to roughly estimate price elasticity of electricity demand for Portugal and Spain. For this purpose we use the adequate estimation models and we present estimations for short run and long run price elasticity of electricity demand for both countries.

After finding the more suitable assumptions to describe both markets we use the simulation model to infer equilibrium prices and quantities for the new integrated market. In the simulation model we assume that the forthcoming Iberian market will have five largest companies in the Iberian market which behave strategically as Cournot competitors and all other generators will behave competitively and are modelled as a competitive fringe. After

finding the Cournot equilibrium solution we are able to estimate the Lerner Index and infer about the potential market power.

Results and conclusions

One of the conclusions that can be drawn from the results concerns who wins (more) and who loses (more) with the integration process. The Spanish firms seem to take more advantage from the market integration and it seems to be common to both countries that prices will decrease, compared with non integrated market. Nevertheless, the simulation results (for short run and long run) seem to show that the presence of market power will remain after integration, mainly from larger firms. This conclusion is contrary to the main aim of the integration: promotion of good governance in the market according to principles of free competition. Therefore, it is justified even ex ante measures to mitigate potential exercise of market power in order to diminishing the damage for the consumers. Concerning future EU policy we can conclude that the role of regulation and the design of the laws in these markets assume a major importance in the path to an Electricity Internal Market.