Estimating conjectural variations for electricity market models

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Abstract-

Agents' behavior in oligopolistic markets has traditionally been represented by equilibrium models. Recently, several approaches based on conjectural variations equilibrium models have been proposed for representing agents' behavior in electrical power markets. These models provide insight of market equilibrium sensitivity to agents’ strategies and external variables, and therefore, they are widely applied. Unfortunately, not enough analysis has been done in how these user-supplied parameters, the conjectural variations, should be estimated. This paper proposes a parameter inference procedure based on two stages. The first stage infers historical values of the parameter by fitting the models' results to historical market data. The second stage is based on a statistical time-series model whose objective is to forecast parameter values in future scenarios. Additionally, results of this procedur's application to a real-size case are presented.

Index Terms- Economics; Game theory; Generation scheduling; Equilibrium models