

PRICE DISPERSION IN THE NORWEGIAN ELECTRICITY MARKET

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Overview

In Norway, the Energy Act came into force in 1991, and laid the foundation for one of the first market based electricity systems in the world. Introduction of the Energy Act led to a significant structural change reallocating market influence from producers to consumers. As a result of the new market structure, consumers were free to switch from the incumbent retailer to any other retailer active in that area. Tariffs related to switching were gradually eliminated and completely abolished by 1997. For more than two decades electricity prices have been available for comparison through an online price comparison site hosted by the Norwegian Competition Authorities (NCA). Despite marginal search costs, there appear to be substantial and pervasive price dispersion in electricity prices. We also observe that a significant percentage (40 percent) of households stay with their incumbent retailer (The Norwegian Water Resources and Energy Directorate, 2013). Although previous studies conclude that the performance of this market is fairly good (Amundsen & Bergman, 2003; Amundsen, Bergman & Von der Fehr, 2006; Bye & Hope, 2005; Littlechild, 2006), observations of price dispersion and passive consumer behavior justifies further analysis of the overall performance of this market over time.

From a theoretical perspective, we address the presence of price dispersion in light of established models developed to rationalize price dispersion in homogeneous product markets with a clearinghouse. Salop and Stiglitz (1977), Rosenthal (1980), Varian (1980), Baye and Morgan (2001), all represent a clearinghouse perspective in their theoretical approach to rationalize dispersion in prices.

We use a data set from NCA on weekly retail electricity prices specified by contract (fixed price, spot price, and variable price contracts) between 2004 and 2015 in our empirical analysis of price dispersion. Data on consumer search behavior are represented by data on search sessions on NCA's comparison site. As one of the first liberalized electricity markets with a uniquely long history, findings in this study should be of great interest to other countries about to liberalize or restructure their electricity market. We also plan to include search phrases related to electricity price search from Google Trends in order to see how this corresponds to official search data from the NCA.

Methods

Our approach to investigate development in price dispersion is based on a two pronged approach. First, we take a descriptive approach when analyzing prices to explore and characterize the development in prices over space and time. Second, in order to rationalize and explain the observed development in price dispersion, we build on a variety of theoretical models. The model by Rosenthal (1980) and Baye and Morgan (2001) are of specific relevance in this discussion. With a basis in theoretical models, empirical data, and specific market structure, we are able to address what political measures that has been encouraging or discouraging in securing an efficient market with competition and active consumers.

Results

Our empirical evidence suggests that prices for the same type of electricity contract varies over space and time, and that price dispersion is pervasive and persistent throughout the period. Furthermore, the price dispersion has increased over the last 5 years for all contract types.

Our finding of pervasive price dispersion indicates that there are potential forces at play that cause and sustain market imperfections. According to Rosenthal (1980) price dispersion can arise in a clearinghouse environment where some consumers have a preference for a specific firm. We know that there is a substantial percentage of passive consumers in this market. A study by Fange (2017) finds that loyalty to the incumbent is a significant factor to explain why households remain with their incumbent electricity retailer.

We observe that although the wholesale electricity price has been stable at a low level over the last 5 years, there has been an increase in price dispersion within each contract segment. The next step will be to look into how price coordinating behaviour and specific market structure can be a potential source of price dispersion.

Conclusions

The empirical evidence of sustained price dispersion in the Norwegian electricity retail market suggests that there are market imperfections in this seemingly well-functioning market. It is important to evaluate the market structure and the role the clearinghouse plays in informing market participants about price changes in order to understand disequilibrium in prices.

As Norway being one of the first restructured electricity market and an integrated part of an extended European electricity market, this experience can be of relevance for other restructured electricity markets.

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