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Electricity markets and oligopolistic behaviors: The impact of a multimarket structure



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ABSTRACT

The article analyses the development of retail competition in electricity markets, compares market structures and performance in Great Britain and Norway, and concludes that there is no satisfactory outcome in a multimarket setting like Great Britain. We study differences in retail profits between Norway and Great Britain, both considered as benchmarks for competitive markets. We highlight the price parallelism of British suppliers whatever the trend of wholesale prices. These behaviors contrast with the small and stable retail mark-ups in each group of suppliers in Norway. The main explanation comes from the combination of vertical integration and multimarket setting, which allows parallel pricing behaviors in the British retail market. We also evaluate the impact of other factors that influence the dynamic of retail competition: national fuel mixes and institutional design of retail and wholesale markets. However, we demonstrate that a multimarket setting, which is a major feature of most retail markets, remains the main determinant of oligopolistic profit. Remedies must be implemented to correct these market imperfections.

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1. Introduction

In countries which have made serious attempts to liberalize their electricity industries, often the development of retail competition has failed to give the expected results, particularly for residential

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and commercial consumers. In Great Britain, residential retail competition does not work effectively for the benefits of customers, as shown by the British regulator's inquiry of 2008 (Ofgem, 2008) and its subsequent radical propositions to enhance retail market functioning (Ofgem, 2011). Several studies on the Nordic countries (Johnsen and Olsen, 2008; Olsen et al., 2006; Littlechild, 2006) also point toward difficulties experienced in Swedish and Finnish retail markets due to lack of consumers' commitment as well as market structure. These are set in stark contrast to the performance of the Norwegian retail market.

The reference paradigm of competitive decentralized electricity markets simultaneously requires the unbundling of network activities and supply business, partial restrictions in vertical integration between generation and supply for historic suppliers, and promotion of pure players 'entry in supply and generation' (Wilson, 2002; Hunt, 2002; Hunt and Shuttleworth, 1997).¹ Therefore, retail competition was thought to give rise to the entry of asset-light suppliers, with no generation assets. By offering innovative retail contracts, asset-light suppliers were expected to induce fierce price competition between entrants and local incumbents. The latter were themselves partially vertically broken-up in their respective former license areas through divestitures of their generation assets.

In this reference model of competitive markets, all suppliers (incumbents and entrants) have an identical marginal cost of electricity sourcing, set by the spot price. The resulting competition (whether a type of standard pure and perfect competition or an oligopolistic price competition) is expected to put pressure on both sourcing costs (including minimizing the hedging costs of electricity sourcing) and operational costs (billing, marketing, information systems). If some conditions are met – transparent information, no switching costs for consumers, small entry and exit costs for entrants in areas of local incumbents – then electricity retail competition should be on price in a setting of Bertrand-like oligopolistic competition. As is well known, such competition should be fierce with cost-reflective prices, i.e. retail prices aligned on wholesale prices, including a moderate mark up. Subsequently, such competitive setting should result in lower profits, even with a small number of competitors.

The reality of retail competition, however, is in sharp contrast to these theoretical premises.

By sourcing electricity for resale, electricity suppliers are market intermediaries. Electricity supply is mainly a business of load aggregation and risk hedging² (Boroumand and Zachmann, 2012). Consumers delegate risk management to their suppliers to benefit from inter-temporal smoothing (through fixed prices retail contracts) of otherwise extremely volatile prices (Hull, 2012; Geman, 2008). Electricity intermediaries aim to match their wholesale procurements and consumption volumes to minimize their quantity and price risks on an hourly basis. Boroumand and Zachmann (2012) compare numerically the risk profiles of different sourcing portfolios made of financial derivatives (futures, forwards and options) and/or physical assets. The maximum loss of each portfolio is measured by the Value at Risk (95%) through 3000 simulations on hourly volume and price data. The authors demonstrate that physical hedging (i.e. vertical integration into generation) is the only efficient and sustainable risk hedging strategy. They conclude on the non-viability of the textbook model of asset-light suppliers managing risks through financial contracts in liberalized electricity markets. Their results are confirmed empirically by the difficulties of asset-light entrants in all fully liberalized markets (bankruptcy, market-exit, take-overs) as well as the evolution of historic suppliers with few or without generation assets just after the reforms toward vertical integration into production.³ Most of the markets, which have been liberalized along the decentralized market model are characterized by a move toward oligopolistic competition between mainly vertically integrated suppliers (Henney, 2006). Contrary to the expected outcomes of electricity liberalization, financial derivatives are imperfect substitutes for vertical integration in terms of risk hedging.

Furthermore, the combination of structural and institutional features, which allows the well-functioning of retail markets, is not met in every country and jurisdiction (Henney, 2006). We

¹ For Wilson (2002) the process of reforms "replaces tight regulation of vertically integrated monopolies with light regulation of functionally specialized forms and supervision of competitive markets" (p. 1299). "Competition where possible, regulation where not" (Littlechild, 2005).

² Risk management is critical given that retail prices are fixed for a significantly longer period than are volatile wholesale prices.

³ Helm (2003), Henney (2006), Thomas (2006), Oxera (2008) and von der Fehr and Hansen (2008).

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