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Network access charges, vertical integration, and property rights structure—experiences from the German electricity markets

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Abstract

After the deregulation of the German electricity markets in 1998, the German government opted for a regulatory regime called negotiated third party access, which would be subject to ex-post control by the federal cartel office. Network access charges for new competitors are based on contractual arrangements between energy producers and industrial consumers. As the electricity networks are incontestable natural monopolies, the local and regional network operators are able to set (monopolistic) charges at their own discretion, restricted only by the possible interference of the federal cartel office (Bundeskartellamt).

In this paper we analyze if there is evidence for varying charging behaviour depending on the supplier's economic independence (structure of property rights) or its level of vertical integration. For this purpose, we hypothesise that incorporated and vertically integrated suppliers set different charges than independent utility companies.

Multivariate estimations show a relation between network access charges and the network operator's economic independence as well as level of vertical integration: on the low voltage level for an estimated annual consumption of 1700 kW/h, vertically integrated firms set—in accordance with our hypothesis—significantly lower access charges than vertically separated suppliers, whereas incorporated network operators charge significantly higher charges compared

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to independent suppliers. These results could not have been confirmed for other consumptions or voltage levels.

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1. Introduction

German electricity markets have been deregulated in the late 1990s of the last century. In contrast to other European countries the German government enacted the negotiated third party access as institutional frame instead of installing a regulation authority. Since then, network access charges for new competitors have been based on contractual arrangements between energy producers and industrial consumers (association agreement between energy producers and industrial consumers: *Verbändevereinbarung*), which specify the calculation schemes for the access charges. As those calculation schemes are not obligatory and the electricity networks are considered to be incontestable natural monopolies, the local and regional network operators are nevertheless able to set (monopolistic) charges at their own discretion, restricted only by a possible interference of the federal cartel office (Bundeskartellamt). The ex-post control of the federal cartel office concentrated on the implementation of non-discriminatory third party access to the networks until April 2001, when a review of the network access in the German electricity markets was undertaken by a task force of various cartel offices (cp. [Brunekreeft, 2002](#), p. 32 and [Bundeskartellamt, 2001](#)). Since then, competition control has been focused on the level of access charges, as the charges have been considered to be excessive.

Following the deregulation, several public utility companies as well as large regional network operators have been acquired by or merged with one of the four major players, the so-called *Verbundunternehmen*. These *Verbundunternehmen* are active on every level of the electricity market value chain and can be seen as strongly vertically integrated (cp. [Brunekreeft, 2002](#)). In this paper we analyze if there is evidence for a systematically varying charging behaviour depending on the supplier's economic independence (structure of property rights) or its level of vertical integration. For that purpose, we hypothesise that incorporated and vertically integrated suppliers set different charges than independent utility companies.

The theoretical background of our hypotheses will be illustrated in Section 3, after a short introduction in structure and institutions of the German electricity market in Section 2. Section 4 describes the data set and provides some descriptive information, in Section 5 our empirical approach will be described shortly. Section 6 gives the results of our multivariate estimations, our conclusion will be drawn in Section 7.

2. The German electricity market

The German electricity market can be split up into the sections generation, transmission networks, distribution networks and retail (cp. [Growitsch and Wein, 2002](#),

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