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ref.

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An empirically based model of the supply schedule in day-ahead electricity markets*

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Abstract

The first part of this paper establishes some new pieces of evidence on the dynamics of prices and volumes in wholesale electricity day-ahead markets (NordPool, APX, Powernext). The growth of prices is more strongly autocorrelated than the growth of volumes; it is more heavy-tailed; and its conditional standard deviation decays like the reciprocal of the price level ($1/P$ scaling). In the second part of the paper, it is shown that a linear supply function with stochastic intercept and constant slope suffices to explain the $1/P$ scaling. Furthermore, this model allows to decompose price fluctuations in an exogenous *demand effect* and a strategically-driven *supply effect*. In light of this model, the heavier tails of price growth and its stronger autocorrelation structure are due to persistent and intermittent strategic moves by suppliers, related to expected demand growth.

JEL Classifications: C16, D4, L94.

Keywords: Electricity Markets, Supply Curve, Subbotin Distribution, Fat Tails, Scaling, Demand Effect, Supply Effect.

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