Assessing China's Provincial Electricity Spot Market Pilot Operations: Lessons from Guangdong Province

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Abstract   Targeting on improving the efficiency of power generation, China announced its plan to reform the electricity wholesale market. A focal point of the wholesale market reform is to introduce a stable and reliable electricity spot market. Using Guangdong's spot market pilot operations as a case study, this article becomes the first which uses *ex-post* market data to assess the efficacy of China's electricity spot market. To investigate the stability of the spot market, we estimate the relationship between prices and demand. We find the electricity supply curve to be non-linear and convex, suggesting the needs to invest more thermal capacity to stabilise the spot market prices (SMPs). To investigate the reliability of the spot market, we first estimate the market distortion caused by a price floor on the SMPs, and then examine whether local market power exists. The price floor on the SMPs resulted in a welfare transfer from consumers to producers, the monetary value of which equals to 1.3% of the tradable value of the day-ahead market. We also find evidence of local market power in the east of Guangdong, suggesting the necessity of investing more power lines connecting the west to the east. Finally, policy implications are provided.

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