

# **Heterogeneous Impacts of Cost Shocks, Strategic Bidding, and Pass-Through: Evidence from the New England Electricity Market**

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## **Abstract:**

Recently, a series of natural gas price shocks in New England, which affected electricity generation costs of firms heterogeneously, led to a spike in electricity prices. I study the pass-through implications of the change in the competition between firms resulting from this gas price shock, focusing on the heterogeneous impacts of the shock. I use New England electricity auction bidding data and utilize the multi-unit uniform auction model to estimate gas prices implied by firms' bids, which allows me to identify the impacts of the shock on the costs of each firm. To understand how differences in impacts affected the competition, I obtain firm-specific markups and relate them to costs. I find that firms less affected by the shock increase markups more than "hard-hit" firms, and this difference in adjustment increases in the size of the gas price shock. To explore how such heterogeneous incentives for markup adjustment are reflected in price, I then simulate the pass-through rates at the auction level. Although I find that firms completely passed on the cost shocks to prices on average, considerable variation exists in the rates depending on which type of firm sets the price in the auction. Therefore, any estimation of the pass-through rate that fails to incorporate heterogeneity of the underlying rates could yield estimates that are significantly biased downward. I illustrate this by comparing the simulated pass-through rates to the pass-through rate estimated from the reduced form.