To Reverse or Not to Reverse? Auction Format and Renewable Energy Procurement in India

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Abstract

Auction design has played a central role in shaping renewable energy markets globally. We study the effect of auction format changes on the prices and efficiency in the procurement of green energy using data on the universe of solar procurement auctions in India from $2015 - 2021$. Exploiting variation in auction formats at central and state levels, we find that open auctions lower tariff bids by 8–17 percent relative to sealed-bid formats. We argue that the resulting deviation from the revenue equivalence theorem arises from interdependent cost structures and present causal evidence of presence of winner's curse. In the presence of interdependent cost structures, the information revelation inherent in open auctions results in lower tariff bids relative to sealed-bid formats. Structural estimates with interdependent costs corroborate the causal findings, showing a 16.12 percent reduction in winning bids under open format relative to sealed format. Considering the 104 open auctions conducted during this period, total government savings over the 25-year contract horizon are estimated at approximately 5.52 billion USD. Together, these findings highlight the efficiency gains from open auctions in the procurement of green energy and suggest that such formats can accelerate the global transition to a cleaner future.

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