

Exploring Environmental Service Auctions

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Summary of Dissertation

This dissertation consists of two essays exploring related aspects of environmental service auctions. The first essay investigates through laboratory experimentation the effects of threatened regulation on outcomes of environmental service auctions. The second essay uses theoretical predictions to quantify levels of bid inflation in an empirical data set from auctions for environmental services.

The first essay examines how strategic forces and efficiency properties are impacted in auctions for the procurement of environmental services when a threat of regulation is levied. Laboratory experiments reveal characteristics of bidder behavior in different regulatory environments. Experimental results provide insight into efficiency and equity tradeoffs inherent in regulatory policy applications with respect to environmental services auctions. While it is possible to reduce the amount of public funds necessary to purchase a given level of environmental services, adverse selection costs and equity considerations may outstrip the benefits gained from threat implementation.

The second essay estimates bid inflation levels using a unique dataset from procurement auctions for irrigation permits. Predictions informed by economic literature and theory are used to elicit underlying value distributions in each auction. Multiple iterations of a discriminatory price auction and the implementation of a maximum reserve price in the final auction period allow for the identification of changes in bid inflation across periods and institutions. A regression analysis characterizes how subjects change their bidding behavior when faced with new information. The results suggest the existence of substantial and varying levels of bid inflation across both auction institutions. Farmer's bids converge toward the maximum accepted bid over repeated auction rounds, while overall auction performance is improved by the implementation of a maximum reserve price in the final auction period.