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The Role of Risk in Conservation Auctions for Outcome-Based Payments for Environmental Services and the Cost-Effectiveness Implications: Experiments in Kenya

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Abstract

While most PES programmes tie payments to defined land use practices ("action-based PES"), PES schemes in which payments are made conditional on conservation outcome ("outcome-based PES") are argued to have many advantages as opposed to indirect approaches. On the other hand, an outcome-based contract exposes farmers to additional uncertainty, which implies different impacts on the cost-effectiveness. Further, although the auction theory assumes risk neutrality among bidders, farmers are generally considered to be risk averse, which might further deepen the divergence of impacts on cost-effectiveness under those two PES mechanisms.

The overall objective of this study was to assess whether "outcome uncertainty" adversely affects the cost-effectiveness of conservation auctions for outcome-based PES (as compared to the auction for action-based PES), and on the contrary whether "input uncertainty" improves the cost-effectiveness of conservation auctions.

Field experiments were conducted with farmers in Western Kenya and the findings highlight the trade-off conservation agencies are facing. Whereas outcome-based conservation contracts are argued to improve the ecological performance, the empirical results of this study show that "outcome uncertainty" indeed adversely affects the contract costs of conservation auctions. Thus, the supposed higher quality in the implementation of conservation contracts might be traded off with higher costs and lower quantity of allocated contracts.

On the contrary, the study shows that participants with uncertain farm income are much more willing to participate in a PES programme and accordingly decrease their bids in the conservation auction. However, the cost-effectiveness potential of this "input-uncertainty" decreases with repetition of the auction for conservation contracts and might entirely disappear in the long run.

Keywords: Conservation auction, cost-effectiveness, outcome-based, payments for environmental services, uncertainty

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