

**Essays on Behavioral Economics and Policies for
Provision of Ecosystem Services**

av

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AKADEMISK AVHANDLING

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Abstract

Paper 1: Incentives, Impacts, and Behavioural Issues in the Context of Payment for Ecosystem Services Programmes: Lessons for REDD+

Payment for environmental services (PES) aims to increase the provision of public goods and internalize environmental externalities by offering direct compensation to landowners for the opportunity costs of more environmentally friendly land management practices (e.g. low impact agriculture or conservation of natural ecosystems). Being promoted as more cost-effective and institutionally simpler than traditional environmental conservation policies, mainly small-scale PES schemes have spread prolifically across developing countries in the last decade. Despite their popularity, there are few rigorous impact evaluations of existing PES programmes, and the ones that have been done have generally shown modest impacts. Here we use a conceptual framework of PES additionality, i.e. a programme's ability to deliver outcomes that would not have occurred in its absence, to overview the main issues raised regarding the impacts of PES programme. We also show that PES impacts can be highly affected by information asymmetries and behavioural responses to the introduction and design of payment schemes. We draw upon these lessons to give policy advice to the design of REDD+ programmes.

Paper 2: Incentivizing versus Rewarding Good Behavior: Insights on the Use of Monetary Incentives

Payments conditional upon a socially desired behavior, such as blood donations, leaving armed forces, or provision of ecosystem services, are growing in popularity. Due to financial limitations and the need to show results, many of these incentive schemes are selective, resulting in the exclusion of some stakeholders in favor of others. In this paper, we study the possibility of the stakeholders excluded from the monetary incentive reducing their pro-social behavior. We use a laboratory experiment to investigate this and hypothesize that alternative selection rules, i.e., who gets paid and why, affect the overall contributions to a public good differently. Our results show that incentivizing those who acted less pro-socially (i.e., contributed below a certain threshold) before the incentive was introduced resulted in increased contributions to the public good by this group. On the other hand, that very same selection rule excludes those who acted more pro-socially (i.e., contributed over a certain threshold) before the incentive was introduced, and this resulted in decreased average contributions by this group, decreasing the net effect on overall contributions. These results set up an efficiency-fairness tradeoff for designing selective conditional payments to promote pro-social behavior: Targeting those who require incentives to contribute may increase payment response beyond what would have happened in the absence of the incentive program, but it may also give rise to the unexpected consequence of negative spillovers.

Paper 3: Unintended Consequences of Targeting Forest Conservation Incentives: Behavioral Insights into Incentive Design

Ongoing concerns about species and water quality, plus growing attention to carbon, have generated significant interest in the use of incentives to promote forest conservation, e.g., payment for ecosystem services (PES) or Reduced Emissions from Deforestation and forest Degradation (REDD) payments. A key challenge in the design of such compensation mechanisms is the choice of whom to pay. Experts and practitioners debate whether the selection of whom to pay should be based on: i) additionality, by paying those who would not conserve without the incentive; ii) rewards, by paying those who are already conserving forest; or iii) location-based environmental benefit, in which case payments would go to those in prioritized areas. In this paper, we use a field experiment to test the hypothesis that these different selection rules imply different effects on contributions to forest conservation by those selected for the incentive and unintended negative effects on contributions by those excluded from the incentive. Our results suggest that it is only a focus on additionality that leads to decreased average contributions to forest conservation by unpaid individuals, thereby limiting the total gains expected from such focus. These results should be considered in the design of conservation incentive programs in general and PES schemes in particular.

Paper 4: Payments in Cash or in Kind for Ecosystem Services: Stated Preferences of Costa Rican Landowners

This paper investigates landowners' preferences for type of payment, cash or in kind, for the provision of ecosystem services. A choice experiment analysis focusing on the effect of different levels of cash and in-kind payments on participation in a payment for ecosystem services (PES) contract is provided. We use an educational in-kind payment in the form of days of practical training offered free of charge to the recipients. The results indicate a positive correlation between participation in a PES contract and the magnitude of the cash payment—higher cash payments increase the probability of participation—while participation seems uncorrelated with the magnitude of the in-kind payment. We also find that both in-kind and cash payments increase the likelihood of participation in shorter PES contracts (i.e., 5 years), while in-kind payments have no significant effect on participation in longer contracts (i.e., 15 years). Higher levels of cash payment seem to be what is needed to increase the likelihood of participation in longer contracts. In addition, we investigate heterogeneity in preferences for type of payment, which can help policymakers better target payment types to specific groups of landowners.

Paper 5: Do Entrance Fees Crowd Out Donations for Public Goods? Evidence from a Protected Area in Costa Rica

In this paper, we investigate how different levels of entrance fees affect donations for a public good, a natural park. To explore this issue, we conducted a stated preference study focusing on visitors' preferences for donating money to raise funds for a protected area in Costa Rica given different entrance fee levels. The results reveal that there is incomplete crowding-out of donations when establishing an entrance fee.

Keywords: behavioral economics, economic experiments, monetary incentives, conditional payments, Reduced Emissions from Deforestation and forest Degradation (REDD), payment for ecosystem services (PES) programs, targeting, spillovers, field experiment, cash payments, in-kind payments, stated preferences; crowding out; entrance fee; donation; voluntary contribution; protected areas; Costa Rica.

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