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Abstract

Payments for environmental services (PES) have become an increasingly popular market-based instrument to translate external, non-market environmental services into financial incentives for landowners to preserve the ecosystems that provide the services. However, lack of spatial differentiation in the targeting mechanism may lead to efficiency losses. Addressing this challenge, we construct an applied site selection tool, which takes into account three variables that vary in space: environmental services provided, risks of losing those services, and participation costs. Using data from Costa Rica's Nicoya Peninsula, we empirically test the tool's potential to increase the financial efficiency of the forest-focused PES program in place. Results show that, given a fixed budget, efficiency increases radically if per hectare payments are aligned to landowners' heterogeneity in participation costs, involving opportunity, transaction and direct costs of protection, respectively. Selecting sites based on environmental service potential also moderately increases efficiency. Overall additionality could in the best case be doubled, but remains generally limited due to current low deforestation risks prevailing in Costa Rica. To take advantage of the high efficiency potentials of flexible payments, we propose inverse auction systems as a cost-effective approach for the determination of micro-level participation costs.

Keywords

Conservation; Spatial Analysis; Environmental Services; Targeting; Costa Rica

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