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Payment for ecosystem services schemes benefit from simplicity of incentives and intra-group dependence: evidence from a field economic experiment in Lao PDR

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Payments for ecosystem services (PES) schemes are a mechanism for parties dependent on ecosystem services to compensate direct users to change behavior to reduce pressure on the resource. A type of PES targeting tropical forest is known as Reduced Emissions from Deforestation and Degradation (REDD+). This incentive is typically allocated to landowners or forest-dependent communities to reforest or protect existing forests. Despite its theoretical appeal, unresolved debate surrounds practical aspects of PES implementation such as how to engage local actors, share benefits, and structure payouts, among many others. The lasting impact after programs end is another persistent question, with 'crowding out', or the loss of intrinsic motivation to conserve resources, being an undesired outcome. 'Crowding in', in which external incentives reinforce pre-existing conservation norms, is also possible. In this work, we address the question of how to structure REDD-like incentives for shifting cultivation communities in Laos. Shifting cultivation is an interesting context for REDD+ as it involves rotational agriculture with management of fallow forests. In these communities, complete elimination of this cultural practice is impractical and undesirable. Our study addresses whether payouts are more effective if they depend on individual- or group-level behavior, if direct cash payouts or insurance better motivate behavioral change, both during incentive programs and after they end. For this purpose, we designed a framed field economic experiment recreating some of the characteristics of shifting cultivation. The experiment was conducted with three groups of eight participants in each of four forest-dependent communities in Laos. During the first stage of the game, the participants face a collective action dilemma; group-level earnings are maximized by moderate forest use, but increasing individual earnings at the expense of others (free-riding) is possible. These mechanics remain in place for the second stage, but one of three external incentives is introduced: a group payment, an individual payment, or insurance against unpredictable weather. Under all three incentives the level of forest use that theoretically maximizes group-level payouts is reduced to half compared to non-incentive rounds, and the individual payout under full cooperation is similar across treatments. To assess possible crowding out or crowding in, a final eight rounds are played without incentives. Our results show that the group payment reduces forest use by close to the theoretically expected amount; the individual payment showed a smaller reduction and insurance had no impact. After incentives were removed, forest use returned to pre-treatment levels in all cases. We interpret these results as group-level dependency introducing an element of peer pressure that reinforces incentives. The failure of the insurance treatment to cause any behavioral change may be due to its complexity; direct payouts are easier to understand. While the lack of a lasting impact of the incentives may seem discouraging, this outcome is better than the crowding-out scenario that many critics of PES warn of. These results are in contrast to findings from some other field-based experiments, emphasizing the importance of taking local context into account when planning PES/REDD schemes.