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Influence of spiritual norms and an exogenous income shock on forest management in Guatemala

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Abstract

Forests provide a variety of ecosystem services, including biodiversity conservation and climate change mitigation, which stand as some of the greatest challenges facing humanity. Thus, gaining insight into the drivers of and barriers to sustainable forest management is vital. Using a within-subject design resource extraction game, we investigate the behavioural impact of such possible drivers and potential barriers, namely the role of spiritual norms, communication and the occurrence of exogenous income shocks, such as the COVID-19 pandemic. To this end, we conducted a lab-in-the-field experiment involving 130 indigenous smallholder farmers in three regions in Guatemala, namely Totonicapán, Escuintla and Salamá. In groups of five, participants made individual decisions over a series of rounds. They allocated working hours between agricultural production activities to generate private income and extinguishing burning trees in a community forest to maintain ecosystem services. Our results indicate heterogeneity in forest management activities between Totonicapán and the other two regions, both in the absolute numbers of remaining trees at the end of our game and in the direction of the income shock. Compared to a scenario of open access, characterised by the absence of explicit institutions and rules, the introduction of an exogenous income shock intensifies the pressure on the community forest in Escuintla and Salamá. Surprisingly, the observed change in conservation efforts does not significantly differ compared to the scenario where the shock is absent. When reminding participants about local spiritual norms with regard to nature and forests, however, forest conservation significantly increases on average, even though the income shock is still present. Further incorporating the possibility of cheap talk significantly enhances conservation efforts, but only in Totonicapán. Our findings suggest that spiritual norms are an important institution for governing the commons, even in times of crisis. However, heterogeneity between regions of the same country can impact the drivers and barriers in the common understanding of forest management practices. This calls for tailored policy instruments to address the specific local context.

Keywords: Common-pool resources, community forest management, dynamic games, income shocks, lab-in-the-field experiments, spiritual norms