

HOLLAND, TIM [S13-P52]

Frontier land markets and the expansion of smallholder agriculture

Co-author: Oliver Coomes, Department of Geography, McGill University

Land markets play an important role in the expansion of the agricultural frontier into previously uncultivated regions, as well as in the creation of economic incentives to deforest. Because frontier areas have limited regulatory capacity, we tend to have very little information on land sales as they occur there. In this paper, we address this gap by drawing on a unique dataset of land transactions from three frontier forest areas in the highland Amazon on the eastern slopes of the Peruvian Andes. In these highland forest areas, the expansion of coffee production is responsible for some of the region's fastest-advancing frontiers and the associated patterns of deforestation. Unlike some agricultural commodities in the Amazon—for example, oil palm—coffee production tends to be dominated by smallholder farmers. In order to anticipate the implications of coffee expansion for forest cover, it is necessary to determine how land markets affect smallholder farmers' economic incentives regarding land acquisitions and forest clearing. Land is often the most valuable asset that households possess, and land price increases can drive the advance of agricultural frontiers. Our study used semi-structured interviews with coffee growers in San Martin, Peru to create a dataset of 326 land transactions that took place between 1979 and 2013. We show that as these frontiers developed, the parcels involved in land transactions become smaller, more expensive per hectare, and had lower proportions of forested area. Results from a hedonic land price model show that the opportunity cost of conserving forest—as measured by the expected increase in land price that could be obtained by additional forest clearing—ranged in 2013 from \$804 to \$1836 US per hectare, and was increasing by 5% to 10% per year. Efforts aimed at sparing forests on tropical forest frontiers through REDD+, PES or conservation initiatives currently rely on a limited understanding of the operation of land markets and of the extent to which land markets can change economic incentive for farmer's to deforest as the agricultural frontier moves forward. Forest conservation programs that rely on estimates of landholders' willingness to accept compensation for sparing forest must take into account the fact that these values change rapidly. The expansion of agricultural commodities such as coffee in places with limited regulatory capacity continues to result in widespread deforestation. This study shows how land markets and land prices affect the economic incentives for agricultural expansion and can therefore contribute to improved design of forest conservation programs and policy.