



Can Smallholders Engage in Tree Plantations? An Entitlements Analysis from Vietnam

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Summary. — Tree plantations have expanded rapidly at the global scale. This paper examines the possibilities for smallholders to engage in plantations as a potential means for poverty alleviation. The paper analyzes the possibilities through an empirical study of household tree growing in rural Vietnam, with a focus on differences in the capacities of households to gain land endowments and translate endowments into tree entitlements. Employing Heckman regression models and qualitative institutional analyses, the paper finds that better-off households are more likely to possess forestland, grow trees, and invest in plantations than poor ones. In addition, land, plantations, and investment tend to be larger for the better-off than the poor. Better-off households are in a better position to engage in tree plantations due to, among other factors, the institutional mechanisms differentiating household access to land and finance.

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1. INTRODUCTION

Tree plantations have expanded rapidly at the global scale, bearing direct consequences for efforts to alleviate pressure on natural forests, mitigate climate change, and reduce rural poverty (Rudel, 2009). The Food and Agriculture Organization (FAO) estimates that the total area of plantations reached 264 million hectares (ha) in 2010 (Food, 2010). During the preceding five years, tree plantations increased at an annual rate of 5 million ha, much of the expansion taking place in East Asia. Vietnam is no exception to the regional trend, as the country's tree plantations have more than tripled from 1.0 million ha in 1990 to 3.5 million ha in 2010 (FAO, 2010). According to these figures, 10% of Vietnam's territory is under tree plantations, now covering the once barren hills stretching along the Red River Delta and Central Coast.

Smallholders own a rapidly increasing portion of global tree plantations. The FAO estimates that smallholders have raised their share in productive plantations (including fast-wood exotic and natural trees) from 12% in 1990 to 32% in 2005, surpassing the land in corporate ownership (Del Lungo, Ball, & Carle, 2006: 24). Smallholders' share in plantations is even more striking in Vietnam, where depending on the source of data, households are in the possession of between 52% and 64% of productive tree plantations (Del Lungo *et al.*, 2006: 25; Forest Protection Department, 2010). The acacia and eucalyptus trees harvested from smallholder plantations feed a rapidly growing number of chip mills and pulp and paper plants. Moreover, they increasingly provide raw materials for Vietnam's construction sector and furniture industry (Del Lungo *et al.*, 2006: 154; Sandewall, Ohlsson, Sandewall, & Le, 2010: 572).

This paper examines the possibilities for smallholders to engage in tree plantations as a potential means for poverty alleviation. The focus is on differences among smallholders in their ability to grow trees for industrial purposes, that is,

establish concentrated plantations of fast-growing species destined for industrial purposes as a distinct form of farm forestry or tree farming (Arnold & Dewees, 1998). We examine these questions through an empirical study of rural households' engagement with industrial tree plantations in Vietnam. We investigate the capacities of different kinds of rural households to plant trees by (a) analyzing the patterns of differences among households through Heckman regression models, (b) examining the mechanisms of access to critical productive resources through qualitative institutional analysis, and (c) combining these results into in-depth understanding of the primary processes of differentiation among households.

The paper begins by developing an entitlements framework for the analysis of differential benefits from tree plantations. Section 3 introduces the research method and study sites. Section 4 analyzes the patterns of differentiation among households, presenting key results of Heckman regression models. Section 5 looks at the mechanisms that differentiate household access to land and finance. Section 6 brings together the quantitative and qualitative results for an in-depth understanding of the processes of household differentiation. The paper concludes with brief syntheses of the main findings, policy implications, and methodological insights on the relationship between forests, livelihoods, and poverty alleviation.

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2. ENTITLEMENT ANALYSIS OF SMALLHOLDER TREE PLANTATIONS

Entitlement analysis has proven powerful for exploring social and environmental dynamics in agriculture and natural resource management together with their different outcomes on social actors (Leach, Mearns, & Scoones, 1999; Sen, 1981). The framework distinguishes between *endowments*—the rights and resources held by social actors—and *entitlements*, which can be broadly defined as the goods and services derived from endowments under social actors' effective command (in contrast to popular understandings of the term). The processes by which actors gain endowments and those by which actors transform endowments into entitlements require separate analysis. By implication, endowments may not translate into entitlements, as the latter depend on many factors besides endowments (Leach *et al.*, 1999: 235).

Building on Sikor and Nguyen (2007), we use entitlements analysis to look at smallholder tree plantations. As depicted in Figure 1, endowments refer to land suitable for tree plantations, the entitlement of interest being trees.¹ Smallholders are at the center of attention, as we seek the analysis to highlight how various kinds of smallholders possess different capacities to gain land endowments and tree entitlements. They are in possession of different livelihood assets, including human, social, financial, natural, and physical assets. Variation in assets puts them in different positions to gain and maintain access to land endowments and to translate these into tree entitlements. Tree entitlements, in turn, affect smallholders' capacities in the future.

Land endowments reflect the influence of various institutions governing access to land suitable for tree plantations. A primary institution sanctioning rights to land suitable for plantations is statutory law. Statutory legislation grants tree growers the secure tenure required for investment (Van Noordwijk *et al.*, 2008; Zhang & Owiredo, 2007). Customary regulations are another kind of institution sanctioning land rights (Place & Otsuka, 2000). Moreover, land endowments include not only the right to plant trees but also the assurance that smallholders are guaranteed uninhibited use of the planted trees (Byron, 2001). Land endowments not only reflect the influence of statutory rights enshrined in law, state rules, and procedures governing tree production as well as customary regulations, but also depend on the social sanctions available to tree growers against theft and fire damage (Arnold & Dewees, 1998; Place & Otsuka, 2000).

Tree entitlements, in turn, are conditioned by a broad range of institutions regulating access to productive resources (labor,

capital, technology, etc.) and wood markets because these institutions influence smallholders' capacities to enact their land endowments. Existing research on tree plantations attributes a primary role to tree growers' access to wood markets. This refers to the availability of market outlets as well as the concrete terms on which smallholders participate in markets (Arnold & Dewees, 1998; Byron, 2001; Van Noordwijk *et al.*, 2008; Zhang & Owiredo, 2007). Another key influence originates from the institutions governing access to capital within the resident household, between local residents and migrants, and from external sources (Arnold & Dewees, 1998; Nawir *et al.*, 2007). In addition, entitlements reflect the institutions governing labor allocation within and outside households (Arnold & Dewees, 1998) and access to viable production technology (Byron, 2001; Van Noordwijk *et al.*, 2008; Zhang & Owiredo, 2007).

These institutional mechanisms in combination lead to processes of differentiation among smallholders with respect to their capacity to engage in tree plantations. Depending on the nature of the mechanisms at play, differentiation may favor wealthy actors with high capital assets or provide special opportunities for the poor. Access to finance may be important as investments in tree plantations yield returns after some years only. If access to finance is critical then one can expect wealthy households to hold an advantage over the poor, as hypothesized for timber logging by Angelsen and Wunder (2003). Yet tree plantations may not require as much start-up investment as timber logging, particularly in the case of fast-growing species that can be harvested after a few years. Access to labor may be the critical factor differentiating various actors' capacities to grow trees, giving poor and better-off smallholders relatively equal chances to engage in tree plantations similar to the pattern hypothesized for crop cultivation and nontimber forest products (cf. Angelsen & Wunder, 2003). The resulting processes of differentiation—capitalist differentiation *versus* temporary differences reflecting changes in household labor—are radically different in their implication for poverty alleviation.

Entitlements analysis thus provides a conceptual framework to examine smallholders' differential capacities to engage in tree plantations. In the following, we use the framework to analyze the *patterns* of differentiation, i.e., the distributions of endowments and entitlements among smallholders in the possession of different livelihood assets. We also examine the *mechanisms* of differentiation, i.e., the institutions differentiating land endowments and tree entitlements. Furthermore, we explore the *processes* of differentiation by asking about what kinds of smallholders are able to grow trees, and who has larger or more productive plantations than others. Taking the three analyses together, we will be able to see whether those in an advantaged position gain further advantages through tree plantations, or whether industrial tree plantations offer special opportunities for the disadvantaged.

3. STUDY SITES AND METHODS

We conducted the research in the northern province of Phu Tho and southern Binh Dinh province to capture two historical plantation trends in Vietnam (see Figure 2). We selected Phu Tho because Vietnam's government has promoted household tree-planting in the province since the late 1980s. Phu Tho is the location of Bai Bang Paper Mill, which was built by Vietnam's government in the late 1970s with Swedish support and offers a readily available outlet for the wood grown by households in the province. In Binh Dinh, in contrast, tree

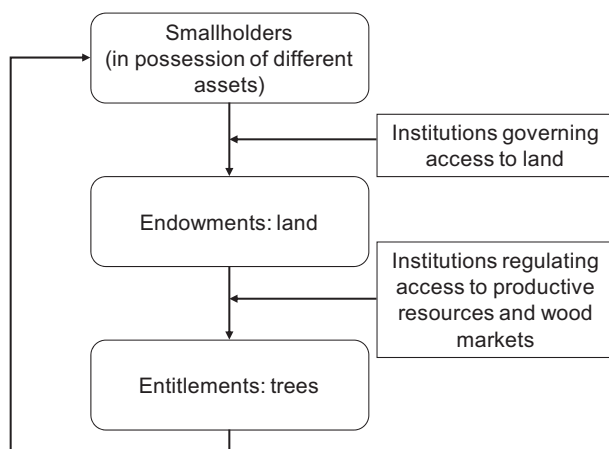


Figure 1. Entitlement analysis of smallholder tree plantations.

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