



Does *de facto* forest tenure affect forest condition? Community perceptions from Zambia



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ABSTRACT

Although the global literature suggests stronger forest tenure is associated with better forest condition, several recent meta-analyses of this relationship have found inconclusive results. There are numerous factors influencing these mixed econometric results, including selection biases and inconsistent definitions or methods, and the global literature is limited to selected geographies. This paper seeks to address these gaps by analyzing an original data set collected as part of a prospective impact evaluation of a reducing emissions from deforestation and forest degradation (REDD+) program in eastern Zambia funded by the United States Agency for International Development (USAID). Drawing on survey data from 2822 households and supplemented with contextual and spatially-derived statistics, we seek to answer two questions: (i) what household and village characteristics explain variation in perceived forest tenure security, which we define to mean relatively unchallenged access to forest resources? and (ii) is more secure forest tenure, as perceived by forest users, associated with better reported forest condition? We aim to contribute more reliable evidence to the global literature linking community-level land tenure and forest condition by using improved proxies for (*de facto*) local forest tenure and land governance and filling a gap in the geographic coverage. Overall, we find that more secure *de facto* forest tenure is associated with localized (village level) customary governance. We also find that more secure *de facto* forest tenure is associated with better reported forest condition. Our results highlight the need to understand local accountability in existing customary governance structures in the context of designing and enforcing REDD+ agreements. We expect our more nuanced assessment of *de facto* forest tenure security to inform policies to promote sustainable forest management, including through REDD+ and community-based forest management, particularly in forest contexts where customary rights remain relevant.

1. Introduction

Although the global literature suggests that stronger local forest tenure, especially for indigenous communities, is associated with better forest condition (e.g., Nepstad et al., 2006; Wynberg and Laird, 2007; Sandbrook et al., 2010), several recent meta-analyses of peer reviewed studies that assessed the relationship between forest tenure and forest condition have resulted in “mixed and heavily qualified” findings (Seymour et al., 2014, p. 2). For example, Ferretti-Gallon and Busch (2014) found no consistent association of land tenure security with either increased or decreased deforestation in their meta-analysis of 117 studies published in peer-reviewed academic journals. In contrast, Robinson et al. (2014) reviewed 118 cases studying the spatially-explicit relationship between forest tenure and forest change that were

published in peer-reviewed journals and found that land tenure security is associated with reduced deforestation, regardless of tenure form.

Seymour et al. (2014) notes that there are several factors influencing these mixed econometric results, including, *inter alia*, selection biases and inconsistent definitions or methods. For example, in their review of the carbon sequestration impacts of community forest management, Bowler et al. (2010) noted the lack of rigorous impact evaluations with before/after and control/intervention (BACI) research designs and the fact that most of the 42 studies they reviewed did not explicitly assess the local tenure systems. Importantly, Robinson et al. (2014) note that the terms “land tenure” and “property rights” are often used synonymously and may only refer to rights held by individual landholders, rather than the larger bundle of property rights that

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¹ Please note that the research was completed while the corresponding author was an employee of USAID; however, this author is no longer affiliated with USAID.

govern the use, management, and transfer of assets or the broader set of institutions and policies that constitute the local land tenure system. The authors also highlight the increasing recognition that landholders' perceived (*de facto*) land tenure often has a greater influence on their land use decisions than their *de jure* tenure status (Broegaard, 2005; Unruh et al., 2005). Their findings not only strongly demand greater attention to the various forms of land tenure relevant to different forests, but also caution against assuming that any one form of tenure is more secure than others (Robinson et al., 2014).

Moreover, the global literature linking forest tenure and forest condition is heavily biased toward a few sites in South Asia, East Africa, and Latin America, with very limited evidence from elsewhere in Africa (Seymour et al., 2014). Given the difficulty of deriving clear policy recommendations from the existing literature, the authors call for additional research to address key research gaps. These include, *inter alia*, expanding the geographic evidence base and examining the relationship between customary and statutory rights and the impacts of government rules on communally managed lands.

More broadly, contemporary scholarship on the behavior of forest actors has underlined the need to go beyond the traditionally rights-based concept of tenure to examine (i) mechanisms of access to resources, or the ability to benefit from resources in practice (Ribot and Peluso, 2003), and (ii) the ways local actors navigate situations of legal pluralism through a process of “institutional bricolage” that shapes landscape realities (Kuntz et al., 2017). Our definition of “*de facto* tenure security” therefore builds on this literature, as well as Ostrom's (1990) theory of governance issues relevant to common pool resources (CPRs), by measuring forest users' perceived ability to maintain access to (ability to benefit from) ‘their’ forest resources and examining the roles of local forest users and traditional authorities in *de facto* forest management and governance.

This paper seeks to begin to address some of these evidence gaps and contribute a more robust examination of forest access drivers and outcomes through a cross-sectional analysis of an original baseline data set collected as part of a prospective impact evaluation of a reducing emissions from deforestation and forest degradation (REDD+) program in eastern Zambia. Launched in 2014, the program aims to empower communities living near forests to establish and implement participatory forest and natural resource management plans and to promote alternative livelihoods that provide forest-dependent communities with sustainable livelihoods. Both the intervention and the impact evaluation are supported by the United States Agency for International Development.

We use this pre-REDD+ intervention data to address two questions relevant to forest contexts characterized by high levels of poverty and forest livelihood dependence, on the one hand, and legal pluralism as evidenced by overlapping formal and customary authorities governing forest access, on the other. What household and village characteristics explain variation in *de facto* perceived forest tenure security, which we define to mean unchallenged rights to access (benefit from) forest resources? And, is more secure perceived forest tenure associated with better forest condition as reported by forest users?

1.1. Forest tenure and deforestation challenges in Zambia

Zambia is of interest to global debates on forest tenure and condition as a result of both the continued dominance of customary tenure systems in rural areas and its high annual rate of deforestation (UN-REDD, 2015). Forests in Zambia fall mainly into two tenure categories: state (public) and customary. State lands include national parks and forest reserves and are administered by the Government. By contrast, customary land is governed by chiefs and their representatives, including village headmen and *indunas* (advisors), through largely informal and unrecorded systems for land allocation and dispute resolution (Persha et al., 2016). Additionally, the Government retains rights to all trees and wildlife in Zambia, even those located on customarily administered lands (GRZ, 2015a,b). Notably, on state and customary lands, trees may only be felled and land cleared for local agricultural use with a license granted by the Director of Forestry.

Although the distinction between state and customary lands is clear in law under the Land Act of 1995, in practice, government land rights maps are outdated, and the boundaries are frequently unclear to local resource users (Evtimov and Muzyamba, 2014). The gap between the *de jure* and *de facto* tenure status of forested lands also stems from the continued centralization of forest management under the Forest Act, which does not provide for formal forest governance institutions at the village level (Kalaba, 2016). In such contexts, the overlaps among and unclear responsibilities held by various formal and informal institutions shape actors' resource access, which then shapes landscape realities (Kuntz et al., 2017).

Clear ownership and tenure security have thus increasingly been recognized as essential pre-conditions for successful REDD+ implementation (Larson et al., 2013), and overlapping formal and informal (including customary) tenure systems could complicate REDD+ implementation, particularly if forest-dependent communities are inadequately compensated (in kind or in cash) for the forest management and, therefore, livelihood changes that will be required to reduce emissions. Thus, REDD+ highlights the need to clarify who holds specific property rights to forest resources and the respective roles and responsibilities of various customary and formal government tenure and management systems (USAID, 2014). While these rights and responsibilities are (as already noted) relatively clear *de jure* in Zambia, there are important gaps with the *de facto* situation, which is relatively less well documented (Kalaba, 2016). Nonetheless, the processes through which REDD+ projects could effectively clarify and strengthen *de jure* forest tenure and safeguard local communities' *de facto* rights and livelihoods are in general not clearly articulated (Naughton-Treves and Wendland, 2014; Sommerville, 2015).

2. Material and methods

2.1. Study area

Eastern Province is located in eastern Zambia along the border with Malawi (Fig. 1). Roughly 1.5 million people live in Eastern Province, of which 87% reside in rural areas. The majority of households rely primarily on charcoal production and subsistence agriculture activities. More than 75% of households are poor, and roughly 60% live in extreme poverty (Tembo and Sitko, 2013). The province contains globally significant biodiversity and large areas of intact forest. Forests in the study area are comprised mainly of miombo woodlands and, to a lesser extent, mopane woodlands. These ecosystems are characterized by open canopies, with miombo having a more pronounced grass layer (Day et al., 2014).

In contrast to the relative homogeneity of forest types in the study area, Fig. 1 illustrates the diversity of formal (*de jure*) forest management regimes. The vast majority of villages in the study area are located outside formal forest reserves. Correspondingly, the majority of forests in the study area are located on customary land, not subject to any formal management designation, and are instead under the authority of traditional leaders, including chiefs and village headmen. According to nationally available data, there are several forest reserves that are formally under the authority of the Forestry Department in the Ministry of Lands, Natural Resources, and Environmental Protection. There are also several game management areas (GMAs) in the area, which are customary lands subject to formal management plans designed and enforced by the Department of National Parks and Wildlife in the Ministry of Tourism and Arts and which are typically made available for private sector investment, for example in game lodges. It is important to note that while our spatial analysis is based mainly on official data sources, these data may not always coincide with the *de facto* understanding of communities living in these areas. The western-most part of the study area borders South Luangwa National Park, which is also under the authority of the Department of National Parks and Wildlife.

Charcoal production is a significant driver of deforestation in the study area. The production, distribution, and marketing of charcoal are estimated to provide livelihood benefits to over half a million people in Eastern Province (Kalinda et al., 2008). Rural households often use charcoal to diversify and smooth their household incomes during periods of poor

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