



Examining aspiration's imprint on the landscape: Lessons from Mozambique's Limpopo National Park

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ABSTRACT

This paper explores the role of aspirational capacity, one cognitive dimension of well-being, as a driver of deforestation among rural smallholders living in or near Mozambique's portion of the Great Limpopo Transfrontier Park. Integrating analyses of remote sensing, socio-economic, and semi-structured interview data within a theoretical framework drawn from Amartya Sen's capability approach, we examine land use decisions in the context of the available options people have to choose from as well as the factors influencing their ultimate choice. Land change detection analysis indicates that more forest conversion occurs within the park, but rates show considerable variation at the community level. We find no association between economic deprivation and deforestation rates. Limited aspirational capacity, manifested in expressions of helplessness and despair, a lack of perceived choices, and fewer agentive pursuits, is one dimension of poverty that does contribute to cropland expansion. Qualitative findings indicate that a more limited capacity to set, pursue, and achieve aspirational goals perpetuates agricultural land use traps and, consequentially, higher deforestation rates. Higher levels of aspirational capacity also contribute to negative conservation outcomes as people adopt the risky but profitable activity of illegal rhino hunting as a means to obtain other valued capabilities.

1. Introduction

Anthropogenic forest loss continues to threaten ecosystem health and wildlife habitats despite conservation efforts. Proliferation of national parks and protected areas in high poverty regions has had mixed success in slowing deforestation. Development initiatives aiming to provide livelihoods compatible with conservation, such as tourism employment, have struggled to improve rural well-being (Franks and Blomley, 2004; Blaikie, 2006; Fletcher, 2012). Many rural economies remain reliant on semi-subsistence agriculture and charcoal production, placing growing pressure on forest resources (Carney et al., 2014; DeFries et al., 2010; Geist and Lambin, 2002; Rudel, 2013; Sedano et al., 2016). Climate change adds more pressure still, as coping strategies often contribute to deforestation (Fisher et al., 2010).

Research indicates that no single socio-economic factor drives land cover/land use change (LCLUC) (Lambin et al., 2001). Still, the link between deforestation and poverty continues to receive considerable attention with mixed results. Some studies find statistically significant, positive relationships between forest conversion rates and economic well-being at the household (Caldas et al., 2007) and community levels (Miyamoto et al., 2014; Redo et al., 2012; Rudel & Roper, 1997).

Coomes et al. (2011) find evidence of land use poverty traps, where the inability to invest in agricultural inputs or switch to higher value crops lock rural households into low-return shifting cultivation systems which require continued cropland expansion. Other research suggests the non-poor contribute more to potentially unsustainable land use practices (Godoy et al., 1997; Kamanga et al., 2009; Shackleton & Shackleton, 2006; Vedeld et al., 2007; Narain et al., 2008). Espirito-Santo et al. (2016) find the association between economic well-being and LCLUC resembles a Kuznets environmental curve: an inverted U-shaped relationship where deforestation increases alongside *per capita* rural income until reaching a certain threshold, after which the pattern reverses. Taken together, the existing literature suggests a complex relationship between land use decisions and economic well-being, indicating that rural economic development alone may not advance forest conservation outcomes.

The focus on economic well-being as a potential driver of LCLUC aligns poorly with understandings of poverty as a multidimensional phenomenon. Within ecological and sustainability economics, a growing body of work advocates for broader conceptualizations of well-being—including the non-monetary aspects of disadvantage—in studies of human-environment interactions (Ballet et al. 2013; Pelenc and

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Ballet, 2015). Ballet et al. (2018) stress the importance of considering people's aspirations for the future in order to understand the choices people make in relation to their environment. Aspirations represent ideas of the future embodied in hopes, goals, dreams, and ambitions. To the extent that the ability to hope, dream, and set goals adds value to human life, the capacity to aspire is one cognitive dimension of well-being. Aspirations also act as signifiers of local value systems and provide insights into motivations for action and inaction (Hart, 2016). McShane and Wells (2004) also emphasize the need to better understand the aspirations of local residents living in and near protected areas in order to reconcile their current needs and desired futures with conservation goals. With their future-oriented logic (Appadurai, 2004) and agency-unlocking effects (Conradie and Robeyns, 2013), aspirations present a window into what the future may hold for conservation.

Research on aspirations' role in human development offers insight to potential linkages between aspirational capacity and LCLUC. For example, higher levels of education are associated with greater aspirational capacity (Kosec et al., 2012; Czaika and Vothknecht, 2012; Pasquier-Doumer and Brandon, 2015) and lower levels of deforestation (Adhikari, 2005; Chowdhury, 2006; Fisher, 2004; Godoy et al., 1997; Kamanga et al., 2009; Narain et al., 2008; Rudel and Roper, 1997). However, the relationship between aspirations and LCLUC has received limited empirical attention and non-monetary dimensions of poverty remain under-theorized in studies examining human drivers of deforestation. Framings that account for aspirations can better illuminate how diverse manifestations of disadvantage shape desires for change and, consequently, motivate land use practices.

We draw on Amartya Sen's (1985, 1995, 1999, 2003, 2011) capability approach to explore the relationship between different dimensions of poverty and LCLUC patterns. We combine LCLUC detection analysis with statistical and content analysis of household survey and semi-structured interview data for three communities located in or near Mozambique's portion of the Greater Limpopo Transfrontier Park (GLTP). We first examine how patterns of deforestation differ at the community level. We then explore the dynamics underlying observed differences in deforestation patterns. In particular, we examine how collectively held aspirations for the future and levels of aspirational capacity shape physical landscapes in and near protected areas. The contributions of this study are twofold. First, the study uses a multidimensional framework to explore the relative importance of non-monetary factors on deforestation. Second, this study uses the future-oriented logic of aspirations to examine specific pathways linking human well-being and experiences of multidimensional poverty to land use practices of conservation concern.

2. Theoretical framework

The capability approach provides a flexible and multidimensional framework for analyzing human-environment interactions (Ballet et al. 2013; Pelenc and Ballet, 2015; Pelenc et al., 2013; Polishchuk and Rauschmayer, 2012). Following Sen's (1999) formation, capabilities refer to the real opportunities people have to pursue and achieve lives they find valuable. Development is conceptualized as expanding these opportunities with the freedom to choose between them. By placing matters of agency, freedom, and choice at the center of human development, capability perspectives situate poverty as a multidimensional phenomenon. Sen (1999) asserts that differing levels of agency—what a person does or can do to achieve a valuable life—may account for variations in well-being among individuals even when income levels are comparable.

Within the capability approach, several theorists frame aspirations as a catalyst of human agency (Appadurai, 2004; Conradie, 2013; Nussbaum, 2016). Aspirations unlock agency, motivating people to take action toward what they perceive as a better future (Conradie and Robeyns, 2013). Aspirations and agency also have mutually reinforcing tendencies (DeJaeghere, 2016). When agentic action helps people fulfill

their goals, it prompts more ambitious aspirations (Zipin et al., 2015). Given their distinctive future-oriented logic (Appadurai, 2004), framings that account for aspirations, and the processes by which they are formed, offers a better means of anticipating social, political, and environmental change. While agency makes some wants—but not all—visible, aspirations embody actions not yet taken and valued lifestyles not yet realized.

The process of forming aspirations illuminates how structural context can nurture and constrain human agency. Since individuals construct aspirations by envisioning, thinking about, deliberating, and discussing them, aspirations are deeply embedded within cultural norms and local belief systems (Nussbaum, 2016). Capability theorists have drawn upon Bourdieu's concept of habitus to describe how socio-cultural influences on tastes and preferences shape aspirations and, consequentially, agency (Hart, 2012; Gale and Parker, 2015). Social environments influence what type of future people find desirable (e.g., wants and preferences), and also what type of future they believe is possible (e.g., expectations and feasibility assessments). Sen (2003) notes that poverty and disadvantage can contribute to adaptive preference problems, where perceptions of what is realistic lead to very modest aspirations for change. In these circumstances, the disadvantaged are more likely to have limited aspirations and put less effort into achieving them.

Ray (2002) uses the concept of an aspirations window to illustrate key structural factors influencing aspirational capacity. The degree and ease with which people envision and pursue alternative futures functions as a meta-capability within the capabilities framework (Appadurai, 2004). This involves leveraging existing resources and opportunities to gain other desired capabilities (Nathan, 2005). Individuals have difficulty aspiring to goals with which they have little familiarity (Stutzer, 2004; Mookherjee et al., 2010) or perceive as unachievable (Crocker, 1992). Thus, Ray (2002) emphasizes the importance of role models in his theory of an aspirations window, and stresses structural influences on opportunities to interact with others and observe successful efforts at pursuing and fulfilling aspirations in order to build an archive of experience. While personal characteristics also account for varying levels of aspirational capacity, including gender (Kosec et al., 2012), income (Ashby and Schoon, 2010), health (Snow et al., 2013), and self-esteem (Knight and Gunatilaka, 2012), we draw heavily on Ray's (2002) theory to situate the capacity to aspire within wider socio-economic contexts (see Fig. 1). Given that aspirational capacity is higher in stimulating social environments with regular social interactions (Beaman et al., 2013; Collier, 1994; Macours and Vakis, 2009), our model highlights the structural factors that manifest at the community-level and align with the scale of our LCLUC analysis.

We conceptualize the capacity to aspire in rural and economically marginalized regions as comprised of three distinct components framed by an individual's aspirations window. First, there is the ability to envision opportunities, choices, and alternative states of being believed to constitute a better life. Though often couched in terms of their novelty, aspirations may also reflect a desire for stability and the continuation of familiar circumstances (Hart, 2016). Given the extensive rural hardship attributed to neoliberal conservation (Büscher et al., 2014), the goal to re-acquire capabilities prohibited by these initiatives may also encompass the desire to alter and contest perceived injustices. Our view of aspirations accounts for desired future change that (1) involves gaining access to new and previously unexperienced opportunities or conditions, or (2) aims to regain valued and previously experienced capabilities that people have lost.

The second component of aspirational capacity is the ability to identify and plan out a sequence of steps or actions that can lead to desired change, what Nathan (2005) calls a road map for achieving goals. Successful road maps involve the ability to choose between alternative options and overcome structural barriers in order to use existing capabilities as a means to acquire others. Such navigation draws upon personal experiences and direct observations of success to build

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