



# Impacts of land tenure and property rights on reforestation intervention in Ethiopia



Befikadu A. Legesse<sup>a,b,\*</sup>, Kenrett Jefferson-Moore<sup>c</sup>, Terrence Thomas<sup>c</sup>

<sup>a</sup> L.C. Cooper, Jr. International Trade Center, College of Agricultural and Environmental Sciences, North Carolina A&T State University, A-29, C.H. Moore Agricultural Research Station, 1601 East Market Street, Greensboro, NC, 27411, USA

<sup>b</sup> Environmental Economics, Brandenburg University of Technology, Cottbus-Senftenberg, 03046, Cottbus, Germany

<sup>c</sup> Department of Agribusiness, Applied Economics and Agriscience Education, North Carolina Agricultural & Technical State University, 1601 East Market Street, Greensboro, NC, 27411, USA

## ARTICLE INFO

### Keywords:

Land and property rights  
Land degradation  
Reforestation  
Multi-stage probability sampling techniques  
Probit model

## ABSTRACT

Land is a fundamental asset for social, political and economic sustainability, which provides ecosystem services, generate livelihood and accumulate wealth for the rural communities in developing countries like Ethiopia. Land degradation is one of the major environmental challenges in Ethiopia. In fact, public intervention in land management has conducted in the country in the last few decades to halt the problem but not successful due to socioeconomic, demographic, institutional, and other related factors. Among others, property rights to land may be one of the major factors that affect farmers' decision to invest in land management. Recognizing the significant role of land rights for land management is not new to the literature. However, there are few empirical in-depth case studies regarding its effect in reforestation intervention in developing countries like Ethiopia. This study, therefore, examines determinants of farmers' decisions to invest in reforestation interventions through focusing on land tenure and property rights. The study found out that land security is one of the most significant factors that affect farmers' decision to practice reforestation intervention.

## 1. Introduction

Land is a fundamental asset for social, political and economic sustainability, which provides ecosystem services, generate livelihood and accumulate wealth for the rural communities in developing countries (Legesse, 2014; Toulmin, 2008; Bogale et al., 2006). Ethiopia's population is predominantly rural, in which land plays a significant role in the country's economy (Nalepa et al., 2016). Nevertheless, land degradation is one of the major environmental challenges in the country. The annual average soil loss in cultivated areas estimated at 42 metric tons per hectare in the Ethiopian highlands (Hurni, 1988). Public intervention in land management has conducted in Ethiopia in the last few decades. For example, reforestation intervention such as *Mangifera indica*, *Citrus aurantifolia*, *Citrus sinensis*, *Psidium guajava*, high value indigenous trees such as *Coffea arabica*, *Juniperus procera*, *Olea africana* and *Hagenia abyssinica*, and fodder trees such as *Sesbania* and *Lucerne*, have implemented for long to reverse the trend (Agidie et al., 2014; MOA, 2012; MWE, 2012; DBOA, 2012; Kassie et al., 2008 cited in Getnet and MacAlister, 2012; MOA-SLM, 2013; Alemayehu et al., 2009). However, these measures are not being adopted by most land

users due to socio-economic, institutional and political factors (Legesse and Yeboah, 2017; Legesse, 2014; Bogale et al., 2006). Among others, property rights to land may be one of the major factors that affect farmers' decision to invest in natural resource management. Land management might closely relate to property rights (Landac, 2016) in which land rights are the fundamental institutional asset for rural livelihood (Landesa, 2012). Studies show that well-defined land rights have the potential to increase natural resource management, agricultural productivity and sustainable development through enhancing landholders' confidence (Wang et al., 2015; Meinzen-Dick, 2014; Abdo, 2013; UN-Habitat, 2008; Bogale et al., 2006; De Soto, 2000; Lee, 1980; Besley, 1995). Empirical findings also show that land rights ease access to credit through using land as collateral to obtain a loan, facilitate reallocation of production factors, improve national trade balance, maximize allocative efficiency in resource use and improve food security (Nizalov et al., 2016; Markussen, 2008; Deininger and Jin, 2006).

Land is owned by the government in Ethiopia where farmers have only the right to use and rent out part of the land for short periods (Holden and Bezu, 2016; Nalepa et al., 2016; FDRE, 2005). In fact, the government has implemented land registration and certification

\* Corresponding author at: L.C. Cooper, Jr. International Trade Center, College of Agricultural and Environmental Sciences, North Carolina A&T State University, A-29, C.H. Moore Agricultural Research Station, 1601 East Market Street, Greensboro, NC, 27411, USA.

E-mail addresses: [blegesse@ncat.edu](mailto:blegesse@ncat.edu), [legesbef@gmail.com](mailto:legesbef@gmail.com) (B.A. Legesse).

<https://doi.org/10.1016/j.landusepol.2017.11.018>

Received 10 April 2017; Received in revised form 6 November 2017; Accepted 8 November 2017

Available online 22 November 2017

0264-8377/ © 2017 Elsevier Ltd. All rights reserved.

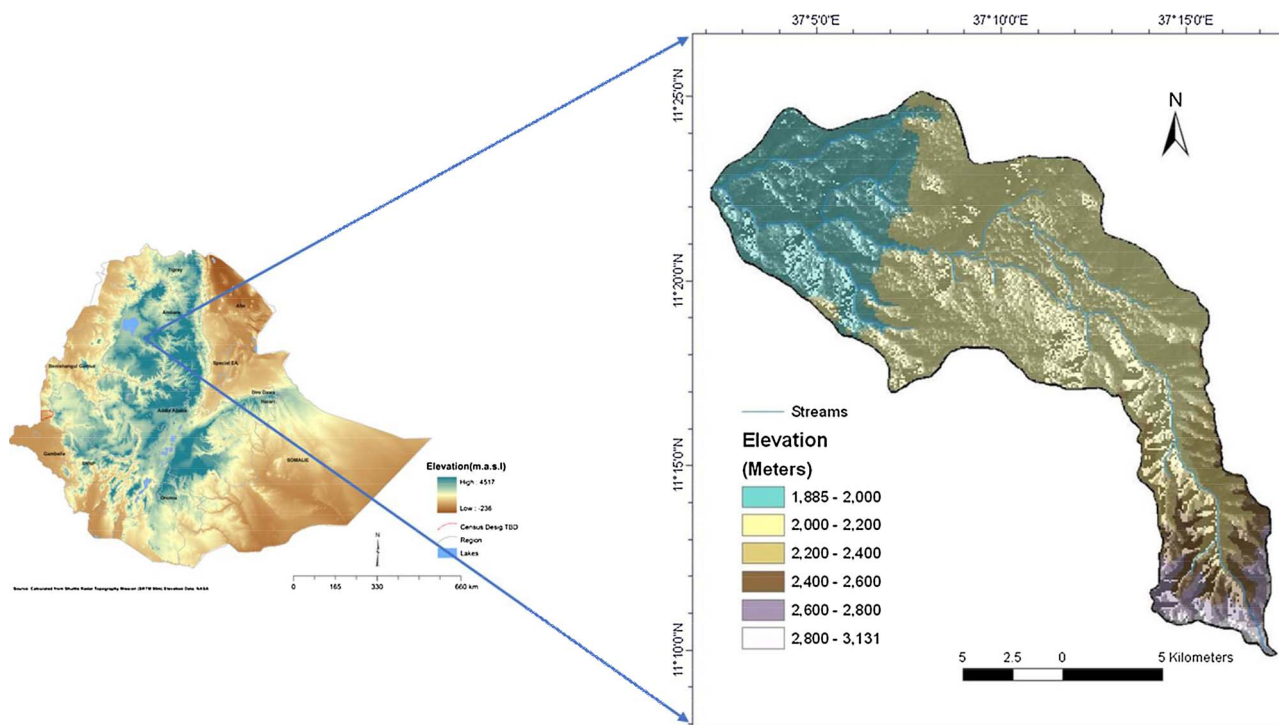


Fig. 1. Map of the study areas.  
Source: CSA, 2011 and Yilma and Awulachew (2009).

reforms on a grand scale in most parts of the country as an assurance to use farmland (Ege, 2017; Bezu and Holden, 2014). However, land registration and certification cannot deliver tenure security<sup>1</sup> to make effective use of the land (Rights and Resources Initiative, 2015; Zevenbergen et al., 2013; Wehrmann and Antonio, 2011; USAID, 2007). For instance, the Ethiopian government policy to increase medium- and large-scale land leasing has led farmers to lose their access to land or to be displaced (Landac, 2016). Studies show that tenure insecurity in developing countries might lead to high inefficiency in land investment, access to credit, food security and high inefficiency in labor supply (Legesse, 2014; Macours et al., 2010; USAID, 2007). Recognizing the significant role of land rights for natural resource management are not new to the literature. However, there are few empirical in-depth case studies regarding its effect in reforestation intervention in developing countries like Ethiopia. For example, Legesse (2014) and Gebremedhin and Swinton (2003) reported a positive impacts of land security on soil bund practices and long-term investments in stone terraces respectively. This study, therefore, examines determinants of farmers' decisions to invest in reforestation interventions through focusing on land tenure and property rights (Fig. 1).

## 2. Methods

### 2.1. Theoretical framework

Farmers invest in a particular intervention when their willingness to invest is greater or equal to costs of that particular intervention (Legesse, 2014). In fact, making a decision in the context of natural resource conservation is a more complex task than making a decision in the context of private goods and services (Pearce, 1993; Pearce, 1994). The theoretical

<sup>1</sup> Property rights encompass the right to occupy, enjoy and use; cultivate and use productively; restrict or exclude others; transfer, sell, purchase, grant or loan; inherit and bequeath; develop or improve; rent and sublet; and the right to benefit from increased property values or rental income (UN-Habitat, 2008). According to Ege, (2017), tenure security concerns three different rights: possession, renting and latent right.

basis for this study are the Lancasterian theory of consumer choice and random utility theory. According to the Lancasterian theory of consumer choice, the attributes of goods determine the utility they provide, for this reason; individuals derive utility from the underlying attributes of the commodity rather than the commodity itself (Lancaster, 1966). In Lancasterian consumer choice theory, the attributes of a given good are important in consumers' decision, which might be given by the following equation:

$$V = \sum_{j=1}^n \phi'X_j \tag{1}$$

Where:  $V$  refers to the value of a good,  $X_j$  is attributes of goods in which it ranges from  $j = 1$  attribute to  $j = n$  attributes,  $\phi$  is numerical measure of levels called coefficients that are associated with each attributes ( $X_j$ ).

Random utility theory (McFadden 1973; Manski 1977) assumes that individuals make a decision rationally in selecting an alternative that yields the highest utility. Individuals select a given alternative if the utility provided by such alternative is the highest among different choices. An individual's indirect utility can take the following functional form (Louviere, 2001; Kjaer, 2005; Louviere et al., 2007).

$$U_{ij} = V_{ij} + \varepsilon_{ij} \tag{2}$$

Where:  $U_{ij}$  refers to indirect utility function ( $i^{\text{th}}$  respondent chooses of alternative  $j$ ).

$V_{ij}$  is deterministic component and  $\varepsilon_{ij}$  is a stochastic component.

The  $V_{ij}$  function is further given by the following functional form (Louviere, 2001; Kjaer, 2005; Louviere et al., 2007; Amaya et al., 2008):

$$V_{ij} = \phi'X_{ij} + \tau'Z_{ij} \tag{3}$$

Thus, by substituting Eq. (3) in to Eq. (2), the utility function can be given by the following functional form:

$$U_{ij} = \phi'X_{ij} + \tau'Z_{ij} + \varepsilon_{ij} \tag{4}$$

Where:  $Z_{ij}$  is socio-economic and attitudinal characteristics,  $\tau$  is vector of coefficients associated with each socio-economic and attitudinal characteristics.

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات