



# Precolonial institutions and deforestation in Africa



S. Larcom<sup>a,\*</sup>, T. van Gevelt<sup>b</sup>, A. Zabala<sup>a</sup>

<sup>a</sup> Department of Land Economy, University of Cambridge, UK

<sup>b</sup> Centre of Development Studies, University of Cambridge, UK

## ARTICLE INFO

### Article history:

Received 18 August 2015

Received in revised form 19 October 2015

Accepted 30 October 2015

Available online 22 November 2015

### Keywords:

Deforestation

Africa

Precolonial institutions

Chiefs

Legal pluralism

## ABSTRACT

We find that local institutions inherited from the precolonial era continue to play an important role in natural resource governance in Africa. Using satellite image data, we find a significant and robust relationship between deforestation and precolonial succession rules of local leaders (local chiefs). In particular, we find that those precolonial areas where local leaders were appointed by ‘social standing’ have higher rates of deforestation compared to the base case of hereditary rule and where local leaders were appointed from above (by paramount chiefs). While the transmission mechanisms behind these results are complex, we suggest that areas where local leaders were appointed by social standing are more likely to have poorer institutions governing local leadership and forest management.

© 2015 Elsevier Ltd. All rights reserved.

## 1. Introduction

According to the [United Nations Millennium Development Goals Report \(2013\)](#) close to 75% of the world’s forests are now protected by national governments. However, despite the large increase in protected forests in recent decades, deforestation remains a significant problem in much of the developing world. According to the same report, around 3.4 million hectares of net forest were lost per year in Africa for the period 2005–2010. The report (2013:42) concludes that ‘forests are disappearing at a rapid pace, despite the establishment of forest policies and laws supporting sustainable forest management in many countries.’

One reason for continued high rates of deforestation despite a significant increase in state protections is illegal deforestation. Using a model of competitive rent seeking and data from Indonesia, [Burgess et al. \(2012\)](#), provide evidence that a key determinant of deforestation is a lack of enforcement of state protections due to corruption among local politicians and bureaucrats. More recently, [Alesina et al. \(2014\)](#) have found that deforestation is correlated with the degree of ethnic fractionalization found within local communities. Conceiving forests as community public goods, they conclude that more ethnically fractionalized societies are less able to coordinate and organize resistance against the consequences of poor state institutions, corrupt politicians and illegal logging.

We contribute to this literature that looks beneath the surface of state regulation by investigating the role that precolonial institutions play in relation to deforestation. Despite over 95% of African forests falling under public ownership and approximately 80% being managed by the state ([FAO, 2010:10](#)), we hypothesize that the remnants of precolonial institutions continue to play an important role in forest management and rates of deforestation. Specifically, we examine the relationship between the succession rules of village heads (local chiefs) and current rates of deforestation in Africa. We undertake this analysis using deforestation data obtained from satellite images within 645 boundaries of precolonial societies and within the boundaries of 49 states in Africa. In doing so, we control for known and likely drivers of deforestation; including protected areas, population density, a range of geographic characteristics (including elevation and vegetation regions), economic variables (including light density at night), institutional variables (including rule of law and form of colonial rule), and country fixed effects.

This paper is motivated by a growing literature that highlights the enduring importance of precolonial institutions on a range of current outcomes in Africa: [Gennaioli and Rainer \(2007\)](#), [Ziltener and Mueller \(2007\)](#), [Fenske \(2013, 2014\)](#), [Larcom \(2013\)](#), and [Michalopoulos and Papaioannou \(2013, 2014\)](#) have all found a strong statistical relationship between measures of precolonial institutions and current measures of institutional quality. While there are different explanations put forward for these results, they all are grounded on the premise that states are relatively weak across much of Africa, especially in rural areas, and that this creates demand for non-state regulation. On this, [Michalopoulos and](#)

\* Corresponding author at: Department of Land Economy, University of Cambridge, 19 Silver St., CB3 9EP, UK. Fax: +44 1223337130.  
E-mail address: [stl25@cam.ac.uk](mailto:stl25@cam.ac.uk) (S. Larcom).

Papaioannou (2013:115) conclude that the ‘inability of African states to provide public goods and broadcast power beyond the capitals led African citizens to continue relying on the local ethnic-specific structures rather than the national Government’. Acemoglu et al. (2014:362) reach a similar conclusion regarding the capacity of the state in Africa, finding that the ‘majority of the population lives in rural areas and where the national state often lacks capacity and the power to “penetrate” society’.

While precolonial institutions may persist in many parts of Africa, it is another matter linking them to natural resource management, and deforestation in particular. However, there are good reasons to do so. In a comparative study of land tenure systems across the continent, Otsuka and Place (2001) conclude that primary forests and uncultivated woodlands are still largely governed by communal ownership regimes with control rights vested with local chiefs or other traditional local authorities. They also conclude that the continuation of these types of governance regimes differs from much of Africa’s farm land, where individual ownership rights are much more common. Ensminger (1997) also concluded that communal ownership of forest resources spans across much of Africa. The link between resource management and traditional institutions is also supported by recent large-scale survey data from AFRObarometer that confirms the continued importance of indigenous institutions in rural Africa, especially in relation to dispute resolution and use of land (Logan, 2013).<sup>1</sup>

In an investigation of deforestation in the South Nandi and Karura Forests of Kenya, Klopp (2012) found that forests are often incorporated into the patronage networks of elites and resources are distributed in return for political support. Brown and Makana (2014:3) also found that much of the deforestation in the northeast of the Democratic Republic of Congo was generated by small-scale loggers who paid ‘traditional chiefs’ for logging permits. However, they found that the permits often had no legal status from the national government and that the funds received were appropriated by the chiefs themselves with little benefit to the local community. They also found that some loggers who wished to secure access to forests for logging provided local chiefs with gifts, such as motorcycles. It is suggested here that the different institutional structures that govern natural resources should be related to the rate of deforestation due to the importance of institutional checks and balances on the performance of local leaders. Acemoglu et al. (2014) have recently found that chiefs with fewer checks and balances on their power produce worse economic development outcomes for their people, primarily through their ability to engage in self-interested behaviour that is made possible through their control of land and natural resources.

In terms of village chiefs, institutional checks and balances can come from above (e.g., paramount chiefs) or from below (e.g., democratic accountability). We can expect that the checks and balances on those who are vested with control rights over land and natural resources will directly influence the rate of deforestation. Where less checks and balances are in place, the pursuit of self-interested forest management practices is more possible and this can lead to increased logging and deforestation. Conversely, where local leadership is checked, we could expect the remnants of precolonial institutions to guard against corrupt officials and predatory logging companies. In addition, different sources of local authority may generate more conflict and uncertainty over the use rights of natural resources than others. For instance, Filer (2012) and Larcom (2015) have documented how highly dispersed local

customary institutions in Papua New Guinea can lead to both internal and external conflict over forest resources. This conflict can lead to uncertainty over ownership that can devalue the natural resource and encourage those who have access to it to exploit it faster than they otherwise would like. Different sources of local authority may also lead to variations in the costs associated with co-ordination against outsiders wishing to exploit their resources and therefore lead to different levels of deforestation.

## 2. Materials and methods

Our empirical method focuses on estimating the relationship between the succession rules for village heads with deforestation data from 2000 to 2012 obtained from satellite data within 645 boundaries of precolonial societies and within the boundaries of 49 states in Africa. Due to the potential for omitted variable bias we control for all known and likely drivers of deforestation (see Barbier and Burgess, 2001; Burgess et al., 2012; Geist and Lambin, 2002; DeFries et al., 2010) including, protected areas, population density, a range of geographic characteristics (including elevation and vegetation regions), economic variables (including light density at night), institutional variables (including rule of law and form of colonial rule) and country fixed effects.

Specifically, we estimate the relationship between local precolonial institutions and recent rates of deforestation by estimating variants of the following model:

$$d_{i,c} = \alpha_0 + \beta P_i + X'_{i,c} \Phi + c_c + \epsilon_{i,c} \quad (1)$$

where,  $d_{i,c}$  is the rate of deforestation for the period 2000–2012 in each precolonial society  $i$  in country  $c$ .  $P_i$  represents our precolonial institutional measures,  $X_{i,c}$  is a vector of control variables that consist of the broad headings of current institutions, colonial institutions, population density, geographical, economic development and forest stock controls, and  $c_c$  are country fixed effects. To account for the possibility of spatial correlation we use double clustered standard errors at the ethnic-family level and country level (Cameron et al., 2011; Michalopoulos and Papaioannou, 2013, 2014). Where possible, we include country fixed effects to account for time invariant differences that are country specific.

While we acknowledge the potential for endogeneity inherent in the use of institutions as predictors, we consider that this is mitigated by the fact that our measures are indeed precolonial and that we control for a wide variety of (largely immutable) geographic characteristics. Finally, while there have been large migrations and forced displacements within Africa, Nunn and Wantchekon (2011) have found a strong correlation (0.55) between the current location of residents and their historical ethnic homelands as identified by Murdock (1967). Due to the unavailability of data we do not explicitly include a measure for ethnic fractionalization at the precolonial level, however we do include a number of geographic variables that are known drivers of ethnic fractionalisation (see Michalopoulos, 2012) and use country fixed effects that should capture any variance in ethnic fractionalization at the country level.

### 2.1. Data

#### 2.1.1. Spatial data on deforestation

The main measure of deforestation is sourced from Hansen et al. (2013). It represents the percentage of net forest loss within the boundaries of each precolonial society from 2000 to 2012; where net forest loss is the difference between loss and gain of forest cover. As can be seen from Table 1, over this period mean deforestation is 1.090% with a standard deviation of 1.491%. The largest amount of deforestation of any area was 15.515%, while the largest net gain was 0.964%. Fig. 1 illustrates the degree of deforestation

<sup>1</sup> See also Thondhlana et al. (2015) and Osei-Tutu et al. (2014) who document traditional local institutions and local leaders continuing to play a role in natural resource governance in contemporary Africa (along with state and other-non state institutions).

Download English Version:

<https://daneshyari.com/en/article/92902>

Download Persian Version:

<https://daneshyari.com/article/92902>

[Daneshyari.com](https://daneshyari.com)