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Rights to the forest, REDD+ and elections: Mining in Guyana

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ABSTRACT

This paper examines the impact of electoral cycles and the introduction of Reducing Emissions from Deforestation and Degradation (REDD+) policy upon the holding of small-scale mining property rights in Guyana. Mining is both the major cause of deforestation and the main economic activity in the country. A simple model of the incentives to hold mining property rights is developed and tested using a unique data-set of small-scale mining property rights data. Econometric techniques are used to test the findings of the model, concluding that the number of mining rights issued fall after election years, with the number rescinded rising. The introduction of REDD+ in Guyana also seems to have increased the number of mining claims being relinquished, and reduce the number being issued. The findings highlight the importance of political economy events in the evolution of small-scale mining activity, and show some evidence that the introduction of a REDD+ framework in Guyana has impacted the main driver of deforestation, despite the absence of specific policy targeting the sector.

1. Introduction

Property rights are a crucial aspect of natural resource management. They define the incentives to use, manage and preserve natural resources. How property rights are taken out, held and given up are important components of how such resources are exploited and as such a wide literature has emerged focusing on the impact of insecure property rights upon environmental outcomes such as deforestation (Angelsen, 1999; Araujo et al., 2009; Bohn and Deacon, 2000; Deacon, 1999; Mendelsohn, 1994). Yet to date there is little literature highlighting the factors behind how property rights to resources in more secure regimes are held and given up.

Adopting Daniel Bromley's definition of property rights[1] highlights the importance of the enforcement of the rights and duties commensurate with property in determining the incentive to hold property rights, and then in turn invest in various factors of production (North, 1981). These incentives are just as crucial in developing countries.[2] Understanding the factors laying behind the holding of property rights to natural resources can help to create understanding regarding the investment in, and growth of natural resource extractive industries.

The risk of expropriation of natural resource property rights has been a common phenomenon in a number of countries in recent decades and has sprouted a literature discussing both the causes and consequences (Hogan and Sturzenegger, 2010; Kobrin, 1984; Leon, 2009; Thomas and Worrall, 1994).[3] Expropriation may be the consequence of long-term economic policy, or following short-term events, such as elections or the introduction of new environmental policy. These events may change the pattern of behaviour of property rights holders as they create uncertainty over the potential benefit streams of rights, and indeed the validity of the rights themselves.

Although there is a body of literature relating to the role that property rights have played in the growth of industries such as agriculture in forested environments, other drivers of deforestation such as artisanal and small-scale mining (ASM) have not yet been studied in this context-indeed the study of the holding of property rights for mining generally, and small-scale mining in

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[1] Bromley (1991) defines property as *'Property is not an object but rather is a social relation that defines the property holder with respect to something of value (the benefit stream) against all others. Property is a triadic social relation involving benefit streams, rights holders, and duty bearers'* (pp. 2).

[2] As illustrated by Hernando de Soto's seminal work on the economic importance of property rights in Peru (De Soto, 1989) and Tim Besley's work in Ghana (Besley 1995).

[3] Hogan and Sturzenegger (2010) provide an elegant categorisation of these different types of expropriation. They define expropriation as either direct, such as the Bolivian takeover of Standard Oil assets in 1937 (Geiger, 1989), or indirect (or creeping), relating to governments assuming a larger share of projects, increasing royalties or tax rates, or changing environmental regulations.

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particular, is under-researched. Yet small-scale mining has emerged in recent years as an important economic activity, an important provider of livelihoods and also a major source of environmental damage including water pollution and deforestation (Gardner, 2012; Megevand et al., 2013). The little modelling that exists on the decision-making processes of mining operators has focused on large-scale operators (Slade, 2001; Tole and Koop, 2011). The illegal and/or semi-formal nature of small-scale mining operations in many countries has hindered research, partly due to a lack of quantitative data on the scale, scope and evolution of the phenomenon. There is however a literature examining the drivers of small-scale mining, focusing primarily on the reasons behind its illegality (Aryee et al., 2003; Hilson and Potter, 2003; Jønsson and Fold, 2011).In recent years a growing recognition of the importance of small-scale mining as both a livelihood activity, and a cause of environmental damage, coupled with improved access to data has led to an increase in research in the area. The importance of small-scale mining as a driver of deforestation is highlighted in the seminal paper by (Asner et al., 2013). Other literature has examined the growth and development of small-scale mining across the Amazon (Cremers et al., 2013).

A literature has also emerged examining a number of questions regarding the interaction between resource extraction and political institutions. Papers have examined questions such as whether democracy still yields the expected economic benefits in resource-rich countries (Collier and Hoeffler, 2005, 2009); the importance of political institutions in determining the social and economic outcomes of resource booms (Andersen and Aslaksen, 2008; Robinson et al., 2006); the impact of large natural resource sectors upon the evolution of democratic institutions (Jensen and Wantchekon, 2004); and the interactions between resource extraction and types of political system on the tendency of regions to fall into civil war (Neudorfer and Theuerkauf, 2014). This literature has generally approached the issue from the perspective of the impact of the level of resource-extraction on political institutions, or the overall societal outcomes occurring from a combination of resource extraction and political institutions. A notable exception is work from Ghana examining the influence of small-scale mining upon local politics (Teschner, 2012). Where a major gap exists is the reverse of these questions: how political institutions and events impact on the resource-extraction sector. It is this gap that this paper contributes through examining how political events have shaped the evolution of mining property rights in Guyana.

Guyana provides an interesting case study to examine the evolution of mining property rights. Its current deforestation pattern is not dominated by agriculture, but instead small-scale gold mining (Guyana Forestry Commission and Indufor, 2013). Its economy is heavily dependent on this mining activity, but at the same time it has rapidly moved to be one of the world leading implementers of Reducing Emissions from Deforestation and forest Degradation (REDD+). A national-level REDD+ framework is being constructed, built upon a Memorandum of Understanding (MOU) with Norway that provides up to US$250 million in finance linked to Guyana's performance in keeping deforestation rates low. A related Low Carbon Development Strategy (LCDS) serves as the channel for the use of this finance. Guyana is a democratic country, but its recent elections have been fraught with both controversy and violence, leading to unstable policy environments in the run-up to, and the aftermath of election events. It provides an example of a country where the risk of expropriation, and policy and investment uncertainty, has been common in its recent history, and therefore allows a study of how this risk has affected the holding of forest-related property rights.

In Guyana the majority of the literature produced relating to the small-scale mining industry has focused on broad strategic questions regarding the overall performance of the sector and its relation to national policy such as the LCDS (Lowe, 2006; Thomas, 2009; Singh et al., 2013). The broad characteristics of Guyana's mining industry are highlighted by Clifford (2011), highlighting the similarities and differences with comparable industries across the world. Regionally there have been just two quantitative assessments of mining activity, a small-scale time series analysis of the mining behaviour of the Ndyuka people of Suriname (Heemskerk, 2001) and a quantitative analysis of mining in the Guiana Shield as a whole (Hammond et al., 2007).

This paper extends the literature relating to expropriation and property rights, the impact of REDD+ policy on property rights to the forest, the driving forces behind small-scale mining and the interactions between political institutions and resource extraction. It uses a unique data set of 17 years of mining claim data for Guyana to examine the evolution of mining property rights across the country, focusing on questions relating to how elections and the introduction of REDD+ has affected how mining claims have been taken out, held and given up.

An econometric model is estimated to describe the factors affecting the number of mining property rights taken out or given up in each year. It focuses on how election cycles, and the introduction of REDD+ has affected the incentives to hold these rights. The model finds that elections seem to have a significant, and negative, effect on the number of claims being taken out, not in the year of the elections themselves, but in subsequent years. A weaker effect is also seen on the number of claims given up, with elections increasing the level again in subsequent years. This highlights the importance of political cycles upon property rights to the forest in Guyana. There is also some weaker evidence of an effect of the introduction of REDD+ on the holding of rights. The introduction of REDD+ seems to have had a negative effect on the number of claims being taken out through the channel of prices. It also seems to have had a level effect on the number of claims being given up. This provides some initial evidence of an effect of the introduction of a REDD+ policy framework upon forest management, through the holding of mining property rights, in Guyana.

Section 2 provides more depth on the situation in Guyana. Section 3 outlines a simple conceptual model for the taking out, holding and giving up of mining claims. Section 4 describes the data and Section 5 the econometric methodology. Section 6 provides the results of the econometric analysis and Section 7 discusses implications and concludes.

2. Guyana

Mining has grown rapidly in Guyana in recent years, increasing from 11% to 21% of GDP between 2006 and 2012 (Guyana Bureau of Statistics, 2013). Production has focused on gold and diamonds currently solely from small and medium-scale operators, conducted through river or land dredging.[4] It represents the largest driver of deforestation in the country, accounting for 93% of cleared forest in 2012 (Guyana Forestry Commission and Indufor, 2013).

2.1. Mining

Mining in Guyana is governed by the Mining Act 1989 which sets out the regulatory framework for the prospecting and conveyance of minerals. All minerals are the property of the State, and the Guyana Geology and Mines Commission (GGMC) is the body with the authority to grant licences or permits to search, mine,

[4] For more detail on mining techniques in Guyana see Dalgety (2010).