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Forest logging and institutional thresholds in developing south-east Asian economies: A conceptual model

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Abstract

Many developing south-east Asian governments are not capturing full rent from domestic forest logging operations. Such rent losses are commonly related to institutional failures, where informal institutions tend to dominate the control of forestry activity in spite of weakly enforced regulations. Our model is an attempt to add a new dimension to thinking about deforestation. We present a simple conceptual model, based on individual decisions rather than social or forest planning, which includes the human dynamics of participation in informal activity and the relatively slower ecological dynamics of changes in forest resources. We demonstrate how incumbent informal logging operations can be persistent, and that any spending aimed at replacing the informal institutions can only be successful if it pushes institutional settings past some threshold.

Keywords: Formal and informal sectors; Institutional arrangements; Deforestation; Illegal logging; South-east Asia

1. Introduction

In developing south-east Asian social-environmental systems, welfare is generally highly dependent on forest resources. In money-poor, resource-rich countries like Myanmar, Cambodia and Laos, largely rural based populations depend on tangible non-timber forest products, as well as less tangible flow-ons like water quality. One common dilemma faced in these countries is that while their rural populations are dependent on intact forest ecosystems, national development aspirations often depend on logging, and hence on reducing forest resources. What constitutes sustainable forestry in these countries is not the topic of this paper. Rather the topic is that of institutional change, and in particular the balance of power between formal and informal institutions.

Formal government institutions in many developing south-east Asian countries are not strong. Semi-autonomous logging operations controlled by police forces and the military tend to control many areas of their

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economies. Of particular concern for governments in these countries is that logging operations and their related cash flows are often controlled by such informal institutions. This current informal institutional setting violates general principles for robustness because, among other things, it lacks clearly defined rules on resource usage, mechanisms for resolving conflict and adequate monitoring (Ostrom, 1990). Accordingly, the deforestation literature commonly recommends government policies aimed at strengthening institutions, mainly legal (IUCN, 2001). However, a circular argument emerges: weak institutions do not control the cash flows often required to dislodge incumbent informal institutions, and therefore formal institutions find it difficult to establish their influence. Thus, institutional settings tend to be persistent, for better or worse (Dietzl et al., 2003).

Some economists would argue that the informal institutions lower transaction costs and therefore are an important and positive force in their respective systems (Williamson, 1985; Williamson, 1998; Mankiw, 2000). Certainly some institutional setting is a prerequisite to large-scale logging operations, and with weak formal governance, the informal institutions at least facilitate and regulate trade (Coolidge and Rose-Ackerman, 1997). After all, the informal logging institutions generate rent from forest resources just as the formal sector would. Establishing formal sector dominance of logging activity would certainly benefit not only the formal sector itself, but also the entire economy (Tanzi, 1997; McAllister and Bulmer, 2002). Relative to those formal, informal logging systems tend to (1) fail to distribute profits fairly, (2) fail to include the negative environmental externalities of logging into log prices, (3) fail to consider long-term sustainability of the industry, and (4) fail to consider broader social issues in the economy in general. In summary, informal logging institutions consider forests as open-access resources and exploit them accordingly (Clarke et al., 1993). Instituting formal governance therefore remains an important policy arena for resource-rich, money-poor Asian countries.

This paper examines the balance of power between formal and informal logging institutions in south-east Asian countries. We do not assert that our model represents a particular country, nor the complete part of the problem. Rather we use a model to make a point about forest institutions. Using phase diagrams derived from a simple formalization of individual decision-making processes, we first show how informal institutions come to dominate governance. Second, we show that given dominance, informal institutions are resistant to change. We structure our paper by first presenting some background and related literature. Methods then results follow, and we conclude with a discussion of policy implications, and a summary.

2. Informal logging institutions in south-east Asia

An institutional framework defines behavioral regularities (Ostrom et al., 1994) through human-devised constraints, or rules, that structure human interactions (North, 1993b). These rules can be formal, like statute law, common law and regulations, informal, like conventions, norms of behavior or codes of conduct, or they can incorporate both characteristics (North, 1993a). In south-east Asia a large degree of logging activity is facilitated through informal conventions. Such activity is prohibited by the formal institutions. Technically, this makes such activity illegal, but in this paper we refer to this activity as informal logging. Other literature does define this type of logging as “illegal logging” (for example, Clarke et al., 1993; Dudley et al., 1995; McAllister and Bulmer, 2002; Blundell and Gullison, 2003). People are governed by a dominating institution, whether this institution is a formal government or otherwise (Klooster, 2000). Therefore, here we choose the term informal because from the perspective of the residents in many less-developed south-east Asian countries, actions chosen are based on the institutional setting in which they exist, irrespective of formalities. Cultures in more developed countries tend to do the same, except that in these cultures a greater proportion of institutions are formal (Schneider and Enste, 2000). We do not discount the rent-losses to small-land holder and communities, (stemming from issues ranging from poorly defined properties rights or lack of knowledge, Shanley and Rodrigues Gaia, 2002; Engel and Palmer, 2006 to violence) associated with such logging many developing countries, but in proposing new ideas about logging institutions we choose less confrontational language.

Even if informal activity contradicts formal rules the normative position is not clear as to whether the formal rule can be seen as a ‘bad’ rule (Feige, 1997; Leitzel, 1997). More important than the issue of legality, is the