Available online at www.sciencedirect.com
ScienceDirect
Journal of Policy Modeling 32 (2010) 488–504
Journal of Policy Modeling
www.elsevier.com/locate/jpm

Illicit exploitation of natural resources: The forest concessions in Brazil

Onil Banerjee [a,*], Janaki Alavalapati [b]

[a] University of Florida, 9975 Millburn Court, Burnaby, BC V3N-4M8, Canada
[b] Department of Forestry, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061, USA

Received 1 October 2009; received in revised form 1 April 2010; accepted 1 April 2010
Available online 11 June 2010

Abstract

The Brazilian forest sector has undergone crisis with complexities involved in investment in an insecure political environment, a regime of ambiguous property rights, forest sector illegality and enormous pressure for agricultural expansion. To address these challenges, Brazil's Public Forest Management Law was approved in 2006 enabling private forest management on public forestland. Assessing the policy in a dynamic computable general equilibrium framework, we find that household welfare improves and legal forestry grows faster. In the absence of improved monitoring and enforcement, however, forest concessions are shown to have a depressing effect on the price of forestland and accelerate illegal forestry operations.
© 2010 Society for Policy Modeling. Published by Elsevier Inc. All rights reserved.

Keywords: Brazilian forest sector; Forest concessions; Forestland; Illegal forestry operations; Legal forestry; Computable general equilibrium

1. Introduction

Brazil's Legal Amazon occupies approximately 5 million km^2 or 59% of Brazil's total land area; 2.6 million km^2 of the Legal Amazon are forested.[1] This region is home to 22.5 million people (12% of Brazil's total population), 5.3 million of whom live in forested areas (Celentano & Veríssimo, 2007, p. 9). Brazil is the largest producer and consumer of tropical timber products and as such, the forest industry is an important component of the economy and in particular, to

* Corresponding author.
E-mail address: onil@rmgeo.com (O. Banerjee).

[1] The Legal Amazon is composed of the states of Acre, Amazonas, Amapá, Pará, Rondônia, Roraima, Tocantins, Mato Grosso, and part of Maranhão (west of the longitude of 44° west) and Goiás (above the latitude of 13° south).

0161-8938/$ – see front matter © 2010 Society for Policy Modeling. Published by Elsevier Inc. All rights reserved.
doi:10.1016/j.jpolmod.2010.06.001

the economy of the Legal Amazon. The forestry sector is responsible for 3.5% of Brazil's gross domestic product (GDP), generating 2 million formal jobs and accounting for 8.4% of Brazilian exports (Serviço Florestal Brasileiro [SFB], 2007, p. 10). The natural forest management sector in the Legal Amazon accounts for 15% of GDP (Veríssimo, 2006, p. 23) and approximately 500,000 families in the Amazon depend at least in part on forestry for their livelihoods (Lima et al., 2006, p. 33). With 1.15 million km^2 of forests apt for the sustained production of forest goods and services, natural forest management presents a tremendous opportunity for promoting forest-based development and for maintaining environmental quality and economic value in the region (Veríssimo, Junior, & Amaral, 2000, p. 6).

The Brazilian natural forest management sector has undergone crisis in recent years. Complexities involved in investing in long-term management in often unstable political environments and an insecure land tenure regime has driven the industry to operate in a predatory, boom and bust manner. These features coupled with enormous pressure for agricultural expansion have led to the undervaluation of forestland and a situation in which illegal logging and illegal deforestation thrive, accounting for 56% of forest sector output in 2003. Depressed timber prices resulting from this illegality further exacerbate forestland undervaluation.

In efforts to stabilize the industry, gain control of public forest resources, encourage investment and promote forest sector growth, the government of President Luiz Inácio Lula da Silva approved Brazil's first Public Forest Management Law (PFML) in March of 2006. A key feature of this legislation is a framework for creating forest concessions on public lands enabling the state to sell the rights to harvest forest goods and services for a predetermined period of time. Prior to this law, the only significant legal source of timber was from natural and plantation forests on private land.

Forest concessions can counteract some of the negative incentives for forest management. By providing industry and communities with secure tenure, investment in management may increase, while greater transparency in the regulatory environment reduces the risks and costs of doing business. Furthermore, forest concessions as in the case of protected areas, can act as a barrier to deforestation and encroachment (Nepstad et al., 2006, p. 72). Finally, given the state's intention of establishing up to 13 million ha of concessions by the end of the decade, concessions can make a tremendous contribution to fostering sustainable socioeconomic development and growth in the region.

In this paper we employ a dynamic computable general equilibrium (CGE) framework to examine the medium-term socioeconomic and land use impacts of establishing forest concessions in Brazil's Legal Amazon. In light of the economic importance of forest sector illegality and in contrast to previous forest sector applications of CGE models, our analysis explicitly considers both legal and illegal forestry and deforestation sectors. We pay particular attention to the regional dynamics of these sectors, the agricultural sector and the role of deforestation as a supplier of cleared land.

Following this introduction, a brief review of the treatment of illegality in CGE models is provided. Next, the dataset is described and the modeling framework is presented. The experimental design of the modeling exercise is developed and followed by simulation results. The paper closes with a discussion of the key findings and their policy implications.

2. Treatment of illegal behavior in computable general equilibrium models

Illegal activities in CGE models have received little attention in the literature. The closest parallel to modeling illegal behavior has involved distinguishing between formal and informal

دریافت فوری ← متن کامل مقاله

ISIArticles
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