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Rules and Exceptions: Regulatory Challenges to Private Tree Felling in Northern India

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Summary. — Sale of trees from privately owned forest patches is an important source of income for smallholders in developing countries. These private stands are scattered across mixed-use landscapes that include valuable public forests, presenting monitoring and enforcement challenges for state agencies and unique opportunities for traders and farmers to circumvent regulations. We use spatial econometric models and matching methods to show how traders in northern India exploit gaps in regulatory policy, with potential for illegal and pre-mature harvesting of trees. Our findings suggest collusion among traders, large landowners, and local forest officials, especially at higher distances from the location of regulatory offices.

Key words — private forests, regulation, smallholders, Himachal Pradesh, India

1. INTRODUCTION

In recent decades, there has been a tremendous interest among researchers, government agencies, and non-government organizations in improved governance of forests. This rising interest in the protection and management of forest resources can be explained by the increasing recognition of the multiple roles that forests play in global environmental debates, such as climate change mitigation strategies, income generation for poverty alleviation, and conservation of threatened biodiversity (Harvey, Dickson, & Kormos, 2010). The thrust of the scholarship on forest governance has mainly split along three major themes – decentralized and community-based initiatives for management of small-scale forest commons (Larson, Barry, & Dahal, 2010), non-state governance of global timber harvests through certification (Cashore & Stone, 2012), and regulation of logging concessions to private actors on public forests (Agrawal, Chhatre, & Hardin, 2008). In this three-way split, private forests have largely been studied under the rubric of certification schemes, with limited attention to the pattern and practices of state regulation of timber harvests on private lands in developing countries. Private tree harvests are an important source of income for millions of small-sized land owners in these countries (Nair & Garrity, 2012). The efficacy of regulation of the tree felling on private lands determines the extent to which small-holders would benefit from tree resources.

Regulation of private tree felling by state agencies represents a very different type of forest governance problem. It is unique in the sense that the state has no direct commercial interest in the felling of trees from the private lands. The regulation of these harvests has three over-arching objectives. One, they are intended to restrict felling within the prescribed ecological limits. Excessive felling from private forests can lead to negative externalities in the form of environmental problems like soil erosion, loss of forest cover and degradation of forest goods and services. Two, failure of state regulation can have spillover effects on the public forests which are often located in close proximity to these private forests. Poor regulation may invite different interpretation of rights by forest users that might influence their forest harvesting behavior (Jagger, 2014). Three, state regulation of tree harvests from private lands is directed to prevent the exploitation of small-holders who have to deal with asymmetry of information as well as diseconomies of scale compared to market actors. Moreover, poor regulation of timber markets may act as disincentives for farmers to maintain their tree-based mixed production systems and even obstruct the growing of commercial trees on private farm lands (Guillerme *et al.*, 2011).

Agroforestry has seen many shades of state regulation in developing countries. The degree of regulation varies from very mild regulatory control to intensive sets of rules to regulate felling from private lands. For example, in India, the degree of regulatory control is considerably less for trees like Eucalyptus (*Eucalyptus* sp.), Poplar (*Populus* sp.), Mulberry (*Morus alba*), and Bamboo species, as compared to more valuable trees like Khair (*Acacia catechu*), Deodar (*Cedrus deodara*), Chir pine (*Pinus roxburghii*), and Shisham (*Dalbergia sissoo*). Farmers have to meet a range of legal requirements before they can sell commercial trees from their lands. State forestry agencies are mandated to ensure strict monitoring of the harvesting of trees of these commercial species from private lands with the objective of preventing pilferage of similar trees that exist in national forests in large numbers.

This paper illustrates the challenges of state regulation of tree harvests on private lands through a case study of the felling of Khair trees (*A. catechu*) from private forests of Bilaspur district [1] (Figure 1) in northern India. We use a dataset of 11,005 farmers and 215 traders spread across 573 villages, recording transactions over a 10-year period. The analysis shows that while the regulations are well-designed on paper, they are rendered impotent through the use of loopholes. The implementation of regulations is biased in favor of traders and suggests collusion between traders, large landowners, and local forest staff for subverting the regulatory system.

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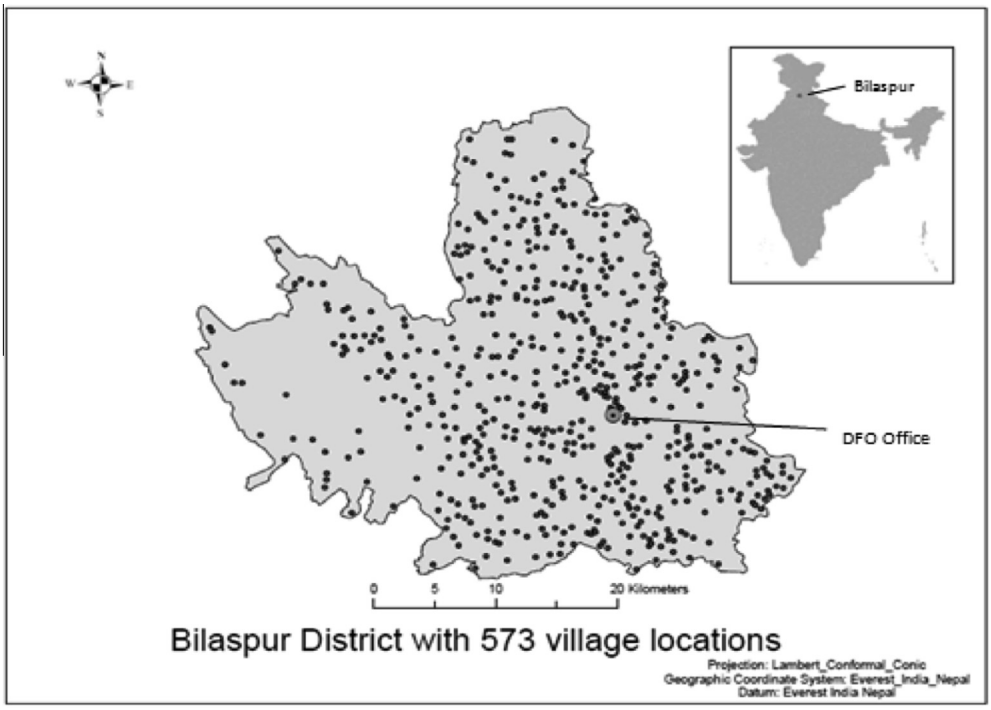

Figure 1. *Location of villages in Bilaspur District, Himachal Pradesh, India.*

2. REGULATION OF KHAIR TRADE IN HIMACHAL PRADESH

Khair (*A. catechu*), a deciduous tree, is an important source of income for farmers in Himachal Pradesh, a state of India nestled in the Western Himalayas (Champion & Seth, 1968; Chauhan, 1999; Chowdhery & Wadhwa, 1984). The tree takes approximately 20 years to maturity and the trunk of the tree is harvested to obtain catechu from its heartwood. Catechu is an astringent and is used in medicines, dyes, tannins and several other industrial products. It is also used as an ingredient of paan (betel) and paan masala chewing confectionery in India (Singh & Lal, 2006). There is a well-established market of catechu products, with mature Khair trees generating high incomes for farmers.

Khair is a very important source of income for small-scale farmers with few trees in their private lands. On an average, a farmer sells about 32 trees with a total volume of 4.89 cubic meters in a period of 10 years (this study). This is equivalent to an average total sale value of INR 35,000–40,000 [2] per farmer during this period. The farmers usually use this money for children's education, marriage, cultural festivals, health expenses, and household repairs. The importance of the income from the sale of trees can be judged that about one-fourth of the total households in Bilaspur are below official poverty line and only about 12.9% of the total population have access to liquefied Petroleum Gas (International Institute for Population Sciences, 2010). [3]

Khair grows on both public and private lands that occur interspersed with one another on the landscape. Moreover, the boundaries of the public forests and private lands are often unclear and contested on the ground. [4] According to the legal categories of the state, many land owners are alleged to have encroached upon the public lands. In such a scenario, it is quite challenging to manage and protect small patches of public forests. Moreover, the terrain where these public and private forests co-exist is highly mountainous which further adds to the problem of regulation. The proximity of the public and private forests combined with unfriendly terrain raises the costs of monitoring and supervision of these public forests as well as regulation of tree felling on private lands interspersed with the public forests.

The forest department [5] regulates the harvesting of Khair trees on private lands through a 10-year felling cycle, using the provisions of Land Preservation Act 1978. The law specifically aims at regulating tree felling in areas that are subject to soil erosion or likely to become subject to soil erosion. Under the prevailing regime, harvesting is rotated across administrative units within the district so that the trees are harvested in any given unit only once in every 10 years. Trees only above a certain diameter are allowed to be harvested and sold. The main purpose of the rotation is to rest the harvested area for regeneration. Another objective is to allow felling only in clearly designated areas every year so that monitoring of such areas can be done in an effective manner and illegal logging in public and private forests is minimized.

Under this regulation, farmers can only sell to traders who are registered with the forest department. These traders have to follow prescribed rules in order to buy trees from the farmers. They also need permits from the district forest office to harvest and export the trees. The felling season begins in April every year with the demarcation and marking of trees designated for harvest on the lands of farmers. The farmers are then free to sell these trees to traders on mutually agreed prices. The traders petition the district forest office for felling permits for these trees. After scrutiny of the documents, the district forest office grants permits to the traders within one to two weeks. The felling season closes on March 31 of every year. The graphical depiction of the ideal Khair harvesting showing the whole mechanism involving sale and purchase of Khair and its regulation by forest department is shown in Table 1.

The above system of regulation offers huge incentives for illegal felling not only from private lands but also from the neighboring public forests. Due to the economic value of