

Smallholders and Communities in Timber Markets: Conditions Shaping Diverse Forms of Engagement in Tropical Latin America

Pablo Pacheco

Center for International Forestry Research (CIFOR), Bogor, Indonesia

E-mail: p.pacheco@cgiar.org

Abstract

Forest tenure reforms have granted smallholders and communities formal rights to land and forest resources. This article explores the various ways in which these local actors engage with timber markets in the context of such reforms. I argue that the economic benefits that communities can capture from the use of forest resources, mainly timber, are mediated by two sets of factors that are beyond the process of tenure reform. The first set of factors relate to communities' capacity to interact with other actors—intermediaries and companies—in timber markets, and the second to specific conditions of market development. Interactions between community capacity and market conditions shape the ways in which smallholders and communities engage with timber markets, thereby influencing the benefits they can obtain from commercial use of their timber forests. This article focuses on forest communities that have acquired legal tenure rights in Latin America; specifically four communities located in tropical landscapes in Bolivia, Brazil, and Nicaragua. The types of engagement revealed by the analysis should be taken into account in differentiated public policies in order to improve the outcomes of forest tenure reforms.

Keywords: smallholders, community forestry, timber markets, forest tenure, forest policy, forest management, Latin America

INTRODUCTION

Community management of forest resources is widely viewed as a means of achieving poverty reduction and conservation of forest resources (Adams et al. 2004; Bray et al. 2005). Some argue that granting smallholders and communities secure rights to their forestlands would lead to better outcomes (Larson et al. 2010). Such reforms, in theory, would enable these local forest users to increase the benefits they derive from forest resources use. However, the situation is not so simple, and others have expressed concerns about whether such reforms

can be implemented (Blaikie 2006; Pacheco 2007). This article explores the ways in which smallholders and communities interact with timber markets in the context of forest tenure reforms. These interactions largely explain the type of benefits that forest users accrue from their forests. Although forests have many subsistence uses for communities, this article focuses on timber because it constitutes the main source of monetary income that communities derive from forests.

I argue that the benefits that smallholders and communities obtain from their timber forests, in the context of forest tenure reforms, depend on their capacity to engage with timber markets and the market conditions under which they carry out their forestry operations. It is necessary to examine these two factors to understand why community forest management fails or succeeds in providing secure livelihoods to local users while promoting forest conservation. In practice, one of two situations is likely to arise. On the one hand, access to timber markets could provide opportunities for smallholders and communities to boost their income or, on the other hand, markets may transfer economic rents from forest resources use

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to other actors that are better positioned in the value chain (e.g., traders, intermediaries, and timber processors). Determining the conditions under which these two situations may occur has important policy implications.

This article analyses the cases of four forest communities in three countries in Latin America—the indigenous territory in the North Atlantic Autonomous Region (RAAN) in Nicaragua; community lands in Guarayos Province in Santa Cruz, Bolivia; the colonisation zone in the northern Bolivian Amazon; and the extractive reserve (RESEX) in Porto de Moz municipality in the state of Pará, Brazil. I selected these sites as case studies to ensure a diverse sample of situations in the region with respect to the most significant processes of tenure reform, including recognition of the collective tenure rights of indigenous people, allocation of forestlands to smallholder colonists through individual and collective tenure rights, and recognition of the rights of traditional settlers in extractive reserves. These tenure models have been documented elsewhere (Larson et al. 2008; Pacheco et al. 2008). These four case studies are representative of a larger number of situations across tropical Latin America.

The aim of these four case studies is to capture diverse and contrasting situations in terms of community capacity and market conditions in defining market engagement, in order to identify representative situations as a way to inform policy debates on options for enhancing benefits for communities while maintaining the forests. The comparative analysis undertaken here is based on literature review, and fieldwork conducted in 2007 and 2008. The techniques used for data collection included focus groups, semi-structured interviews with key informants, and in-depth interviews with forestry operators.

This article is organised in five sections, including this introduction. I begin by reviewing the main body of literature related to community forestry and timber markets, and provide an analytical framework for understanding smallholders' and communities' interactions with timber markets. I then introduce the four case studies, and describe the different types of engagement that smallholders and communities establish in timber markets, whether stable or sporadic. Following that is a discussion of the four cases based on the initial analytical framework and an assessment of the main implications. The last section summarises the article's main conclusions.

ANALYTICAL FRAMEWORK: COMMUNITIES AND TIMBER MARKETS

Some analysts broadly perceive market engagement as a means to reverse the situation of deprivation that forest communities often experience. To achieve this, however, communities have to enhance their capacity to interact with markets so they can compete efficiently with other actors and increase any benefits from market transactions. This perspective dominates the current discussion about interactions between communities and forest markets (Donovan et al. 2008a, b). Others suggest that market integration is not a panacea for improving forest users' livelihoods because many communities are unable to

retain the economic rents from their forests; instead, actors located downstream in the value chain capture most of the benefits (Pokorny and Johnson 2008).

Two sets of factors have to be considered when assessing how smallholders and communities interact with other actors in timber markets. The first factors are related to the capacity of smallholders and communities to compete in, and derive benefits from, these markets, and the second to the specific conditions of timber market development.

With regard to the first issue—capacity—a growing body of literature suggests that communities can benefit from markets only by improving their competitive position vis-à-vis other actors in the timber value chain. This is related to their ability to create and manage forestry enterprises, to establish long-term trust relationships with buyers, to process products that are supplied to the market, and thus to access financial capital (Donovan et al. 2008b). Other important factors are access to markets and information about market conditions, bargaining power, and sales expertise to negotiate in such markets (Macqueen 2008).

Marketing capacity depends on smallholders' and communities' level of organisation and management capacity. A common assumption is that these local actors can increase benefits only by adding value, which implies vertically integrating production and processing activities (Donovan et al. 2006). In many—though not all—cases, it is likely that vertical integration will lead to greater competitiveness in the marketplace, in the sense that more integrated enterprises become more competitive and thus obtain higher profits. Antinori and Bray (2005), when assessing community forestry in Oaxaca, Mexico, found relatively high gross profit margins across four groups differentiated by level of integration (i.e., stumpage, roundwood, sawnwood, and finished products). Interestingly, community enterprises engaged in sawnwood processing obtained higher profits than those dealing with finished products, although the authors suggest that the latter group would have greater financial returns in the long run.

The second issue under debate is closely related to market structures and the factors that shape them. This debate focuses on understanding which market conditions would favour communities. Molnar et al. (2007) note that large multinational companies dominate the global forest trade, and that local wood producers are increasingly forced to compete with low-cost and high-volume producers from around the world. The growing importance of domestic markets, however, tends to favour smallholders and communities running small-scale and often low-intensity forestry operations. These authors suggest that this trend may continue as domestic producers find competitive advantage in lower transportation costs and enough supply flexibility to satisfy market demands.

Furthermore, forest regulations shape market conditions. This may be either because their influence on the relationships between communities and markets affects the magnitude of transaction costs for smallholders and communities to reach the marketplace—often by increasing them, or because forest regulations impose direct barriers to market participation

(Kaimowitz 2003). This has led to calls to ‘level the playing field’, so smallholders and communities can compete under better conditions in the timber markets, or suppress the institutional barriers working against them. Conditions seen as favouring small-scale producers and communities are low regulatory costs of market entry and low-cost regulatory environments that entail few harvest, transport, and sales permits (Scherr et al. 2004). Smallholders and communities that cannot adhere to forestry norms often interact informally and illegally with the markets.

An additional perspective, therefore, looks at the relationships between smallholders and communities and markets that operate outside forestry regulations, which are termed informal and/or illegal, the former referring to practices carried out under the scope of the law but not regulated, and the latter to practices that contravene specific forestry norms (Pacheco et al. 2008). The drivers of illegal logging have been analysed elsewhere (Contreras 2005). Illegal logging has important implications for market functioning. Although illegal logging contributes to distorting timber markets as it tends to depress timber prices, many people, including the poor, derive an income from illegal logging, and consumers may also benefit from the lower prices (Taconni 2007). However, informal markets tend to have more asymmetrical relationships and often smallholders and communities selling their timber in such markets tend to obtain comparatively lower prices (Pacheco et al. 2008). The environmental implications of illegal logging are ambiguous, although it is likely that those with less access to markets and less capital are going to destroy much less forest than wealthier groups do, merely because they have less opportunity and capital to do so (Taconni 2007).

In light of the above review, I argue that assessing smallholder and community interactions with markets requires examining the two sets of factors—community capacity and market conditions—which are in turn shaped by several other factors. Factors that primarily shape community capacity to engage with markets are access to markets, bargaining power, knowledge of market dynamics, and organisational capacity; some of these can be strengthened through assistance from outside organisations. Factors affecting the conditions of market development include price distortions, incomplete information due to asymmetrical relationships, and state regulations on markets. The interactions between these two sets of factors determine to some extent what I call here ‘forms of market engagement’, and thus whether local forest users’ relationships with markets are stable or sporadic.

The conditions that define community capacity to interact with markets are highly diverse. In particular, location greatly influences community interactions with markets, in terms not only of geographical distance but also of market networks. The rather obvious fact that communities closer to cities tend to depend more on cash income, and thus are strongly articulated to markets, has important implications with respect to forest use because it increases pressure from buyers, leading in turn to increased local demand and more transparent markets.

Location may also stimulate additional pressures on forests, resulting in greater forest degradation.

The strength of community organisation, influenced to some extent by outside assistance in building community capacity, affects the level of bargaining power in negotiating deals with other actors. Some communities, mainly of indigenous peoples, likely as a result of external influence from donors, have been able to create community forestry enterprises to run commercial logging operations, albeit with varying degrees of success. Though in most cases, communities are unable to move further along the value chain and, therefore, tend to remain as roundwood providers, some have made important progress. Smallholders or forest users that do not belong to a business-oriented organisation tend to maintain precarious relationships with timber markets.

The conditions defining market development are closely related to the structural problems that timber markets often experience. For example, timber industry, which maintains strong links to local sawmill owners and intermediaries, often tends to influence the final prices that are paid to smallholders and communities for their timber. In many cases, timber markets are dominated by a few buyers, which influence the final price. In other cases, the presence of a large number of buyers enhances competition for timber. Access to information is often highly asymmetrical as intermediaries and processors have greater information than do smallholders and communities. The role of regulations in defining market functioning is another important factor shaping market conditions. Rules constraining forest resource management are common and indirectly affect market engagement by imposing transaction costs on communities. However, rules affecting directly forest markets—either through quotas or timber prices—are not common since most timber markets tend to be relatively deregulated.

FOUR CASE STUDIES FROM TROPICAL LATIN AMERICA

I selected four case studies to assess community capacity, market development, and forms of market engagement. In two of the cases, indigenous communities manage their forests with commercial aims: Layasiksa in the RAAN in Nicaragua, where indigenous communities have consolidated tenure rights over forest resources, and Cururú in Guarayos, in the department of Santa Cruz, Bolivia, where the community has consolidated its rights in a broader context of unresolved competing interests over forest resources. In both these cases, market relationships are mediated by a community forestry enterprise that manages activities along the value chain from logging to timber processing and commercialisation. The other two cases are representative of situations in which smallholders make individual decisions with regard to their forests—Iturralde, in the department of La Paz, Bolivia, where individual access to forestlands predominates, and the RESEX in Porto de Moz, in the state of Pará, Brazil. The main features of the four cases are summarised in Table 1.

Table 1
Main features of the four case study areas

Features	RAAN (Nicaragua)	Guarayos (Bolivia)	Iturralde (Bolivia)	Porto de Moz (Brazil)
Location and extent (in ha) of study site	Located in the northeastern part of the country, comprising 3.2 million ha, of which at least 2 million ha is being titled as indigenous territory	Located in northern Santa Cruz, comprising 3 million ha, of which 1.3 million ha corresponds to indigenous territory	Located in northern La Paz, comprising 3.9 million ha, of which 75,000 ha is occupied by smallholders	Located in the eastern Amazon, comprising 1.9 million ha, of which 1.2 million ha is within extractive reserves
Main vegetation cover	About 72% is covered with forest, mostly broadleaf forest, with a small proportion of pine forests	About 90% of the area is covered with deciduous forests, with some valuable timber species	About 75% is covered by dense forests; the rest is natural grasslands	About 15% is seasonal flooded forest (varzea); the rest is upland (terra firme) tropical forest
Total and rural population	314,000 people, 72% rural	37,000 people, about 40% indigenous	14,000 people, 32% smallholder households	23,000 people, 56% rural
Predominant ethnic groups in the population	Predominantly Ladino; the region is also home to the vast majority of the country's indigenous populations, principally the Miskito	Ethnically mixed, with Guarayos indigenous people forming the largest ethnic group	Mixed, with indigenous people who migrated from the highlands forming a large group	Ethnically mixed population known as Caboclo, because their livelihoods are tied to rivers and the Amazon estuary
Model for titling land in favour of communities	Indigenous territories in different stages of the processes of demarcation and titling	Indigenous territory termed Community Land of Origin (TCO)	Both individual and collective titling of tenure rights have been adopted	An extractive reserve that is part of the National System of Conservation Units (SNUC)
Predominant forest use by communities	Mainly for subsistence, with some commercial logging	Mainly for subsistence, although logging is rapidly expanding	Logging for timber sales, with some domestic consumption	Extensive use of non-timber forest products (NTFP), but logging has expanded over time
Main livelihood characteristics of local people	Primarily subsistence agriculture, fishing, hunting, and some commercial forestry	Subsistence agriculture, off-farm employment, and, to a lesser extent, commercial forestry	A combination of cash crops and subsistence agriculture, and, to a lesser extent, logging	Highly diversified livelihoods, but population mainly rely on small-scale agriculture and some fishing

Source: Created by the author based on Albornoz et al. (2008), Ibarguen (2008), Mendoza et al. (2008), Nunes et al. (2008).

Layasiksa community in the North Atlantic Autonomous Region, Nicaragua

Indigenous and ethnic communities in Nicaragua's Caribbean Coast autonomous regions are gradually obtaining formal titles to their forests and other traditional lands. A 2002 law ensured formal recognition of indigenous communities' rights, but real interest in titling indigenous territories emerged only 5 years later, with the return to power of the Sandinista political party. However, titling has been slow. Layasiksa is one of the communities that sought and gained formal recognition in 1996 for part of the territory it claimed (35,000 ha), but several years passed before the community managed to enforce its exclusive rights over that area (Larson 2008). Layasiksa has created its own community enterprise, Kiwatingni, to run its forest management operations.

The community developed two forest management plans for broadleaf forests and certified its forestry operations with help from donors. Technical staff from WWF (World Wildlife Fund), which supported Kiwatingni, have established their own company, Masangni, which plays an important role in contracting, oversight, and community training. Kiwatingni contracts with Masangni to obtain the services of a forester to develop and oversee the annual operating plan. Kiwatingni has relatively diversified forestry operations, which range from log harvesting to sawnwood production. One management plan

(covering 4,950 ha) is for a 10-year concession to the company Prada S.A., which owns a sawmill in the neighbouring municipality, and the other (covering 4,664 ha) is managed by Kiwatingni (Argüello 2008).

The Prada concession is for the sale of standing timber, which is sold at USD 6/cu. m; as the community signed the contract in 2002 without any provision for renegotiating the price during the 10-year term, it was forced to sell at this price, despite rising timber prices, until Prada agreed to pay USD 7/cu. m for wood harvested in 2008 (Larson et al. 2008). The community does not participate in any of the harvesting decisions, which have all been ceded to the company. Thus, community efforts are concentrated in the second area, where Kiwatingni makes all decisions regarding choice of species, harvesting techniques, percentages to sell as logs or as sawnwood, and so on. Kiwatingni does not own heavy equipment or sawmills, instead hires and closely supervises service providers for hauling, transportation, and milling (Larson and Mendoza 2008).

All the roundwood is sold to Prada S.A.; although Prada pays a slightly lower price for logs than other buyers, it pays cash on delivery, is less strict about quality, and purchases additional, less valuable species, since its main product is plywood. It also provides all the fuel required for Kiwatingni's operations (Argüello 2008). The community's operations are thus highly dependent on Prada S.A. Layasiksa also hires milling services

to produce its sawnwood, and has always worked with the same sawmill owner despite the presence of several local portable sawmills. Most buyers are in Managua, the capital city of Nicaragua. The community hires local truckers to transport wood to Managua as needed (Argüello 2008), and deals directly with clients rather than through traders. Masangni plays a central role in marketing, by helping negotiate prices, promoting the use of lesser known species, and lobbying for the use of certified wood.

In 2007, Kiwatingni made a profit of about USD 17,500, or 9 per cent, which is low compared with similar enterprises. This amount includes the costs of training and technical assistance as production costs, which Masangni actually covered; by the community's own accounts, which exclude these costs, they earned about USD 30,000 in profit (Larson and Mendoza 2008). At the same time, the community earned almost USD 22,000 in wages, which, overall, means that about USD 0.43 on every dollar generated along the chain from planning to sale went back to the community (Argüello 2008).

Community forestry enterprises in Guarayos, Bolivia

Guarayos—Bolivian province in the Department of Santa Cruz—is home to the Guarayo indigenous people and constitutes a rapidly changing forest frontier. In 1996, this indigenous group presented a territorial demand to the government for 2.2 million ha; areas totalling 1 million ha have already been titled (Albornoz et al. 2008). The remaining areas are experiencing intense pressure from medium- and large-scale landholders, who are also demanding clear tenure rights for their agricultural and livestock operations. In 1996, a law initiated a process of land regularisation to clarify tenure rights for indigenous land claims, as well as for individual landholders located inside the claimed land. In addition, around 562,000 ha of production forest was granted as concessions to 11 timber industries after the approval of the Forest Law in 1996 (Vallejos 1998). The proximity of Guarayos to a paved road connecting the cities of Santa Cruz and Trinidad—urban centres in the Bolivian lowlands—has increased interest in the area's forest resources.

The indigenous communities sought to develop timber management plans as a strategy to consolidate their hold on forest areas that were unoccupied and thus viewed as available to outsiders. From 2000 to 2004, six indigenous groups gained approval for management plans in forests around their communities and created community forestry enterprises, often with the help of forestry projects and non-governmental organisations (NGOs). A total of 211,178 ha of forest was placed under management plans, with individual plans ranging from 2,433 ha to 60,000 ha (Albornoz et al. 2008). Although most of these communities have experienced difficulties in implementing their forest management plans, the community of Cururú is one of the few that has been able to develop its forestry operations, and most of the other communities have engaged informally with timber markets.

The community of Cururú formed the Cururú Indigenous Timber Association in 2001, as part of a community support

strategy developed by a USAID-funded forestry project called Bolivia Sustainable Forest Management Project (more commonly known as BOLFOR), and other NGOs. The community comprises about 40 families, who set aside an area of 26,420 ha for forest management (Albornoz et al. 2008). The forest management plan was approved in 2002, with a 30-year harvesting cycle. Since then, the timber association has run annual forestry operations; by 2009, these constituted the community's most important economic activity. Furthermore, in 2007, Cururú was able to certify its forestry operations under the Forest Stewardship Council (FSC), although this was possible only due to financial support from external donors and the timber companies that buy roundwood from the community and that have already certified their own custody chains (Roza and Moreno 2007).

In 2002, the association placed six species on the market and sold a total of 1,030 cu. m. In 2003, it sold roundwood to the companies SOBOLMA and Monteverde. Since 2006, it has increased its portfolio of buyers to include the main companies in the area—INPA Parket, La Chonta, and CIMAL (Albornoz et al. 2008). CIMAL agreed to a 5-year contract with the timber association, with prices and volumes to be negotiated annually. This growth has led to a significant increase in cash income from logging. In 2002, the community obtained a profit equal to USD 14,900; this more than doubled in 2007, reaching about USD 34,500 and generating a significant income stream for the families involved—USD 1,014 per family (BOLFOR II 2007).

The influx of timber income has had significant implications for the community economy. People's livelihoods have shifted from subsistence agriculture and off-farm wage work to forest-based economic activities, allowing young men to remain in the area rather than migrating seasonally to work outside the community. However, tensions have increased over the distribution of benefits from the management plan among community members. Income is sporadic, with cash payments often made only in the months following the annual harvests, sometimes after some delay. Furthermore, tensions have emerged between families of leaders (who invested more and thus earn more from the project) and their neighbours (Albornoz et al. 2008).

Colonists in Iturrealde in Northern La Paz, Bolivia

Iturrealde, a province in northern La Paz in Bolivia, has important forest cover. It is relatively distant from the main consumer centre in the city of La Paz, although recent improvements to road infrastructure have improved commercial flows from the region. Intense logging occurs in this province, with much of the timber harvested informally. The logging occurs in small-scale plots owned by colonists, who began migrating to the region a few years ago. Since the mid-2000s, the state land agency (INRA, Instituto Nacional de Reforma Agraria) has been implementing a process of land regularisation of individual plots, although to date it has privileged collective titling as the process is cheaper and less time-consuming.

In Iturrealde Province, about 900 colonist families (some

4,500 people) occupy a total area of 75,000 ha under individual and collective ownership. The expansion of settlements by smallholder colonists in the region has inevitably led to the expansion of logging activities, even though most received (or informally occupy) 50-ha plots intended for agricultural activities. Smallholder colonists rarely obtain the required forest management plans, which in theory would grant them legal rights to use the timber on their forestlands. However, even if they were willing to pay to develop such plans, most would be unable to do so because they do not hold formal ownership rights to the land they occupy (Pacheco et al. 2008). A few smallholders log the trees from their individual plots; those who have exhausted the valuable timber from their own lands often log in public lands, including protected areas such as the neighbouring Madidi National Park (created in the mid-1990s).

Timber companies and small-scale forest users' associations, both of which have access to forest concessions in the area, also supply timber from the region. The number of sawmills in the region is growing, some of which are operated by large-scale timber companies. Approximately a fifth of the logging permits in the region have been granted in colonisation settlements, with the rest granted in forests under concessions and in large-scale landholdings (Ibarguen 2008). The timber is supplied to several hundred small-scale sawmills and carpentry establishments, along with a few large-scale wood-processing plants mostly located in the main city of La Paz (Solares 2008). Ibarguen (2008) suggests that logging activities—both income from selling trees and wage labour—constitute an important source of income for smallholders that complements income from agriculture. However, income from logging varies widely among settlers.

Most of the harvested wood originates from areas without legal permits and is sold to local traders who send it to the city of La Paz. Illegal timber trade takes place along the whole value chain, from harvesting to transportation and final processing. Many timber companies with legal operations in forest concessions buy illegal timber, as do local traders who may be financed by medium-scale processing companies or timber export agencies based in the capital city. Smallholders constitute only a small portion of this intricate network. In some cases, local loggers finance the formulation of forest management plans in community lands but use them only to obtain logging permits which they then sell—a more profitable activity than the forestry operations themselves. According to Ibarguen (2008), seven traders in Iturralde Province have the capacity to advance money to finance the logging operations, the equipment for harvesting and hauling, and the necessary information about buyers, as well as about the best ways to avoid the forestry agency's control points. These traders often mobilise resources that promote illegal logging inside Madidi National Park and other public forests.

The available figures suggest that illegal logging on public lands is more profitable than legal logging in smallholder plots. A smallholder's profit depends on the species and volume, as well as on the ability to negotiate. Ibarguen (2008) finds that

the average income from forest management in a 35-ha plot is about USD 8/cu. m, with a total of USD 2,800 on a 350 cu. m harvest. Profits from illegal logging of mahogany, however, come to USD 165/cu. m. Because of the greater availability of mahogany—which has been exhausted elsewhere—smallholders can make more money by encroaching the national protected area.

Traditional communities in Porto de Moz, Brazil

The municipality of Porto de Moz, on the Lower Xingu River in the northern part of the state of Pará in Brazil, is occupied by traditional smallholders who settled in the area during various immigration waves linked to the expansion of extractive activities in the Amazon, mainly rubber (Nunes et al. 2008). Logging operations that began in the 1970s intensified in the 1980s and 1990s when Porto de Moz was occupied by large-scale timber companies interested in extracting high-value species; this led to several land conflicts with communities (Moreira and Hébert 2003). A broad-based movement allying resident communities and environmental NGOs was successful in drawing attention to the region, and in 2004 the federal government created the extractive reserve (RESEX) Verde para Sempre (Nunes et al. 2008).

The RESEX forced out timber companies working in the reserve and granted collective land tenure rights, with some restrictions, to the smallholders living there. The smallholders were able to keep their *de facto* family rights. The creation of the RESEX resulted in the restructuring of local timber markets, as local loggers assumed the role previously played by timber companies in promoting logging. As the loggers became more politically powerful, informal timber markets expanded, supplying timber to the sawmills established in the area, and to Belem, the capital city of the state of Pará (Nunes et al. 2008). Thus, existing informal networks continued to operate but with different sources of capital. Timber companies moved logging pressures to the eastern side of the reserve, both to community lands and to public forests, such as Caxiuanã National Forest (Nunes et al. 2008).

To run forestry operations in the RESEX, communities were required to formulate a plan for the sustainable development of the whole reserve, but such plans took several years to be approved, and the communities were not able to formulate plans for timber management. However, this inability did not prevent informal logging; rather, forest extraction in community lands on the eastern side of the RESEX tended to intensify due to growing pressures from loggers and intermediaries. Smallholders are approached by local sawyers interested in a few valuable trees; the sawyers are financed by traders, who also pay owners of logging trucks (*bufeteiros*). Porto de Moz has three local traders of roundwood, and another three interested in sawnwood. It is also possible to find buyers in surrounding municipalities. The three large-scale sawmills working in the area tend to use local buyers but also make use of their own networks to secure timber supply.

Information on the amount of timber sold in Porto de Moz is

unavailable, but Nunes et al. (2008) provide figures on the costs and benefits of informal logging operations. Smallholders often sell standing trees only, for USD 13 each, because they cannot afford logging costs (such as oil, labour, and equipment). A local chainsaw operator makes around USD 70 for harvesting and selling a tree to the local intermediary. The sale price increases to more than USD 200 per tree when it is converted and sold as planks. Smallholders have little scope for price negotiation; sawyers can negotiate prices with traders but depend on cash advances from these same traders for their own forestry operations, a factor that limits their bargaining power.

DISCUSSION: CONDITIONS SHAPING FORMS OF MARKET ENGAGEMENT

There is no simple answer as to which factors mediate the benefits that the local forest users obtain from their timber

forests. Table 2 lists the factors that define community engagement with markets in the four case studies. The first set of factors define a community's capacity to engage with timber markets, the second set of factors define the conditions of market development, and the interactions between the two shape the forms of market engagement. This analysis shows that significant diversity exists in the ways in which smallholders and communities interact with markets, as defined through these diverse variables.

The benefits—measured as monetary income—that smallholders and communities obtain from logging vary widely between areas. Estimated net profits are about USD 30,000 in Layasiksa and USD 34,500 in Cururú; the profits per family amount to USD 177 and USD 1,014, respectively (Albornoz et al. 2008; Argüello 2008). By contrast, a smallholder in northern La Paz can net about USD 2,800 by extracting valuable trees from a 35-ha lot (Ibarguen 2008), and in Porto de Moz, sawyers

Table 2
Factors shaping forms of market engagement in the four case study areas

	RAAN (Nicaragua)	Guarayos (Bolivia)	Iturralde (Bolivia)	Porto de Moz (Brazil)
Community capacity				
Access to markets	Via logging road off main highway (periodically maintained dirt road)	Varies according to proximity of community lands to main road	Varies; major settlements are close to main road	Timber markets are remote; some buyers are in urban centres
Bargaining power	Logs are sold to a single company; sawnwood is sold in the capital city	High dependence on financial capital from loggers, but conditions have improved over time	Little capacity to negotiate with buyers; most operations are informal	No power to negotiate prices; informal interactions with local loggers
Knowledge of markets	Good knowledge of market options for logs and sawnwood	Limited; little-developed market information channels	Fragmented; limited to needs of buyers in specific timber transactions	Limited, with little opportunity to acquire market information
Organisational capabilities	Good skills for managing forest resources, with help from external organisations	Precarious but improving through creation of community forestry enterprises	Not apparent; logging operations are individual, mainly outside law	Weak; economic activities are carried out on a family basis
Assistance from outside organisations	Significant assistance to some communities in extraction, processing, and marketing	Heterogeneous assistance focused on forest management and logging	No assistance from outside organisations	No assistance from outside organisations
Market development				
Process of price formation	Negotiation based on species available according to management plans	Influenced by local sawmills that finance community logging operations	Price set by timber traders, with little influence of smallholders	Price set by timber traders in negotiation with regional industry
Availability of information	Communities depend on support from outsiders to access market information and negotiate prices	Unequal access; information is transmitted through informal channels	Information is transmitted through informal and illegal networks	Access to market information is controlled by industry and traders
Presence of buyers	Timber markets relatively well developed, with several companies and local loggers	Several buyers interested in buying timber from communities	Several buyers, largely financed by capital from outside the region	Several buyers who finance informal logging operations
Market regulations	Export of logs and planks banned; no regulations for internal markets	Exports of logs banned; no regulations for internal markets	Exports of logs banned; no regulations for internal markets	No regulations for internal timber markets
Forms of market engagement				
Products sold in market	31 timber species available for logging; species harvested depend on demand	Timber species, as determined by market demand	Valuable timber species that are largely depleted in other forest regions	Several timber species in demand in regional market
Stability of transactions	Stable interactions in roundwood and sawnwood markets	Annual sales from harvest, based on management plans	Sporadic engagement with market	Sporadic engagement with market

can earn a monthly income of about USD 1,000 for sawing five trees into planks (Nunes et al. 2008). Even though members of community enterprises obtain less annual income from legal, commercial logging with respect to the income that could be derived from illegal forestry operations, they can count on a regular income over many years. By contrast, smallholders working on an individual basis often receive higher amounts for the valuable trees extracted from their lots, but in a lump sum, and the most valuable trees are being depleted.

The case studies indicate that only communities in indigenous territories, in the RAAN and Guarayos, which have received external assistance in implementing their forest management plans and in processing and marketing their timber, have been able to obtain significant monetary income streams over a long period of time. This is in contrast to smallholders and sawyers, whose incomes from timber are more concentrated in shorter periods of time. Many other communities in the same territories face several constraints in running their forestry operations. The local forest users in all the cases assessed here have limited bargaining power; this is even lower in informal markets, where the disadvantage is compounded by limited knowledge of how timber markets operate, thus limiting local forest users' options when negotiating with loggers and traders.

Access to markets is often highly correlated with bargaining power. Smallholders and communities in remote locations, such as in northern La Paz and Porto de Moz, have limited negotiating power in markets and little opportunity to acquire information or to engage regularly with timber markets; this renders them much more dependent on traders operating informally. Another significant factor shaping market interactions is the organisational capacity of local forest users. For example, indigenous communities in the RAAN and Guarayos, which undertake their logging operations and marketing collectively, often through community forestry enterprises, are more likely to make more beneficial deals than smallholders in northern La Paz and Porto de Moz, whose lack of collective access to forestlands increases their propensity to deplete the valuable timber in their individual plots.

Business-oriented community forestry enterprises have clearly helped some communities to engage in more formal and stable relationships with timber markets, thereby providing a regular source of income from commercial logging. In the cases assessed here, smallholders and communities have been unable to advance along the value chain; they tend to remain as roundwood providers, which weakens their ability to negotiate with traders and sawmill owners. However, by engaging in the marketplace, community enterprises gradually improve their negotiation skills in making deals with buyers, hiring service providers, and negotiating with government officials. In many cases, with the approval of a forest management plan, which is the first step in formal forest management, the community enterprise can build permanent market relationships. However, to benefit from markets, communities must first overcome legal requirements, obtain financial resources, and improve their accounting and marketing skills. To do this, communities often require the support of external actors (e.g., NGOs). Most

smallholders have been unable to form any business-oriented organisations, and their links with markets remain precarious.

In terms of the factors defining market development, smallholders and communities would obtain greater benefits if they could sell their products in more competitive markets and under more transparent conditions than currently exist. The timber markets in most of the case studies assessed here are characterised by the significant presence of buyers; however, with exception of the RAAN, the price formation process is not transparent because smallholders and communities tend to depend on a few buyers who often advance capital to the forest users to finance their forestry operations. Thus, most indigenous communities, such as in the case of the RAAN and Guarayos, become price takers and often depend on traders and timber companies, which have better links to downstream markets. Selling sawnwood would reduce transportation costs and simplify access to more remote markets in which the sellers could make more attractive deals, but not all community forestry enterprises can run their own sawmills. As an alternative technological solution, some smallholders operating in informal markets use chainsaws to produce planks, for which they often receive a higher price in the marketplace. There is insufficient empirical evidence on the impacts of small-scale logging and milling on forest condition, but they can be highly variable. Assessing these impacts, in relation to specific market interactions, is beyond the scope of this article.

I argue that community capacity and market conditions define the forms of market engagement. Of the four, the two areas involving indigenous communities have been able to maintain a stable interaction in roundwood and sawnwood markets. However, this applies only to those communities that obtained external assistance in implementing forest management plans, setting up community forestry enterprises, and engaging with the markets; by contrast, most communities have been unable to overcome the legal and economic barriers to commercial forest management. Smallholders in Iturralde and Porto de Moz maintain only a sporadic relationship with the markets through logging either inside or outside their individual or family plots. These forestry operations often occur informally and, in many cases, illegally as these smallholders cannot overcome the legal constraints.

CONCLUSIONS

Although tenure reforms have generated some benefits for smallholders and communities, even secure tenure does not guarantee that local people will benefit from the commercial use of their forest resources, mainly timber, because such benefits depend on both community capacity and specific market development conditions. Tenure reforms do not affect either the structural conditions under which forest markets operate or smallholders' and communities' interactions with traders, intermediaries, sawmill owners, and industry. The specific market conditions and the ways in which smallholders and communities engage with those markets contribute significantly to explaining the extent of the benefits that these

local actors obtain from the commercial use of timber forests.

The four cases presented here suggest that smallholder and community capacity is a crucial determinant of whether these local actors' interactions with markets are stable or sporadic. Furthermore, several distortions affect the functioning of timber markets; these often work against smallholders and communities, in favour of more powerful actors. Timber markets tend to be dominated by a few companies and buyers that wield considerable influence over final prices. In many cases, regulatory constraints often create additional obstacles for smallholders and communities, pushing them into informal logging. As a result of these various factors, these local forest users' engagement with markets, to their disadvantage, is dominated by patron-client relationships and asymmetrical information. The market distortions often inhibit both community capacity and further market development, and tend to be perpetuated rather than reversed.

Policies to enhance the benefits that smallholders and communities derive from commercial timber use should aim to increase community capacity in relation to markets and to modify the conditions under which such markets operate. Achieving these aims requires examining the whole set of factors that explain current conditions, thus moving beyond a perspective that emphasises only capacity building for forest management and marketing, and instead focusing on reversing the structural failures of timber markets. This obviously constitutes a more challenging goal. To be effective, such policy actions should address these two issues—community capacity and market conditions—simultaneously, given the complementarities between them.

Building community capacity requires the promotion of enabling conditions for communities to develop entrepreneurial initiatives that build on their existing knowledge and capacity, rather than implementing interventions based on homogeneous capacity-building models. Approaches that build on the specific demand of smallholders and communities with regard to the provision of technical services, as well as strengthening networks that promote horizontal sharing and learning of knowledge and experiences, are both examples of initiatives that could contribute to achieving enhanced local capacities for forest resources management. Furthermore, communities need tools and service platforms to build their understanding of market functioning and future trends, and to enable them to make better estimates about the present and future value of their resources so they can make more informed decisions.

Finally, public policy action is required to overcome the main structural market distortions highlighted in this article, especially those related to price formation, patron-client relationships, and asymmetrical information. In addition, regulations that constrain communities' use of forest resources have to be adjusted to forest users' needs. State forestry agencies should build stronger alliances with communities to enable them to compete in timber markets under better conditions. Making financial and other technical services available to communities would help address market asymmetries.

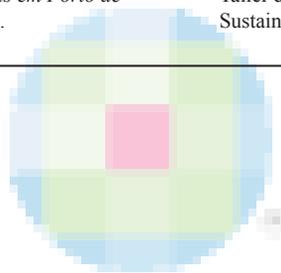
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