

The Varying Effects of Neo-Liberal Land Policy on Communal Property in Rural Mexico

M. DiGiano¹, A. Racelis², G. Barnes³, J. Barsimantov⁴

ABSTRACT

In 1992 Mexico amended its constitution and passed a new Agrarian Law that altered the fundamental tenure rules of the communally titled ejidos that covered over half the country. These reforms removed various restrictions and created the possibility of converting ejidos into private property. The expectation at the time was that widespread parcelization and conversion to private property would occur, resulting in the disappearance of the ejido as a form of communal property. While less than four percent of ejidos in southern Mexico have chosen to formally dissolve, others have chosen various degrees of legal and extra-legal individualization of common lands, and still others remain unchanged. In this paper we analyze why the response to neo-liberal land policy introduced in 1992 has had such varied responses. In our analysis we identify both internal and external factors that explain why these responses have varied within ejidos in the southern Mexican state of Quintana Roo. Certain external factors, such as tourism, appear to be driving ejidos towards increased parcelization and individualization. Other external factors, like community forestry, have had the counter-effect of consolidating and promoting communal tenure. These external factors are either accelerated or retarded by internal factors, such as governance, culture, existing resource base, livelihood strategy and attitudes towards property. Our six case studies include two ejidos with successful community forestry, two waterfront ejidos under tourism pressure, and two control ejidos that are neither forestry nor tourism ejidos. Through this analysis we present a general framework to understand changes in land tenure and explain how policy goals are derailed or diverted as they move from the national stage to the local community level.

KEYWORDS: agrarian reform, Mexico, ejidos, privatization

INTRODUCTION

In the early 1990s, neo-liberal land policies gained prominence in Latin America and highlighted the market as the prime mechanism to improve efficiency within the agrarian sector (de Janvry, Sadoulet et al., 2001). Throughout Latin America there has been increasing emphasis on making land more marketable through titling and land administration projects. During the period 1996-2006 over one billion US\$ were invested in such programs in the Latin America and Caribbean region (Barnes, Greening et al., 2007). While some attention has been paid to communal titling of indigenous territories, the emphasis has generally been on promoting private, individual property.

¹ School of Natural Resources and Environment, University of Florida

² Department of Environmental Studies, University of California, Santa Cruz

³ School of Forest Resources and Conservation, University of Florida

⁴ Department of Environmental Studies, University of California, Santa Cruz

This general shift to neo-liberal land policies is exemplified in the case of Mexico, which in 1992 reformed the property clause (Article 27) of its Constitution and passed a new Agrarian Law. These changes altered the fundamental tenure rules of the communally held land⁵ that covered over half the country's area by, *inter alia*, removing various restrictions over the transfer of land and allowing the conversion of ejidos into private property. While many viewed the reforms as a catalyst necessary for rural economic growth, opponents to the reforms speculated that such changes would lead to widespread parcelization (the division of common land into individual parcels) and subsequent conversion of these parcels into private property, resulting in the gradual disappearance of the ejido as a form of communal property (Pous and Villanueva, 2005). While privatization and dissolution of ejidos has occurred in some parts of Mexico in the wake of these legal reforms, fewer than 10 percent of ejidos have converted to private property nationwide (Registro Agrario Nacional, 2007). This evidence suggests that the reforms have not been widely adopted.

In this paper, we investigate how neo-liberal land policies favoring privatization inform changes within common property structures, positing that such homogeneously implemented policies have, in fact, heterogeneous outcomes. We analyze why ejidos have followed different trajectories by examining the experience of six case study ejidos in southeastern Mexico.

The two key questions we address in this paper are:

- Did the 1992 legal reforms spur the parcelization of ejido land in Quintana Roo?
- What internal and external factors explain the variation in the responses to the 1992 legal reforms?

We begin by presenting an analytical framework to understand how the 1992 Reform may influence land tenure changes in ejidos. We then apply this framework to six case study ejidos in the Mayan Zone of Quintana Roo and identify key external and internal factors that mediate the land tenure change observed in these ejidos. We suggest that the outcome of national land policy changes is heavily influenced by external and internal factors that can accelerate or decelerate the potential for land tenure changes. Furthermore, we identify several other drivers of change independent of the 1992 legal reforms that have stimulated land tenure changes in our area of analysis.

ANALYTICAL FRAMEWORK

In the following sections, we provide a background to our area of analysis and explain the theoretical foundation of our analytical model. Our model of ejido structural change in Quintana Roo draws on land tenure and commons literature in order to develop a model of property rights evolution. Trends towards individualization of land tenure, or the shift from common to more private land tenure, in recent agrarian reform policies has led to research into the impact and efficacy of such policies. While some scholars hold that economic efficiency determines the evolution of property rights, such that more individualized rights develop when the benefits of creating more specific and

⁵ Two types of communally held land exist in Mexico: ejidos (lands granted by the post-revolution government) and indigenous communities (repatriated indigenous lands). Our study focuses on ejidos, which are the dominant form of communal tenure.

exclusive rights outweigh the associated transaction costs (Demsetz, 1967), others have focused on the importance of cultural context (Ensminger, 1996), characteristics of the resource base (McKean and Ostrom, 1995; Ostrom, 1990), and informal institutions (North, 1990) in the development of property rights. Evidence from neo-liberal property reforms in Mexico and other nations demonstrates a heterogeneity of property rights outcomes based on a range of factors, including transaction costs, policy design and implementation, internal governance structures, and compatibility of customary and formal tenure systems (de Janvry, Sadoulet et al., 2001; Jodha, 1996; Muñoz-Piña, de Janvry et al., 2003).

We consider the ejido as the unit of analysis for understanding changes in land tenure, and we contend that these changes are mediated by factors internal and external to the ejido (see Figure 1). External drivers, including national policies, laws governing the ejido, and development programs, buffer or accelerate land tenure change. Certain external factors, such as tourism and urbanization, may drive ejidos towards increased parcelization and individualization by radically changing land and resource values.

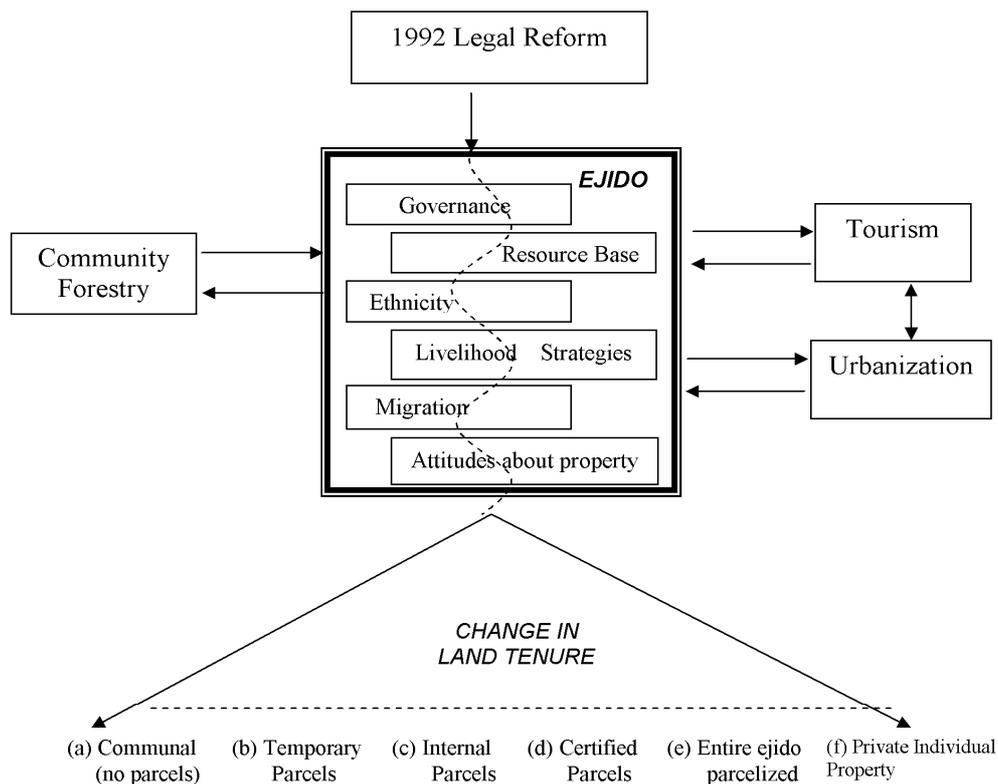


Figure 1. Analytical model of internal and external factors that influence land tenure change

Other external factors, like community forestry, have had the opposite effect of consolidating and promoting communal tenure by increasing economic returns from communal activities. Structural change is also mediated by factors internal to the ejido. Factors such as ethnicity, livelihood strategies, migration patterns, the resource base, concepts of property, and governance structures are also important in determining how communities manage property rights in light of policy changes and other external influences.

External Drivers

The legal agrarian framework and the 1992 Reform

In this section, we discuss the changes made to Mexico's legal agrarian framework and its implementation in order to understand the diverse outcomes observed in our case studies. In the mid-1980s, after repeated financial crises, the Mexican government introduced structural reforms to stimulate investment in rural areas. Granting communities with commonly owned lands the ability to legally divide, title, sell, and rent land was a central part of the strategy to encourage economic growth. In 1992, President Salinas de Gortari passed the Reform of Article 27 of the Mexican Constitution (hereafter referred to as the 1992 Reform), which allowed for the privatization of common land under certain circumstances.

The 1992 Reform articulated a new land policy in Mexico, one that was designed to “catalyze the formation of a new economic and social dynamic based on free market principles” (Baños Ramirez, 1998:33). To implement the 1992 Reform, the Mexican government created the Program for Certification of Ejidal Rights (PROCEDE) through which ejidos could delineate individual and communal lands and obtain individual certificates. The stated objectives of PROCEDE were to provide tenure security and certainty to the land rights held by communities (Procuraduría Agraria, 2007). This would be done by measuring and certifying communal and individual land rights in communities that elected to enter the program, which in turn would create the legal channels to formalize the transformation of collective to individual property.

Prior to the 1992 Reform, ejidatarios could only transfer land by selling their full rights to all agricultural parcels and common land to other ejidatarios or to ejido residents (*avecindados* – residents without voting rights)⁶ (Government of Mexico, 1992). Under the new agrarian law, ejidatarios may legally sell full rights to individualized landholdings plus the right to vote in the *ejidal* assembly⁷ (Government of Mexico, 1992). In order to sell individual parcels, land must first be formalized via a PROCEDE certificate then converted to a private property title (*dominio pleno*). This must be authorized by the ejido in one of two ways: either a two thirds majority vote of the *ejidal* assembly to convert the entire ejido to private property (*dominio pleno*) or a two thirds majority vote to allow an individual *ejidatario* to convert only his land to private property (also *dominio pleno*, although on an individual basis)⁸ (Government of Mexico, 1992). Thus, there are four potential avenues for the sale of *ejidal* land: (1) selling the full *ejidal* right without a legal title, (2) selling private property obtained under full ejido

⁶ Ley Agraria, Art. 80 (Procuraduría Agraria, 1998)

⁷ Ley Agraria, Art. 79

⁸ Ley Agraria, Art. 29

dominio pleno, (3) selling private property obtained under individual *dominio pleno*, or (4) extra-legally, which usually involves a notarized 'contract' and is not recognized as a legal transaction by the state. The 1992 Reform did, however, forbid the subdivision and sale of forested *ejidal* lands.

Widespread ejido-level *dominio pleno* was expected upon the initiation of the 1992 Reform, and many studies following the Reform predicted dire consequences for forests, communal governance, and land concentration in Mexico's rural sector (Bray, 1996; Goldring, 1996; Harvey, 1996). However, in Southern Mexico only 4 percent of ejidos have undertaken the legal process to convert to *dominio pleno*, and the large majority of land sales occur under one of the other three mechanisms. Recent studies assessing changes in land tenure arrangements since 1992 have found that the reforms have not had the anticipated widespread impact on the ejido structure and agricultural productivity, but rather have resulted in uneven and multidirectional transformations within the ejido's tenurial and social structure (Goldring, 1998; Haenn, 2006; Nuijten, 2003; Zepeda, 2000). However, given that land tenure change is occurring to some extent across the country, we expect that other factors, when present, may contribute to the types of tenure change predicted fifteen years ago.

Community Forestry

We posit that one key factor in maintaining common tenure arrangements in our study region is community forestry (see Figure 1). Community forestry programs in south eastern Mexico developed in response to state sponsored commercial logging in the region from the 1950s through the 1970s, during which rural people received few tangible benefits from forest products and had limited rights and control over forest resources that they ostensibly owned. In the early 1980s an innovative conservation and development program, called the Plan Piloto Forestal (PPF), was established to devolve control over forest resources to the ejidos and to develop local governance structures to manage and distribute economic benefits from timber sales (Taylor and Zabin, 2000). As a result of PPF, many community forestry programs were well established in the region prior to the 1992 Reform.

The introduction of community forestry as a sustainable development strategy has been an important external factor in determining ejido structural change in many communities in the region. Ostrom and others have established that forest resources are often more efficiently and effectively managed as common property (McKean and Ostrom, 1995; Schlager and Ostrom, 1992). Community forestry may be more successful at maintaining and managing forests due to the benefits derived from economies of scale in managing larger areas rather than smaller individual plots (Arnold, 2001). Because they strengthen communal governance and create economic incentives for the maintenance of common forests, we contend that ejidos with established community forestry programs are more likely to maintain communal land tenure regimes than other communities in the same region.

Tourism and Urbanization

Over the last thirty years, tourism has evolved as a major driver of economic and social change in Quintana Roo, increasing land values and promoting migration from rural areas to tourist centers. The tourism sector took off in the 1970s as part of a

national plan to stimulate economic development, attract foreign capital and generate jobs, focusing primarily in the fishing village turned mega resort of Cancun. As a result, tourism has become the most important economic activity in the state, accounting for some 47 percent of employment and over 37 percent of income generated (INEGI, 2004). Urbanization, necessary for the centralization of goods and services, is often concomitant to tourism expansion. Both tourism and urbanization increase demand for land, increasing its value. Subsequently, higher land values provide greater incentives for privatization as beneficiaries seek to internalize economic benefits of land, following the theory of the evolution of property rights (Feder, Onchan et al., 1988; Platteau, 1996). Thus, in areas of high tourism potential, we expect that the individualization of land tenure will be more pronounced. In addition, short term and permanent migration from ejidos to tourist areas provides an influx of wage income and/or remittances from tourism to ejido residents, and initiates a process of change in social relations and cultural meanings within the ejido that may have implications for community cohesion (Juarez, 2002). In sum, as an external driver of change, tourism impacts not only land values and livelihood strategies, but also the structure and governance of the ejido through increased out-migration and changing concepts of property rights and identity.

Internal Drivers

In this section, we focus on internal drivers of ejido structural change and their interaction with external drivers. We first give historical information on the study region, which serves to identify potential cultural and geographic differences between case study communities. We then identify and discuss our expectations as to how six internal factors (identified in Figure 1) may influence ejido structural change.

The central part of the state of Quintana Roo, also known as the Mayan Zone, is relatively isolated from the rest of the country and is home to a high percentage of indigenous people. In 2005, 87 percent of the area's inhabitants were considered to be indigenous and 67 percent of the area's population over the age of five spoke Maya as a first language (INEGI 2005)⁹. This relatively high level of indigenous speakers may in part be due to the Mayan Zone's status as a *de facto* independent Maya nation until the early 20th century, through which it remained both in conflict with and somewhat isolated from Mexico's political and economic forces. This history of conflict and isolation created a tradition of independent community governance and distrust of external government actors that is still evident in some ejidos today.

Ejidos in the study region are characterized by two distinct periods of establishment, which also correspond to size, ethnicity and resource base of ejidos. The first ejidos in the area were formed during the wave of agrarian reform in the late 1930s. These were large ejidos dedicated to the extraction of natural gum from *Manilkara zapote* trees, and more recently, timber extraction. In the 1960s and 1970s, smaller *ejidos* were established to accommodate migrants from other states. In contrast to the first wave of forestry ejidos that were characterized by large common use areas and forest extraction, the second wave of migrant ejidos were largely focused on individualized agricultural production. This historical distinction is an important factor that determines many of the differences in internal drivers between our case study

⁹ Statistics are for the municipality of Felipe Carrillo Puerto, which roughly coincides with the Mayan Zone.

ejidos. Taking into account this historical context, we identified six internal drivers of ejido structural change: governance, ethnicity, attitudes regarding property, migration, livelihood strategies, and resource base.

Governance of common property regimes, including informal and formal rules as well as enforcement mechanisms, has been recognized as a key variable in determining successful commons management (Ostrom, 1990). A previous study of ejido privatization found that internal governance structures facilitated high levels of cooperation among ejido members in managing common pool resources, thereby reducing division of the commons (Muñoz-Piña, de Janvry et al., 2003). **Ethnicity** and shared cultural traits may be important mediators of property rights change. An ethnically homogenous group of resource users with a set of shared cultural beliefs underlying informal institutions, as found in some indigenous traditions, may strengthen informal institutions that facilitate the management of common pool resources (Ostrom, 1990). Mayan people traditionally considered forest to be common property, with individual usufruct rights recognized to fallow areas and planted trees (Gomez-Pompa, 1987). We contend that the presence of strong internal governance, shared cultural traits, and/or a homogenous and relatively closed set of resource users, as found in traditional Maya communities, favors the maintenance of common property systems.

Attitudes regarding property are the varying understandings of property rights that are embedded in cultural norms and behavior. Such attitudes are shaped by individual experiences in conjunction with broader cultural, political and economic contexts and may contribute to processes of property rights change (Mackenzie, 2005). As seen in Mexico and elsewhere, cultural norms, political ideologies and even spiritual beliefs underlying land tenure regimes shape property rights changes that may run counter to rational choice behavioral models (Atran, Medin et al., 2002; Cornelius, 1998). Short-term and long-term **migration** from rural ejidos to the tourism sector has been associated with changing meanings of traditional agriculture (Juarez, 2002), and subsequently may create differentiations in values and beliefs that make commons management more difficult. We expect that the interaction of attitudes regarding property with other internal and external factors, such as ethnicity and livelihoods, will accelerate or buffer ejido structural change.

Existing **livelihood strategies** will also affect the extent to which ejidatarios are interested in converting to a private property regime. Certain livelihood strategies, such as community forestry, may manage human and natural resources more efficiently when implemented collectively. Other livelihood activities, such as cattle ranching and intensive agriculture, may be hindered by collective management (Schlager and Ostrom, 1992). *Milpa* agriculture, the traditional form of slash and burn agriculture dating from the ancient Mayans, is still prevalent in the region (Hostettler, 1996). More recently, however, community forestry, tourism, cattle ranching, and mechanized agriculture have presented new livelihood alternatives, with varying responses from Maya and mixed migrant ejidos. We expect that where dominant land uses include cattle ranching and intensive agriculture, ejidos will have a greater interest in private property. Conversely, where ejidatarios distribute economic benefits from common resources such, as forests, more equitably, these ejidos may have strong incentives for the maintenance of common property management systems (Muñoz-Piña, de Janvry et al., 2003; Schlager and Ostrom, 1992). In order to take advantage of these benefits,

however, ejidos must possess a strong forest **resource base**. Therefore we expect that large forested ejidos with significant timber stocks will be in a better position to create common economic benefits and thus maintain communal property rights.

CASE SELECTION AND METHODOLOGY

We apply the analytical framework described earlier in the paper to six ejidos in the Mayan Zone of Quintana Roo in order to understand the process of ejido structural change following the 1992 Reforms. The map below shows the location of the six study communities in Quintana Roo (Figure 2). We selected two communities with high tourism potential (Tulum and Buena Vista), two communities with existing forest management programs (Noh Bec and Naranja Poniente), and two 'control' communities with neither tourism potential nor forest management programs (Chunhuhub and Cuauhtemoc). We selected these types of communities in order to analyze our hypotheses with respect to the external drivers of change - tourism and community forestry.

Within each pair, one ejido has a higher percentage of Mayan inhabitants than the other (see Table 1) and, consistent with the historical reasons cited above, one is significantly larger (in population and surface area) than the other. The importance of these and other differences between case study ejidos will be addressed in the results section.

	Communities with Waterfront Land		Forestry Communities		Neither Waterfront Nor Forestry	
	Buena Vista	Tulum	Noh Bec**	Naranja Poniente	Cuauhtemoc**	Chunhuhub
Total Population*	627	14790	1890	685	1890	3992
Number of Ejidatarios	148	240	216	137	53	331
Surface Area (ha)	13331	21000	23100	13620	2938	14134
Area per Ejidatario (ha)	90	87.5	107	99	55	43
Ethnic Composition	Maya	Maya and Mixed Migrant	Mixed Migrant	Maya	Mixed Migrant	Maya
% of Population Speaking Indigenous Language*	56.0%	31.5%	20.6%	98.8%	20.6%	53.2%
% of Population Living Outside the Community*	0.4%	18.3%	1.4%	0.0%	1.4%	1.0%
% of Adults With Incomplete Primary School*	44.0%	36.9%	44.6%	49.6%	44.6%	36.3%

*Data from the 2005 Population Count, INEGI

** The urban area of Noh Bec contains all ejidatarios from both ejidos as well as non-ejidatarios. As such, figures are inseparable in INEGI census data and they are presented as a total here.

Table 1. Demographics and physical features of case study ejidos

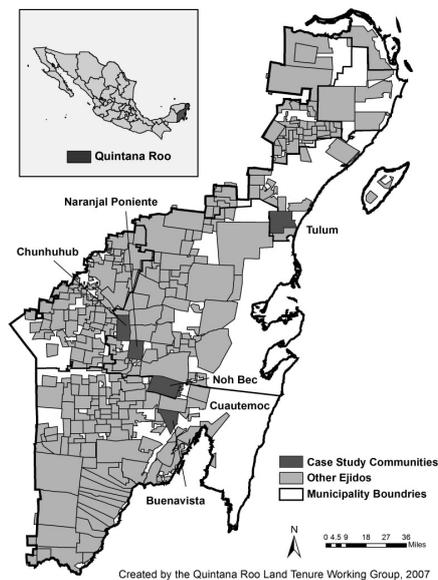


Figure 2. Map of case study ejidos, Quintana Roo, Mexico.

Fieldwork was conducted during two visits to the region in August 2006 and January 2007. In each community, open-ended interviews were conducted with ejido authorities and community members. Questions pertained to recent changes in land tenure, history of land use, local governance structures and rules, and interactions with external actors. In addition, interviews were conducted with government officials from land registry and environmental offices, NGO staff, representatives from community forestry unions, and private foresters. These interviews were open-ended, focusing on individuals' knowledge of the six study communities, their interactions in general with communities, and their opinions of changes in land tenure in the region. Finally, secondary data from government agencies on demographics, parcelization of ejidos, and forestry permits was obtained.

LAND TENURE CHANGES IN CASE STUDY EJIDOS

Although there are no ejidos in our sample that have entirely converted to private property (*dominio pleno*), there is evidence of drastic shifts towards more individualized land tenure in several. To better map out these land tenure changes, in Figure 3 we show the potential trajectory of a hypothetical ejido moving through different stages of individualization without electing full *dominio pleno* and dissolving the ejido.

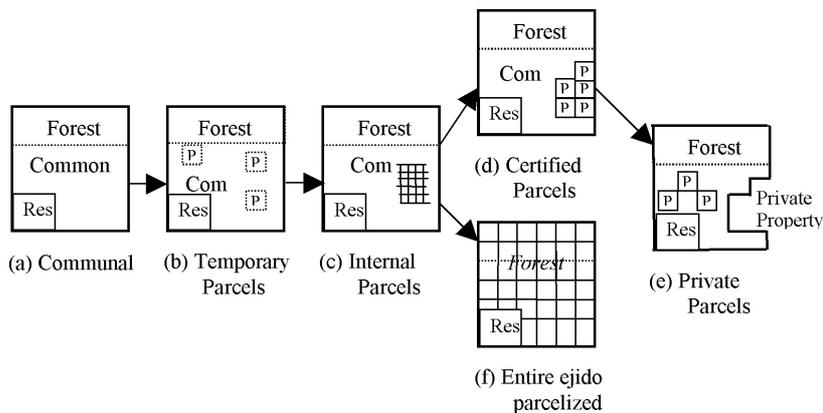


Figure 3. The different stages of individualization of an ejido (Res= Residential, Com= Common, P= Parcels)

All ejidos in our sample were in either in stage (b) or (c) before the 1992 Reform, and while some have since moved towards private property, others have not. In stage (a), which did not exist in our sample, the ejido is composed of a residential zone with individually held house lots, communal land shared by the all ejido members, and a forest that is owned communally by the ejido. Initial parcelization occurs with the allocation of temporary use rights to individual ejidatarios (b). Naranjal Poniente is the community with the strongest common tenure regime, and is stable in stage (b). In this stage, usufruct rights for agricultural parcels are granted to individuals for a period of time, but will be returned back to the community if they fall into disuse. These may develop into more permanent parcels (c), in which usufruct rights stay with the ejido member even if the land is left fallow for several years. However, parcels cannot be sold to outsiders at this stage.

The next step in the individualization of land occurs through the process of certification via PROCEDURE (d). As discussed previously, ejidos can choose whether or not they want to certify individual agricultural parcels through PROCEDURE. Although these certificates are not private titles, many ejidatarios view them as the equivalent. Legally, they cannot be traded in the open land market without first registering *dominio pleno* in the public registry. Some *ejidatarios* in our case study communities have attempted to attain legal titles to facilitate the transfer of land. Buenavista, after selling untitled parcels extra-legally, is now in the process of legalizing these parcels and moving from stage (d) to (e), in which the ejido has legally created private property. In the case of Tulum, the ejido decided to convert part of its individually held land to *dominio pleno* (e), allowing the transfer of land parcels, independent of ejidal rights, to individuals outside of the ejido.

Another stage (f) in a different trajectory was found in Chunhuhub and Cuauhtemoc. These two ejidos have chosen to individualize all common lands, forested and agriculture, without using the process laid out by PROCEDURE. This was done internally through the ejido general assembly, and *ejidatarios* in these two communities have no certificates to their parcels and therefore cannot legally sell them to outsiders, although they can and do sell their full ejido rights.

Explaining Varied Responses to the 1992 Reform

Community Forestry Ejidos: Noh Bec and Naranjal Poniente

Perhaps the most important external driver in these two communities has been the community forestry projects established by PPF in the mid-1980s. Forestry programs generate important economic benefits for communities, including jobs (roughly 150 in Noh Bec and 30 in Naranjal Poniente) as well as considerable income (1,500-2,500 US\$/year/ejidatario in Naranjal Poniente and 2,500-3,000 US\$ in Noh Bec). In both communities, community forestry is a central livelihood strategy, and this has been one of the most important factors in the maintenance of communal land tenure in these communities. Since transaction costs for forest management decrease over larger areas, the existing natural resource base aided the success of community forestry in these two ejidos.

Why is this not the case in other case study ejidos? It is likely that all study communities at one point had extensive mahogany resources. However by the end of the concession period (mid-1980s) these had been depleted in most ejidos. Nonetheless, most case study communities were involved with the PPF. Only Cuauhtemoc, because of its small forest area and minimal timber volumes, did not enter the PPF. Chunhuhub entered the PPF at the same time as Naranjal Poniente, but they did not maintain their participation due to internal conflict, which we discuss further below. In addition, both Chunhuhub and Cuauhtemoc have a land to user ratio of roughly 50 ha per ejidatario, while Noh Bec and Naranjal Poniente have roughly 100 ha each (see Table 1), which suggests that timber management is a more viable economic strategy in communities with a higher forest to ejidatario ratio. Buenavista and Tulum both entered the PPF in the mid-1980s, but today have such minimal income from timber sales that it cannot be considered an important income source for ejidatarios, nor did it ever have the potential to become a central livelihood strategy in these ejidos due to depletion of valuable timber stocks prior to the PPF.

In addition to the importance of the monetary value of timber sales to these communities, internal factors have also been important in the maintenance of communal tenure regimes. Residents of Naranjal Poniente and external actors familiar with the community point to their strong indigenous identity as an important factor in maintaining community forestry, which in turn maintains forest cover and communal land tenure. According to the 2005 Population Census (INEGI, 2005), in Naranjal Poniente 98.8 percent of the population speaks Maya, as compared to roughly 50 percent in the other Maya case study communities and 20 percent in mixed-migrant communities. Interviewees indicated that communities in the region with a strong indigenous ethnicity and a social fabric less fractured by state-sponsored migration tend to have stronger internal cohesion and a heightened awareness of the value of communal land. In addition, external actors have enhanced this concept of communal property rights through environmental education as part of forest management activities and other community-oriented programs. However, while indigenous identity may play a role, we cannot conclude that it is a pre-condition for strong communal governance because Noh Bec, a mixed-migrant community, also has strong internal cohesion and has one of the most successful forestry programs in the region.

In both communities, strong communal governance structures, including frequent community meetings and rules for forest use, were apparent. In Noh Bec, however, there were reports of theft of communal funds by past community leaders. This was surprising because of their high level of success in forest management. However, mechanisms for enforcement exist: an ex-leader that stole funds is now having his timber income withheld in order to repay the money he stole. Therefore, while internal conflict does exist, fines for rule-breaking maintain community cohesion and allow the forestry program to continue. The incentive to maintain communal timber income may have motivated the community to find solutions to governance issues, which highlights the interrelated nature of external and internal drivers of these ejidos' trajectories.

As a result of this complex interplay of external and internal factors, the 1992 Reform and the option to divide communal land had no effect on ejido structure in these communities. Job creation in forestry activities and income from timber sales, which in turn raises the economic value of forests and common land and supports the maintenance of governance structures centered on forest management, has resulted in stable land tenure arrangements. As we will demonstrate in other communities, when this blend of factors is not present, monetary or social incentives arise that may lead to changing concepts of property and privatization of common land.

	Communities with Waterfront Land		Forestry Communities		Neither Waterfront Nor Forestry	
	Buenavista	Tulum	Noh Bec	Naranjal Poniente	Cuauhtemoc	Chunhuhub
% of Ejido Parcelized	2%, Legal Titles in Process	38%, Legal Titles	Minimal, Internal for Agriculture	none	100%, Internal	100%, Internal
% Common Forest Area	48%	30%	78%	77%	2%	2% (200/area)
% of Ejidal Rights Sold in Last 10 Years	~3% to outsiders	none	~3% to locals	none	~20% to outsiders	~8% to locals
Recent Sale Value of Ejidal Rights / Ha	\$80	n/a	\$203	n/a	\$80	\$94
Recent Sale Value of Parceled Land / Ha	\$600 (1996) \$140,000 (2006)	\$20,000 (2001) \$200,000 (2006)	n/a	n/a	n/a	n/a

Table 2. Structural change in case study ejidos

Tourism Ejidos: Tulum and Buenavista

With the growth of tourism throughout Quintana Roo, case study communities have experienced varying demand for tourism development on ejido land. The two communities with waterfront land, Tulum on the Caribbean Sea and Buenavista on Lake Bacalar, have seen rapid increases in the price of land in recent years (see Table 2), which has become the major external driving force of ejido structural change. Tulum, at the southern end of the tourism corridor known as the Mayan Riviera, has become one

of the region's most important tourism centers leading to the expansion of the urban zone and extensive job creation. In Buenavista, rising demand for waterfront vacation homes and small hotels rather than resorts, has led to increasing land values but has yet to drive the rapid urbanization or job creation observed in Tulum. High land values created a clear incentive for ejidatarios to divide and title land, and both communities are in different stages of parcelizing more common land.

The decision to parcelize in both Tulum and Buenavista was directly influenced by demand for waterfront land by external buyers; however, the specific responses and the interactions with internal drivers were different in the two communities. In Buenavista, internal conflict was more prevalent, and theft of communal funds by ejido authorities occurred consistently. When one *ejidatario* tried to take control of a large stretch of common lakefront land with the encouragement of a wealthy outsider, the community decided to parcelize all waterfront land to resolve the conflict and make sure each ejidatario received an equal share. In Tulum the decision to parcelize was not due to internal conflict. Rather, it was done to pre-empt an impending government decision to expropriate *ejidal* land to accommodate an expanding urban zone. In this case, parcelization occurred independently of internal drivers simply because of the strength of the tourism driver.

While changes in ejido structure in these two communities was clearly driven by demand for land by investors and foreigners, we believe the 1992 Reform facilitated these changes by creating avenues for privatization of ejido lands. Even though initial land sales were made in Buenavista without any formal titling or certification, titling is now a priority, as land tenure security has become a determining factor in the price of land and in the interest of potential buyers. As such, the 1992 Reforms have created a legal mechanism to formalize private property and even "legalizing" informal, and potentially illegal, land sales, a pattern demonstrated by examples of illegal land sales sanctioned by the government seen in other regions of the country (Barsimantov and Navia Antezana, 2007). A highly problematic example of this is that in both waterfront communities, private surveying companies have measured forested land for which the Mexican government has issued titles or is in the process of issuing titles. This was done in spite of the fact that under the 1992 Reform forested land cannot be legally divided.

We contend that sales occurred in the midst of a dramatic shift in concepts of property brought about by the 1992 Reform and nearby tourism expansion. Unfortunately, few ejidatarios in either community have benefited from the rapidly rising land prices, as most sold before prices soared. For example, most ejidatarios in Buenavista sold their waterfront lots for US\$ 600/ha and they are currently valued at US\$ 140,000/ha. It is difficult to conclude that entering the land market was done at an opportune time. Current sales now occur between private buyers, rather than between *ejidatarios* and external buyers, therefore *ejidatarios* can only benefit from currently high prices by parcelizing more common land.

Ejidos with Neither Waterfront nor Community Forestry: Chunhuhub and Cuauhtemoc

There is currently no strong external driver of ejido change such as forestry or tourism in Chunhuhub or Cuauhtemoc. However, previous external drivers have shaped livelihood strategies in both communities and, combined with internal

governance issues, have led to nearly complete parcelization of both ejidos. Over the past two decades, various state-led agricultural development programs have been implemented in the region with varying effects on case study communities. These have included cattle production, citrus orchards, and mechanized agriculture programs. However, in the absence of external support for cooperative marketing of products or technical assistance, the benefits of communal management of these projects were minimal, leading to more individualized management of these projects in Chunhuhub and Cuauhtemoc.

Regardless of their failure as originally conceived, these programs have had a lasting impact on livelihood strategies and communal governance in the two communities. While the communal cattle project failed in Chunhuhub, individual cattle herds took hold as a dominant economic activity. As one of the only profitable land use options available, cattle production on an individual level has prompted both the sale of *ejidal* rights and deforestation in Chunhuhub. Interviewees reported that nearly all sales of *ejidal* rights have been to wealthier ejidatarios or non-ejidatarios who intend to use the land to graze cattle. Perhaps because of poorer soils or a lack of capital, cattle production is not an important livelihood strategy in Cuauhtemoc today. However, the cattle grazing project left its imprint on the ejido, generating internal disputes regarding the management and benefit distribution of the project, and leading to the eventual abandonment of the communal project all together. An ejidatario in Cuauhtemoc stated that this conflict was a key factor in their decision to parcelize common land in order to achieve greater autonomy in land use decision-making.

Agricultural development programs may have been a source of conflict and even a driver of individualization of livelihood strategies in Cuauhtemoc and Chunhuhub, but the conflict within these two communities seems to have emanated from internal sources as well. Invasions of agricultural parcels by ejidatarios in Cuauhtemoc have been a persistent problem. Timber theft by ejidatarios in Chunhuhub has been common for at least two decades. When the community attempted to retry community forestry and obtain a timber harvest permit in the late 1990s, continued wood theft led to the cancellation of the program within two years. Interviewees reported that the community had a valuable timber resource base when the PPF was implemented; however, internal conflict, and the lack of effective governance mechanisms for conflict resolution, seems to have been a key factor limiting their ability to create significant income from this communal resource.

In both communities, informants repeatedly asserted that private land is more desirable because the owner has security and can decide what will happen on the land. This concept of individual property rights is a relatively new phenomenon in the region, and we suggest that the 1992 Reform played a role in this shift. An ex-elected leader of Cuauhtemoc claimed that the 1992 Reform was what allowed them to parcelize their land. However, both Cuauhtemoc and Chunhuhub parcelized their land without the help of PROCEDE and without legal certificates. Because forested land was parcelized, it is unlikely that government agencies will legally recognize this parcelization. Although the parcelization of forested land was recognized in Tulum and Buenavista, it is likely that the involvement of private firms and wealthy buyers created the potential for circumventing the law. Thus, although the 1992 Reform did not directly allow Cuauhtemoc to parcelize their land, it did create a shift in attitudes regarding

property rights in the community that in part led to the decision to parcelize. Without the communal benefit from common landholdings, the continued presence of internal conflict, and changing concepts of property created by the 1992 Reform, Cuauhtemoc and Chunhuhub chose to completely parcelize. Low land values prohibit formal titling on smaller parcels by private firms due to high costs, thus making complete informal parcelization a more desirable option. Complete parcelization in these two communities means that ejidatarios can only sell their entire *ejidal* right (including all land and voting rights) instead of subdivided parcels that can be sold, as is the case in Tulum and Buenavista.

DISCUSSION AND CONCLUSIONS

Our case studies reveal that the 1992 Reforms have not resulted in a massive shift from the ejido's collective structure to individual holdings as predicted. This means that the policy goal of reorienting rural Mexican land markets to a new globalized economy has not occurred either. We posit that the transition of the ejido from collective to private land holdings is not an inevitable outcome once legal structures are established, in contrast to property rights theorists who give primacy to economic factors alone in shaping property rights. Rather, ejido structural change is largely the result of external drivers, including those which increase the value of either common or private land, in conjunction with mediating internal factors, including diverse institutional arrangements, cultural norms and livelihood strategies. Based on the six case studies presented we have argued that, while the reform facilitated ejido structural change, the varied effects of the reform on ejido structure are largely dependent on other drivers and incentives unrelated to the policy reform. External factors such as community forestry programs, an expanding tourism sector, and government-sponsored agricultural development programs, in combination with internal factors (such as livelihood strategies, conflict, and ethnicity) mediate the effects of 1992 Reform, facilitating an array of structural change trajectories. Table 3 summarizes the internal and external factors that have led to changes in land tenure in the six communities.

	Communities with Waterfront Land		Forestry Communities		Neither Waterfront Nor Forestry	
	Buenavista	Tulum	Noh Bec	Naranjal Poniente	Cuauhtemoc	Chunhuhub
Primary Economic Activities	Agriculture	Tourism Employment	Forestry, Commerce	Forestry, Agriculture	Agriculture, Commerce	Agriculture, Cattle
Legal Yearly Timber Income per Ejidatario	\$60	0	\$2,500-3,000	\$1,500-2000	0	0
Tourism Potential	High	Very High	Medium	Low	Medium	Low
Internal Drivers	Governance/	Migration,	Governance/ Cohesion,	Governance/	Governance/	Governance/Conflict,

	Conflict, Property Concepts	Livelihood Strategies, Property Concepts	Livelihood Strategies, Resource Base	Cohesion, Ethnicity, Resource Base	Conflict, Property Concepts	Livelihood Strategies, Property Concepts
External Drivers	Tourism	Tourism, Urbanization	Community Forestry Development Programs, NGOs	Community Forestry Development Programs, NGOs	1992 Reform	1992 Reform, Government Agricultural Development Programs

Table 3: Economic Activities, Resource Base, External and Internal Drivers of Change in Case Study Communities

We found that rising land values related to tourism expansion in these regions prompted parcelization and increased land sales to outsiders in the two waterfront case study ejidos. The transition to formal individual titles in these waterfront ejidos conforms to theoretical expectations that private rights will emerge when a resource becomes scarce and the benefits of exclusive rights outweigh the costs (Demsetz, 1967). The movement from collective to individual property was mediated by other factors, including internal conflict and government plans for urban expansion, resulting in variations in the process of parcelization and sale of ejido lands. Unlike the other ejidos in our sample, formal measuring of private parcels in these ejidos is being performed by private firms which demonstrates that, in these cases, the benefits from potential land sales of titled land are perceived to exceed the transactions costs for titling.

In contrast, the forestry ejidos maintained larger proportions of common lands due to economic benefits to members from community timber management. Large forest area to *ejidatario* ratios resulted in high economic returns by maintaining the commons, which made collective livelihood strategies activities more attractive than individual strategies, especially when tourism potential was low. Our findings resonate with the findings of common property theorists which posit that successful commons outcomes result when resources can be managed more efficiently as a whole and when resource appropriators share an economic interest in those resources (Arnold, 2001; McKean and Ostrom, 1995).

Factors internal to the ejido, such as strong governance structures, shared ethnicity and positive attitudes towards common property management bolstered by economic incentives and external affirmation of community forest management by NGOs, were also important in buffering ejido structural change, as demonstrated in the forestry ejidos of Naranjal Poniente and Noh Bec. Conversely, where resource appropriators have conflicting interests, as was the case in the 'control' case studies, and when innovative internal institutional arrangements do not emerge to resolve conflicts, the commons may be divided (Baland and Platteau, 1998).

As we have argued in this paper, Mexico's reform of tenure laws has not followed a linear path, with ejido structure moving from collective to individual. We have shown cases in which factors internal and external to a land tenure unit interact in the

wake of land policy reform and result in consequences that are multi-faceted and complex. We posit that the 1992 reforms created not just formal legal mechanisms for ejido structural change, but also represented a new model of property that, in conjunction with varying external and internal factors, could be manipulated to direct structural change within the unique context of individual ejidos, whether that be to resolve internal conflicts, facilitate land sales in tourist areas or to maintain economically beneficial common pool resources (Haenn, 2006; Nuijten, 2003).

Mexico's 1992 legal reform is exemplary of a global trend towards neo-liberal economic policies that considerably altered the governance of rights and resources. While such policies are created at national and international scales, they are typically filtered by a diverse set of factors that can result in profoundly localized outcomes. In this paper, we attempted to understand the distinct outcomes and implications of policy change on common property institutions and their governance, and in doing so, we developed an analytical framework as one component of a broader exploration of new approaches to the commons in the context of neo-liberal reform.

REFERENCES

- Arnold, M. (2001) 'Devolution of Control of Common Pool Resources to Local Communities: Experiences in Forestry', in A. de Janvry, G. Gordillo, J.-P. Platteau and E. Sadoulet (eds) *Access to Land, Rural Poverty, and Public Action*, pp. 163-195. Oxford: Oxford University Press.
- Atran, S., D. Medin, N. Ross, E. Lynch, V. Vapnarsky, E. Ucan Ek', J. Coley, C. Timura and M. Baran (2002) 'Folkecology, Cultural Epidemiology, and the Spirit of the Commons', *Current Anthropology* 43(3): 421-450.
- Baland, J.-M. and J.-P. Platteau (1998) 'Division of the Commons: A Partial Assessment of the New Institutional Economics of Land Rights', *American Journal of Agricultural Economics* 80(3): 644-650.
- Baños Ramirez, O. (1998) 'PROCEDE: Gateway to Modernization of the Ejido? The Case of the Yucatán', in R. Snyder and G. Torres (eds) *The Future Role of the Ejido*, pp. San Diego: University of California.
- Barnes, G., T. Greening and K. Barthel (2007) 'Pioneering a Rapid and Cheap GPS Cadastral Surveying Methodology for Developing Countries.' *Geomatica*, Vol. 61(4): 431-444
- Barsimantov, J. A. and J. Navia Antezana (2007). Cambio de uso de suelo en Michoacán, Mexico: entre la legalidad y la impunidad. VIII Congreso Mexicano de Recursos Forestales. Morelia, Michoacan.
- Bray, D. B. (1996) 'Of Land Tenure, Forests, and Water: The Impact of the Reforms to Article 27 on the Mexican Environment', in L. Randall (eds) *Reforming Mexico's Agrarian Reform*, pp. 215-221. Armonk: M.E. Sharpe.
- Cornelius, W. A. (1998) 'Ejido Reform: Stimulus or Alternative to Migration?' in W. A. Cornelius and D. Myhre (eds) *The Transformation of Rural Mexico: Reforming the Ejido Sector*, pp. 229-246. San Diego: Center for U.S.-Mexican Studies at UCSD.
- de Janvry, A., E. Sadoulet and W. Wolford (2001) 'The Changing Role of the State in Latin American Land Reforms', in A. de Janvry, G. Gordillo, J.-P. Platteau and E. Sadoulet (eds) *Access to Land, Rural Poverty, and Public Action*, pp. 279-303. Oxford: Oxford University Press.
- Demsetz, H. (1967) 'Toward a Theory of Property Rights', *The American Economic Review* 57(2): 347-359.
- Ensminger, J. (1996) 'Culture and Property Rights', in S. Hanna, C. Folke and K.-G. Maler (eds) *Rights to Nature*, pp. 179-203. Washington DC: Island Press.
- Feder, G. T., Y. Onchan, Y. Chalamnong and C. Hongladarom (1988) *Land Policies and Farm Productivity in Thailand*. Baltimore: Johns Hopkins University Press.
- Goldring, L. (1996) 'The Changing Configuration of Property Rights Under Ejido Reform', in L. Randall (eds) *Reforming Mexico's Agrarian Reform*, pp. 267-287. Armonk: M.E. Sharpe.
- Goldring, L. (1998) 'Having Your Cake and Eating It Too: Selective Appropriation of Ejido Reform in Michoacan', in W. A. Cornelius and D. Myhre (eds) *The Transformation of Rural Mexico: Reforming the Ejido Sector*, pp. 145-172. San Diego: Center for U.S.-Mexican Studies at UCSD.
- Gomez-Pompa, A. (1987) 'On Maya Silviculture', *Estudios Mexicanos* 3(1): 2-24.

- Haenn, N. (2006) 'The changing and enduring ejido: a state and regional examination of Mexico's land tenure counter reforms', *Land Use Policy* 23(2).
- Harvey, N. (1996) 'Impacts of Reforms to Article 27 on Chiapas: Peasant Resistance in the Neoliberal Public Sphere', in L. Randall (eds) *Reforming Mexico's Agrarian Reform*, pp. 151-171. Armonk: M.E. Sharpe.
- Hostettler, U. (1996). *Milpa Agriculture and Economic Diversification. Socioeconomic change in Maya Peasant Society of Central Quintana Roo, 1900-1990s*. Berne, University of Berne, Switzerland: 404.
- INEGI (2004). *Censo Economico 2004*.
- INEGI (2005). *II Censo de población y vivienda 2005*, Instituto Nacional de Estadística Geografía e Informática.
- Jodha, N. S. (1996) 'Property Rights and Development', in S. Hanna, C. Folke and K.-G. Maler (eds) *Rights to Nature: Ecological, Economic, Cultural, and Political Principles of Institutions for the Environment*, pp. 205-220. Washington DC: Island Press .
- Juarez, A. M. (2002) 'Ecological Degradation, Global Tourism, and Inequality: Maya Interpretations of the Changing Environment in Quintana Roo, Mexico', *Human Organization* 61(2): 115-124.
- Mackenzie, A. F. (2005) 'Land Tenure and Biodiversity: An Exploration in the Political Ecology of Murang'a District, Kenya', in S. Paulson and L. Gezon (eds) *Political Ecology across Spaces, Scales, and Social Groups*, pp. 94-112. New Brunswick: Rutgers University Press.
- McKean, M. A. and E. Ostrom (1995) 'Common property regimes in the forest: just a relic from the past?' *Unasylva* 46: online.
- Muñoz-Piña, C., A. de Janvry and E. Sadoulet (2003) 'Recrafting Rights over Common Property Resources in Mexico', *Economic Development and Cultural Change* 52(1): 129-158.
- North, D. C. (1990) *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.
- Nuitjen, M. (2003) 'Family Property and the Limits of Intervention: The Article 27 Reforms and the PROCEDE Programme in Mexico', *Development and Change* 34(3): 475-497.
- Ostrom, E. (1990) *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press.
- Platteau, J.-P. (1996) 'The Evolutionary Theory of Land Rights as Applied to Sub-Saharan Africa: A Critical Assessment', *Development and Change* 27: 29-86.
- Pous, L. V. and L. Villanueva (2005). *The Current Implications of Property Rights in the Current Land Tenure Regime in Rural Mexico: A Policy Review*. Latin American and Caribbean Law and Economics Association Annual Papers. University of California, Berkeley.
- Procuraduría Agraria. (2007). 'PROCEDE: Definición y Objetivos.' Retrieved Dec. 19, 2007, from http://www.pa.gob.mx/Procede/info_procede.htm.
- Registro Agrario Nacional. (2007). 'Nucleo Agrarios que Adoptaron el Dominio Pleno de Parcelas Ejidales y Aportación de Tierras de Uso Común a Sociedades Mercantiles.' Retrieved Oct 25, 2007, from <http://www.ran.gob.mx/ran/transparencia>.

- Schlager, E. and E. Ostrom (1992) 'Property-Rights Regimes and Natural Resources: A Conceptual Analysis', *Land Economics* 68(3): 249-262.
- Taylor, P. L. and C. Zabin (2000) 'Neoliberal reform and sustainable forest management in Quintana Roo, Mexico: Rethinking the institutional framework of the Forestry Pilot Plan', *Agriculture and Human Values* 17(2): 141-156.
- Zepeda, G. (2000). Transformación agraria: los derechos de propiedad en el campo Mexicano bajo un nuevo marco institucional. México, CIOAC.