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## Privatizing the Ejido System: The Tradeoff of Land Tenure, Governance and Transaction Costs.

## Abstract

This thesis examines the ejido system in Mexico in order to understand the dynamics of land tenure, governance and transaction costs through the lens of Elinor Ostrom's theory of good governance. This case of the ejido system was chosen as their constitution that enabled a communal access land tenure regime in the agricultural sector, was amended to allow for privatization. The ejido serves as a political and social institution that governs a given area with internal governance and voting members who create regulation based on community needs. To facilitate the transition of the ejidal land to private property, the government created the program PROCEDE in 1992 to provide formal titles and registered land delineation. Unanimous participation in the program PROCEDE ensued; by 2005, 89 per cent of ejidatarios receiving formal titles of individual plots and delineation of communal access areas, however 5.3 per cent of the ejidos chose full privatization and disincorporation of their ejidos (Deininger and Bresciani 2001). This thesis examines why the majority of the ejidatarios chose formal titles and registered land delineation but the majority did not fully privatize and disincorporate the ejido system. The findings demonstrate that communal access property regimes have the ability to reduce ecological uncertainty and that the gains from the PROCEDE program reduced behavioral uncertainty in the case of the ejido system. Privatization of the ejido system would raise transaction costs for ejidatarios, increase ecological uncertainty and not provide a further reduction of behavioral uncertainty than already achieved by land delineation.

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## 1.0 Introduction

In 1992, the Government of Mexico reformed Article 27 which affected Mexico's agricultural sector in allowing privatization of their long standing communal rights access land tenure regime called the ejido system. A program called PROCEDE was implemented alongside the reformation of Article 27 to delineate land and provide formal titles and land registration, by 2005, 96 percent of the ejidos accepted the land delineation and formally registered their rights and 89 percent received titles for communal areas as well as individual land holdings (Deininger and Bresciani 2001). The goal of PROCEDE was to facilitate the transition of the ejido system to parcelized private land holdings, however, by 2005 only 5.3 percent chose to fully privatize and disincorporate the ejido (ibid 2001). Herein lies the issue at hand, the vast majority seeking formal titles, yet the vast majority not accepting full privatization and a disincorporation of their communal access regime.

This research began with the examination of Elinor Ostrom's theory of good governance and an interest in communal access regimes. The mixture of property rights regimes, transaction costs and modes of governance are intrinsically related, if one shifts the other is affected. Furthermore, a question often asked in economic history is: what is the 'right' balance of governance, property rights regimes and transaction costs? To understand these dynamics of society, the school of institutionalism is consulted. To examine the intersection of political institutions, economic institutions, legal institutions and social institutions, enables an analysis that captures the complex nature of the variables at work as well as an integrated understanding of the dynamics at work in a given system. This study is particularly interested in the institutional intersection of how land tenure regimes are dictated by governmental institutions; in the case of the ejido system it is a question of whether state or local governance is best suited to prescribe policies for the organization of property rights. Property rights, especially given the case of the ejido system, will impact the transaction costs of production and thereby the livelihoods of the farmers. When analyzing transaction costs associated with property rights regimes, there are 3 distinct organizations of land rights that are discussed as at odds with each other, open access regimes, communal access property rights regimes and private property regimes. Each land tenure regimes has its merits and its deficiencies, this study is concerned with communal access and

private property rights as they directly relate to the ejido system. The ejido system was chosen to explore these dynamics as the ejido system was communal access for the past century and then was given the option to privatize in the early 1990's, thus highlighting the ebbing and flowing of shifts in the three aforementioned qualities. Furthermore, the ejido system is a particularly interesting case to explore these dynamics as the majority of ejido's accepted land delineation and registered titles through the program PROCEDE, yet less than 5.3 per cent privatized (Deininger and Bresciani 2001). As private property rights are a dogmatic force within contemporary conceptualization of land tenure, it puzzling to say the least that an overwhelming majority of the ejidos did not pursue privatization but a majority did accept formal land delineation, a facet often seen as synonymous with privatization. However, the notion that clear boundaries is an exclusive dynamic of privatization is untrue, and in fact is the foundation of communal access property regimes. The concept of privatization as the 'right' way underserves the potential of the ejido system in terms of the strength of local governance institutions and their ability to keep transaction costs lower than parcelization and privatization affords.

As many people around the world base their livelihoods partially or completely on agricultural production, it is important to analyze the impacts of different facets such as governance, property rights and transaction costs as they directly impact their ability to produce and cope with adverse risks (FAO 2001). Furthermore, given the contemporary trends in economics and politics, privatization is hailed as the 'right' way of organizing land and resources, it is therefore highly important to critically analyze the potential benefits and the potential negative impacts of using private property rights to organize land and resources. In this same vein, critical analysis of institutions like that of communal access regimes are necessary to see if there are conditions in which communal access has the potential to manage and sustain land and resources in a more effective manner than privatization. It is furthermore of importance to critically analyze other institutions like that of local governance and its impact on property rights and transaction costs.

This study is organized as following: first is a section that describes the aims of this study and presents the research questions, followed by a background and context section that will help the reader to understand multiple facets of the case that are pertinent to understanding the dynamics of the ejido system, next is the theoretical framework which will provide the commonly held views and contemporary body of work regarding institutionalism, and Elinor Ostrom's theory of good

governance, followed by an analysis of case study of the ejido system, the last section will give concluding remarks.

## 2.0 Thesis Aim and Research Questions

### 2.1 Aim and Justification of Research

The aim of this study is to explore the relationship between governance, property rights, and transaction costs through the lens of Elinor Ostrom's theory of good governance. In part, this study is to examine the role of institutions in the organization of property rights and how this relationship affects transaction costs. The thesis uses the changes in tenure regimes in Mexico as a case in point. More specifically the thesis seeks to understand why the ejidatarios accepted formalized titling and registered land delineation, yet the vast majority did not privatize when the government permitted it as well as promoted privatization. Through the discrepancy between formalized land titling and lack of privatization, an analysis of the ways in which ejidos organize their governance as well as how contextual factors like ecological uncertainty and behavioral uncertainty play a role in their communal access regime structure. As Elinor Ostrom's theory of good governance decrees clear boundaries and governance that is created by the constituents to suit the needs of each community, this study aims to understand whether these principles played a role in the lack of privatization of the ejido system. Stemming from this notion, this study aims to examine whether contextualized local governance can be better suited in terms of risk sharing strategies and less costly than state led privatization in managing resources and people in ecologically uncertain settings.

### 2.2 Research Questions

The aim of this study will be formulated by the research question:

Why did the ejidatarios not privatize?

- Why did the vast majority accept land delineation and formal titling, but not disincorporation?
- Were there values of the communal access regime that made privatization undesirable?
- How does the relationship between governance, property rights and transaction costs affect the ejidatarios decision and/or ability to privatize?

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## 3.0 Background and Context

### 3.1 Geography and Climate:

When understanding agricultural policies and land tenure regimes it is important to look at the types of climate and geography that are subject to the policies and regimes. Different types of climates will suit certain crops, types of livestock, production methods, production organization and many other aspects that are all impacted by the agricultural policies and land tenure regimes. Across Mexico and within ejidal land, there are many different terrains throughout that affect the types of production that occur on ejido land. Within one ejido, there can exist different terrains that can range from forest to desert, rolling hills to low lands with permanent water, tropical rain forest to rocky mountains. Geologists have organized Mexico's climate into seven different climate regions: Tropical wet, tropical wet-and-dry, semi-arid, arid (desert), temperate with dry winters, humid subtropical, Mediterranean. These regions can have drastic changes in elevation, temperature, and rainfall all of which have effects on the way agricultural production is organized as well as herding and livestock practices (Wauer 1992). Production is affected by these elements as temperature, amount of rainfall vs irrigation, types of soil, local vegetation and the like affect what you can grow, how you can grow it, as well as where herding of various livestock animals can take place vs where it would be much more capital and labor intensive to produce the same amount of products. The climatic differences are also important to illustrate as tenure regimes that encourage parceling of communal access areas will dramatically affect the production methods of herders and small scale farmers as many ejidatarios lack irrigation infrastructure and rely on rainfall which can vary drastically across a single region. Below is a chart of rainfall averages from CONAGUA in 2016, displaying the region, the number of days of rainfall, the major city, and the average in inches and in millimeters:

Region	Days	City	Inches	Millimeters
Baja California	14	Cabo San Lucas	10.0	255
	19	La Paz	7.2	184
	16	Mexicali	2.9	73
	15	San Jose del Cabo	14.1	357
	38	Tijuana	10.3	261

Northern Mexico	50	Culiacán	26.2	666
	65	Durango	17.0	432
	38	Hermosillo	15.3	389
	63	Monterrey	23.5	597
	61	Saltillo	14.3	364
	35	Torreón	9.2	233
The Bajío	65	Aguascalientes	19.9	507
	75	Guanajuato City	29.1	739
	72	León	26.8	681
	61	Querétaro	20.8	528
	66	San Luis Potosí	14.5	368
Central Mexico	64	Mexico City	12.0	304
	110	Puebla	37.1	942
	73	Tampico	39.1	993
	106	Veracruz	67.7	1719
Pacific Coast	69	Acapulco	53.2	1352
	88	Guadalajara	38.9	989
	55	Ixtapa & Zihuatanejo	41.1	1043
	107	Morelia	30.3	694
	67	Oaxaca	27.3	694
	95	Puerto Vallarta	64.6	1641
	69	San Blas	57.4	1457
	108	San Cristobal de las Casas	42.8	1087
	94	Taxco	44.9	1139
	94	Tuxtla Gutiérrez	37.8	961
Yucatán Peninsula	112	Cancun	51.2	1300
	85	Mérida	43.1	1095
	82	Tulum	43.3	1099
	127	Villahermosa	77.7	1975

### 3.2 Diverse production and livelihoods amongst ejidos:

Production and economic activities vary throughout the ejido system, certain regions of Mexico have higher profit economic activities like that of livestock production and certain regions are based in subsistence farming practices. Within regions there are differences of production practices however, this stratification of livelihoods is discussed in order to show the economic inequalities

between regions and within regions. The north west is home to ejidos that have diversified economic activities; agricultural production on the ejido can involve cattle herding, agriculture for export, as well as income diversifying activities in off-site sectors like service and tourism. Ejidos in the North West have been favored by the state in terms of access to credit from BANRURAL (the state owned main creditor of agricultural activities) and investment from private actors (Vázquez Castillo 2004:101). While ejidos in the south are primarily agriculturally based, have higher indigenous populations, have less diversified economic activities, many operate at subsistence levels and generally have received much less credit than northern ejidos (ibid: 145). Examples of production are sesame, soybeans, cotton, vegetables, and above all, wheat, are the main products grown in the San Luis Río Colorado a wealthier ejido in the border state of Sonora, next to Baja California and California and Arizona (Vázquez Castillo 2004:100). In the south, an ejido called Ixtaltepec produces corn, sesame, sorghum, peanuts, sugar cane, pumpkin, green peas, watermelon, and cantaloupe (Vázquez Castillo 2004:145).

### 3.3 Local government:

Prior to 1910, 97 percent of land was owned by 1 percent of the population, 95 percent of rural families did not possess land of their own (Dunn 2000:217). As the vast majority of the rural population was landless, social conflict ensued due to high inequality between the rural population and the landowners. Among other political and social reasons, the ruling oligarchy was overthrown and the establishment of the modern republic of Mexico ensued. Under Article 27 of the constitution, the government of Mexico transferred half of the country's land to the ejido system beginning in 1910 and ending in 1992, local ejidos began to organize and give access to political tools that many did not possess prior to ejido membership (Perramond 2008:356). Ejidos were formed when a group of villagers petitioned to the government to seize private properties or *haciendas* that exceeded certain specified sizes, initially 150 hectares for irrigated land and 200 hectares for rain-fed holdings (Merrill and Miró 1996). These rural smallholders benefited by gaining access both to previously unavailable resources and to new norms of local political institutions. With the reorganization of landless peasants to people now with usufruct rights to communal land and waters and individual plots, local ejidos became, "one of the more formidable groupings of smallholders, driving political and economic change at the *municipio* level and redistributing local power" (ibid:357). The organization of governance within ejidos were that

members who were registered as ejidatarios or those possessing the usufruct rights delegated by National Agrarian Registry (RAN) during the redistribution of land were allowed to vote in the ejido assembly. Other actors often present in ejidos were community residents (*avecindados*) and/or possessors (*posesionarios*), who might also be working the land with a formal or informal agreement with a member of the ejido. These other actors did not have voting rights, it is also noted that the voting members were mostly men, women and wives of ejido members commonly did not possess the title and therefore were not voting members (Brown 2004:12).

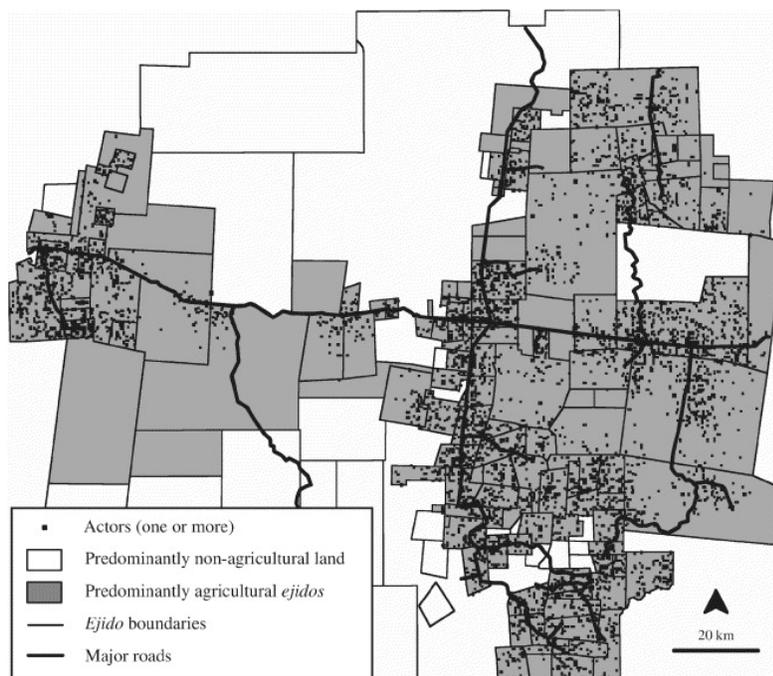
The internal governance of the ejido was by law to comprise of a General Assembly, the Commissariat, and the Supervisory Council. The General Assembly consists of all ejidatarios (again those with voting rights), decisions within this group are made by majority vote. The Commissariat is the executive branch elected by the general assembly, they are elected every three years and cannot be re-elected, which implements agreements made by the General Assembly as well as an acting administration for the ejido. The Supervisory Council whom are also elected has the monitoring function as well as keeping internal legislation made by the General Assembly in accordance with national legislation (Barnes, DiGiano and Augustinus, 2015:6). While ejidos had internal governance that allowed for a certain degree of creating legislation that was unique to each ejido and their needs, state legislation had stipulations that ejidos had to adhere to. Ejidos created internal regulations which could be registered with the Registro Agrario Nacional (RAN) a decentralized organ of the Secretariat of Agrarian, Territorial and Urban Development, is responsible for the control of land tenancy and communal land (ejido), and provides documentary legal certainty by applying the Agrarian Law. These regulations deal with such issues as “the economic and social basis of the ejido, the criteria for admitting new ejidatarios, the rules for using the common-use areas, as well as any other requirements stipulated by the Agrarian law or deemed pertinent by the ejido” (Barnes, DiGiano and Augustinus, 2015:7). However, registration of internal regulations wasn’t the norm, a study by Brown (2004) illustrates that in the region of Oaxaca which has 1,500 ejidos, only 300 to 400 registered their written rules.

Participation within the General Assembly is an extremely important facet of ejidal nature yet studies show that participation can be so low that it is difficult to change legislation with the traditional majority voting structure (Barnes, DiGiano and Augustinus, 2015:6). Furthermore, that power dynamics within the internal governance can be uneven and result in inequality socially and

has had implications for the ecological aspects of common use areas which contain water and/or forest (Perez-Cirera and Lovett 2006). This is not a unique aspect to the ejido system but is instead mentioned to denote that communal governance is by no means more egalitarian and furthermore that judicial conditions prior to the reformation of Article 27 were not necessarily utopian. Though the aim of the governance structures within the ejido are to promote democratic processes whereby voter participation increases the equality of the decisions, many individuals within the ejido lack representation. This discrepancy of power relations can create conflict within the ejido. Furthermore, there is evidence that decisions made and information is not always made known to all members within the ejido, Vázquez Castillo carried out research in different ejidos and asked members of their knowledge of the changes to the constitution that affected the land tenure of their homes, “79% of interviewees and ejidatarios responded that they did not know anything about the 1992 Article 27. The other 21% said they knew what the article was but couldn’t say anything about the changes to the article” (Vásques Castillo 2004:116). Lack of information regarding the changes to Article 27 was prevalent, which could be a reflection of the lack of inclusiveness of many individuals into the voting process as well as general lack of participation in the General Assembly meetings.

#### **3.4 Land tenure, usage and distribution:**

The three types of tenure distinctions: an urban zone with individual house lots (*solares*), common use areas (mainly forest or pasture), individual agricultural parcels (*parcelas*) (Barnes, DiGiano and Augustinus, 2015:6). Below is an example of a layout of a group of ejidos in Calakmul in the Southern Yucatan Peninsula region in the state of Campeche which was mapped out in 1998 by Manson (2005): Figure 1. Layout of Ejido in Campeche.

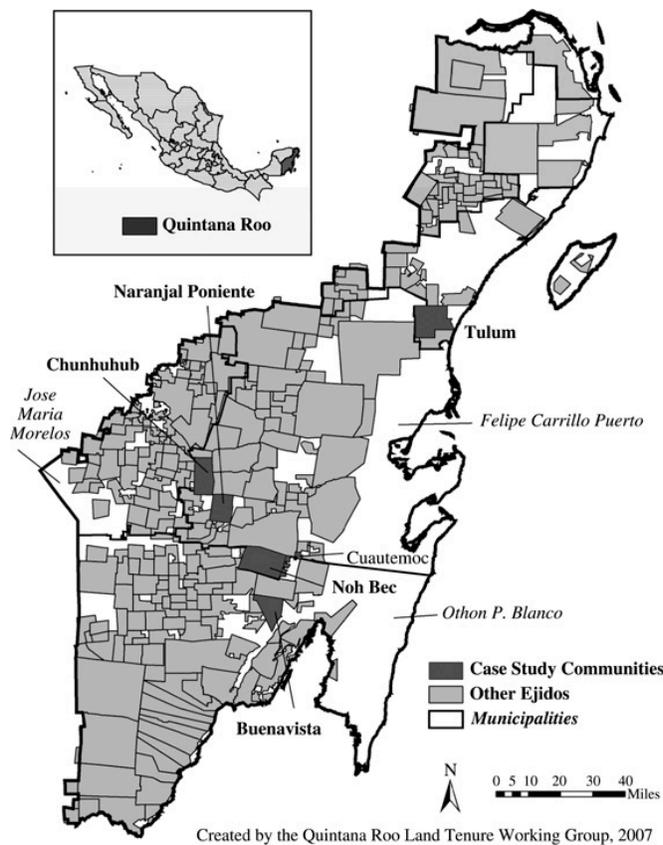


In this map, Manson defined actors as, “smallholder households that diversify their production activities to include subsistence-oriented *milpa* cultivation, agroforestry, modest logging and market-oriented cultivation” (Manson 2005). This is an example of the often scattered distribution of small scale farmer ejidatarios across the ejido area, with an estimated 30,000 inhabitants in the area as of 2005 (ibid).

Of crucial importance to this study, is that individual plots were not formally delineated prior to the reformation of Article 27 in 1992. Individual plots were delineated in an informal manner, often verbal agreements; it was not common practice to have written agreements of what land was included in the individual plots (Brown 2004:10). Communal access boundaries were delineated however, it was not uncommon for land disputes to occur within the ejidos as well as between neighboring ejidos, as will be discussed in the analysis section (ibid:10). Brown’s (2004) study calculated an average individual parcel size in Oaxaca to be between 1 and 3 hectares, although in some areas farmers held plots under one hectare and in others farmers held up to five hectares. Furthermore, national statistics show that parcels held by ejidal members average 1.2 hectares, while landholdings by private farmer’s average 2.8 hectares (ibid:10). Haenn (2004) notes that populations on ejidos ranged vastly; her study of nine ejidos in the municipality of Calakmul in the state of Campeche show populations to range from 23 members to 169 voting members. The

size of communal land, of the nine ejidos, ranged from none at all to 25,000 hectares (ibid 2004). The distribution of land use on certified common areas is dominated by cattle farming (60%) followed by agriculture (15%), mixed cattle and crop farming (11%), and forest (10%) (Perez Martin, 2004). The dominance of cattle farming on communal land has potential implications for the allure of privatizing and disincorporation of the ejido as communal land can be vast, yet if parceled off would dramatically reduce the ability for herders to graze and might be highly undesirable for members that would have access to land that receives less rain or is more mountainous etc. Below is an example of the mapping of Quintana Roo, a state located just next to Campeche. This study was carried out in 2007 by Barsimantov et al.:

Figure 2. Map of Quintana Roo



This map demonstrates the sheer differences in size of each ejido within the same region. The ejidos in this region have a range of economic activities including: agriculture, forestry, cattle, and tourism along the coast (east side). The surface area of the state of Quintana Roo is 50,212 km<sup>2</sup> a vast area; for reference, all of Skåne is 11,034.5 km<sup>2</sup>.

### 3.5 State legislation:

Before the amendment to the constitution that reformed Article 27 in 1992, ejidos could not sell personal rights to other members or outsiders, the ejido itself could not be sold as a whole. Ejido land could not be leased or rented to other members or outsiders. In general land titles were not transferable with the exception that titles could be passed on to future generations of kin. Hired labor on ejidal land was prohibited, furthermore land had to be worked consistently, if land was found to be unused for two consecutive years, those with rights would forfeit them back to the state whereby the land would be redistributed to other ejido members. This was to counteract the absentee landlordism that was common practice prior to the land redistributions (Yetman and Búrquez 1998). Yet this stipulation has potentially negative effects as well, given the generally elderly population of the ejido system, those who are unable to work the land themselves and furthermore can not rent out the land or hire labor would be at quite the loss. Again informal agreements and practices were present, but it goes without saying that some of the stipulations that were meant to keep ejidal land from conglomerate negligence, also if followed to the ‘tee’ could present difficulties for ejido members.

### 3.6 After the amendment in 1992:

A number of institutional changes occurred in the aftermath of the reformation of Article 27. Ejidos now had the ability to sell their property/title, buy their own ejido land that had formerly been property of the state, rent their land or engage in sharecropping with non-ejido members, be absent for more than two years, were allowed to hire labor, use their title as collateral for loans and credit, create joint ventures or form associations with commercial groups, as well as ejidatarios were no longer under jurisdiction to grow certain crops (Vázquez Castillo 2004:38). Lastly, the state no longer had to redistribute or provide land, and the state significantly cut subsidies and price control mechanisms that had been a guaranteed income for many (iBid). These changes to the constitution were to pave the way for a transition from communal access property rights to the privatization of the ejido system. In order to facilitate these steps towards privatization, “the Government of Mexico (GOM) instituted a massive land-rights regularization program known as PROCEDE (Program for the Certification of Ejido Land Rights and the Titling of Urban House Plots, or Programa Nacional de Certificación de Derechos Ejidales y Titulación de Solares Urbanos). The

goals of this program were to register and title land-rights in ejidos and comunidades in order to strengthen land-tenure security, improve the efficiency of rural land markets (and credit markets), and increase the rate of privatization (Haenn 2004; Deininger and Bresciani 2001; Castellanos 2010). PROCEDURE began with a large-scale information campaign, in which PROCEDURE officials met with ejido General Assemblies. PROCEDURE then guided the ejidatarios, “through a series of options and votes regarding the regularization and possible privatization processes. The ejido first voted to determine whether it wanted to join PROCEDURE. The primary benefit to joining PROCEDURE was that members would receive up to three land titles (one for their house plot, one for their farm plot and one representing a percentage of the value of the common goods, including common lands). Another important benefit of joining PROCEDURE was individual plot delineation. If ejidos voted to join PROCEDURE, as most did, the second vote determined whether members should receive any or all of the three titles listed above, and how much land to assign to each category. The third vote was whether to disincorporate the ejido through full privatization” (Haenn 2004; Deininger and Bresciani 2001; Castellanos 2010). Since its inception, “PROCEDURE has covered 20,030 ejidos or more than 70 percent of the total, regularizing an area of 45 million hectares and giving legally recognized land rights to more than 3.5 million ejidatarios” (Deininger and Bresciani 2001:2).

### **3.7 Withdrawal of state support, a push towards privatization:**

While the government of Mexico officially offered privatization as a voluntary action, in reality the switch to privatization was not as voluntary as it might appear. The government of Mexico cut subsidies to the ejido system drastically in the late 1980’s and early 1990’s, credit and support that increased the livelihood for many small scale farmers operating at a subsistence level (USAID 2010). The subsidies also including price guarantees that were dropped with the induction to NAFTA, this also severely limited the agency of agricultural producers. Another blow to the ejido system was the severe cutback in state provided loans from BAN Rural, the main supplier of credit to the ejido system at the time. So while on paper the decision to privatize was a voluntary action, the ejidatarios were being squeezed in multiple financial manners with the aim that ejidos would privatize, access credit from the private sector and increase productivity.

### 3.8 Outcomes of PROCEDE:

As previously stated, the majority of the ejidatarios received registered land delineation and formal titles 96 percent and 89 percent respectively, yet the majority did not disincorporate (5.3 percent) their communal access ejidos (Deininger and Bresciani 2001). As PROCEDE intended for the program to run, with the first step being registered land delineation and formal titles and the final step being disincorporation and privatization, it seems counterintuitive that if ejidatarios did not want to privatize the ejido system then accepting the registration and titles seems an unnecessary action. As will be discussed in the theoretical framework section, the launching point for the analysis will be the role of clear boundaries and how they support different property rights regimes.

## 4.0 Theoretical Framework

To unpack the puzzle this paper will use the institutional framework to analyze the relationship between modes of governance, property rights, and transaction costs. Elinor Ostrom's (1990) "Design Principles and Threats to Sustainable Organizations That Manage Commons" is used to analyze the relationship between modes of governance and property rights, as these two facets will then have an impact on transaction costs which will be further discussed later on in this chapter. This paper will explore certain facets of land tenure regimes that consist of private property rights and communal access, usufruct rights. There will be a discussion as to the potential for a spectrum of land tenure regimes and the reasons behind this spectrum. These relationships are explored in order to understand the case of the ejido system as it provides an example of a case in which land tenure regimes have been changed and the potential consequences of these changes in land rights will have ramifications felt throughout the system. The use of these theoretical frameworks are implemented and analyzed as they relate to the key of the case of the ejido system, as land delineation was a highly popular tool that the majority of ejidos wanted and accepted, yet a staggeringly low amount of ejidos fully disincorporated given the chance, it is highly important to understand what about land delineation was so desirable and why full privatization was not achieved.

#### **4.1 Private property rights, contemporary land tenure paradigm:**

Ostrom analyzes the origins of private property rights dating back to ancient times which were so widely accepted, “in the legal literature of the early nineteenth century that the possibility of other forms of property existing on the European continent threatened juridical views about the origins of social order” (Ostrom and Hess 2007:2). Private property rights is a deeply ingrained view of how land and resources should be accessed and managed, it is the contemporary paradigm of land tenure. The notion of privatization as the superior mode of land tenure stems from the idea that private property rights strengthens security which will affect investment behavior of the land users. Holding private property rights enables the owner to use their title as collateral for loans which enables higher investment in technology and resources for production. Furthermore, the notion that privatization of property will allocate resources to the most efficient use and users is prevalent in literature on land regimes, which in turn is equated to higher productivity (North 1990). An often cited difference between communal property rights and private property rights is the notion of alienation; the ability to sell, rent out and transfer rights. This is a point of contention as to which form of tenure is ‘superior’. The notion that because upon possessing alienation of rights, that resources will be automatically allocated to the highest level of efficiency is not necessarily true and in circumstances, such as cattle grazing, the ability to sell off rights would negatively impact the system. As will be discussed in the analysis section, privatization of individual plots as well as parcelization of communal areas has the potential to increase ecological uncertainty as well as having the same potential of reduction of behavioral uncertainty as communal rights provides.

#### **4.2 Misinterpretation of Communal rights and definition:**

The body of literature that surrounds communal access rights can often confuse communal access rights with open access regimes. Where open access does not exclude users and may or may not dictate rules on extraction or usage of land or resources, communal rights involves an often complex form of governance that stipulates who and how users may access the land and/or resources. Furthermore, it is important to note that communal rights shares certain qualities with privatization but has key differences that might suit certain conditions better than a private property regime could. Communal access rights is a land tenure regime that is most commonly a usufruct system, i.e. one does not possess the land but has access to the land and the ability to use, consume

and often sell the resources from the land via production or extraction. Communal access rights define the ability to exclude users, which contrasts with open access regimes. A key differentiation between communal rights and private property rights is the right of alienation, or the ability to sell or rent rights. As the ejido often involves an area that can be used for herding, forestry or other types of communal uses, the fact that parts of this area cannot be sold protects this mode of production, as will be further discussed in the analysis section. While communal access rights is often transferred or passed down through heritage lineation they are not permitted to be sold to non-members for profit. It is important to acknowledge the misinterpretation of communal property rights and its distinctions from open access regimes and private property regimes that persists in literature, as it colors the debate of the legitimacy of the ejido system's governance and tenure. In the following section, a discussion of the political economist's work which has helped to illuminate the differences in tenure regimes and the potential of communal access regimes in creating sustainable and effective management practices.

#### **4.3 Institutionalism and modes of governance, property rights, transaction costs:**

Institutionalism is the school of thought that analyzes the relationship between institutions and their effect on society. Economists, sociologists, historians, anthropologists and many other disciplines turn to institutions to understand what they are and how they influence important aspects of society, past, present and future. This paper is interested in the economic historian perspective of institutions and their influence, one such proponent is Douglas North. North defines institutions as, "humanly devised constraints that shape human interactions. They reduce uncertainty by establishing a stable (not necessarily efficient) structure to human exchange, whether political, social, or economic" (North 1990:3-4). Uncertainty is a central theme to this body of work as property rights and the type of land tenure implemented are institutional instruments which shape behavior and strive to reduce uncertainty. North makes a case for the drive behind why certain institutional regimes will choose a property rights scheme: costs. For North, "Institutions determine transaction (defining property rights, enforcing contracts) and transformation (type of technology employed, efficiency of factor and product markets) costs. Because markets are imperfect, institutions are a mixed bag of rules that lower costs and those that raise them" (North 1990:63). As institutions dictate property rights regimes, the choice of the 'ruler' of which property rights regime is implemented is based off of the need to maximize rents

as well as the amount of capital it takes to measure the dimensions of the input and outputs of the economy as well as the perceived rent potential from each unit (ibid: 26). Lastly, that common property resources have persisted under circumstances where the dimensions of measuring the resources have outweighed the benefits.

On the subject of transaction costs, the cost of measurement is understood in another way. As land tenure is concerned with qualities like land delineation, enforcement of property rights, defining permitted users, types of actions allowed by users and the like. All of these actions have attached costs and will shape the probability and sustainability of a land tenure system. It is important to understand these various costs especially given that states implement policies that affects many constituents with various needs, “institutions (together with technology) affect the performance of the economy by their effect on the costs of exchange and production. Transaction costs in political and economic markets can result in inefficient property rights, and the interaction between institutions and organizations can produce a lock-in with perverse feedback that accounts for the persistence of inefficiency” (North 1990:6). Given that complex systems of users with different needs are more often than not subject to the same property rights regime, an understanding of why this standardization of policy prevails should be investigated. North postulates that, “standardization performs the function of lowering transaction costs and of allowing the ruler to extract the maximum amount of rent” (North 1981:26). While there is the argument that a standardization of policy would lower transaction costs, having a policy that’s aim is standardization, like that of private property for the whole of the ejido system, would in fact raise transaction cost for many members as privatization could have negative effects under certain conditions. A system like that of the ejido system, will benefit from a spectrum of property right regimes as opposed to a standardized policy that reflects the needs of certain users but certainly not all, a telling feature of its current tenure system.

#### **4.4 Ostrom, Complexity and the model of Good Governance:**

Elinor Ostrom dedicated a lifetime of research to the socio-economic and political aspects that govern and surround the commons. When it comes to common-pool resources (CPRs), Ostrom refutes the notion that only privatization, or enforcement imposed by external institutions, of communal land and resources can dissuade exploitation and reduce behavioral uncertainty (Ostrom

1990:xi). Through good governance, an explicit set of rules created and implemented by the community members, CPRs can be managed in an effective, sustainable and at a lower cost than privatization. Ostrom used an institutional approach to analyzing the relationships between governance, property laws, and transaction costs in managing CPRs. She analyzed the balance between governance, property rights and transaction costs in order to create effective regimes that served the needs of the users, while mitigating exploitation of land, resources and people in a sustainable manner. Ostrom was a major proponent of the complexity theory and urged that standardization of policy created and enforced by centralized external institutions was not the 'only' or 'right' way, especially given CPR cases, her work had, "an additional purpose beyond challenging the presumption that universal institutional panaceas must be imposed by external authorities to solve smaller-scale, but still complex, uncertain, and difficult problems" (Ostrom 1990:183).

Ostrom formulated a model for communal rights regimes and stated that the following eight principles are fundamental to successfully managed lands and resources:

1. Define clear group boundaries.
2. Match rules governing use of common goods to local needs and conditions.
3. Ensure that those affected by the rules can participate in modifying the rules.
4. Make sure the rule-making rights of community members are respected by outside authorities.
5. Develop a system, carried out by community members, for monitoring members' behavior.
6. Use graduated sanctions for rule violators.
7. Provide accessible, low-cost means for dispute resolution.
8. Build responsibility for governing the common resource in nested tiers from the lowest level up to the entire interconnected system.

While all of the aforementioned principles are integral facets of effective management, this study is especially concerned with the principle of clear boundaries in the context of the case of the ejido system. The design principle of clear boundaries is pivotal to both the ejido system as well as privatization. Ostrom creeds 'clear boundaries' as the initial step of governance and a foundation from which good governance can be built upon (Ostrom 1990). Land tenure is universally perceived as a key factor in economic growth, in strong governance, in political stability; yet contemporarily, there exists a paradigm that land tenure can and should resemble private property laws that are sanctioned and protected by the highest form of law: the state. One

common proponent of why private property rights is hailed as the best form of land tenure is that the ability to define what is owned, who may use what, who may not use the property or its resources as well as a means of protection for the land and resources. This is however not a unique facet of private property rights. Ostrom would argue that in fact land delineation and clearly defined boundaries need not be exclusive to private property rights, but instead can be a functioning and necessary first step of managing a common-pool resource. In the ejido system there are different structures of organization; common structures involve a common land often for grazing open to all ejido members (not to other ejidos however), a communal town area, individual plots for living and for farming. Some ejidos have mainly individual plots, some have mainly communal land, and mixes of the aforementioned. Having clearly defined boundaries is a necessary principle for governance, where many proponents of privatization take this principle to different levels is the notion that private property rights is equated with higher productivity and higher levels of investment. It is highly important to note that in the debate of private property rights versus communal property rights, that there is in fact no institution that will create equity, sustainability and efficiency under all conditions, “There are, however, no panaceas! No institutions generate better outcomes for the resource and for the users under all conditions” (Ostrom and Hess 2007:1). Furthermore, it is important to strive for the possibility of a continuum of land tenure, given that creating a swathe of policy across a vast system will create noise under particular conditions; is it not better to allow for a policy that can adapt to the specific needs of a situation and/or group? It is in this ‘adaptability’ that lies true potential.

Williamson who is largely credited with the formulation of the transaction cost theory gives an interesting analogy for the ways in which high transaction cost effects a system, “in mechanical systems we look for frictions: do the gears mesh, are the parts lubricated, is there needless slippage or other loss of energy? The economic counterpart of friction is transaction cost: for that subset of transactions where it is important to elicit cooperation, do the parties to the exchange operate harmoniously, or are there frequent misunderstandings and conflicts that lead to delays, breakdowns, and other malfunctions? Transaction cost analysis entails an examination of the comparative costs of planning, adapting, and monitoring task completion under alternative governance structures” (Williamson 1979). If the benefits of private property rights are so strong and so beneficial, then it’s important to understand why the vast majority did not fully privatize.

Given that PROCEDE resulted in an infinitesimally small percentage of ejidal land being transferred to private property, an examination of the transaction costs involved in the process of land titling should be undertaken as it is possible that the informal institutions already in place in terms of access to credit, land tenure and the ability to rent land were strong enough that the costs of formal privatization were unfavorable.

#### 4.5 Spectrum of institutions:

The notion that a spectrum of property rights can exist and should exist has true possibilities of creating a better system given a heterogeneous quality and or a large system with many different constituents with different needs. Furthermore, “institutions are rarely either private or public – ‘the market’ or ‘the state’. Many successful CPR institutions are rich mixtures of ‘private-like’ and ‘public-like’ institutions defying classification in a sterile dichotomy” (Ostrom 1990:14). Certain systems might benefit from traditional private property rights, or open access, or communal rights or a mixture of ‘private-like’ and ‘public-like’ as Ostrom notes. This is because certain needs, such as a higher level of exclusion to protect a resource could benefit from private property rights or communal access might make more sense if a mode of production like that of cattle grazing needs larger space and makes it costlier to monitor and enforce boundaries. A combination of tenure regimes could be the best solution, in this paper there will be an examination of the ways in which facets of tenure regimes are best employed when contextualized and reflect the unique setting and actors involved. The trend with policy creation is to attempt to replicate a success, or perceived success, in other situations while in fact, “institutional solutions that perform well in one setting may be inappropriate in a setting without the supporting norms and complementary institutions” (Rodrik and Subramanian, Secondi 83). A tenure regime that has been deemed efficient, profitable and the ‘right’ way, may be very detrimental to the success and prosperity of another setting given a multitude of factors ranging from cultural differences, ecological differences and the like, “instead of presuming that optimal institutional solutions can be designed easily and imposed at low cost by external authorities, I argue that ‘getting the institutions right’ is a difficult, time-consuming, conflict-invoking process” (Ostrom 1990:14).

When discussing the various ‘outcomes’ of tenure regimes, privatization is often looked upon as the most ‘efficient’ and ‘profitable’, a previous discussion of allocation of resources and the like

illustrates the privatization stance. However, Ostrom and those of the 'spectrum' school of thought, reassess the ideal 'outcome' of tenure regimes; when it comes to a CPR, is it in fact desirable for the same type of 'efficiency' and 'profitability' that is inherent in the commodification process that privatization is after? Ostrom gives the examples of, "private organizations of firms dealing in goods such as electricity, transport, and medical services tends to be more efficient than governmental organizations of such firms. Whether private or public forms are more efficient in industries in which certain potential beneficiaries cannot be excluded is, however, a different question. We are concerned with the types of institutions that will be most efficient for governing and managing diverse CPRs need not have the same positive results as privatizing the ownership of an airline" (Ostrom 1990:22). Furthermore, that the 'positive results' Ostrom speaks of may not be a result of dividing the rights to access and control of such resources, in the way traditional privatization would deem best. Following the suggestion by Wathne and Heide (2000), the study here presents a different operationalization of behavioral uncertainty, arguing that the chance of opportunistic behavior will be lower when a context aligns the incentives between contracting parties. The study uses incentive alignment between parties of information transactions as a measure for behavioral uncertainty, thereby evading some of the problems encountered with the construct of performance ambiguity. As will be discussed in the analysis section and has been briefly mentioned already, the ejido system has used risk sharing strategies such as communal access herding as well as sharecropping practices that are based on shared incentives, thereby reducing the opportunistic behavior. Due to shared land needed for cattle grazing or sharecropping that is a contractual method of production where the ideal outcome is a large profit shared by the members, communal access rights and social networks inherent in the ejido system facilitates this common incentive ideology, reducing the need for transaction costs such as monitoring, analyzing, enforcing, titling, legal work etc. Baland and Platteau (1998) note that, "the direct costs of private property, as distinct from its opportunity costs, mostly consist of transaction costs, including the costs of negotiating, defining, and enforcing private property right" (Baland and Platteau 1998:645).

The theoretical framework for this study uses Elinor Ostrom's 'theory of good governance' in combination with contemporary views on institutions of both governance as well as property rights regimes. Within this framework, is the dialogue of communal access rights versus private property

rights regimes and how transaction costs are stipulated by these regimes and what this affect is specifically on the ejido system.

## 5.0 Methodology

This study uses a case study design with longitudinal aspects to understand the dynamics of the ejido system before, and during the transformation of the agricultural property rights regime carried out by the government of Mexico (Bryman 2012:66). The ejido system was chosen as the case in order to understand the relationship between governance, transaction costs, and property rights. With the reformation of Article 27 in 1992 and the implementation of PROCEDE, one can examine the shift in the three aforementioned dynamics as well as to understand to what degree do the ejidos implement Elinor Ostrom's theory of good governance. As Ostrom's theory is the starting point of this study, a deductive research strategy is used as Ostrom provides a framework through which to understand the relationship of the three factors and within a contextualized position of the ejido system (ibid:24).

As this study was interested in understanding dynamics of governance, transaction costs, and property rights, the case of the entire ejido system was chosen. Due to the heterogeneous nature of the ejido system, taking individual ejidos as the unit of analysis did not suit the nature of this study. As ejidos differed in many aspects from physical size to type of crop, number of cattle, climatic elements, population etc., this study would be underserved if a comparison of a few ejidos were made. Examples and data were taken from individual ejidos, however more central to this study were the trends of practices and aggregate behaviors of ejidatarios throughout the system.

This study has implemented secondary data analysis of documents from state official records, case studies, documents from organizations such as USAID, the World Bank, and the work of many economists, anthropologists, and sociologists. This mix of data sources has enabled this study to develop a multidimensional view of the processes of change in the ejido system. It is of note however, that using secondary data carries with it the limitations of source validity as well as inherent biases. A strategy of this study has been to use sources of a wide variety of disciplines as well as a breadth of each discipline to mitigate the occurrence of a one-sided view.

As this study used secondary data and documents from a range of years, a longitudinal element has enabled this study to evaluate change over time (Bryman 2012:63). The retrospective manner of this study has enabled the research to evaluate the case in terms of preconditions of the

ejido system prior to the reformation of Article 27 as well as to treat the reformation of Article 27 as a variable from which to examine its impacts on the ejido system. Within this case there are two distinct steps that serve as variables: the acceptance of PROCEDURE's titling being the first and the disincorporation of the ejido, or lack thereof being the second variable. A grounded theory approach was used throughout this study. A constant interaction between data and theory was crucial to the analysis and general structure of this study (ibid:404). Though this study is deductive in nature, beginning with Elinor Ostrom's theory and transaction cost economics, and searching for cases in which communal access regimes were the organization of land tenure, data findings from the ejido system have shaped the direction in which the theory was used for this study.

## 6.0 Analysis

### 6.1 Motives for formal titling and land registration

#### 6.1.1 Land Disputes, transaction costs, local resolution

Land disputes were prevalent leading up to 1992, as waves of land redistribution occurred over approximately 70 years and informal tenure agreements were carried out, delineation was often unclear leading to conflict (Nuijten 2003:489). Part of the process of PROCEDURE was to survey the ejido and denote disputed boundaries which would then be encouraged to reach resolution through the General Assembly, often land that could not be delineated was an outcome of lack of resolution through the ejido's conflict resolution mechanisms which was then passed on to the outside arbitrators (iBid). Furthermore, the process of PROCEDURE itself reignited longstanding disputes that had been informally resolved or were no longer recognized by the parties involved as inheritance of rights was not necessarily recorded (USAID 2010). Though the process of delineation was not perfect, it did encourage resolution of disputes through the General Assembly as the main institution of arbitration which was less costly and more time effective than using state or private arbitration. In a case study by Duhau (2009) in the ejido of Santiago Teyahualco located on the periphery of Mexico City, ejidatarios saw the titling program of PROCEDURE as a means of settling disputes associated with land tenure. Furthermore, that the notion that titling was accepted as means to use their titles as collateral for credit was not the end goal:

that if individuals seek to obtain full ownership titles, this is related to opportunities to sell their land for urbanisation rather than to ask for credit. In some cases the acceptance of certification may have been a way to settle internal disputes (Duhau, 2009:371).

As the ejidatarios accepted more formal titling than previously held as well as land delineation, the transaction costs associated with changing to privatization would be higher when compared with the titles received during PROCEDA where arbitration was dealt with in a localized and contextualized manner. The ejidatarios got what they wanted, resolution of land disputes, stronger property rights, yet retained communal access to the community area as well as preserved longstanding social institutions and political agency. An example of land disputes comes from the study by (Rentería Garita and Delgado-Serrano, 2014) in which an ejidatario from the ejido of La Antigua wanted to,

Espinoza was interested in having full use of the zone to extend his fishing preserve because “in the rainy season, these plots are useless; they serve only during the dry season” (Exp. 5099, Foja 74). These could be identified as individual goals in conflict with the communal use goals of the ejidos.

As the study explains, ejidatario Espinoza appealed to the state of Mexico to resolve this issue as he distrusted the local authority of the ejido (Rentería Garita and Delgado-Serrano, 2014:24). This became a lengthy and expensive process to appeal to the state instead of using the local ejido government to resolve this issue. Though this is an example of the distrust of his local governmental body, i.e. the General Assembly, taking the matter for resolution outside of the ejido became expensive and took lots of time through many appeals, and court appearances. If privatization were to occur in this ejido and the governmental body were disassembled this would become the norm for every ejidatario who wished to resolve an issue related to land tenure and many other facets of their production. Ostrom’s good governance states that reliance on external institutions will weaken the local governance’s ability to resolve issues at a low cost, instead a strengthening of the local government would allow for lower cost resolution (Ostrom 1990). Furthermore, this is an example of ecological uncertainty, as will be discussed later on, affecting the ejidatario’s production, if parcelization were to occur it is not certain that Espinoza would receive any of the land that was productive during the dry season.

### 6.1.2 Land Delineation: PROCEDE and Transaction Costs of Titling

When the government of Mexico reformed Article 27, and enabled the privatization of ejido land it was uncertain as to whether mass privatization would occur, many ejidatarios were concerned what this new policy would hold for the future of the communal rights regimes. Though PROCEDE was implemented to reduce transaction costs of transferring land to the private sector, the process itself as well as maintenance of the program was highly costly, time consumptive, and a lengthy process; transferring a tenure system to another form of tenure has been shown to affect transaction costs, which may have proved too much of an economic burden for the ejidatarios to obtain full privatization, “Gaining formal titles is, however, costly. In societies that do not yet have high population densities and where customary rights are still commonly understood and accepted, formal titling may be an expensive method of increasing the security of a title that is not associated with a sufficiently higher return to be worth the economic investment” (Migot-Adholla et al. 1991). Duhau’s study (2009) shows the fears ejidatarios had about the costs that privatization would bring:

Nevertheless, we have so far no evidence supporting the supposition that freehold tenure will be authorised by the assembly in the near future. If not for other reasons, because many ejidatarios fear that they will be unable to cope with the charges and duties that they believe would arise from having the status of private proprietor (Duhau 2009:403).

A point that is made by this study is that the transaction costs involved with privatization were high and unnecessary given the self-governing institutions of the ejido system and the increased security in land delineation. Furthermore, reasoning behind the decision to accept further land delineation by the PROCEDE program and not privatization lies within the discussion of behavioral uncertainty and ecological uncertainty given the institutional framework of the ejido system and the strengths of social networks. Duhau’s study (2009) illustrates the importance of social networks created by the ejido and certain costs that would arise with privatization:

Some senior ejidatarios expressed the opinion that for them adopting the privatization would imply losing many things, among them a way of life. This is an idea that they do not verbalize as such, but express by invoking specific burdens like having to pay property taxes and drinkable water fees, which as ejidatarios they do not currently pay (Duhau, 2009:402).

If the ejidatarios were more concerned with having to pay taxes and drinkable water fees than the ‘benefits’ of privatization, it seems the increased transaction costs were high enough to outweigh their current system. The delineation and registration strengthened perceived tenure rendering full privatization superfluous, yet this to me denotes the strength of local governance and perhaps informal regimes that function perfectly well and make expensive, arduous and inflexible top-down titling redundant (Bouquet 2009:45). These are the theories on transaction costs, amongst others, that have the potential to outweigh the benefits of having a private title especially given the local authorities ability to craft, protect and respond to the unique needs of each unit within this larger system that is the agricultural sector of Mexico.

## **6.2 Motives for not privatizing and disincorporating the ejido system**

### **6.2.1 The Need for Risk Sharing Strategies:**

Adaptation is less likely to be successful where choices are limited by lack of available technology, limited land, failures in research, inaccessible credit or insurance, poor transport or simply such a high degree of livelihood insecurity that the quickest and most secure route to survival is the only option (Eakin 2002:418). As most ejidos in the south are agriculturally based with some livestock practices, risk sharing strategies are particularly important given their marginalized characteristics. Ejido members have various risk aversion strategies that are made possible by communal access to land, water, and other resources. Evidence from the ejido Playa de Ayala having sufficient land for one's own subsistence, livestock to provide stability and access to cash, and the education, social connections and support to take advantage of one's resources to engage in diversified and occasionally innovative livelihood arrangements (Eakin 2002:420). This particular ejido used their individual resources as well as pooled their resources to increase their livelihood. For ejidatarios who's main economic activity is cattle herding, a practice that is enabled by communal access, ejidatarios who's main economic activity is agricultural production, so too has a risk reducing strategy enable by communal access. A common strategy practiced by peasant households is to enter a sharecropping arrangement, usually with fellow villagers, in order to supplement their incomes. While it may be that sharecropping would work with private land tenure, it is plausible that if the ejido were to disassemble, there would be ejidatarios of whom did not wish to disincorporate, this could lead to tension that might threaten the partnerships created through the ejido. There is often a tradeoff: those who have more land will seek sharecroppers – for reasons of

access to labor, cash, or water, while individuals with little land of their own look to sharecropping as an avenue for economic mobility (Finkler 1978: 105). The sharecropping involves a division of tasks, such as purchasing and planting seeds, maintenance on irrigation ditches, harvesting of produce, among other activities. There is an agreement on division of how much each member is entitled to the final crops which correlates with their inputs and involvement in the activities (ibid 110). This sharecropping strategy is a common practice in ejidos that consist of many small parcel farmers who can then pull their resources together to offset the risk of acquiring all the resources on their own, furthermore they are more likely to produce a surplus that could be then sold for profit. Brown (2004) describes the ways some ejidos in the southern province of Oaxaca, an area known for its large indigenous populations, overcame obstacles of lack of credit by pooling member resources. In order to overcome the obstacle of lack of integration to an irrigation system, one ejido,

visited had successfully sunk two wells, which it paid for initially by raising funds from its members in proportion to the area cultivated. Once the wells were established, the ejido implemented an irrigation fee structure linked to water use to raise operating and maintenance funds. Similarly, another ejido visited had recently purchased a truck by pooling member funds. They purchased this truck for the purpose of transporting crops and people to market (Brown 2004:11).

These are some of the examples in which marginal ejidos created strategies that mitigated financial risks which were fostered by the social networks established in the ejidos.

### **6.2.2 Behavioral Uncertainty: Good Governance versus Transaction Costs**

Behavioral uncertainty is key to the privatization versus communal access rights dilemma especially given the context of CPRs. When speaking of behavioral uncertainty, there are the uncertainties that exist in terms of blocking out non-members of an access regime which member users will try to mitigate. There are the uncertainties within the member group that extraction or usage uncertainties could potentially raise costs for individuals as well as over-exploitation of the common pool resource itself. The way in which the governmental regimes functions and the amount of control and enforceability the members have in the governance will affect the property regime typology implemented as well as the sustainability of the regime itself and the resources in

question. Furthermore, it is important to analyze the costs involved with behavior uncertainty that could potentially alter given a property rights regime change.

Proponents of privatization use behavioral uncertainty as a foundation for the need of ‘strong’ property laws. If land delineation is unclear, behavioral uncertainty will rise as users are not excluded, there is no enforcement of property rights, and ‘free-rider’ dynamics will outweigh the cost of production for an individual. Theoretical and empirical studies within the principal–agent perspective, property rights theory and transaction cost economics (TCE) use this assumption of opportunism to explain and predict the efficiency of contractual agreements and organizational forms (Hart, 1995; Williamson, 1996). Where proponents of privatization are misinformed, as previously mentioned, is that communal property rights involve ‘strong’ land delineation as well, only contextualized for the specific landscape, production needs, ecological needs, and number of members (Ostrom 1990). Given the case of the entire ejido system, the vast majority of the ejidos adopted stronger land delineation unanimously. This land delineation looks different for each ejido, as some ejidos have lots of communal access land, and some are primarily individual plots within a given region. However, given the high participation in the land titling process it is clear that land titling was an aspect of the ejidal tenure system that was deemed advantageous if not desirable for a significant amount of ejidatarios, if nothing else then to resolve long standing land disputes. It would seem that further titling would further reduce behavioral uncertainty within the ejido communities, as well as provide mitigation from external actors. As many economists would point to this development as a step towards privatization, Ostrom would be quick to point out that in fact this only reinforces the need for and utility of communal property rights, as clear boundaries is the foundation of sustainable management of CPRs (Ostrom 1990).

Another facet of the notion that private property rights is best is that having a private title would enable ejidatarios to invest in their production, thereby increasing their productivity. Wilson and Thomson note that, “proponents of privatization customarily argue that the reduction of behavioral uncertainty creates an environment favorable for private investment in resource-augmenting technology” (Wilson and Thomson 1994:313). Yet the types of investment each ejidatario would need range in quantity and quality. For some, these types of investments would be technology based such as irrigation in very dry areas which make up a vast majority of the

north-western ejidos, involving technology like that of groundwater pumping which is of extremely high cost and is unsustainable given the drought tendencies of the region. If the currently communal access areas used for grazing were parcelized, the individual farmer would need incredible amounts of capital to achieve the necessary technological compensation that communal grazing provides where herding can take place over a larger area that encompasses more rain-fed areas which reduces the costs compared with the amount of capital individual farmers would need to achieve the same effect.

The fact that land delineation was sought yet disincorporation was not points to the need for a continuum of property rights regimes that allow for contextual development. As disincorporation was a step that would facilitate the registration of private property titles with the government of Mexico, a step unanimously not taken, this also reinforces Ostrom's notion of less reliance on external institutions. Given the temporal context of Mexico's political reformation as well as the global political and economic trends that were afoot in the 1980's to late 1990's, it's not improbable that ejidatarios were not in favor of putting more control in the hands of a government that had redistributed the very lands which they tended to not fifty years previously, a transaction that involved a bloody revolution to establish the ejido system itself. This would be a social, political, and economic step backwards for the ejidatarios. With a reinforcement of land delineation behavioral uncertainty was further reduced yet communal access areas, a key to many ejido's agricultural production, was retained, allowing for a reduction of ecological uncertainty which will be further discussed in the following section.

### 6.2.3 Ecological Uncertainty

Ecological uncertainty deals with the physical aspects of agricultural production and the common pool resources that ejidatarios need to achieve this production, such as land, water and vegetation. As previously stated, "heterogeneity is a dominant characteristic of the Mexican ejido. Variability in size, resource base, technology, and productivity is striking" (Wilson and Thomson 1994:301). Given the broad swathe of production methods and climates within Mexico it is certain to say that some ejidos face larger ecological uncertainty than others. Within generally "marginalized" populations, not all resources and assets are equal, location matters, and the particular ways households relate to the institutions that govern their economic activities make a

difference in their vulnerability (Eakin 2002:417). Ejidos that fit the “marginalized” criteria are rural and often located farther from urban areas, a feature that Duhau’s (2009) study illustrates as less likely to privatize, which might infer as to how ejidatarios in rural areas view the gains of privatization,

Yet, what is still more remarkable is that the adoption of the freehold regime had been until then virtually non-existent in rural localities (i.e. those having up to 2,500 inhabitants), and only 2.8 per cent of the cases corresponded to ejidos and comunidades located in localities with 2,500 to 15,000 inhabitants. This means that 97 per cent of the freehold adoption cases were linked to urban and peri-urban settings in the vicinity of agglomerations with more than 15,000 inhabitants and that rural ejidos had been virtually untouched by the theoretically expected privatisation fever. To be more accurate, it seems evident that ejidatarios are only prone to and interested in being private owners if they have opportunities of capturing differential land rents arising from the conversion of their lands from agrarian to urban uses (Duhau 2009:395).

The connection between ecological conditions and institutions is perhaps not readily clear however in the case of the ejido system, “ecological conditions can play an equally important role in the determination of optimal property regimes. Ecological uncertainty in the form of extreme rainfall variability across time and space produces an incentive to develop cooperative rules which insure access to widely dispersed fields or grazing areas” (Thompson and Wilson 1992:2). In Eakin’s study of the ejido Playa de Ayala, “rainfall was irregular, but averages 700mm annually – just sufficient for rainfed maize production” (Eakin 2002:172). This irregularity in rainfall affects how the ejidatarios organized their production. Because rainfall is a crucial input for their agricultural production and due to the ‘marginalized’ nature of this particular ejido (being far from access to markets, lack of access to credit, smaller individual parcels etc.) the strategies the farmers use to overcome these limitations often relies on practices like sharecropping and the reliance on community members in production. As will be explained below, initial credit from BANRURAL was helpful in the establishment of production,

The ejido had support from BANRURAL in the initial years of the 1980s, loans for production, equipment and inputs, technical assistance and even insurances. As BANRURAL was reformed to focus on “commercially viable farm systems, the ejidatarios lost access to BANRURAL’s credit, technical assistance and input support. By the mid 1990s, affected by a series of droughts and frost,

farmers were re-evaluating their production and livelihood strategies in an attempt to find viable alternatives under increasingly competitive and risky production conditions (Eakin 2002:176).

If the ejido of Playa de Ayala were to privatize and disincorporate, having titles for their small parcels would not necessarily guarantee credit from private lenders as the private investors heavily favored more successful ejidos with better conditions in terms of irrigation, proximity to urban areas and other factors that would make them likely to be higher in productivity than the marginalized ejidos. The strength of social networks through the ejido would be dissolved upon disincorporation, making the small farmers more vulnerable against the variability in ecological conditions.

Semi-arid land that is better suited to large communal access grazing schemes will need different amounts of capital and will have different investment needs than small scale farmers in water rich and rain-fed environments. Privatizing and parceling an area that is used for grazing will cut the amount of land that herders can use, the reason why communal access exists in this context is to allow herders to diversify their risk by using larger areas of land to allow the livestock to migrate to areas where precipitation is higher. The amount of capital herders would need to reduce ecological uncertainty in terms of access to water and investment in water procuring technologies as individual herders with significantly less land would be staggeringly high. Joint access to an extensive grazing resource serves as insurance and an effective institution for reducing uncertainty, a strong argument can be made on ecological grounds for perpetuating the common property regime on rangelands in arid and semiarid environments (Wilson and Thomson 1993:305). Communal access for herders significantly lowers transaction costs as well as ecological uncertainty. Costs of animal supervision are reduced when individually owned herds can roam over communal access land, if the herders are in agreement on the various terms of herding, regulation, monitoring and enforcement are far less costly than if individuals are financially responsible for those actions on their own (Wilson and Thomson 1994:312). This is a reduction of behavioral uncertainty as well as a retention of ecological risk aversion.

Another mechanism ejidatarios use to mitigate risk, is the practice of sharecropping. Throughout the ejidos, there is a high diversification in types of crops produced; individuals grow a number of crops on their plots as a means of diversifying their ecological risks. Sharecropping allows farmers who have limited access to capital and resources to pull together with other

ejidatarios and combine resources for agricultural production. Proponents of privatization would say that if the individual farmers privatized their land they could borrow credit against their title, yet in reality this is not as easily done as said. Many ejidatarios have very small individual parcels which they grow their crops on, the average size can be under 2.5 hectares, this size of farmer is classified as unsuitable for self-sustainability by the FAO (FAO 2001). Private and foreign investors favor investing in ejidos that have established irrigation and have proximity to cities where commercial farming is more easily facilitated (USAID 2010), meaning that having a private title may not help an individual ejidatario that has a small plot with lack of irrigation, lack of resources and in a location situated far from accessible markets. The individual farmer would need to acquire a large amount of capital to overcome the deficits of a long distance from the markets, the need to invest in irrigation systems on an individual basis as well as financing the many elements of agricultural production on an individual basis. The FAO's sector that specializes in agriculture and consumer protection states that, "The smaller the farm, the higher its vulnerability, and limitations in obtaining credit, agricultural inputs at reasonable prices, technical and management advice, reaching the right market and selling products at remunerative prices" (FAO 2001). With this in mind, a privatized small plot may be less successful than ejidal land that can engage in risk reduction sharecropping practices that are enabled by membership to the ejido. By having clear boundaries and individual titles but remaining a collective, the small scale farmers illustrate the benefits of unification in the face of ecological uncertainty that is greater as a small scale marginalized individual farmer.

### **6.3 Ostrom and the tradeoff of transaction costs, land tenure, and governance**

In the ejido system there are different structures of organization; common structures involve a common land often for grazing open to all ejido members (not to other ejidos however), a communal town area, individual plots for living and for farming. Some ejidos are mainly individual plots, some mainly communal land, and mixes of the aforementioned. With each organization of land tenure, different policies that are created by the General Assembly of each ejido are better suited to account for the balance between transaction costs and the production needs and land tenure by result. By implementing state-led privatization of the ejido system, this would weaken the local governmental bodies within the ejido, of whom are better acquainted with the day to day needs, as well as the long term goals of the ejidatarios and other actors within an

ejido. The tradeoff between transaction costs, land tenure, and governance needs to be balanced in a way that makes sense for each ejido. Changing the land tenure to parcelization or privatization will drive up the costs for cattle herders in communal access regimes. Changing the land tenure for small scale farmers to privatization of individual parcels is unnecessary for the majority of the ejidos, increased security and resolution of boundary disputes was achieved through PROCEDURE but to disincorporate fully will not provide further security and might interfere with social network strategies that the ejidatarios have built up over the past 80 years under the communal access regime of the ejido system.

Using Elinor Ostrom's theory of good governance to analyze the case of the ejido system and why the vast majority of ejidos did not privatize, a look at the governance structures within the ejido system is needed. As previously mentioned, Ostrom states that the foundation of good governance is clear boundaries. From this platform, it can be understood that clear boundaries were not as strong within the ejido system, this conclusion can be drawn from the high percentage of participation in the initial titling process of PROCEDURE. With 89% of participants receiving communal access titles and individual plot titles, it is likely that the ejidatarios indeed wanted an increase in land delineation. If the ejidatarios wanted the first level of titling but did not want to disincorporate, this suggests that they needed to decrease behavioral uncertainty to the extent that land delineation was accepted but not so much that they wanted to fully privatize. This suggests that the tradeoff between communal access and privatization also lies within transaction costs and governance. Part of the balance between governance and property rights in the case of the ejido system is that the land tenure regime is intertwined in the governance, the communal regime provided individuals with agency as members of this social and political grouping,

But we also have to take account of the fact that being an ejidatario or comunero usually signifies not only being the owner of a piece of land, but a member of a landed corporation recognised and acting as a local power. This condition would disappear once the corporation was dissolved or many individually owned parcels were segregated from the ejido (Duhau, 2009:380).

While the ejidatarios may have wanted further strengthening of their land rights, they would lose political agency with the change of land tenure to privatization thereby increasing transaction costs involved with arbitration that would then be handled by the state instead of local authority. A reduction in behavioral uncertainty lowers the ejidatarios' transaction costs; however,

privatization and thereby an increase of ecological uncertainty would raise their transaction costs and would not have a further reduction of transaction costs associated with behavioral uncertainty as land delineation proved enough of a gain. Through Ostrom's principles of good governance, communal access regimes can proverbially have the best of both worlds: a reduction in behavior uncertainty as well as ecological uncertainty. By having clear boundaries, rules of extraction and general regulation of users constructed for and by the user members that correlate with unique features of the ejido, and less involvement of external institutions, communal access regimes will reduce behavioral uncertainty and ecological uncertainty to a satisfactory level that reduces transaction costs.

## 7.0 Conclusion

The ejido system is not perfect. It is a system that was implemented to disrupt an elitist land conglomeration and redistribute land and thereby economic opportunities to the landless population. The governmental institutions within the ejido were created to facilitate conflict resolution and promote local strength on matters like that of land tenure. The reform of Article 27 in 1992 and the implementation of PROCEDURE had the goals of privatizing the ejido system and increasing its productivity, yet these policy changes and goals had the potential to weaken the ejidal governance and thereby reduce the ejidatarios ability to resolve conflict at a low cost. The strengths of the ejido lie in the ability to reduce ecological uncertainty and the gains made by PROCEDURE's land delineation and titling facilitated a reduction of behavioral uncertainty within and between ejidos. Privatization and parcelization of ejidal land would increase ecological uncertainty for livestock herders, as well as increase costs in terms of enforcing boundaries and would not reduce behavioral uncertainty. The land delineation for small scale farmers decreased behavioral uncertainty yet allowed for risk sharing strategies that reduced costs for individuals within the ejido, privatization and disincorporation of the ejido could weaken the ability of the small scale farmers to mitigate risk sharing strategies that are integral to their social dynamic of belonging to the ejido. As Ostrom stated that no institution is a panacea to all problems, however communal access regimes when properly managed and with an increase in tenure security through delineation can create dynamics that serve the needs of the ejido and the ejidatarios.

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