

**London School of Economics and Political Science**

**A PROPERTY RIGHTS REVOLUTION?  
LIBERALISATION OF THE EJIDO AND THE AGRO-  
SUGAR INDUSTRY IN MEXICO**

**Ph.D. Thesis**

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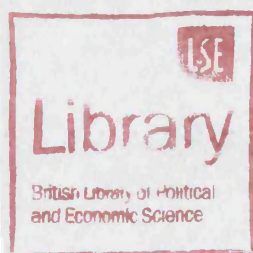
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## **ABSTRACT**

Sugar has traditionally been one of the most important agro-industries in Mexico. In spite of possessing significant comparative advantages it has recurrently suffered from a lack of investment and poor productivity, both under private and public ownership, and during periods of Import Substitution Industrialisation and recent economic liberalisation. This thesis adopts a Neo-Institutional approach to analyse the problems of the Mexican sugar industry during the 1990s based on the study of three 'ejido' communities in the state of Puebla.

The thesis argues that successive institutional arrangements, particularly the over regulated and heavily bureaucratic 'agrarian' (ejido) regime have served to constrain the production of sugar cane and the sugar agro-industry as a whole. One consequence of these conditions has been that the burden of funding the sugar agro-industry has been devolved to government, thereby making investment subject to fiscal requirements rather than market conditions. Despite a de facto and latterly more formal withdrawal of the government from funding the sugar agro-industry the investment vacuum has not been filled by the private sector.

In the wake of the 1992 reforms to the agrarian law the research also considers the importance of property rights in land to the sugar sector. The thesis argues that prior to 1992, agrarian reform in combination with other economically inefficient but politically useful regulations impeded the emergence of a land market in the ejidos. Without a formal land market, ejidos undertook land subdivisions creating a minifundista scheme rather than the conditions for agricultural intensification and the realisation of economies of scale. Small parcels and insecure property rights further condemned the ejidos to under-investment and poverty. Although the 1992 reforms attempted to regularise informal land transactions, I contend that change has not matched rhetoric: massive privatisation has not occurred and bureaucratic influence remains. At the outset of the twenty-first century we continue to witness the slow self-destruction of agrarian reform.



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## LIST OF ACRONYMS

ALBAMEX	Alimentos Balanceados de México, a parastatal for cattle feed
ANAGSA	Aseguradora Nacional Agrícola y Ganadera, parastatal in charge of agricultural and livestock insurance.
BANRURAL	Banco Nacional de Crédito Rural, the national bank for rural credit
CAZE	Consorcio Azucarero Escorpión, the Scorpion Sugar Corporation
CEPAL	Comisión Económica Para América Latina, United Nations Economic Commission for Latin America
CIOAC	Central Independiente de Obreros Agrícolas y Campesinos, Independent Central of Agricultural Workers and Peasants
CNC	Confederación Nacional Campesina, National Peasants Confederation linked to the PRI
CNIA	Comisión Nacional de la Industria Azucarera, National Sugar Industry Commission
CNPA	Coordinadora Nacional Plan de Ayala, National Coordination for Ayala Plan
CNPR	Confederación Nacional de Propietarios Rurales, National Confederation of Rural Owners
CONASUPO	Compañía Nacional de Subsistencias Populares, parastatal agency for grain trade and food distribution
CONCAMIN	Confederación de Cámaras Industriales, Confederation of Industrial Chambers
CPC	Comité de Producción Cañera, local sugar cane production committee
CIMMYT	Centro Internacional de Mejoramiento de Maíz y Trigo, International Maize and Wheat Improvement Center
DOF	Diario Oficial de la Federación, the federal government official gazette
EAP	Economically Active Population
ETLR	Evolutionary Theory of Land Rights

EZLN	Ejército Zapatista de Liberación Nacional, Zapatista Army of National Liberation
FAO	Food and Agriculture Organisation
FIMAIA	Fideicomiso de Maquinaria de la Industria Azucarera, a parastatal trust granting credit for machinery
FINASA	Financiera Nacional Azucarera, official agency for funding sugar production
FIRA	Fideicomisos Instituidos en Relación con la Agricultura, Banco de México, credit agency to medium-sized producers
GAM	Grupo Azucarero México, Mexican Sugar Corporation
HFCS	High Fructose-Corn Syrup
IMSS	Instituto Mexicano del Seguro Social, Mexican Institute for Social Security
INEGI	Instituto Nacional de Geografía e Informática, National Institute of Statistics, Geography and Informatics
INMECAFE	Instituto Mexicano del Café, Mexican Institute for Coffee, parastatal agency
ISI	Import Substitution Industrialisation
NAFINSA	Nacional Financiera, S. A., development bank for small and medium firms
NAFTA	North America Free Trade Agreement
NIE	Neo-Institutional Economics
ONISA	Operadora Nacional de Ingenios, official agency for management of public-owned mills
PA	Procuraduría Agraria, Office of the Attorney General for Agrarian Affairs
PAN	Partido Acción Nacional, National Action Party
PRD	Partido de la Revolución Democrática, Democratic Revolution Party
PRI	Partido Revolucionario Institucional, Institutional Revolutionary Party

PROCAMPO	Programa de Apoyos Directos al Campo, an agricultural subsidy programme
PROCEDE	Programa de Certificación de Derechos Ejidales y Titulación de Solares Urbanos, Programme for Certification of Ejido Rights and Titling of Urban Lots
PRONASOL	Programa Nacional de Solidaridad, National Solidarity Programme, a social welfare agency
RAN	Registro Agrario Nacional, National Agrarian Register
SAGAR	Secretaría de Agricultura, Ganadería y Desarrollo Rural, Secretariat of Agriculture, Livestock and Rural Development (in 2000 name changed to SAGARPA)
SAGARPA	Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación, as above plus Fishing and Food
SAM	Sistema Alimentario Mexicano, Mexican Food System
SARH	Secretaría de Agricultura y Recursos Hidráulicos, Secretariat of Agriculture and Water Resources (1994 name changed to SAGAR)
SRA	Secretaría de la Reforma Agraria, Secretariat of Agrarian Reform
TABAMEX	Instituto Mexicano del Tabaco, Mexican Institute for Tobacco, parastatal agency
UNC	Unión Nacional de Cañeros, National Sugar Cane Producer Union – affiliated to CNPR-PRI
UNPASA	Unión Nacional de Productores de Azúcar, National Union of Sugar Producers, private sector
UNPCA	Unión Nacional de Productores de Caña de Azúcar, National Union of Sugar Cane Producers – affiliated to CNC-PRI
USDA	United States Department of Agriculture



# CHAPTER 1: SUGAR AND LAND IN MEXICO, A DUAL CRISIS?

## 1.1 Introduction

This thesis explores the long-standing crisis in Mexico's agro-sugar industry<sup>1</sup> and some of the policy responses of the past half-century. Specifically, the thesis deals with conditions in the sugar sector through an examination of land property rights, notably the conditions of the ejido system, from the perspective offered by a critical appraisal of Neo-Institutional Economics. The thesis argues that successive institutional arrangements, particularly the over regulated and heavily bureaucratic ejido regime has served to constrain the production of sugar cane and the development of the agro-sugar industry as a whole. Moreover, the thesis shows that many of these institutional conditions have been largely unaffected by either the dramatic reform of the ejido system from 1992 or the successive nationalisation and privatisations of the sugar mills. In particular, the research shows that property rights remain insecure for many peasants; a formal land market has not been established, prompting unregulated land subdivision and encouraging the creation of a minifundista scheme that denies the conditions for agricultural intensification and economies of scale. Small plots and insecure property rights continue to condemn the ejidos to under-investment and poverty.

The link between land, poverty and sugar has been of personal interest to me for a long time. In the state of Sinaloa where I studied and worked for six years, I witnessed ejidatarios producing sugar cane on irrigated and good-quality land, but living in poverty. Later, working at the University of Chapingo I became familiar with sugar cane regions in the states of Veracruz and Puebla, and was struck again how good land and secure commodity markets were not enough to improve the living standards of ejidatarios producing cane.<sup>2</sup> These observations suggested to me that the extreme

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<sup>1</sup> I use the term "agro-sugar industry" instead of sugar agro-industry because I understand the latter to include a range of issues concerning for example the mills, land distribution and fructose production that are not the subject of this thesis. Rather my work looks at agrarian issues that are not directly related to the sugar industry, for example the cultivation of non-sugar related crops, and hence the preferred term captures some of the relationship between agriculture and sugar.

<sup>2</sup> Veracruz is the principal sugar producing state accounting for about 40 per cent of national production and 21 sugar mills (Núñez 1995).

poverty experienced by a large proportion of sugar cane ejidatarios was due to serious shortcomings in the ejido regime of land holding. Nevertheless, an influential set of journalists, government officials and scholars have continued to praise the minifundio, some arguing that Mexico needs to retain and even extend the number of small holders. While this set of views is often associated with a proto-Revolution stance, it has also received support at a more theoretical level from neoliberals in Mexico and the World Bank who regard the minifundio as potentially able to abate poverty in the countryside. The neo-liberal position, pre-eminent in Mexico for the past two decades, has argued that the lack of secure rights to property is the principal cause of rural poverty. In practice, however, property rights reform, to ejido land from 1992 and to the sugar mills throughout the past 30 years has been reduced to a question of ownership rather than the social relations in ejido communities and the relations to the state. However, as Olinto and Deininger (2002: 2) have stressed in calling for further research, “there is also little conceptual work that identifies the channels through which land market liberalization may affect efficiency and the welfare of the rural poor”. My motivation, then, was to understand the recurrent crisis of the agro-sugar industry and the increasing poverty of ejidatarios producing cane, exploring a possible connection from the social relations in property to the performance of the industry.

In this chapter I outline three important contextual factors to the research that, as a result of what neo-institutional economists call ‘path dependence’, present a series of prior institutional arrangements that are difficult to break down and which imprint themselves upon the performance of the ejido and agro-sugar industry (Kherallah and Kirsten 2001; North 1990). First, I describe the conditions of the Mexican agro-sugar industry during Import Substitution Industrialisation (ISI) and under conditions of economic liberalisation, as well as a transition in the ownership of the sugar mills from private to public ownership in 1975, to private again in 1989-1991 and, in 2001 to (semi-) public ownership once more following expropriation by President Vicente Fox. Second, I describe the structure and changes to the international sugar market and, third, I address the agrarian regime from the 1930s to the present, as well as the role of government and political organisations, and especially the contentious reform of the ejido in 1992 that was supposed to create opportunities for private landholding, enhanced investment and the formation of active land markets.

## 1.2 The Mexican Agro-Sugar Industry

The agro-sugar industry is important in Mexico. According to Pollitt (1986: 22) the country was ranked the world's first sugar exporter by value to market economy countries in 1980, the fifth in 1981 and the seventh in 1982. Between 1987 and 1991, García (1997) estimates that Mexico was the world's eighth exporter and ninth producer of sugar, and Larson and Borell (2001) place Mexico as the world's eighth producer of sugar from 1994 to 1998 with three per cent of total global sugar production (see also Hagelberg 1989). The United States Department of Agriculture (2003) estimates that sugar cane production contributes around five per cent of Mexico's agricultural output and Sánchez et al. (1993) calculate sugar to be the equivalent to 0.9 per cent of GDP in 1990. Moreover, the area cultivated with sugar cane has risen from 301,579 hectares in 1960, 334,540 in 1970, 550, 000 by the mid 1980s, to almost 600,537 hectares by 1991, and the number of working sugar mills had, until recently, only declined slightly in the past two decades to 60 in 2000 (Comité de la Agroindustria Azucarera 2002; Gaceta Parlamentaria 17 July 2002). There is little doubt, however, that the agro-sugar industry has been in almost terminal decline since at least the 1970s. Figures say that in 1991 production amounted to 35.5 million tonnes but had fallen to around 20 million tonnes per annum by the end of the decade, productivity had fallen from 68.7 tonnes per hectare in 1985 to 59.2 tonnes per hectare by 1991 (Hagelberg 1989: 42; INEGI 1998).<sup>3</sup> Today, the 156,000 people who remain employed in the agro-sugar industry, and the additional 350,000 people who depend indirectly upon the sector, contribute no more than 0.5 per cent of GDP (Gaceta Parlamentaria 17 July 2002). Despite falling output, productivity, and employment, and an increase in domestic sugar consumption, by the 1990s Mexico had a surplus of sugar, as the sugar sector was unable to compete with imports especially of fructose.

From its rebuilding and reorganisation after the Mexican Revolution, the sugar industry has been subject to special regulations and official control, and the provision of huge

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<sup>3</sup> While Mexico's yields were seven to 12 per cent higher than world average over the period from 1985 to 1990, and higher than average yields in Brazil and Cuba, the largest net sugarcane growers in Latin America, the decline to 59.2 tonnes per hectare put Mexico below average world productivity for sugar production of 60.8 (INEGI 1998) and well below yields in the United States of 91.2 tonnes (Buttler and Otero 1995: 68).

subsidies. The principal instrument of ‘protection’ has been the “Sugar Cane Decree” (Decreto Cañero) issued in the *Diario Oficial de la Federación*, 22 September 1943 which declares the sugar sector to be of public interest, subject to state regulation, and sets out a contract between mills and cane producers within a framework to establish the price of cane, the organisation of production and mechanisms for direct government intervention. In 1963, ejidatarios and free minifundistas engaged in cane cropping were the first rural group to receive a virtually free medical service as part of the social security system (Del Villar 1976). In addition, state involvement in the sugar sector has revolved around, or been legitimated by, a concern for finance. FINASA (Financiera Nacional Azucarera), NAFINSA (Nacional Financiera, a national development bank) and FIMAIA (Fideicomiso de Maquinaria de la Industria Azucarera, a trust fund for farm equipment) operated lines of credit to cane growers through the sugar mills as financial intermediaries and with power to authorise, provide and supervise the application of credits.

Support for the agro-sugar industry, however, has been inconsistent. The ‘Sugar Decree’, for example, set a system of payment to growers based upon the average final content of sugar at harvest among all growers and, therefore, instead of rewarding growers who deliver high-quality cane to mills, the system acts as a disincentive to improving sucrose concentration in the cane, especially as producers are unable to do anything about the inefficient sugar extraction methods of the mills (García 1997; Larson and Borrell 2001: 22). As I will outline in more detail in the discussion of my case studies, channelling finance through the mills provided their owners with a source of power in addition to their monopsony position in the purchase of cane, which they often exploited through delays in payments to cane producers (also Del Villar 1976).<sup>4</sup> And, despite a rhetoric that intervention was to promote production and rural incomes, in order to protect urban consumers the government imposed price controls to keep prices artificially low, and which constrained the industry’s profitability and encouraged de-capitalisation (Del Villar 1976; Paré and Juárez 1986; Smith 1990). Even after former Secretary of Finance, Mario Ramón Beteta complained that the sugar price in

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<sup>4</sup> Cane producers often have to spend time and limited resources in travel to demonstrate, in order to receive the ‘final payment’ (liquidation), which is paid from the mill to the cane producers less interim payments and social security, and is often received one year after the harvest and by which time inflation has reduced the real value of their output.

Mexico was the lowest worldwide and President Echeverría raised the price by almost 100 per cent it was too little too late as costs of maintaining obsolete plant were higher than the fixed price, and despite further subsidies and soft loans, the 40-year trend of declining productivity and missed opportunities continued (Proceso 9 May 1977; also Del Villar 1976; Paré and Juárez 1986; Pérez 1979).<sup>5</sup>

More direct attempts at state intervention emerged when, by the mid-1970s, the economic crisis of the sector was obvious to all and sugar mills were close to bankruptcy and closure. Attempts to increase the state's role in the management of the industry through the Comisión Nacional de la Industria Azucarera (CNIA) gave way to more overt state ownership (Diario Oficial de la Federación, 27 October 1975). In 1971, President Luis Echeverría stated that private sugar mill owners had been diverting government subsidies to non-sanctioned private business. As an example he mentioned the large buildings on the Paseo de la Reforma of Mexico City that he alleged had been built with resources intended for the production of sugar (Proceso 9 May 1977; also Del Villar 1976).<sup>6</sup> On that assumption and faced with a sugar industry that was largely bankrupt and unable to repay official loans, in 1975 Echeverría nationalised the sugar mills. Thirty mills were nationalised between 1974 and 1975 and at the end of President López Portillo's administration in 1982 the government owned 41 of the country's 65 sugar mills (Singelman 1993). In order to attempt a rejuvenation of the sector, the state closed the CNIA and in 1983 created Azúcar S.A. (AZUCAR) which assumed the storage and financial costs of harvest (Sánchez et al. 1993; Singelman 1993).<sup>7</sup>

However, nationalisation did not prove able to correct the problem. In the view of just about every observer, the government administration of the agro-sugar industry proved

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<sup>5</sup> One such opportunity was an increase in the US import quota of Mexican sugar after the Cuban Revolution to 250,540 tonnes, equivalent to 40 per cent of the total assigned to Latin America (de Grammont 1979: 229). By the mid 1990s, Mexico's quota for raw cane had fallen to one-tenth and was ranked 17th from 40 countries, while other countries such as the Dominican Republic had quotas of 357,000 tonnes (Larson and Borrell 2001)

<sup>6</sup> According to Rich et al. the amazing fortunes in the sugar industry "could be viewed as reminiscent of the Rockefeller consolidation of the oil industry or the Carnegie consolidation of the steel industry" (1998: 6).

<sup>7</sup> Confusingly, the government company Azúcar S.A. had the same name as the cartel of sugar mill owners established in the 1930s and which became the Unión Nacional de Productores de Azúcar, S.A. (UNPASA) in 1938. Both the cartel and UNPASA were directed by Aarón Sáenz from 1932 to 1956 (Del Villar 1976).

to be a disaster (Buttler and Otero 1995; Chollet 1995; Del Villar 1976; Larson and Borrell 2001). Commentators noted the enormous levels of bureaucracy, political bias in making decisions and corruption. García (1997), for example, reports that in the mid-1970s nine new mills were created, some of them in areas unsuitable for cane cropping, mainly in southeast Mexico, largely for reasons of political control and social stability. By the early 1990s some of these new mills were bankrupt and had to be bailed out in 2001. Buttler and Otero (1995) cite a study conducted by AZUCAR in the late 1980s that one half of all mills had obsolete farm equipment, some over 50 years old, 25 per cent operated with a mixture of old and new equipment, and only 25 per cent had modernised plant. Furthermore, the milling sector had 40,000 workers, a number estimated to be 40 per cent more than could be sustained by even improved productivity. The Zacatepec mill in Morelos was found to be employing 3,300 workers even though it could work well with only 250 (Proceso 9 October 1989). Although it was clear that the burden of continuing to support the sugar industry had increased following the 1982 debt crisis, even in 1988 the parastatal sugar industry received 25 per cent of the total federal budget devoted to the Secretariat of Agriculture (Sánchez et al. 1993; Smith 1990). Although the agro-sugar industry was suffering in part because of government inefficiency, the response into the late 1980s was for the state to acquire mills that threatened to close or lose substantial numbers of jobs (Larson and Borrell 2001). This extended nationalisation was directly contrary to IMF advice during the negotiation of a package of reforms in 1986 -- the 'IMF told us to do it' later became a rhetorical cloak to justify privatisation (Chollet 1995; Rich et al. 1998; Singelman and Otero 1995).

As Table 1.1 illustrates, from being one of the world's principal producers and exporters of sugar in the middle of the century, by 1991 Mexico was behind many non-traditional sugar-producing nations in terms of output and, especially, productivity.

**Table 1.1: Global Ranking of Sugar Producing Countries in 1991**

Country	Area Cultivated		Sugar Cane Production		Productivity (Cane per Hectare)	
	(Hectares)	Place	(tonnes)	Place	(ton/ha)	Place
Brazil	4,211,000	1	260,839,000	1	61.9	5
India	3,682,000	2	240,287,000	2	65.3	4
Cuba	1,350,000	3	71,000,000	4	52.6	8
China	1,227,000	4	72,695,000	3	59.2	6
Thailand	783,000	6	40,661,000	5	52	9
Pakistan	884,000	5	35,989,000	6	40.7	10
<b>Mexico</b>	<b>601,000</b>	<b>7</b>	<b>35,541,000</b>	<b>7</b>	<b>59.1</b>	<b>7</b>
Indonesia	386,000	9	28,133,000	8	72.9	3
United States	363,000	10	27,440,000	10	75.6	2
Colombia	-		27,790,000	9	88.9	1
Australia	407,000	8	-	-		

Source: own calculations from INEGI (1998).

Given these conditions, the agro-sugar industry specifically and the agrarian sector generally, were at the forefront of the minds of reformers devising Mexico's economic liberalisation from 1982. In the new model the state reduced its direct participation in the economy.<sup>8</sup> With respect to agriculture the government curtailed its role as a credit provider, in the commercialisation of output, price controls and subsidies (Calva 1993; Gledhill 1996). Most government agencies engaged in the agricultural sector were closed, among them the consumer organisation CONASUPO, ANAGSA (Aseguradora Nacional Agrícola y Ganadera, agricultural insurance), and commodity purchasing and support organisations such as INMECAFÉ, TABAMEX, ALBAMEX, BANRURAL, FINASA and AZUCAR were dismantled between 1990 and 1992. FINASA was initially restructured and then closed on 22 November 2000, a week before the end of the Zedillo administration (Appendini 1996; Barros 2000; Brizzi 2001; de Janvry et al. 1996; Gledhill 1996; Myhre 1996; Ochoa 2000; Salinas 2000). Subsidies and price controls were dramatically reduced or eliminated, although mill owners were able to access important subsidies through other agencies such as Bancomext (Banco Mexicano de Comercio Exterior, the Foreign Trade) (Appendini 1996; Barros 2000; Bartra 1996; Dunn 2000; Goldring 1996). Even so, as with other aspects of neo-liberal reform in

<sup>8</sup> The increase in the number of government-controlled enterprises from 12 in 1930, 158 in 1950, 491 in 1970, and 1,115 in 1982, was reduced by the sale of 96 by 1986, the merger or transfer to state governments of 85, and the closure of 279 inefficient plants (Sánchez et al. 1993: 102; Smith 1990: 150).

Mexico, the withdrawal of government intervention has been inconsistent, and politically motivated (Jones 1996). On 30<sup>th</sup> May 1991 Carlos Salinas de Gortari created a national committee called the Comité de la Agro-Industria Azucarera and a series of local Comités de Producción Cañera. These organisations are made up of government and entrepreneurial representatives, as well as two organisations of cane producers, the Unión Nacional de Productores de Caña de Azúcar of the PRI affiliated Confederación Nacional Campesina (CNC) and the Unión Nacional de Cañeros (CNPR).<sup>9</sup>

Privatisation was deemed essential to overcome the technological lag in the sector as well as to address corruption, overstaffing and political biases in management (Larson and Borrell 2001). Subsequently, the re-privatisation of the mills was begun, with potential owners lured by prices below those originally agreed in return for the purchase of mills as “packages”, usually with one “good” and one “bad” or unprofitable mill, extended payment terms of up to ten years and the non-enforcement of contractual obligations to renew infrastructure (Chollet 1995; Sánchez et al. 1993).<sup>10</sup> By 1991, the private sector held 48 from 64 mills.<sup>11</sup> Nonetheless, post-privatisation, few owners invested in new technology. According to journalist Barranco Chavarría the age of the equipment of most sugar mills is over 30 years and Macario Schetino, an economist at Tecnológico de Monterrey, argues that “to visit a sugar mill is truly a journey to the past. One hardly ever finds machinery from the second half of the Twentieth Century” (Reforma 5 September 2001; El Universal 4 September 2001). Part of the explanation is that privatisation attempted to create vertical integration with the mills sold to firms engaged in the soft drink industry such as Pepsi Cola and CAZE, Coca Cola and Grupo Azucarero México (GAM), and other sectors using sugar as a raw material such as

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<sup>9</sup> See Diario Oficial de la Federación, “Decreto por el que se declaran de interés público la siembra, el cultivo, la cosecha y la industrialización de la caña de azúcar” (Decreto Cañero), México, D.F., 30 May 1991

<sup>10</sup> This packaging had detrimental impact on potential efficiency and profitability, not least because the mills were usually in different regions in order to avoid the creation of local monopolies and concentrated job losses.

<sup>11</sup> The privatisation programme did permit two cooperative-owned mills, Emiliano Zapata in Morelos and El Mante in Tamaulipas, to keep their co-operative status but by 1992 both had failed and were sold to the private sector. Furthermore, the Confederación Nacional Campesina (CNC) the peasant union of the PRI purchased three mills, El Higo and Mauhixtlán in Veracruz in 1988 and Melchor Ocampo in 1990. Again, a few years later all three mills were sold when CNC administration proved a failure (Chollet 1995; Núñez 1995).



Grupo Beta San Miguel, bought among others by Nestlé. However, it seems that companies such as Coca Cola have preferred to import fructose from the US and Pepsi has relied upon buying cheaper sugar from abroad.<sup>12</sup> According to Francisco Gil Díaz, Secretary of Finance, the “Sugar mills were given to people within the private sector, who did not provide capital, but the majority plainly used credits for buying; that means an industry which in practice was not privatised, but it was put in hands of operators who had every incentive to ‘milk’ it” (Reforma 4 October 2001). Consorcio Azucarero Escorpión (CAZE), for example, paid only ten per cent of value in advance and was committed to pay the outstanding amount over ten years. In the meantime, however, the sugar sector has received continued public financial support worth, perhaps, as much as \$US 400 million in 1999-2000 alone. Broadly, privatisation does not appear to have improved the agro-sugar industry.

In their defence, many post-privatisation entrepreneurs have argued that their failure to administer the sugar mills during the 1990s was due to the inappropriate negotiation of NAFTA. Indeed, NAFTA propitiated huge imports of cheap agricultural commodities, mainly basic grains, as well as fructose and yellow maize.<sup>13</sup> Between 1990 and 1992 the Mexican government permitted the import of three million tonnes of sugar, equivalent to annual consumption causing a serious distortion in the domestic market. Commenting that “the current Mexican economic situation is arguably the most difficult ever” Rich et al. go on to say that:

... and while sugar is not the only area of the Mexican economy which is feeling the effects of the ‘new world economy’, it certainly is an excellent example. The history of the industry supports general observations of some

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<sup>12</sup> Privatisation promoted horizontal integration allowing companies such as Tate & Lyle to own three mills in association with Grupo Sáenz and to produce fructose in two plants with Archer Daniels Midland in association with Almidones Mexicanos.

<sup>13</sup> Trade liberalisation has created new opportunities for sectors such as vegetables, fruits and flowers, but has posed serious challenges to the production of basic food staples such as beans, maize and rice (see especially Brizzi and Valdés 2001; Cerro and Vélez 2000; Chew and Aguilar 2000; Dussel 2002; Marsh and Runsten 1998; Runsten and Nigel 1996; USDA 2003). According to Oswald (2003) from 1994 to 2003, imports of corn from the USA have increased from 2.5 million tons to 6.1 million, basic grains from 8.7 million tons to 18.7, with Mexico dependent upon imports for 95 per cent of soybeans, 49 per cent wheat, 25 per cent corn and 40 per cent meat. The net food import bill since NAFTA has been \$US 78 billion.

scholars about the effects of internationalisation of trade, the manipulation of markets, and the restriction of competition (1998: 2).

Against the forecasts upon which NAFTA was agreed that between 1980 and 2000 sugar production would increase by almost 100 per cent, with surplus being available for export, production has risen only slowly while demand nationally and internationally has declined. In 1989, Mexico produced 3.5 million tonnes of refined sugar, less than domestic consumption of 3.6 million tonnes, and although domestic consumption had increased to 4.2 million tonnes by 1998 production had risen to five million tonnes (USDA 2003). The increased consumption, however, was being met by the importation of fructose and yellow maize that could now be imported at a zero rate tariff. Thus, while NAFTA provided Mexico with an increased duty-free export quota from 7,258 to 25,000 tons until 2000, and to 250,000 tons from 2001 to 2008 at which point all trade barriers between the two countries are to be eliminated, the substitution of fructose and the lack of competitiveness in the Mexican sugar industry means that any surplus is unlikely to be sold in the USA (Buttler and Otero 1995; Larson and Borrell 2001). More controversially still, according to NAFTA, if Mexico were to achieve a net domestic sugar surplus over two consecutive years, the surplus should be absorbed by the US market free of tariffs and quotas. This did not happen, since when in 1995 Mexico did produce a surplus the US government blocked admittance by referring to the so-called 'parallel letters Serra-Kantor' signed by the secretaries of commerce of both countries in November 1993 just before NAFTA was passed in the American Senate (Senado de la República 2000; Singelman 2001). According to the parallel letters, in calculating the sugar surplus the import of sweeteners by Mexico must be taken into account, which reduces the net sugar surplus substantially. Consequently, only 116,000 tonnes out of a 500,000 tonne sugar surplus in 2001 were admitted to the US market. The Mexican Senate refuses to acknowledge the parallel letters, arguing that they are superseded by NAFTA, while others note that yellow maize/fructose receives subsidies from the US government and companies are suspected of dumping into Mexico (Kennedy and Petrolia 2001; Rich et al. 2002; Singelman 2001; for discussion see also Salinas 2000).

The privatisation of the sugar mills undertaken by presidents de la Madrid and Salinas have not, in the view of most researchers, attained the expected impacts in terms of new

investment, technological modernisation and higher productivity (Chollet 1995; García 1997; Singelman and Otero 1995). Privatisation, generally, has not been able to counter the massive import of fructose under NAFTA, the US block to Mexican sugar surpluses and continued declines in sugar prices internationally have hit profitability and deepened a liquidity crisis that has further deepened a practice of delaying payments to farmers (Singelman and Otero 1995: 14). Nor, more specifically, has privatisation, despite a few innovative improvements, undone the almost endemic mismanagement and lost opportunities for economies of scale (García 1997). Indeed, by the mid 1990s there were growing calls for the state to intervene once more to guarantee calm in the countryside in the face of bankruptcy triggering unemployment and social unrest (also Larson and Borrell 2001).

Thus, almost 30 years after Echeverría's nationalisation, and a decade after the sugar mills were reprivated in 1988 and 1991 by presidents de la Madrid and Salinas, in the face of the deepening, or perpetual, crisis of the sugar sector President Vicente Fox (2000-2006), stated that entrepreneurs had been diverting government subsidies once again to more profitable business and even committing fraud. Consequently, on 3<sup>rd</sup> September 2001 President Fox expropriated 27 sugar mills, from 59 in total, promising that the expropriation decree states that the government will look to "eliminate the incorrect practices of a group of people engaged in this agroindustry, which have deeply affected the sector" (Diario Oficial de la Federación 3 September 2001), but that the mills would be sold again in 18 months to private investors.<sup>14</sup> The 2001-expropriation was defended as a necessary step to prevent a crisis of liquidity from an inability to service a debt of \$US 2.7 billion to the national government and a further \$US 13 billion with cane producers. Unrest amongst unpaid sugar cane producers had been increasing for some time with massive demonstrations, blockages of roads and the occupation of official agencies, demanding receipt of the final payments delayed in some cases for almost a year (Chollet 1995; García 1997; Singelman and Otero 1995). Manuel Montes, a cane grower in the Emiliano Zapata sugar mill in the state of

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<sup>14</sup> Some people suggest that President Fox's link to Coca Cola, as former General Director of Coca Cola-Mexico, was also important as expropriation affected all nine mills owned by GEMEX-CAZE that supplies Pepsi Cola, and there is also a hypothesis that in taking control of sugar production the government has set up a cartel in order to reduce supply and thereby ease the conflict with the US about the sugar quota and facilitate the import of fructose.

Morelos, stated that “from five harvests ago the cane growers started to suffer delays in payments and despite their investment, assessed at almost 12,000 pesos for the crop from one hectare were reimbursed by CAZE up to 20 months later” (El Universal 4 September 2001). Angel Gómez Tapia, the cane growers’ leader in Veracruz declared that “Entrepreneurs of the sugar mills San Cristóbal and El Modelo, in Veracruz, and Atencingo, in Puebla, owe some 120 million pesos to the cane growers” (El Universal 11 October 2000).

Yet President Fox’s decision to nationalise is surprising since it contrasts with his strong pro-business policy, symbolised by the presence in his cabinet of businessmen as secretaries for tourism, environment, agriculture and energy, and numerous references in speeches to the similarities of running a government and a large company (Camp 2002). As of late 2003, it certainly does not appear that business principles are being applied to the public management of the 27 nationalised mills (El Universal 17 November 2003). Influential voices are urging dramatic rethinks of government attitudes to the mills and the agro-sugar industry in general. Javier Prieto, President of the Confederación de Cámaras Industriales (CONCAMIN), has commented, “the sugar mills’ expropriation must lead us to define the scheme and treatment for the countryside. There are elements which [up to now] we have avoided, solving short-term problems without solving in depth the problems of the rural sector” (La Jornada 24 September 2001). The former Secretary of Commerce, Dr. Herminio Blanco (1994-2000), has urged a discussion ‘in the round’ of the productive structure of the industry given that “the Mexican sweetener industry produces to higher costs than that of Colombia, Brazil and Guatemala; that is why it is necessary to reflect in order to find in our industry levels of competitiveness possessed by other industries in the world” (El Universal 21 October 2000). The Cámara Nacional de la Industria Azucarera y Alcohólera (CNIAA), the private-sector organisation of sugar mill owners, reports that 15 mills are consistently in financial trouble and unable to pay for cane, and Carlos Seoane, President of CNIAA, claims that with production costs in Mexico twice the international level “the government should let the market consolidate the industry” including allowing some mills to close (La Jornada 24 September 2001).

One possibility, and my fear, is that with an economy recording a zero rate of GDP

growth in 2001 and only slightly higher in 2002, four budget cuts, and a US recession, the state will not have significant resources to inject into the agro-sugar industry and will resort to switching ownership of the mills once more to the private sector as 'the solution'. Indeed, a judicial ruling following a petition made on 31 October 2002 by Enrique Molina, the owner of Consorcio Azucarero Escorpión (CAZE), the largest sugar company in Mexico, has declared the expropriation to be illegal (Reforma 1 November 2002). The government has appealed the decision, but this opens the way for a re-privatisation. Such a shift would be consistent with diagnoses of faults with the agro-sugar industry over the past 30 years that invariably identify ownership as the principal problem or solution and, therefore, the agro-sugar industry has been nationalised by a Left-leaning president (Echeverría), privatised by a Right (or neo-liberal) one (Salinas) and partially re-nationalised by a Right wing president (Fox) using almost the same pretext as his left-wing predecessor.

As the thesis will demonstrate in more detail, the industry has gone from crisis to crisis under both private and government administration, through Import Substitution Industrialisation that provided large subsidies, guaranteed prices and labour control and economic liberalisation that removed most subsidies and opportunities for soft credit, liquidated a series of parastatal agencies and ended price controls, but to which private ownership failed to respond. As will also be indicated, seeing the problem as one of ownership has avoided taking account of property rights in land, fragmentation, technological lag, de-capitalisation, corruption and unequal power relations between growers, mill (owners) and state, increasing poverty and migration. Instead of basing their approaches on these issues, the government has resorted to narrower strategies linked to who owns and regulates the sector.

### **1.3 The International Sugar Market**

The changing fortunes of Mexico's agro-sugar industry have to be understood within the context of the structure and changes in the international market for sugar. Collectively, what this context shows is that the international sugar market is far from a perfect market relying on a price mechanism for the allocation of resources but is based upon a series of institutional arrangements. In particular, we can identify three such

arrangements. First, it is useful to think of sugar as a commodity with an unusual market in which only 'residual' production is freely traded. Most sugar that is traded internationally is subject to tight government control through bilateral or multilateral agreements (Buttler and Otero 1995; García 1997; Harrison 2001; Larson and Borrell 2001; Oxfam 2002; Pollitt 1986). As Larson and Borrell argue:

the political economy, trade structures, and production characteristics of sugar are different enough from those found in most agricultural markets . . . Chief among these differences are the degree to which international markets are dominated by policy interventions and the effects of preferential trade agreements . . . because of these factors government interventions are common (2001: 1).

The most important economic block in the sugar market is the European Union which through the Sugar Protocol (former Lomé Convention), establishes prices that are approximately three times the free market price and offers secure quotas to 16 former colonies (Buttler and Otero 1995; Dujon 1997; Harrison 2001; Larson and Borrell 2001; Oxfam 2002; Pollitt 1986). Not too dissimilarly, the United States has operated a special quota system since the 1930s involving the Philippines and parts of Central America and the Caribbean. Despite NAFTA, the United States pays between two and three times the international price of sugar to a few favoured countries (Buttler and Otero 1995; García 1997). Communist countries have also exerted considerable influence. The government of China pays about 50 per cent more than the international price for sugar, and special agreements between Cuba and the Soviet Union, notably between 1975 and 1983, witnessed the Soviet Union paying 30 US cents per pound for Cuban sugar against an international market price of about 13 US cents (Larson and Borrell 2001; Pollitt 1986).<sup>15</sup> Compared to regional and bi-lateral agreements, attempts to organise quotas and other regulations by, for example, the International Sugar Organisation (ISO) since the 1930s, have met with little success.

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<sup>15</sup> As The Economist noted in 2002, with no great regret, in 1990 Cuba earned as much as \$US 5 billion from the sale of sugar at above market prices, but once the USSR collapsed was forced to accept only five US cents a pound or \$US 430 million while "its inefficient mills guzzle oil" (15 June 2002). The report went on to note that production has declined from 8.1 million tonnes in 1989 to 3.6 million in 2001, obliging Cuba to plan the closure of 71 out of its 156 sugar mills.

In addition the free trade of sugar according to comparative advantage is hampered by subsidies to producers within domestic or regional markets. According to Larson and Borrell (2001: 3) on average from 1993 to 1995 producer subsidies in OECD countries were equal to about 49 per cent of the world price. The Common Agricultural Policy, for example, provides the agricultural sector with subsidies worth approximately \$US 39 billion per year. In the case of sugar, producers of sugar beet in Europe receive about three times the price of sugar on the international market (The Economist 5 October 2002). So, even though it costs almost three times more to produce sugar beet in Europe than to grow cane in Brazil or Colombia (\$US 660 per tonne against about \$US 280), the subsidies have caused a production surplus in Europe and massive dumping that severely affects the ability of developing countries to produce cane (Harrison 2001; Oxfam 2002).<sup>16</sup> By 1998, the European Union area represented 13 per cent of international sugar production, behind India with 16 per cent, and ahead of the United States with 12 (Larson and Borell 2001). The renegotiation of trade agreements and subsidy levels by relatively few countries therefore can influence levels of supply and demand on international markets, and residual prices, so that despite attempts at domestic government control the price of sugar is one of the most volatile of all internationally traded commodities. As Harrison (2000: 41) observes, during the mid-1950s and the late 1980s, the international price of sugar averaged around 16 cents per pound (at 1985 prices), whereas in 1974 the price was briefly 120 cents but between 1981 and 1986 the average price never rose above 8.5 cents, and in 2001 has been under nine cents per pound.

Second, we need to understand the important commercial implications of innovations in competing sectors. Perhaps the greatest challenge to the sugar market has been the growing use of sweetener substitutes such as the maize-based high fructose-corn syrup (HFCS), aspartame and saccharin, partly motivated by changing dietary patterns in the industrialised countries (Friedland 1994; Kherallah and Kirsten 2001). Fructose is estimated to be about 20-30 per cent cheaper than cane sugar, prompting García (1997)

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<sup>16</sup> Harrison (2001) observes that in 1967 the countries which now comprise the European Union imported nearly four million tonnes of cane sugar between them but that by the mid 1980s they were exporting nearly four and a half million tonnes of beet sugar. The United States, Brazil, China, and India have also pursued policy regimes in which surpluses are managed through adjustments in trade (Larson and Borrell 2001: 4-5).

to contend that fructose has replaced sugar as the sweetener in 95 per cent of soft drinks in the United States, and for Harrison (2001) to note how the decision of Coca Cola and Pepsi in the mid-1980s to use fructose as sweetener caused the closure of four sugar mills in the Dominican Republic.<sup>17</sup> Attempts at diversification, most famously in the case of sugar to ethanol in Brazil have not been enough to open alternative large scale and profitable markets for sugar cane (Harrison 2001). Overall, then, the shrinking demand for sugar due to substitution by fructose, an increasing supply of sugar principally due to surpluses from Brazil, China, Thailand and the European Union, and changing quota arrangements have put downward pressure on the world price for sugar (García 1997; Hagelberg 1989; Harrison 2001; Kaplinsky 1989).

A third arrangement is the long-standing power of multinational corporations in the international sugar market. Among the most important companies are Cargill, Archer Daniels Midland and Tate and Lyle that, through subsidiary arrangements, produce raw sugar in developing countries for refinement in the industrialised countries. As with other commodity chains, the integrated but subsidiary based organisational structure serves to create value, jobs and growth in the industrial countries and constrain the participation of producers (Gwynne 1999). An important development has been the emergence of retail-end companies, notably soft drink companies such as Coca Cola, Pepsi Cola and Cadbury-Schweppes, as key protagonists in the commercialisation (rather than the production) of sugar. Certainly, Mexico attests to the power of multinationals. In 1998, Mexico applied an import tariff (*cuota compensatoria*) to fructose of about 50 per cent of its value or about \$US 230 per ton. However, in 2001, the WTO declared the tariff illegal (*El Financiero* 24 October 2001). In December 2001, the Mexican Congress passed a new tax of 20 per cent on soft drinks sweetened with fructose in order to encourage the use of sugar as a sweetener. Both American exporters of fructose and corporations producing the sweetener in Mexico lobbied against the tax and demanded its repeal (*Gaceta Parlamentaria* 17 July 2002). Going against Congress, President Fox allowed all US firms to be exempted from the new tax.

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<sup>17</sup> Production of fructose in Mexico amounts to about 300,000 tonnes, more or less the quantity demanded by the soft drink industry.



## 1.4 The Ejido Crisis and Living Standards

If the institutional arrangements set down by successive governments in the agro-sugar industry and the structure of the international sugar market have not been propitious to conditions favouring investment, productivity and increased incomes in the Mexican countryside, then the final arrangement, the system of land property rights, has been in my opinion probably the most damaging. Moreover, compared to the first arrangement, intervention in the sugar sector, the institutionalisation of property rights in the form of the ejido has been harder to reform, but the need to do so has been clear for many years. Looking only at the situation of property holding in the sugar sector one can see how cane growers have not been able to consolidate land in order to enhance productivity. As Buttler and Otero note:

There is a sharp contrast in farm structure between Mexico and the United States in the parcel size of cane growers. Whereas in the United States cane growers tend to operate very large farms, in Mexico landholdings are dispersed among 130,000 growers whose majority consists of minifundistas (very small cane growers). Their total output is about the same as that of 1,000 sugar cane growers in the United States. Because U.S. growers currently devote more acreage per farm than Mexican growers, there are greater economies of scale in the United States . . . The area devoted [in Mexico] to sugar cultivation is 60 percent in ejido land, with an average holding size of 3.5 hectares, and 40 percent in private parcels with an average size of 12 hectares (1995: 68).

The minifundio structure of Mexico's sugar production is confirmed by Table 1.2. Data are broken down for peasants associated with the Confederación Nacional Campesina (CNC) and the Confederación Nacional de Propietarios Rurales (CNPR), the two main corporate bodies of peasant linked to the Partido Revolucionario Institucional (PRI), and non-affiliated peasants. The Size of land holding alone, however, is insufficient to explain problems of investment, productivity and profitability in Mexico. If one compares the top two countries recorded on Table 1.1, Brazil and India, the average area devoted to cane in Pernambuco (Brazil) ranges between 100 and 200 hectares (Porter et al. 2001), whereas in India sugar cane is produced by almost five million smallholders on plots that are generally less than one hectare (Larson and Borrell 2001: 14). Rather, the argument I will develop below and in more detail in Chapter Two, is that the system of land property rights most clearly constrains investment, technological

absorption and changes to social conditions, especially poverty.

**Table 1.2 Summary of Sugar Cane Production, 1999-2000**

Range (Hectares)	C.N.C.		C.N.P.R.		Non-Affiliated		Total	
	Farmers	Ha	Farmers	Ha	Farmers	Ha	Farmers	Ha
Up to 0.5	2,888	1,142	956	393	414	172	4,258	1,707
0.5 to 1.0	13,609	11,927	6,997	6,115	1,977	1,825	22,583	19,867
1.0 to 2.0	21,997	36,017	11,432	19,404	2,051	3,535	35,480	58,956
2.0 to 3.0	17,049	43,801	7,586	20,711	917	2,630	25,552	67,142
3.0 to 4.0	15,291	54,563	7,774	27,444	839	3,056	23,904	85,063
4.0 to 6.0	11,172	58,574	8,055	41,960	947	4,736	20,174	105,270
6.0 to 8.0	5,367	37,988	3,179	22,588	435	3,051	8,981	63,627
8.0 to 10.0	2,982	26,861	1,861	17,121	657	5,716	5,500	49,698
10.0 to 12.0	1,238	13,939	1,132	12,531	271	3,048	2,641	29,518
12.0 to 15.0	1,089	15,607	1,033	13,813	111	1,507	2,233	30,927
More than 15.0	1,037	33,848	1,651	57,471	188	16,249	2,876	107,568
Total	93,719	334,267	51,656	239,551	8,807	45,525	154,182	619,343

Source: Comité de la Agroindustria Azucarera 31 May 2001

The property rights regime that we witness in Mexico today is the result of institutional reforms dating back over many centuries. Prior to the Revolution of 1910-1917 a semi-feudal hacienda system of production represented an obstacle for capitalist development, impeding the free movement of labour and the efficient allocation of capital that in turn prevented a growth in demand for industrial goods (Knight 1985). Needless to say, the land market was highly constrained with fewer than 2,000 families in 1910 holding 87 per cent of the national territory (Salinas 2000; Secretaría de la Reforma Agraria 1997). Although virtually everyone agreed during and after the Revolution that this system had to be changed there was no consensus about what type of land holding regime should be put in place of the hacienda. There were two main positions. On the one hand, sometimes typified as the 'Northern' or Villa view, was an argument for American style ranches subject to intensive cultivation and owned by the peasants (Katz 1996; Knight 1985; Markiewicz 1993; Menegus 1990). On the other hand, the Zapata or Southern view demanded massive land distribution to provide

peasants with sufficient land for subsistence as a minimum (Womack 1970).<sup>18</sup> As captured by the eventual wording of Article 27 of the Mexican Constitution (the same article dealing with land as in the Constitution of 1857), the result was a hybrid that allows ejidos and small to medium sized private property (*pequeña propiedad*). Private property was limited to a maximum according to land quality with a 100 hectare limit for irrigated land or 300 hectares of land cultivated with sugar cane or cotton. Thereafter, the emphasis on how land was to be distributed varies according to region, with larger ejido parcels in the North compared to the South, between an average 73.5 hectares in Baja California to 2.3 in State of Mexico, and 9.5 hectares nationally (Escalante 2001; Procuraduría Agraria 1999).

According to the 1917 Constitution, ejidos are a legal device for granting land to peasants and a means to manage that land as a specific form of tenure associated with a particular community or place that has exclusive rights over the land (Jones 1996: 188; Procuraduría Agraria 1999). In more Neo-Institutional terms, Heath defines the ejido as:

an institution, formally constituted by the federal government, by which property is assigned to a given population group; the *ejido* is a form of social property; property rights conferred on this population group are inalienable, non-transferable and may not be confiscated; the property shall be exploited as an integrated unit of production, preferably organized along collective lines (1990:18)

Ejidos themselves can consist of communal land, individual plots and an 'urban' area, and there is a division of right holders from ejidatarios, posesionarios and *avecindados*.<sup>19</sup> At present there are 3.1 million ejidatarios in 27,144 ejidos and 400,000 in 2,330 comunidades (indigenous communities) together holding 103 million hectares or 55 per cent of the territory and about one-half of the total cultivated area in Mexico, eight million hectares of a total 16 million (Robles 2000). Overall, about 15 million people rely upon ejido rights as a means of livelihood (Olinto and Deininger 2002: 4).

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<sup>18</sup> Zapata was not in favour of collective ownership but his Plan de Ayala has been used to legitimate more collective forms of ejido which in practice have rarely been a success (Bartra 1987; Gledhill 1993; Otero 1999).

<sup>19</sup> Ejidatario (Article 12) is the legal holder of a parcel; *avecindado* (Article 13) is allowed by an ejido General Assembly to live on an ejido but without land rights, and a posesionario (Article 48) may hold a parcel while application for ejidatario rights are pending.

The agrarian reform created a divorce between land and capital by banning private investment in ejidos, and in so doing made ejidos dependent on a range of public interventions. During the ISI period, the government held the monopoly of commercialisation through CONASUPO, mainly of basic food such as maize and beans under guaranteed prices (see Ochoa 2000), and for some other crops the government was directly engaged in production and commercialisation through trust funds and parastatals such as Inmecafé for coffee, Tabamex for tobacco and ALBAMEX for cattle feed (Mackinlay 1996). Initially, the ejido appeared to thrive under conditions of protection, but over time its performance declined even though the state increased public investment channelled to agriculture from less than 10 per cent during the 1960s to more than 20 per cent in the 1970s and guaranteed prices rose over the 1960s and early 1970s (Warman 1981).<sup>20</sup> With oil revenues further efforts were made by the state to make capital available to the ejido. In 1981 the Ley de Fomento Agropecuario (Rural Development Law) allowed the ejido to rent land in association with private companies and in March 1980 the Sistema Alimentario Mexicano (SAM) was established. The SAM was a major food programme aimed at enhancing basic grain production in order to attain national food security through enhanced pricing mechanisms to small-scale growers (Ochoa 2000; Otero 1999; Redclift 1981; Smith 1990). The SAM and other interventions, while devoting significant resources to the ejido, failed. My observation, therefore, is that the ejido crisis was deeper than the lack of resources and pre-dates the 1980s by at least 20 years.

The 'ejido crisis' can be gauged from data on agricultural production. From 1930 to 1946 production increased at 3.5 per cent per annum and from 1946 to 1966 at an average of 7.1 per cent. Thereafter, studies show a decline in production and an increase in imports, as well as a deficit in the agricultural balance of trade (Lamartine 1978; Salinas 2000; Secretaría de Reforma Agraria 1997; Smith 1990). According to Jones, "By the 1980s productivity in agriculture had declined to levels below those encountered in 1965, such that some commentators were able to argue that most peasants in Mexico complemented their wages with agriculture" (1996: 189; also Bartra

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<sup>20</sup> On the official support Del Villar says: "It is significant, that according to the balances of FINASA, the resources allotted to trust funds passed from 4,406 million pesos in December 1971 to 22,132 millions (402% more) in July 1975" (1976: 562).

1996).<sup>21</sup> Especially on the ejidos, analyses showed inefficient production practices, the failure of guaranteed prices to benefit poor traditional growers, and widespread de-capitalisation (Botey 1996; Cornelius and Myhre 1998; Gledhill 1996; Gordillo and de Janvry 1998; Salinas 2000; SRA 1997; Téllez 1994; Warman 1981). Ejidatarios' standards of living had not only failed to improve for at least two decades but an increasing number were shown to exist close to or beneath the poverty line (McKinley and Alarcón 1995; Olinto and Deininger 2002). In survey after survey, ejidatarios and indigenous communities appeared as the poorest social sectors in Mexico (Brizzi 2001; Cornelius and Myhre 1998; Dunn 2000; Varley 1985). As shown by Table 1.3, in 1994, 75.9 per cent of ejidatarios scarcely earned above one thousand pesos a month and 55.8 per cent earned fewer than 900 pesos a month (\$US 90 in 2001).

**Table 1.3 Ejido Household Income, 1994**

Plot area (Hectares)	Households (%)	Annual Income (Pesos)
	100	13,090
<2 ha	21.4	8,338
2-5 ha	34.4	10,442
5-10 ha	20.1	14,400
10-18 ha	17.0	16,062
>18ha	7.1	29,301

Source: de Janvry et al. (1997)

These data, moreover, suggest a link between income levels and land holding. According to the United States Department of Agriculture, income from agriculture increases with the size of farms: in a range of two or less hectares, the agricultural income accounts for just 22.2 per cent of household needs; from two to five hectares, it accounts for 34.8 per cent; between five and ten hectares, agriculture provides 47.3 per cent of the family income and finally, only in a range of size of farm between ten and 18 hectares does agriculture provide half (55.2 per cent) of income (USDA 2003; also Schejtman 1982 cited in Escalante 2001). Nonetheless, according to Randall (1996), in 1985 only 2.2 per cent of farms growing maize were larger than 10 hectares (Randall

<sup>21</sup> According to USDA (2003), citing data from 1999, 61 per cent of ejidos EAP engaged in agriculture earns no profit or at most one minimum wage (around four dollars a day); only 55.1 per cent obtain their main revenue from agriculture; and 12.1 per cent of ejidatarios are without any economic activity.

1996; also Nuijten 1998; Warman 1981). Clearly, such small plot size has been a strong impediment for getting credit, with Myhre (1996) showing that only 9.6 per cent of ejidatarios with two hectares or less have access to credit, although they account for 34.1 per cent of the total farms.<sup>22</sup> Deprived of self-sufficiency and access to credit, income from off-farm activities proliferated and as a study by USDA (2003) observes, the dependence on off-farm income is closely related to plot size, with non-agricultural sources of income accounting for 57.8 per cent of household income for holders with less than two hectares of land (also Botey 1996; Yúnez-Naude and Taylor 2001).<sup>23</sup> Interestingly, a recent study by the Secretaría de Agricultura, Ganadería, Recursos Naturales, Pesca y Alimentación (SAGARPA) predicts that the ratio of farmland to people in rural areas will continue decreasing, from 0.75 hectares per person in the 1960s, 0.34 hectares per person in 2000 to below 0.25 hectares per person in 2010 (cited in USDA 2003: 9-10).<sup>24</sup>

What these data do not reveal is how or why ejido land has been subdivided or, as I prefer, fragmented when, formally, it was prohibited for ejidatarios to sell land or divide it in order to bequeath it to their children (Articles 52 and 53, 75 and 76, Ley Federal de Reforma Agraria). Closer inspection shows that ejidos have rented and sold land through informal transactions (Azuela 1989; Bouquet 1999; Concheiro and Diego 2001; Escalante 2001; Gordillo and de Janvry 1998; Randall 1996) even in irrigated and modern-agriculture regions (Goldring 1996). According to Escalante (2001: 110) the rent and sale of ejido land was only officially quantified from 1981 with rented or sharecropped land calculated to be about 500,000 hectares and 700,000 hectares by 2001. This may be a severe underestimate if Bartra (1987: 141-42) is correct that in the

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<sup>22</sup> In any case, ejido land could be alienated, divided, or passed to third parties, for example in case of loss as collateral, and ejido land could not be held by civil corporations, joint stock companies or foreign investors, thereby impeding access to credit unless from the state (also Escalante 2001; Olinto and Deininger 2002).

<sup>23</sup> However, "much of the emphasis has been on programs designed to keep people on small inefficient farms, rather than fostering a transition to greater efficiency, productivity, and in some cases, off farm employment" (USDA 2003: 3).

<sup>24</sup> One can possibly observe a global trend toward concentration in areas of commercial agriculture, and in particular the US with an average of 188 hectares per farm in 1997 and the European Union area (Klank 1997; USDA 2003). In many parts of the developing world however the trend has been toward subdivision of holdings, mostly but not exclusively in areas of less commercially viable holdings (Platteau and Baland 2001).

Yaqui Valley in 1961, 63 per cent of the ejido area was rented, in 1965 25 per cent of ejidatarios rented all their land and 13 per cent a fraction of it. As other research has showed for the state of Hidalgo, in 1967, 46 per cent of ejidatarios rented plots and in Nueva Italia (a well-known failed collectivist experiment) in 1957-58, 35 per cent of ejidatarios rented out plots and 55 per cent in 1967. In the irrigated Tula district in Hidalgo, in five municipalities 44 private farmers rented 2,415 hectares of ejidos and private minifundia (Barbosa and Maturana 1972). Again, therefore, the sale or rent of ejido land predates the crisis of agricultural funding or economic crisis, or reform.

Ejidatarios also moved when regulations said that they were not legally allowed to leave the parcel for more than two years (Olinto and Deininger 2002).<sup>25</sup> This often provoked the rather bizarre ritual of ejidatarios returning to their ejidos from cities or the US in order to attend assembly meetings to confirm to the Investigación de Usufructo Parcelario of the Secretaría de Reforma Agraria that they maintained their occupancy of the land. As Nuijten (1998) observes, one consequence of moving in order to prove that you had not moved was an increase in the costs of holding land.<sup>26</sup> Speaking of ejidos in Michoacán, Zendejas says:

From the beginning of the period, migration to the United States increased exponentially, even though the Mexican government invested most heavily in agricultural infrastructure in the valley and offered more subsidies to farmers between the late 1970s and late 1980s . . . Public investment in irrigation and drainage allowed more than a third of the ejido arable lands to be sown in the fall-winter cycle, as well as in the rainy season (spring-summer). In addition, the subsidy that ejidatarios actually received via government credit to cultivate their plots was high indeed: as in the rest of the country, the majority of ejidatarios continued to receive this type of credit from BANRURAL even though they generally did not pay it back or only partially (1996: 314-315).

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<sup>25</sup> Articles 84 and 87 of Ley Federal de Reforma Agraria, 16 March 1971, mandated that ejidatarios would be deprived of their parcels if they failed to cultivate them for more than two years.

<sup>26</sup> Yet by the 1970s it was widely reported that migration to the United States had become a standard response to poverty and by 2002 remittances were worth about \$US 9.8 billion representing the second source of foreign currency after oil exports <http://www.banxico.gob.mx/eInfoFinanciera/FSinfoFinanciera.html> (Consulted 20 October 2003)

As with the rent and sale of land, migration suggests that the crisis in the ejido regime did not start with economic liberalisation, but long before which implies that the ejido as an institution has intrinsic weakness that make it unable to perform successfully in terms of production and social welfare.

One reason why the institutional framework of the ejido remained in place when most people were aware that ejidatarios, and others, were not abiding by it was due to politics and not economic or social rationality. In a sense, of course, the ejido was conceived as a mechanism for political control, especially useful in the aftermath of the Revolution to achieve social stability during the dismantling of haciendas, and later in association with official agencies such as Secretaría de Reforma Agraria and BANRURAL, and rural organisations such as the CNC (Jones 1996; Myhre 1996; Randall 1996; Thiesenhusen 1996). The so-called “green vote” (el voto verde) was sustained by the ‘myth’ of a peasant agrarian distribution and helped secure over six decades of political loyalty (Nuijten 1998). As the ability of the state to meet land distribution waned, so other measures helped maintain peasant conformity. BANRURAL, for example, provided credit to the ejido as a community not to individual croppers, and did so through an ejido community leadership thereby buying their acquiescence (Heath 1990; Myhre 1996; Otero 1995). All forms of ejido regulation and bureaucratic control, but especially the complicated application procedures and slow payment of credit became an additional source of political power for the bureaucrats and local leaders (Botey 1996; Olinto and Deininger 2002; Warman 1981).<sup>27</sup> At the extreme, a complicit arrangement was arrived at between bureaucrats and some ejidos to exploit the ‘disaster industry’ (industria del siniestro), whereby a report was made from BANRURAL to ANAGSA that a non-existent disaster had occurred, claiming compensation from ANAGSA the proceeds of which would be split between bureaucrats in the two agencies and ejidatarios (Myhre 1998). In 1990, when ANAGSA was liquidated it had a loss of around \$US 1.5 billion (Salinas 2000).

Under pressure to counteract fiscal deficits following debt crisis and structural adjustment, with landowners complaining that the risk of expropriation or invasion was

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<sup>27</sup> President Salinas’s (2000) subsequent reflections upon ejido reform note that high-level bureaucrats in the Secretariat of Agrarian Reform and associated agencies put up stiff resistance to change.



inhibiting their willingness to invest, and international policy advice urging deregulation, privatisation and the removal of subsidies and price controls, and with Mexico a member of GATT from 1986 and negotiations for NAFTA on-going, it was hardly surprising that an impassioned debate emerged about the future of the ejido (Gordillo and de Janvry 1998; Larson and Borrell 2001; Salinas 2000; Téllez 1997).<sup>28</sup> One viewpoint forwarded from traditional defenders of the ejido blamed the lack of credit, subsidies and support from the government as the cause for its poor performance arguing that, as the government abandoned the ejidos by cancelling subsidies and credit, opening the economy, the ejidatarios were obliged to rent and sell land and/or migrate (Bartra 1996; Calva 1993). Contradicting this argument, as noted above and in subsequent chapters, is that the rent and sale of ejido land occurred even during a period when the government provided ejidatarios with soft loans, guaranteed prices subsidies and, in the case of cane producers with social security.<sup>29</sup> As I show in Chapter Five, there is little support for a correlation between official support and productivity in the Matamoros valley. A related viewpoint is to blame the ejido crisis on trade liberalisation, especially through NAFTA, that allowed imports to replace Mexican agricultural production as pressure internationally drove prices downward (Barkin 1987; Bartra 1996; Botey 1996; Calva 1993a). According to Calva (1993a) government policy should re-impose high tariffs and reduce the exposure to foreign competition (also Barkin 1997). Again, however, it would seem that the ejido crisis predates trade liberalisation by some decades, notwithstanding the differences between foreign and domestic commodity prices and how opening of the economy placed added pressure upon an existing crisis. Finally, commentators noted that the ejido was hampered by the introduction of modern technology based on synthetic pesticides and fertiliser, as well as the use of farm equipment that replaces labour, and as an alternative suggested the adoption of labour intensive technology (Paré 1986; Warman 1981).

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<sup>28</sup> An interesting source of material on the debates during 1991 and 1992 is the compilation of speeches and newspaper articles published in H. Cámara de Diputados, México, LV Legislatura (1992).

<sup>29</sup> Indeed, while government assistance has undoubtedly changed, it may not have declined as it is still claimed that the Mexican government spends 8.6 per cent of its budget on agriculture compared to 0.8 in Argentina, 4.4 in Brazil, and 2.23 in Chile (USDA 2003).

A different, but no less clear, diagnosis of the ejido crisis and who had caused it was forwarded by researchers at the World Bank, and by President Salinas, Under-Secretaries of Agriculture Luis Téllez, and Gustavo Gordillo. Their view, in the words of Olinto and Deininger, was broadly that:

While the economy as a whole regained its growth path by the end of 1991, agricultural production in the ejido sector remained stagnant and poverty pervasive among ejido households. To most observers, it was clear that the archaic government policies aimed at controlling the ejido economy, a product of decades of centrally managing the sector, were the main factor hindering ejido sector's growth (2002: 5)

The principal source of research to provide credibility to this view was from John Heath (1990) whose study for the World Bank investigated the contribution of land reform to the agricultural development of Mexico, drawing a specific connection between institutions and ejido performance (also Heath 1988). In the introduction to his 1990 paper, Heath argues that:

The purpose of this paper is to consider whether the institutional factors associated with the Mexican land reform (ejido) sector constrain agricultural growth. Parting from the assumption that the ejido may be considered a more or less fixed element of Mexico's cultural and political scene, the paper will focus on the piecemeal changes that could help to enhance growth and productivity within the existing structure (1990: 9).

According to Heath, the performance of ejido and minifundio property can be assessed using the following indicators: (1) access to land and land use patterns, (2) labour organisation and employment, (3) access to credit, and (4) ejido marketing. Although the subsequent changes to ejido property rights is very much the work of Salinas, Téllez and Gordillo, Heath's paper is one of the few referred to in publications legitimating the reform.

On 7 November 1991, a presidential initiative to change Article 27 of the Constitution was presented to Congress, it was passed on 7 December and published on 6 January 1992, and a new Agrarian Law (enabling legislation) was published on 26 February

1992.<sup>30</sup> The reformed Article 27 and the new Agrarian Law aimed to provide greater security and certainty in land ownership, not only to the ejidos themselves but also to private property owners.<sup>31</sup> The reform announced an official end to agrarian reform. The government argued that it could no longer undertake land redistribution as there was no longer land to distribute and that it was unable to purchase land at sanctioned compensation rates, without prompting political opposition and legal obstacles.<sup>32</sup> More specifically, the reform was supposed to deliver a broad series of changes to ejido property rights, promoting individualisation through a land-titling programme, the Programa para la Certificación de Derechos Ejidales y Titulación de Solares Urbanos (PROCEDE, also begun 6 January 1993) that offered a new certificate (Certificado de Derechos Parcelarios) or the full privatisation of rights as a final step. Upon completion of various stages of PROCEDE, ejidatarios could sell their land rights either as usufruct by selling the certificate or as private property (*dominio pleno*), or rent plots or maintain possession without having to demonstrate cultivation (thus making migration more straightforward). The details of plots and other land holdings were recorded in the Registro Agrario Nacional (National Agrarian Register, RAN) and disputes on ownership or boundaries were to be resolved by negotiation through the Procuraduría or a network of Tribunales Agrarios (Agrarian Tribunals). Restrictions prohibiting private investment in ejido land were removed, either in terms of individuals or companies

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<sup>30</sup> 6 January is symbolic as the same date that President Venustiano Carranza issued the Agrarian Law (decree) in Veracruz in 1915, and which became the basis for Article 27 in the 1917 Constitution.

<sup>31</sup> The Salinas reforms were audacious, even radical, but in Mexico's long agrarian history they are not unprecedented. The reform attempted to consolidate private property rights to enhance capitalist development, a measure partially undertaken by President Alemán's initiative of Derecho de Amparo (amparo suit) and Certificados de Inafectabilidad Ganadera (Otero 1999; Redclift 1981; Warman 1981). The Salinas reform also appeared as a return to the 1856 Ley Lerdo and the Leyes de Reforma (Reform laws) of 1857 promoted by Benito Juárez which aimed at the individualisation of communal land property (De la Peña 1992; Mendieta y Núñez 1986). Furthermore, in line with long-standing political bargains on reform, Salinas set up a fifteen-year support programme in 1993 known as Procampo (Programa de Apoyo al Campo) to provide up to 3.3 million peasants with a fixed amount of money per hectare, and PRONASOL (Programa Nacional de Solidaridad), which established a series of public works and credit projects (for a critical analysis see de Janvry et al. 2001 and Myhre 1996, and for less critical reflection Salinas 2000).

<sup>32</sup> According to the Procuraduría Agraria, the SRA still had a backlog of over 11,000 cases in 1992: this number of applications for land from groups of peasants, shows the scope of the agrarian claim.

engaging in joint ventures with the ejido or ejidatarios, and land could be used as collateral on bank loans.

Although the mechanisms to realise these changes on the ground still required government oversight through a reformed Procuraduría Agraria (Office of the Attorney General for Agrarian Affairs, PA) and the consent of an individual ejido community, the reform was presented as an effort to enhance individual freedom from the ejido community and community autonomy from the state. It was expected that reform would enhance the use of credit, raise investment in agriculture slow land fragmentation to sub-minifundio level in order to attain economies of scale necessary for technological modernisation and the realisation of comparative advantages, promoting a shift from traditional and self-subsistence agriculture to more profitable cash crops. For discussion of the reform, the political cases for and against, and the unexpected outcomes beyond the limits imposed by this research see Appendini (1998), Collier (1994), Cornelius (1998), Gledhill (1993), Gordillo et al. (1998), Grindle (1995), Harvey (1998a), Jones (1996), Preibisch (1995), as well as chapters in Cornelius and Myhre (1998) and Randall (1996).

## **1.5 Conclusion: A Research Framework**

Over a decade on from the publication of Heath's work and the reform of Article 27 it seemed interesting to consider his approach and findings and ask whether the institutional changes they induced have had their anticipated effects. My work, however, departs from Heath in a number of respects. First, my work is conducted through case studies in a specific region whereas Heath relied on nationwide data. Second, my research concentrates upon one crop, sugar cane, rather than attempt to trace changes across the whole agricultural activity of Mexican ejidos as Heath does. Even though there are many crops just as relevant to the ejido as sugar cane in economic terms, the institutional context of cane already indicated in section 1.2 makes it particularly useful for illuminating the connection between institutions and economic performance (also Perez 1979: 24). Third, and consequently, I relate the organisation of ejidos to more than just the organisation of labour which is Heath's only concern, and consider how the social and political environment influences the performance of the

agro-sugar industry. Heath pays no attention to issues of state bureaucracy, political parties or peasant organisations, and regards the household and community as productive units rather than social institutions. Fourth, while Heath almost bizarrely gives no attention to technical processes I devote Chapter Five to technical issues of the productive process and how these are influenced by new incentives and opportunities, in particular those related to performance through the agricultural cycle as ejido regulations are reformed, technological changes oriented towards agricultural intensification become possible and the role of the mill is changed. As Larson and Borrell point out, the problems facing policy makers and producers are many and varied, including:

...the assessment of cane quality; finding methods of fairly sharing revenue from joint production; finding approaches to take advantage of preferential trade arrangements while limiting negative consequences; identifying practices that facilitate equitable and sustainable privatisation; finding ways to finance and encourage research and other activities with common benefits; and determining the relationship between sugar market reforms and land, water, credit and other input markets. (2001: 32)

Fifth, in contrast to the conclusions of Heath and other studies of property rights and agrarian structure that stress the minifundio as the ideal productive unit, my analysis provides evidence that its performance post reform is far from expected and the minifundio probably acts as a constraint on the agro-sugar industry. In 1995, Singelman wondered whether:

But for most cane growers, the question is not only whether they have been well prepared for this transition, but more importantly, whether as minifundistas (very small-scale growers) they can meet these challenges at all. Can they continue as cane growers under the new parameters, and if not, then what alternatives exist? (1995: 6).

My research suggests that the 1991 and 1992 reforms have not produced conditions for the optimal performance of the minifundio, but nor have they destroyed the ejido either.

While law reform, of course, appears to be categorical, in practice both it and institutional change are a mixture of deliberate intention, rhetoric and unintended consequence. Important to the present research therefore, is to explain to what extent

changes have been caused by the 1991 and 1992 reforms. To do so, in Chapter Two I consider property rights as a broader set of social relations beyond ownership by adopting a neo-institutional approach popular in the social sciences (Harris et al. 1995). Chapter Two outlines why I am sceptical about a pro-agrarian reform stance that advocates land distribution and the productive potential of the minifundio, arguments that have been associated with the Commission Economical Para America Latino (CEPAL), the Food and Agriculture Organisation (FAO), and numerous non-governmental organisations (NGOs) in Latin America. Rather, I indicate through a discussion of Evolutionary Theory of Land Rights (ETLR), a version of property rights theory based loosely upon Neo-Institutional Economics, how poorly defined property rights impinge on productivity and reduce competitiveness, but that over time institutions will emerge to strengthen rights and resolve productivity problems. Although ETLR suggests a process of medium term change, in practice governments and agencies have tended to redefine property rights through legal change or through interventions in the market (Jones 2000). While ETLR suggests how institutions change in a complex environment, it cautions against prediction of impact when change is induced. Rather than understanding the ejido as a simple institution based on a social form of production, ETLR stresses the need to appreciate as broad a range of institutions and their interactions as possible.

In Chapter Three the research methodology is outlined and the location for the case studies is introduced. Chapter Four is concerned with land tenure, fragmentation of plots, land market activity and access to finance from both formal and informal sources, as well as the specific impact of the 1992-reform notably through the process of land titling (PROCEDE), in the agrarian structure in the case study ejidos. In Chapter Five the research focuses on the productive process, looking for the specific mechanisms through which the new institutional arrangements have influenced the economic performance of ejidos producing sugar cane. In Chapter Six I analyse the market for sugar cane and other crops in the case study ejidos, as well as the social and political impact of the reform, specifically migration and poverty. Together, Chapters Five and Six show how conditions since 1992 have been inauspicious for cane growers to meet the challenges of efficiency, productivity, and competitiveness due to inter alia the size of their land holding, the quality of the land, continued political manipulation within

ejidos and in the municipalities, power relations with the mill, and difficulties with the market for both sugar cane and other crops.

Finally, Chapter Seven draws general conclusions from the empirical data in Chapters Four, Five and Six. It concentrates in particular upon a critical appraisal of the position and future of the minifundio in sugar cane producing ejidos. While the research does not deny the necessity of supporting ejidatarios through government policy, or that assistance may be essential for achieving higher levels of productivity to improve the standard of living, I suggest that assistance alone is not enough and, that moreover, the minifundista structure will not enhance production if it is unable to absorb subsidies productively. In order to assist the production of cane, and the agro-sugar industry, a much broader and interconnected process of institutional change should be considered, that does not take 'mill ownership' or the 'ejido' as separate but, rather, seeks to understand the linkages between the ejido, the financial system, political interests, the specific determinants of sugar cane production.

## **CHAPTER 2: QUESTIONS OF PROPERTY RIGHTS**

### **2.1 Introduction**

This chapter discusses the strengths and weaknesses of the principal theoretical approaches to contemporary debates on agrarian change and the shape of policy intervention in Latin America. In particular, I will outline the arguments of what I call the ‘pro-agrarian’ position that is, broadly, consistent with the views of FAO and CEPAL as well as numerous NGOs committed to agrarian distribution, and then discuss Neo-Institutional Economics (NIE), which informed the reform of Article 27, and its relation to a more specific formulation of property rights change known as the Evolutionary Theory of Land Rights (ETLR). My aim is, first, to draw out parallels and differences between the pro-agrarian and the NIE approaches, and to compare the policy implications of both with respect to the ejido. Second, I aim to identify gaps in the theoretical and more especially the empirical record of the two positions. I shall argue that the strength of the NIE-ETLR approach is that it does not take property rights for granted and nor does it regard rights as unaffected by changes in other institutional arrangements.<sup>33</sup> Third, I aim to evaluate the theoretical insights of NIE-ETLR in the light of the results of property rights reform in general and in particular in Mexico since 1992.

### **2.2 The Pro-Agrarian Position and the 1992 Ejido Reform**

Perhaps, the most influential approach to agrarian reform in Latin America has been what I term, as shorthand, the pro-agrarian reform position. This approach stresses social differences amongst rural producers and it aims at achieving equity of land holding, mainly through state intervention directly through land redistribution programmes as well as indirectly through state financial support to peasants, agricultural extension projects, infrastructure improvements, commercialisation and protection from foreign competition (Bartra 1996; Bryceson 2000; Echeverría 2000; Kay 2000). At the

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<sup>33</sup> Although not discussed in this chapter, static conceptualisations of property rights are not the preserve of the pro-agrarian position but are also adopted by neo-classical economics (Alchian and Demsetz 1973) and in the concept of “meta-economic” fact, lying beyond legal and economic dimensions and existing as a pure cultural or metaphysical issue in Schumacher (1993).



extreme, the pro-agrarian stance has supported coercive measures of land confiscation or nationalisation, with redistribution to previously identified groups of peasants, to, more recently, government intervention to provide large landowners with incentives to sell land or funding the landless to acquire land through the market (Carter 2003; de Janvry et al 2001; Echeverría 2000; Lehmann 1974; Parsons 1984; Vogelgesang 2003).<sup>34</sup>

Pro-reform has been influenced strongly by the pioneering work of Polanyi (1987) and Chayanov (1986), as well as Marx's transcendental contribution to the notions of land rent and forces for consolidation (Bardhan 1989; Bartra 1987). According to Chayanov (1986), the peasant economy operates according to a different economic logic and consequently a different strategy to capitalist farmers, the former aiming to meet subsistence needs through agricultural production, and the latter seeking profit maximisation (Lehmann 1974; Schejtman 1992). As summarised by Schejtman the peasant economy is a "sector of domestic agricultural activity in which family-type units engaged in the process of production with the aim of ensuring, from one cycle to another, the reproduction of their living and working conditions, or, to put it another way, the reproduction of the producers and the unit of production itself" (1992: 278). Polanyi (1987), however, warned that self-subsistence was likely to give way to an historical process of 'de-peasantisation', transforming peasants into proletarians and a replacement of regulated production by market mediated acquisition of goods. Opening the peasant economy to the dynamics of capitalist agriculture, therefore, would accelerate this process as in a market economy the whole institutional arrangement is subordinated to the market (Polanyi 1987; also Bryceson 2000; Kay 2000).

From this point of departure, the pro-agrarian position relies on two assumptions. In economic terms, it argues for the productive potential of the minifundio and in social terms it argues for the capability of land distribution to improve the standard of living of

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<sup>34</sup> In part, this position reflects the influence of Neo-Institutional Economics which supports land reform that meets a condition of Pareto optimality, if for instance reform reduces inequality and increases national output through improved productivity of many small producers without detriment to the few large ones that lose land (Stiglitz 1989: 25). In Latin America, agrarian reform took land from unproductive, semi feudal haciendas, with subsequent improved productivity, but also occasionally divided large and medium productive farms, thereby moving from the Pareto position (de la Peña 1992; Carmagnani 1979).

the rural population (El Ghonemy 1984; Lehmann 1974). Bryceson notes how a range of studies supported these assumptions:

Berry and Cline's (1979) study of Brazil, Colombia, the Philippines, Pakistan, India and Malaysia showed that the smallholding peasant sector achieved higher production per unit of land than the large farm sector due to the intensity and flexibility of labour based on family units. Cornia's (1985) larger sample of 15 countries, including five African countries, further reinforced the pattern of higher labour intensity and output on small holdings. The findings harked back to Chayanov and had several important policy implications. Firstly, they provided a sound basis for the implementation of Latin American land reform and its frontal attack on large, inefficient hacienda agricultural production units (2000: 24-5).

Taken together, the 'potential of the minifundio' downplays the impacts of economies of scale and suggests an inverse relationship between size and productivity in agriculture. Here, the difficulty is that, while the minifundio has been shown capable of providing family subsistence, it relies on income from non-farm sources and to maintain conditions of semi-proletarianisation through conditions of poverty through a reliance on non-remunerated family members, including the labour of children, low capital inputs and extended working days (Bartra 1987; Bryceson 2000; de Janvry and Sadoulet 2001; Jansen 2000; Yúnez-Naude and Taylor 2001). According to Bartra (1982), if a wage were assigned to family labour on the ejido then it would possess a higher cost structure, and lower productivity, than other small land holdings. Referring to evidence from China's and India's agrarian reforms, however, Tomlinson notes the importance of the size of land holding:

Buck's (1937/1982) data on the rural economy suggested that peasant agriculture was backward because of inefficient allocation of factors of production. In particular, farms were too small, land was used uneconomically, peasants had too little capital and access to new technology, little control over natural forces, poor transport, high marketing costs and so on. His conclusions suggested that land reform on its own would have had little effect, since the main problem was the low productivity of existing peasant-owned plots. What were needed instead were measures to improve efficiency through extra investment and the diffusion of new techniques (1995: 178).

And according to Heath:

The majority of ejidatarios in Mexico control too little land to depend on this as a source of income: they are obliged to look for off-farm work, either as casual agricultural labourers or in the urban sector (particularly in construction). In one study, conducted in the 1960s, it was calculated that 84 percent of all ejido plots were too small to provide full employment and an adequate income for a peasant family . . . (1990: 31).

Nevertheless, despite the widespread recognition of a relationship between self-subsistence and self-exploitation, advocates of the minifundio have found it difficult to question its viability. Rather, building upon the observation that peasants are discriminated against by the operation of imperfect markets that impose conditions of unequal exchange upon self-subsistence production, the dominant argument has been in favour of a range of state interventions for the minifundio (de Janvry et al. 1989; Kay 2000; Schejtman 1992).<sup>35</sup>

One intervention is for government programmes to provide credit on terms that are affordable to income rather than reflect transaction costs (Calva 1993a; Echeverría 2000; Lehmann 1992; Schejtman 1992). The record of government operated intermediaries for the provision of rural financial services has, across Latin America and notably in Mexico, been disappointing. Experience has shown high levels of default due to inappropriate credit structures that have promoted free rider attitudes among peasants, especially once it is recognised that programmes are vulnerable to corporatist control (Kherallah and Kirsten 2001; Myhre 1996, 1998). Moreover, research has demonstrated that it is unreasonable to place faith either in the capacity of the minifundio to respond in productive terms to the availability of funds, rather than devote subsidies to consumption, or in the assumption that the ability to absorb subsidies is not conditioned by the size of land holding (Echeverría 2000; Uphoff 1984).<sup>36</sup>

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<sup>35</sup> An assumption of the Chayanov view is that peasants rarely engage in business-like activities since they are essentially risk averse (Schejtman 1992); although as Stiglitz (1989; 1992) argues, peasants, just like other agents, are also capable of making rational decisions.

<sup>36</sup> In the case of sugar, minifundistas channel credit meant for sugar production to other crops or family consumption (Paré 1986; Powell 1995; Singelman and Otero 1995).

Another commonly advocated intervention is for government assistance with technological development in order to raise productivity (Tomlinson 1995). Nevertheless, so that the association between technology and de-peasantisation evident in many developed countries with a heavy reliance on chemical pesticides and fertilisers, large irrigation infrastructure and mechanisation which suits larger farming units is avoided, the argument has been for 'appropriate technologies' such as assistance with small animal husbandry, beekeeping, micro-irrigation, crop combination, organic fertilisers and use of oxen. In short, the pro-agrarian reform position argues for labour-intensive technology and opposes neo-liberal policies as labour saving (de Janvry et al. 1989; Echeverría 2000; Schejtman 1992; Sinha 1984; Warman 1981). In relation to sugar cane, Paré and Juárez argue:

Now, seeing the problem from a social point of view rather than an economic and technical one and from the perspective of cutters and not from that of the producers, it is relatively easy to imagine the damage that the present idea of promoting mechanisation would mean for the 75 thousand farm workers and about 20 thousand sugar cane producers engaged in sugar cane cutting over six months a year . . . besides the problems in terms of unemployment that an accelerated mechanisation of cutting would entail, it is not sure that for producers it would really mean a real reduction in costs (1986: 66).

Indeed, this position can extend so far as to argue that agrarian reform is a precondition for technological development (Lehmann 1974). The dilemma, mostly unresolved in the works cited above, is that if technology always remains 'appropriate' to the existing scale of production, and that scale depends in part upon exploitation, then there is a danger that policies condemn agriculture to technological obsolescence, and the minifundio is progressively less able to become competitive, and thus engage in trade in order to change economic conditions.

In order to support the minifundio, and in part as a counter to the above criticism, a pro-agrarian position might argue for government provision of infrastructure (Bryceson 2000; Echeverría 2000). The conceit is that the ability to access infrastructure is regarded as neutral, or possibly inverse, to scale, and that if this fails to be the case it is because the government has installed insufficient or inappropriate infrastructure. Undoubtedly, there is considerable demand for improved infrastructure across rural

areas of Latin America, and there are many circumstances in which better infrastructure would benefit the minifundio. Nonetheless, a combination of intuition and research suggests that larger landholders are in a better position to take advantage of improved infrastructure (Estache et al. 2002; Ochoa 2000; Warman 1976). This point is made even before the reforms of the past decade encouraged governments to obtain cost-recovery for infrastructure improvements which would probably have a regressive impact on smaller scale landholders (Whiteford and Bernal 1996).

Although advocacy of large-scale land reform, credit programmes, and extension of subsidised technology inputs and other services seem 'outdated' in liberalised Latin America, the pro-agrarian position offers a dynamic critique of contemporary policy in at least one important respect. A key claim of proponents of economic liberalisation in the countryside is that the induced shift from traditional and subsistence agricultural patterns to non-traditional crops and export-led agriculture, and from less to more profitable use of factors, will create employment and raise incomes, including for the poorest farmers (Salinas 2000; Téllez 1994; for discussion see Harvey 1998a).<sup>37</sup> Research has demonstrated, however, that under pro-agrarian conditions, the direction of change depends upon the differentiated capacity to respond to institutional incentives (Appendini 1998; CEPAL 1986; Kay 1997). Social, economic and cultural differentiation determines impact upon levels of income and size of farms, plots size and capital endowment (de Janvry et al. 1989; El Ghonemy 1984; Parsons 1984; Warman 1981) as do for education and information asymmetries (Stiglitz 1989, 1992 also Toye 1995), the capacity to make political contacts in the bureaucracy, and to manage the productive unit (for Mexico see Goldring 1998; Stephen 1998). Under conditions of liberalisation there seems every likelihood that such differentiation will create losers as well as winners, as possibly evident by reports of land loss and food insecurity (Barkin 1987; Jansen 2000; Schejtman 1992).<sup>38</sup> Furthermore, and unlike neo-

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<sup>37</sup> As Kay (1997) notes, liberalisation of trade can be market-driven or state-driven, with the former most likely to favour large landholders and the latter favouring small. Nonetheless, most pro-agrarian advocates maintain a protectionist stance (see Calva 1993a; Gwynne 1999b; Kay 1997).

<sup>38</sup> Kay for Chile's membership of Mercosur and Calva (1993a) for post-NAFTA Mexico argue that liberalisation will lead to 'an agrarian reform in reverse' with greater concentration of farms due to competitive market pressures resulting from lower tariffs forcing out many small farmers. Evidence from Chile and Brazil shows that under trade

classical economics, a pro-agrarian position argues that the impact of institutional change will be different over space depending on natural endowments, communications, types of social participation and cultural values (Echeverría 2000; Gwynne and Kay 1997; Hewitt de Alcántara 1999; Jansen 2000; Vogelgesang 1996).

To compensate simultaneously for the weaknesses derived from the small plot size of minifundia and in order to achieve economies of scale in both output and service delivery, advocates of agrarian reform have proposed collective organisation (Lehmann 1974; Ochoa 2000; Uphoff 1984).<sup>39</sup> Although not necessarily co-terminus with support for communal land holding, nor antipathetic to individualised holdings (see Parsons 1984), the pro-agrarian position is usually strongly opposed to land privatisation on the grounds that privatisation will encourage land sales as a short-term response to poverty and individualisation will remove the 'protective shell' of the community (Calva 1988, 1993a; Kay 1997, 2000; Vogelgesang 1996).<sup>40</sup> Such views certainly accord with some of the more forthright claims of pro-liberalisation reformers who, as was the case with the political rhetoric in favour of ejido reform in Mexico during the 1990s, were fairly candid that liberalisation would 'release' the countryside from conditions perpetuating inefficiency, social and physical immobility, low productivity and institutional inertia (Gordillo and de Janvry 1998; Téllez 1994).

A critical understanding of the pro-agrarian reform position provides important insights for designing a study concerned with the influence of institutional change upon the organisation of ejidos. From the above discussion one can observe at least two tensions in the pro-agrarian position. First, if the peasants are the poorest sector in Latin

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liberalisation land holdings have become concentrated among fewer holders (David et al. 2000).

<sup>39</sup> This is controversial as Chayanov argued that horizontal collectivisation of peasant production as witnessed in the Soviet Union did not necessarily offer economies of scale (Bryceson 2000: 12). Although in many countries in Latin America, there was considerable advocacy for collective land holding there has been greater support for collective ownership or management of other factor inputs, capital and labour, leaving land to be individually held.

<sup>40</sup> According to Parsons, "As a first step it would be recommendable to leave a narrow margin both to rent and sell parcels, constraining perhaps those transactions only to the participation of neighbours and relatives, and in the beginning, only to farmers" (1984: 35). This view is almost a premonition of the *derecho del tanto* contained in Mexico's 1992 reforms upon which I elaborate later in this chapter.

American societies and there is a growing trend toward minifundio subsistence requiring non-farm earnings, it is difficult to imagine how one can construct an economically and socially viable minifundio without inducing the feared transformation toward proletarianisation. Second, if one's aim is to improve the conditions of the minifundio but again to avoid peasant proletarianisation then preserving it through government intervention without considering a restructuring of land holdings is likely to provoke non-formal institutional responses, such as land sales, that are likely to hurt the weakest peasants the most.

What does the pro-agrarian position say about the reform of the ejido and specifically the form that reform took in 1992? Of course, there are a wide variety of approaches within the pro-agrarian position and it is not always possible to identify consistent opinions as author views change over time (Bartra 1987; Otero 1999). Nevertheless, one can collate a group of opinions that prior to and since the reforms of 1992, remain broadly unconditional defenders of the ejido and opposed to the reform of Article 27. Among peasant organisations this stance includes CIOAC and CNPA, both of which are linked to the Left-wing PRD<sup>41</sup> and among academics it is championed by José Luis Calva (1993a, 1993b, 1997), Armando Bartra (1996) and David Barkin (1997) (see also Chew and Aguilar 2000; Concheiro and Diego 2001). They regard the ejido as a viable productive arrangement, for which the potential of the minifundio has been undermined by the lack of official support and discrimination in agricultural policy. According to Calva (1993a, 1997) ejidos were a productive experience “at the beginning” but decline set in following the abandonment or destruction of the Cardenista model during the presidencies of Avila Camacho (1940-46) and Miguel Alemán (1946-52). The claim is that subsidised credit, irrigation infrastructure and other forms of support have been channelled on discriminating grounds to the (non-ejido) private sector (Bartra 1996; Calva 1993a; Warman 1981).<sup>42</sup>

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<sup>41</sup> The Ejército Zapatista de Liberación Nacional (EZLN) opposed the reform to Article 27, advocating the preservation of communal lands and production organisation (Harvey 1998a, 1998b; Mackinlay 1996).

<sup>42</sup> As was noted in Chapter One, there have been periods of massive official support to ejidos, especially under presidents Cárdenas (1934-40), Echeverría (1970-76) and López Portillo (1976-82) (Lamartine 1978; Myhre 1996).

Abandoned by the state, the ejido is 'unfairly blamed' for the agricultural crisis but will be damaged, possibly even destroyed, by liberalisation that seeks to transform land into a commodity – the drive to commodity status threatens the symbolic importance of land to social, cultural and historical identity and communal cohesion (Concheiro and Diego 2001). According to Calva:

Under these conditions, of predominantly minifundista grain agriculture, land concentration might have enormous social costs. At the extreme allowed by the new agrarian law it would be formally possible that 3,802 mercantile societies or latifundia (as shareholders), with an average of 4,000 hectares . . . [could hold] all the 14 million hectares of land now cultivated with the eight principal grains. As a result, 3.5 million middle and small grain croppers would be evicted from their land . . . The process of land concentration, induced by the agrarian law and NAFTA, will produce enormous social costs (1993b: 24-25).

As his solution Calva proposes an agricultural development model based on the acceleration of technological change through family farms, essentially the five million or so ejidatarios, *comuneros* and small private farmers, oriented to the production of basic foods (also Barkin 1997). Unless support to the ejido returns, the reform of Article 27, it was predicted, would cause a massive sale of land, with a return to latifundia, unemployment, migration and poverty (Calva 1993a; Botey 1996) with consequent problems for food sovereignty (Bartra 1996; Botey 1996; Calva 1993a).

Within the key agencies of the Mexican government during the 1980s and even after the reform to Article 27, a pro-agrarian pro-ejido position dominated (Salinas 2000). Cleverly, therefore, Salinas positioned a number of pro-agrarian supporters in key positions within government. The most important were Arturo Warman who became the first director of the revamped Procuraduría Agraria and Gustavo Gordillo, a leading figure in the Unión Nacional de Organizaciones Regionales Campesinas Autónomas de México (UNORCA) that took a middle-position in negotiating peasant issues with the state during the 1970s and 1980s, who held senior positions at SARH (1988-91) and the CNC (1988-92) before becoming Under-Secretary of Agrarian Reform 1992-94. Salinas also manoeuvred for Hugo Andrés Araujo, also a former leader of UNORCA, to



become Secretary-General of the CNC (Mackinlay 1996).<sup>43</sup> While maintaining a view that the ejido *could be* viable, and indeed might possess important advantages compared to the private sector in terms of community organisation, access to collective resources, and reliance on national and international migration (Gordillo and de Janvry 1998; de Janvry et al. 1996; de Janvry et al. 1997), by this time, these figures had begun to express doubts about the actual efficiency of the ejido and the agrarian system.

In particular, Gordillo (1988) mounted an attack on the level and form of bureaucratic interference in the ejido, inspired by political corporatism, but which legitimated corruption that hampered the productive potential of ejido. In order to eliminate these constraints, Gordillo argued for changes to the legal framework regulating the ejido, and especially in terms of the market, but also made a case for continued official support (Gordillo 1988; Gordillo and de Janvry 1998; Gordillo et al. 1999).<sup>44</sup> This position, then, retained the importance of ejido land holding or communal ownership where this was preferred, and served subsequently as an important opposition to those arguing for more radical measures leading toward the complete elimination of the ejido.<sup>45</sup> The weakness of this approach, however, is that while regulation, corporatism and corruption are real problems, it disregards other weaknesses, in particular in my opinion land fragmentation which cannot be overcome through de-regulation and democratisation. Furthermore, while Gordillo and others extended the pro-agrarian debate in Mexico by bringing in the importance of institutions such as the law, bureaucratic rules, political agreements and so forth, linking this position to Neo-Institutional Economics and the subsequent reforms, the stress placed on political control and corporatism as the core explanation is too limited in scope as an explanation for the ejido crisis.

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<sup>43</sup> Warman held a Chayanovian view with respect to peasant production, noting that: "The hypothesis contradicts the generalised dogma that large-scale production, the scale which constitutes the model of capitalist efficiency, is a condition to increase labour productivity" (1976: 299).

<sup>44</sup> Here, Gordillo was echoing observations of others that regulations had impinged negatively on the productive process causing the evolution of institutions inappropriate to changing economic conditions (Del Villar 1976; García 1997).

<sup>45</sup> The eventual reform of Article 27 promoted ejidos' "personalidad jurídica" providing the key decision-making mechanism of the ejido, the General Assembly, with constitutional legal status (Rodríguez 1998; Téllez 1994). This was regarded as a victory of the agrarian lobby, for example in the CNC, and against the ethos of individualisation promoted by Salinas.

## 2.3 Neo-Institutional Economics and the 1992 Ejido Reform

Neo-Institutional Economics (NIE) is not a homogeneous theoretical approach but a complex set of intertwined theories.<sup>46</sup> In the main, Neo-Institutional Economics follows neo-classical theory, adopting the assumption that economic decisions are based on rationality (Coase 1988; Commons 1931) but noting that “pure market co-ordination, solely by means of the price mechanism, is an exceptional case” (Douma and Schreuder 1998: 41; Williamson 1985). Instead, Neo-Institutional Economics accepts that not all decisions are taken according to strict economic rationality and therefore an analysis of the market alone is insufficient to explain the pace and qualities of economic development (North 1990, 1995).<sup>47</sup> In order to go beyond what Rueschemeyer terms “the black box character of quantitative analyses based on correlations among variables” (1991: 33), Neo-Institutional Economics has developed the idea that analysis must understand how in practice ‘market failure’ requires institutions or what North (1990) calls the ‘rules of the game’ to regulate social relationships, provide opportunities and restrictions, promote a long-term view, reduce transaction costs through cost-minimising arrangements and reinforce contracts in the face of risk (Hodgson 1988; Kherallah and Kirsten 2001; Stiglitz 1992; Williamson 1985). Formal institutions are constitutions, regulations, and contracts, either issued by the government or through private agreements, the enforcement of which establishes what is not legally permitted (North 1990). Informal or social institutions reveal how profit-maximising economic behaviour is influenced by culture, ideas, politics and historical influences (Bates 1995; North 1990, 1995; Rueschemeyer 1991; Stiglitz 1989). According to Platteau:

This is why ideological factors must be taken into account explicitly in any sensible analysis of institutional change. Man’s behaviour is indeed structured by a set of habits, norms and values which reflects the perceptions

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<sup>46</sup> Bardhan (1989), Clague (1997) and Kherallah and Kristen (2001) present different taxonomies of New Institutional Economics.

<sup>47</sup> Neo-Institutional Economics reveals its debt to neo-classical economics in a number of ways. North (1990), for example, identifies changing relative prices as the driving force of institutional change, such that variations in the ratio of land to labour or capital to land or the cost of information and technology will alter relative prices and in consequence induce institutional change (1990: 84; also Bardhan 1989).

or rationalizations of the surrounding world in the particular society or social group to which he belongs (1996: 55).

Informal institutions are embedded in the mind of people, and express themselves in traditions and values determining people's attitudes, or: ethics, religion, ethnicity, historical background and education. Both forms of institutions work in combination or, as North puts it, "Institutions are made up of formal rules, informal norms and the enforcement characteristics of both, and it is the admixture of rules, norms and enforcement characteristics that determines economic performance" (1995: 25). Nevertheless, while institutions may reduce uncertainty by providing some predictability to human interactions, they do not necessarily result in efficient outcomes and inappropriate institutional arrangements may constrain transactions and raise costs (North 1990, 1995), which may in turn motivate new institutional arrangements through the reform of law or the emergence of extra-legal activities (De Soto 2000).

As an approach that recognises the importance of formal and informal institutions, and the likelihood of sub-optimal outcomes, NIE has been attractive to researchers seeking to explain why economic conditions (particularly through liberalisation) appear to be so different in developing countries. According to Kherallah and Kirsten:

Since institutions and the institutional framework provide the incentives for efficient production and for people to engage in economic activity, an institutional analysis is required to explain why the cost of transacting is so high in developing countries. The frequent occurrence of market failure and incomplete markets (because of higher transaction costs and information asymmetries) in developing countries cannot be explained by conventional neo-classical economics and requires an institutional analysis. Many of the institutions or formal rules of behavior that are taken for granted in developed countries and that facilitate market exchange are absent in low-income countries. Therefore, the NIE is a useful framework that could help determine the types of institutions needed (either formal or informal) to improve economic performance in developing countries (2001: 16-17).

In drawing distinctions between what works in developed economies and what appears not to work in developing ones, writers have identified a long list of missing or inappropriate institutional arrangements.

First, there is a concern with asymmetric information. According to Stiglitz (1992) smaller producers are unlikely to know the full range of market opportunities available to them in order to make the best choice and, as a consequence, they are likely to make decisions from a local perspective. By contrast, middlemen are able to make more informed decisions, thus segmenting markets and contributing to social and economic differentiation. Concerns for asymmetric information have been at the forefront of many measures of economic liberalisation that stress the need to make market operations more transparent, simplify rules and disseminate information through strategies of good governance. However, the opportunities afforded by liberalisation have tended to benefit large-scale, well-connected, educated and informed producers, suggesting that there remains a strong association between the scale of production and access to information. By implication, in terms of my research, one might expect that the minifundio will respond slowly and possibly unpredictably to reforms within the sugar sector or to land rights. Nevertheless, a lack of information is only one cause of imperfect markets and, to my mind, it is difficult to imagine how even possessing good information can compensate for a lack of capital. Rather, capital and information are synergistically related, for example when a producer decides to withhold crops from market awaiting an improved price.

Related to the concern with asymmetric information is the role of transaction costs (Coase 1988; North 1990; Williamson 1985). Transaction costs are incurred in the process of information gathering, supervision, lobbying and monitoring, as well as getting professional services from lawyers, accountants and so forth, necessary to the process of exchange (Barzel 1997: 4; Harriss-White 1995). In simple market economies risks can be reduced by the strength of informal institutions but as transactions become more complex and people do not know each other, risk grows, and contracts are necessary in order to organise transactions (Barzel 1997; Williamson 1985). One difference between developed and developing countries is the enforceability of contracts which, as North argues, “is uncertain not only because of ambiguity of legal doctrine (a measurement cost), but because of uncertainty with respect to behavior of the agent” (1990: 59; also Booth 1995). Developing countries, therefore, are perceived as having poor institutional arrangements that increase transaction costs, making access to information more difficult, creating or accentuating information asymmetries, that may

in turn distort calculations on prices or impose higher costs of supervision in order to control for moral hazard (Bardhan 1989; Harriss-White 1995; Stiglitz 1989, 1992). Such institutional failures are typically identified with the absence of rule of law, which encourages corruption (Bardhan 1989; Clague 1997; Stiglitz 1989) or violence in order to defend property in the face of weak government enforcement (Deininger and Feder 1988; Stein 1995).<sup>48</sup> In order to increase productivity, transaction costs have to be reduced (as well as production costs), although beyond broad headings of 'good governance' the precise specification of adjustment to the institutional framework is difficult to detect (Bardhan 1989; Demsetz 1967; Handoussa 1995; Toye 1995). A theoretical difficulty here is that if the law is just one institution, but institutions in general are 'rules of the game', and governments contravene their own laws that may be undemocratically arrived at, but social groups respect other institutions it is difficult to know in advance if the absence of rule of law will jeopardise development or make it more likely.

A second concern derived from NIE refers to the role of organisations for development and welfare. Olson (1971) argued that contrary to the individualistic assumption of orthodox neo-classical economics organisations exist and evolve because of the inability of isolated individuals to overcome problems of common interest (also Clague 1997a). In certain cases, such as the management of collective goods (water, forage), groups will exclude others in order to maximise their benefit but, as a result, establish second-best solutions to the distribution of resources as a whole (Olson 1997). Olson, however, does not confer an advantage to larger forms of organisations (pace Stiglitz). Rather, he notes that:

The most important single point about small groups in the present context, however, is that they may very well be able to provide themselves with a collective good simply because of the attraction of the collective good to the individual members. In this, small groups differ from larger ones. The larger a group is, the farther it will fall short of obtaining an optimal supply of any collective good, and the less likely that it will act to obtain even a minimal amount of such a good. In short, the larger the group, the less it will further its common interests (1971: 36).

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<sup>48</sup> It has been argued that land reform creates risk among landholders, despite measures to ensure security of holdings, partly because of fears that governments are not committed to the rule of law, with resulting negative impacts on investment and the price of credit (Bates 1995; Cardoso and Helwege 1992; Deininger and Feder 1998).

So, although it seems logical that large organisations are stronger than the small ones and better able to represent and defend the common interest, this may only be possible if organisations create sub-groups to provide themselves with collective goods without renouncing affinity to the large organisation (Olson 1971: 53-55). Moreover, as developed in the work of Ostrom (1997), the efficiency of groups (collective action) determining access to collective good is threatened by overuse if all the members of the community are allowed to use resources without condition. According to Ostrom, the maintenance of common property rights, for example, would imply a central authority (possibly the state) to protect common goods, so undermining the group organisation. However, in pointing to a number of successful and enduring communal arrangements, Ostrom points out that group organisations are not always at the mercy of free riding individuals as community members are in communication and can exert agency over the situation in which they find themselves (1993: 105; also 1997).<sup>49</sup>

A third concern involves politics. Some views, such as those of North that “Historically the growth of economies has occurred within the institutional framework of well-developed coercive polities. We do not observe political anarchy in high-income countries” (1990: 14), are contentious or beyond the scope of this thesis. At a finer scale, however, the observation by Stiglitz (1989: 20) that “since economic forces naturally lead to economic efficiency, the study of development becomes the study of the political barriers to development” is suggestive of how, in a country such as Mexico, we need to regard economic rule-making as a political act. Attention has focussed therefore on how, political parties, bureaucracies, businessmen, unions and peasant organisations, can impede reforms if their interests are not accommodated within new institutional arrangements (Booth 1995; Ham and Hill 1993; North 1981). Much less attention has been given to whether participation assists institutional reform or what form that participation should take. Thus, while there is plenty of empirical evidence on participation by peasant organisations in decision-making (El Ghonemy 1984; Uphoff 1984), and theoretical work in favour of participation and democracy within institutions

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<sup>49</sup> It is asserted that collective goods will be subject to a free rider problem of individuals who do not pay the costs of their production, for example in the replenishment of forest resources, or put differently members of a group will be subject to the prisoner’s dilemma of exit before other members make such a decision (Alchian and Demsetz 1973).

(Olson 1971; Ostrom 1997; Stiglitz 2000), most policies associated with Neo-Institutional Economics are typified by vertical decision-making styles.

Fourth, NIE elucidates the role of the institutional framework in shaping the market. As Coase notes,

what are traded on the market are not, as is often supposed by economists, physical entities, but the rights to perform certain actions and the rights which individuals possess are established by the legal system . . . As a result, the legal system will have a profound effect on the working of the economic system and may in certain respects be said to control it (Coase 1992: 717-18 quoted in Stein 1995: 112).

In order to develop market-friendly institutions there has been a tendency to impose change through the reform of domestic institutions – often, of course, promoted by external organisations that sometimes even appear to believe that externally imposed change can be faster than incremental change from within (Toye 1995: 63). Imposed institutional reform however is in contradiction with a central thrust of NIE that warns against devising simple menus to “get the institutions right”. First, it recognises that cultural values and historical background can create path dependence thereby explaining why the same or similar legal institutions can produce different outcomes (Bardhan 1989). Second, it explains why a legal reform does not produce immediate changes to reality as informal institutions can impede, delay or reduce the scope of formal changes (Stiglitz 1989). Thus, while property rights in practice can be formalised in the law, the timing of this recognition may impose risk and deter investment, credit and growth (Feder and Feeny 1993; Heath 1990; Migot-Adholla et al. 1991). In general, we understand better formal institutional change than informal since the latter requires an appreciation of how ideas are deeply embedded (North 1990).

Finally, and most crucial to the present research, NIE presents a strong case for well-defined and enforceable property rights, defined as the right to use and alienate an asset or obtain an income from it (Alchian and Demsetz 1973). Stable and legitimate property rights are the result of social recognition, that may derive from practice such as in the case of repeated transactions, or more normatively through codification into formal law (Barzel 1997). In the case of land, the law represents different bundles of property rights

as different forms of tenure, usually associating private property with greater exclusivity, transferability, alienability and enforcement (Alchian and Demsetz 1973; Demsetz 1967; Feder and Feeny 1993; Stein 1995). Common property rights are referred to as assets to which there is free access by all members of a community without exclusion and which are usually maintained through prior and continuing use (Alchian and Demsetz 1973; Ostrom 1997). Privatisation of a particular tenure (communal, customary, public) captures the shift from more open combinations of rights to private ones (Goldring 1996).

Here, private property rights are conceptualised as ‘evolving’ through the emergence of new institutional arrangements as existing arrangements are unable to cope with a growing competition for land as a result of declining land quality or population growth and/or growth in product demand and technological change. Communal rights, for example, do not permit exclusivity and transferability, and thereby deter investment and the efficient allocation of resources (Barzel 1997; de Janvry et al. 1989; Demsetz 1967; Feder and Feeny 1993; Migot-Adholla et al. 1991; Ostrom et al. 1993; Platteau 1996). According to Alchian and Demsetz:

The instability inherent in a communal right system will become especially acute when changes in technology or demands make the resource which is owned communally more valuable than it has been. Such changes are likely to bring with them harmful and beneficial effects which can be measured and taken account of only by incurring large transaction costs under the existing property right structure. In such situations, we expect to observe modifications in the structure of rights which allow persons to respond more fully and appropriately to these new costs and benefits (1973: 24)

As land becomes a profitable asset, its value increases, and new price regimes should emerge that give rise to new cost-benefit possibilities (Platteau 1996: 34) and which, specifically, internalises effects that have a bearing on peoples’ decision-making such as defending private property rights as the costs of now doing so are less than the returns from increased land values (Demsetz 1967: 348-50; also Barzel 1997). In practice, mid-term combinations or overlapping forms of ownership may emerge, whereby use rights may be apportioned to individuals, which can be long-term and inheritable, but rights to sale or transfer are retained with the community (Feder and Feeny 1993: 242; Migot-



Adholla et al. 1991). Over time, however, institutions will continue to evolve in order to cope with or circumvent these requirements. This process is sometimes referred to as the Evolutionary Theory of Land Rights (ETLR) (Carter and Salgado 1998; Olinto and Deininger 2002; Platteau 1996).

In practice, governments have attempted to accelerate this evolution towards private property rights through land titling programmes, which seem to have become a policy magic wand that create value in whatever they touch. If titles are recognised by others as a representation of the holders' rights then the concerns of NIE outlined above should be reduced. In particular, information asymmetries are reduced so that willing buyers can become knowledgeable buyers, lenders know the security (collateral) upon which they can provide finance, heirs and partners may have their relationship to the property clarified and the costs of defending property physically or through litigation will be reduced. Importantly, holders know that they cannot be deprived of their land outside the rule of law thereby encouraging their investment and raising productivity. Should holders wish to take up other economic opportunities they can either leave the land or sell it in order to capitalise on prior investments (Dujon 1997; Feder and Feeny 1993; Heath 1990; Migot-Adholla et al. 1991; Platteau 1996). Such a comprehensive list of positive consequences has become almost 'common sense' with the work of De Soto (1989, 2000) who sees the transformation of 'dead' assets into productive capital as releasing the latent entrepreneurial capabilities of poor people.<sup>50</sup> What, then, is the record of property rights reform and how might the empirical record shed light on the theoretical robustness of Neo-Institutional Economics and expectations for Mexico?

First, the empirical record for government intervention in favour of land titling is far from clear. Indeed, Migot-Adholla et al. suggest that "large-scale land registration and titling programs are unlikely to be economically worthwhile for much of Sub-Saharan Africa", but they note that it may be worthwhile "when indigenous tenure systems are absent or very weak . . . in areas where the incidence of land disputes is high . . . [or]

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<sup>50</sup> De Soto does not say anything about the importance of property rights, titling and institutional law reform that has not been outlined by Alchian and Demsetz (1973) or Feder and Feeny (1993), nor in making links to economic growth by North (1990) and Stiglitz (1989). De Soto is now an adviser to President Fox, a relationship dating from when Fox was governor of Guanajuato (La Jornada 4 December 2000; The New York Times Magazine 1 July 2001).

where major project interventions are planned that either require full privatisation of land rights for their success” (1991: 170). This observation raises some interesting geographical questions about the demand for and performance of titling in different places when titling is represented in policy discourse as generic virtually regardless of geographical specificity. Even titling that responds to a real demand (as opposed to one created by what in Latin America is referred to as *concientización*) may not be taken up by supposed beneficiaries. According to Platteau there is a problem with the conception of demand in ETLR which:

too easily assumes that people demand (and are therefore ready for) rules or institutions perfectly appropriate to the prevailing factor endowments and technology, thus ignoring the possible role of culture as embedded in the particular history of concrete societies. One possible way for culture and history to influence choice of rules or institutions is through the weight of inertia or sluggishness of adjustment when new optimal arrangements would imply giving up deep-rooted practices or customs (1996: 69)

Indeed, Platteau suggests that establishing more formal private property rights might entail significant efficiency losses where it is not possible to separate efficiency and equity considerations due to the presence of transaction costs (Platteau 1996: 39). These may be dry observations about the demand for property rights reform but they are well made when reform is usually at the behest of the state. This raises a particular problem for NIE in that it does not offer a systematic theory of the state. So, while North can observe that “In fact the state can never be treated as an exogenous actor in development policy” (1995: 23), it remains unclear how the state decides upon or understands rule making and enforcement. Some writers question how far NIE actually goes in replacing the market with institutions as the lack of depth of political analysis surrounding institutional design and performance makes the state as an institution seem an abstract, theoretical or even legal construction (Barzel 1997; Bates 1995; Toye 1995). How do bureaucracies shape the outcome of institutional action, including prolonging socially inefficient property rights (Bardhan 1989:14)?

Second, the consequences of titling are ambiguous and occasionally counter-intuitive to Neo-Institutional Economic views on property rights. Numerous studies show that programmes have not promoted the formal land market. Instead, Migot-Adholla et al.

(1991) found irregular sales continued to predominate, even when not authorised by the community; and according to customary, ethnic or other local arrangements rather than the mechanisms permitted by land laws (also Platteau 1996). Other research shows that land transactions are motivated by 'distress' and it is not clear that they involve reallocation from less to more productive farmers (Dujon 1997; Jansen 2000; Liu et al. 1998).<sup>51</sup> As generally pro-privatisation or individualisation writers have noted, the activation of the land market depends upon the interplay of other markets and the political environment (Feeder and Feeny 1993; Migot-Adholla et al. 1991; Stiglitz 1992). In particular, a reluctance to sell may be because land is considered to be insurance against economic crisis or a form of saving which is particularly important given imperfect financial markets, as well as cultural and ideological factors (Platteau, 1996). It is possible that titling has encouraged conditions useful to absentee ownership or sharecropping (Bouquet 1999; Platteau 1996), and active markets may assist poverty alleviation (Vogelgesang 1996: 112) but also that reforms appear not to resolve social conflicts over land and may deepen them (Migot-Adholla et al. 1991: 130; Platteau 1996).

One of the strongest claims made for the provision of formal private property rights is the access to new forms of credit, realised upon the collateralisation of property or enhanced income from productivity. As noted by Deininger and Feder (1998), formal credit is either unavailable or slow to emerge in rural areas, giving a market niche to informal intermediaries who charge high interest rates and may offer less attractive terms or, as observed by Bates (1995), when collateralisation of land is impeded peasants will collateralise crops. Small producers are the most affected, since large farmers are able to get formal and cheaper funding, both from domestic and foreign banks and other sources (Stiglitz 1989). In general, however, most of the evidence doubts or denies that formal property rights give small-scale owners access to credit (Deininger and Feder 1998; Dujon 1997; Jansen 2000; Migot-Adholla et al. 1991; Platteau 1996; Stein 1995). Reasons for the weak connection may involve the high transaction costs for lending to individual small landholders whose property lacks

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<sup>51</sup> De Soto's argument that property rights enhance the ability of the poor to realise dead assets which he claims to be worth \$US 9.3 billion must be in some doubt if market transactions do not result (2000: 35). As Gilbert (2002: 9) comments, without markets providing shadow prices how does de Soto know that these properties are worth that much?

significant collateral value, financial intermediaries who lend only when presence of infrastructure or technology indicate a less risky environment, and on the demand side, small landholders who are risk averse (Bardhan 1989; Dujon 1997; Migot-Adholla et al. 1991; Platteau 1996; Stiglitz 1992).

Under these conditions it may not be a surprise that land titling programmes do not seem to bypass the uncertainty that promotes the adoption of labour-intensive technologies with a short-term perspective and a small proportion of fixed capital (North 1990; also Heath 1990; Todaro 1997). Rather, the empirical evidence of a relationship between land rights and land improvements or agricultural yields in Sub-Saharan Africa are described as “generally inconclusive” by Platteau (1996: 64); Jansen (2000: 205) argues for Honduras that “the titling programme had no effect at all on soil conservation practices” and Migot-Adholla et al. (1991) draw the same conclusion for multiple sites in Africa.<sup>52</sup> There are relatively obvious possible explanations for this empirical weakness, including the small size and fragmented nature of land holdings that influence productive capacity by denying opportunities for economies of scale (Toye 1995).

A growing number of papers critique the empirical record and ‘common sense’ claims of property rights reform (Gilbert 2002; Jones 2003; Varley 2002) with Gilbert warning that de Soto in particular is conjuring up a myth about popular capitalism, creating a delusion that anyone, anywhere, can become a fully fledged capitalist and persuading “policy makers that all they have to do is offer title deeds, and that they can leave the market to do everything else” (2002: 16). Does the fairly dismal empirical record of property rights reform apply to Mexico and specifically the 1992 reform?

The thinking of President Salinas in seeking to reform the system of ejido property rights contains numerous echoes of Neo-Institutional Economics. As he explained in retrospect:

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<sup>52</sup> It is noted by Migot-Adholla et al. (1991) for Kenya that changes in legal prohibitions against the production of high value commodities, coupled with substantial investment in communications and transport infrastructure during the 1950s and 1960s, improvements in extension services and establishment of credit institutions played a greater role than land titling.

The central purpose of those changes [reforms Article 27 and the New Agrarian Law] was to give back to the peasants the property and the control on their land. It sought to overcome the control by bureaucracies and promote popular organisation; an initiative consistent with social liberalism . . . In the exposition of motives I pointed out: 'The changes must provide greater security of land tenure and production to ejidatarios, comuneros and small private landowners'. With respect to justice, I argued that it was essential 'to reverse the growing minifundio in the countryside', stemming from the official obligation to distribute land 'and from the lack of stable associative forms'. Changes 'must provide the mechanisms and forms for association that enhance investment and capitalisation of rural holdings, that increase production and productivity and open a wider horizon of welfare for the peasant' (2000: 685).

Contrary to the view of his critics, Salinas was probably not interested in the direct privatisation of the ejido but took on board the views of Gordillo, Warman, and others that its mechanical dismantling would be unacceptable due to its political implications and profound historical roots among ejidatarios. Moreover, advice from the World Bank suggested that even if the ejido was unable to achieve economies of scale or to use subsidies efficiently, an institutional reform to adjust ejido ownership and the regulation of the market might increase its productive performance (Brizzi 2001; Deininger and Bresciani 2000; Heath 1990; Olinto and Deininger 2002).

Contrary to the pessimistic claims of Salinas's opponents, therefore, the reform of property rights has not resulted in the massive privatisation of the ejido. Rather, the demand from ejidatarios for security of property rights has not translated into full private ownership. As explained by one official at the Procuraduría Agraria, "According to our surveys, it is a fact that almost all people in ejidos want to remain ejidatarios" (Héctor Robles B., Director of Research and Publications, Interview 20 September 2001). Jones (1996) reports that by 1994 only two ejidos had renounced the ejido regime and become private property and by September 1998 Robles (1999) reports that only 28 out of the 536 ejidos that had begun privatisation had completely privatised their land holdings (also Bouquet 1999; Escalante 2001; Rodríguez 1998).

The provisions of the reform meant that privatisation was not possible without an ejido completing the land-titling programme, PROCEDA. By September 1998, the Procuraduría Agraria reported that it had initiated titling of land rights in 16,561 out of

29,474 ejidos (also Cornelius and Myhre 1998; Escalante 2001). But these figures need to be interpreted with care as the *visitadores* (representatives of Procuraduría Agraria with the ejidos) were evaluated and rewarded according to the number of ejidos in which they could begin titling (Bouquet 1999), encouraging a tendency to begin with the “easy” ejidos. In contradiction to how ETLR would suggest governments might best respond to the insecurity of property rights, once attention passed to ejidos with problems in the definition of property PROCEDA lost momentum (Goldring 1998; Jones 2000; Nuijten 1998). Escalante (2001: 61) reports that 9,409 ejidos are “considered in conflict because of boundary conflicts, unaccomplished official agrarian resolutions, internal conflicts and mistrust” and therefore too difficult for completion of titling (also Nuijten 1998). Indeed, by 2002, and probably before, the intervention of PROCEDA itself certain regions were a source of disputes that often resulted in violence (on the role of violence as a means for acquiring or preserving land holding in Mexico see Concheiro 2001; Warman 1981).<sup>53</sup>

A more explicit aim of Article 27 reform than full privatisation was to assist the formation of a market in ejido land (see also Olinto and Deininger 2002). Officially, post-reform and up to 1998 only three per cent of plots titled through PROCEDA had been sold (Rodríguez 1998). Similar figures are provided by Jones (2000) and Bouquet (1999) who notes that in Tlaxcala, 32 ejidos had not officially sold any land at all. Studies seem to show that most sales of land formalised through PROCEDA are conducted without registration in the Registro Agrario Nacional (RAN) (Escalante 2001). According to the head of the Procuraduría Agraria in Puebla as much as 75 per cent of sales are not registered in the RAN (Ing. Mauro Gómez, Sub-Delegado de Programas Especiales, 8 September 2000) and Bouquet (1999) reports that in Tlaxcala 41 per cent of ejidos where land had been sold did not register any transaction at all in the RAN and only eight per cent of ejidos registered all their sales. Just as before the

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<sup>53</sup> Reforma 9 June 2002 quotes official sources which identify 36 regions in ten states with actual or high risk of violence and out of political control due to disputes among ejidos and communities over land and natural resources. On 10 June, another report quotes NGOs saying that the cause is corruption and the way in which land was measured and endowed decades ago (also Salinas 2000) and El Universal 20 September 2002 identifies five regions with high risk of violence due to agrarian conflict.

reform, sales are masked as gifts or rent.<sup>54</sup> In Escalante's view the reform provides few explicit incentives to formalisation and does not address the imposition of charges on ejidatarios by the General Assembly (Asamblea General) for the sale of land which he claims can be as much as ten per cent of the total value of the sale (Escalante 2001: 55). Making explicit the sale of land also exposes some ejidatarios to other problems, in particular the loss of benefits that might derive from ejido community status, claims to assistance programmes such as PROCAMPO, and in the case of the sugar ejidos access to social security. Chapter Four looks in more detail at the breakdown of landholdings in Matamoros whether by formal or informal sales.

The expectation that land titling through PROCEDE would increase capital inflow to ejidos through enhanced access to credit has failed to be met (Bouquet 1999; Cornelius and Myhre 1998; Otero 1998). Although the financial institutional framework was subject to dramatic reform under Salinas and Zedillo, these changes were not aimed at removing the historical barrier to lending to agriculture (Myhre 1996, 1998). For example, banks still faced restrictions in administering repossession orders in the event of default and transaction costs remained high (Kherallah and Kirsten 2001: 32). Consequently, as de Janvry et al. (1996: 82) point out access to credit may have become even more constrained under the reforms. BANRURAL had already dramatically reduced credit for ejidos such that by 1992 only 2.5 per cent of all ejido production was being financed by BANRURAL (Cornelius and Myhre 1998: 8; de Janvry et al. 1996; Escalante 2001). Furthermore, it was widely known that the ejido suffered from a large number of overdue loans with the number of overdue loans increasing more than seven times their 1988 level by 1994 (Myhre 1998: 45), a situation that only got worse following the 1994-95 financial crisis that raised interest rates and reduced lending to the whole economy. Numerous authors points to technological stagnation and even

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<sup>54</sup> One possible difference is that sales might appear more fragmented than before as PROCEDE grants a certificate for each separate parcel of land and not the total area as before (Article 91, Reglamento RAN). Rent seems to have increased before and since the reform, and in 1997 it was estimated that 63 per cent of ejidatarios had given land to rent and sharecropping combined, and 37 per cent had received land (Procuraduría Agraria 1999; also Olinto and Deininger 2002; Robles 1999; Romo 2001). According to Concheiro et al. (2001) and Escalante (2001) sharecropping may have declined, although it remains common in Zacatecas (87.5 per cent of ejidatarios involved), Durango (70.4 per cent), Yucatán, Querétaro and Nuevo León (66.7 per cent all the three) and Puebla (65.5 per cent) (Procuraduría Agraria 1999).

regression since the reforms (Appendini 1996; de Janvry et al. 1996; Escalante 2001). Nor had the opportunity to draw upon private investment through “Asociaciones en Participación” (joint ventures) proved successful (McKinley and Alarcón 1995; Myhre 1996, 1998). Contrary to its aim the new legislation was contradictory, granting extensive powers to the Procuraduría in the authorisation, formulation of projects, management and dissolution of joint ventures (Article 22, Fraction VI as well as Article 75 of the Agrarian Law; also Jones and Pisa 2000; Procuraduría Agraria 1997). Mutual mistrust among entrepreneurs and ejidatarios has also constrained investment; ejidatarios express fears that private investors will fail to honour contracts (Jones and Pisa 2000).<sup>55</sup> For investors there is limited demand for either formal joint ventures or ownership, partly because rent or contract farming is easier and allows investors to pass risk and fixed costs to ejidatarios.<sup>56</sup> From a Neo-Institutional Economic viewpoint, the failure of joint ventures illustrates how institutional reform has not overcome mistrust and the risk of moral hazard, and may even have opened opportunities for corruption.

How have researchers understood the apparent failures of an audacious reform that many people considered to be necessary? Clearly, timing has been a factor and a reform that required ejidatarios to reassess risk and encouraged productivity, investment, and private sector involvement suffered from the macroeconomic problems of 1994 and 1995 (Appendini 1996; Goldring 1996; Preibisch 1995; Randall 1996). Shortcomings with the reform itself, however, have, I would argue, been crucial to the lack of success. Contrary to Appendini’s claim that “The new agrarian legislation gives ejidatarios practically the same rights as private property owners over parcels and common lands” (1998: 28; also Singelman and Otero 1995: 17), the final version of the reform proved contradictory and confused. It did not give ejidatarios full land ownership, but reinforced individual usufruct subject to community oversight. Key decisions about how plots and communal areas were to be allocated, decisions about titling and eventual privatisation, inheritance and the sale of land (titled or even under *dominio pleno*)

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<sup>55</sup> Emmanuelle Bouquet, a researcher at CIMMYT, told me of ejidos in Tlaxcala where joint ventures to grow potatoes had failed after businessmen did not pay their share and after each harvest the land was left with potato blight.

<sup>56</sup> For this point, generally, see Gwynne (1999a), Kherallah and Kirsten (2001) and Runsten and Key (1996), for the example of the maize-miller firm Maseca in a contract with ejidatarios called Club del Maíz in Gruma see Almeida (2001) and in relation to sugar see Rich et al. (1998) and Chapter Four.



required the agreement of the General Assembly (Jones and Ward 1998; Nuijten 1998; Olinto and Deininger 2002). In the case of *dominio pleno*, for example, a first assembly with a quorum of 75 per cent must be in favour and, should that be obtained, a second assembly requires 50 per cent, even if individual ejidatarios want to move toward private holdings. Prior to *dominio pleno*, the sale of land only applies to the right of usufruct (*cesión de derechos*) but the land continues to belong to the community (Article 51), and the sale is subject to the *derecho del tanto* (right of first refusal) (Article 84) that obliges ejidatarios to communicate the sale in advance to their family who have a right to buy and then to any other member of the same ejido.<sup>57</sup> A new plot holder is required to be or become an ejidatario or *avecindado* which needs the authorisation of the assembly. Failure to comply can result in a *juicio de nulidad de actos y documentos*, a lawsuit that can invalidate the sale and add significant transaction costs which in any case are loaded against compliance due to the number of “permissions” that an ejidatario has to obtain from the RAN. These include payment to change the owner (*derechos de transmisión*), present birth certificate of the buyer, voter identification of buyer and seller and the minutes of the ejido assembly recognising the buyer as an *avecindado*, all of which might require several trips to the RAN offices only located in the states’ capital cities (Escalante 2001). Clearly, the absence of active and more formal land markets emerging from the reform, would suggest that the hoped-for consolidation of ownership is unlikely to have occurred locally -- a point I take up in Chapter Four.

Legal ambiguity fed a sense of bureaucratic control and inclined ejidatarios to look for “easier ways”, so preserving corruption and the informal market. The need for new documents and the holding of general assemblies, for example, provided the *comisariados* with opportunities to charge fees, a standard technique for making the effort of their position ‘worthwhile’ (Baitenmann 1998; Bouquet 1999; Goldring 1998;

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<sup>57</sup> These restrictions on individual ownership on land are not exclusive of the ejido. Mighot-Adholla found similar features in Africa: “The distinguishing feature of different tenure regimes may thus be said to revolve around restrictions on the individual holder’s ability to transfer land (only among family members, within the lineage or community, or to outsiders, and with or without approval from other lineage or community members), which also tends to coincide with the mode of transmittal (inheritance, gifts or bequests, and sale) (1991: 159).”

Jones 1996; Leyva 1996; Nuijten 1998).<sup>58</sup> In some cases this meant a comisariado signing paper to accredit an assembly having taken place, when one had not, or that a decision to sell land had been rejected when it had not.<sup>59</sup> The requirement that a buyer has to be admitted as an ejidatario can elicit fees from 50 to 3,000 pesos (\$US 50-300) (Bouquet 1999; Escalante 2001: 44; Goldring 1998). Legal ambiguity has also allowed for the bureaucracy to assert itself over ejido affairs in new or renewed ways, especially through the exaggerated attributions given to the Procuraduría Agraria (Reglamento Interno, Articles 22 and 23). As Cornelius and Myhre put it “the new forms of state intervention exemplified by PROCAMPO and the land-titling process, portends the strengthening of state influence and control over the ejido, rather than its decline” (1998: 17; also Bartra 1996; Nuijten 1998). Others have noted the influence of state governments and agrarian peasant organisations (Baitenmann 1998; Fox 1995a; Jones 1996; Jones and Ward 1998). To some extent it was the CNC, the traditional organ of state control, that seems to be undermined by the new regulations (Chew and Aguilar 2000; Chollet 1995; Harvey 1998a; Mackinlay 1996; Otero 1998; Rich et al. 1998; Singelman 1995). As I note in Chapter Six in the Matamoros valley the PRI has become less important, although other agents have emerged in their place. The reform restructured the practice of external tutelage, providing only some opportunities for greater individual decision-making.

Finally, I follow Goldring’s suggestion that we must appreciate the different capacities of ejidatarios to respond to the challenge set out by the reform:

The push to expand the domain of market forces can be interpreted as an effort to replace campesinos who were in perpetual need of assistance, with efficient, maximizing producers. It can also be understood as an attempt to replace paternalistic, clientelist, and corrupt relations, with relations between

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<sup>58</sup> The Comisariado is the elected committee in charge of executing the resolutions of an assembly representing and managing the ejido, and consists of a president, secretary and treasurer who can remain in post for three years (Articles 32-40 New Agrarian Law). In practice, ‘the’ Comisariado usually refers to the president only, some committees or individuals remain in post for longer than the three year term and assemblies are often subordinate to their wishes rather than the reverse.

<sup>59</sup> The requirement to hold assemblies was a burden in itself, for while the new law allowed ejidatarios to be absent from their parcels, they had to attend meetings. The Procuraduría Agraria reported that about 20 per cent of ejidatarios were absent from assemblies to allocate PROCEDE certificates (Rodríguez 1998) and in Matamoros it was clear that the ejido census contained many names who had not attended meetings.

a market-driven, efficient, and fiscally sound state and efficient producers and profitable agricultural enterprises. This may be a laudable goal, but it involves changing one element embedded in a broader network of relations and practices that are extremely difficult to change. In any case, diverse responses to ejido reform and related policies may be interpreted as differential willingness and capacity to conform to the state's new conception of producers (1996: 274).

These different capacities might depend upon whether ejido land is irrigated or productive enough to induce the adoption of new technology, such as the Northwest or El Bajío (Héctor Robles B., Director of Research and Publications, Interview 20 September 2001). Ejidos close to cities have considerable experience of land sales and past experience of private investor interest for housing and industrial corridors, as do those with the potential for tourist development (Jones and Pisa 2000). Peri-urban ejidos should have an incentive to adopt *dominio pleno*, and indeed the Procuraduría Agraria suspended PROCEDE in these ejidos because despite demand for compliance with the reform their complexity required too much input (Jones and Ward 1998). For some ejidatarios their capacity to follow up on the reform was insufficient. For them, retaining access to common land and natural resources was an incentive to remain an ejidatario (Goldring 1996); they would be risk averse especially to any opportunity for credit (Escalante 2001); they would prefer the regular revenue of rent to the risks of investment; and they might be less able or willing to break ties within the ejido or with agrarian organisations (Goldring 1996).

## **2.4 Conclusion: The Weakness of Strong Theory**

This chapter has reviewed two principal theoretical and policy positions on land reform in Latin America. It noted that while the pro-agrarian position does not offer a comprehensive theoretical perspective on property rights change, it does provide valuable insights to the present research. In particular, it speaks to the vulnerability of the peasantry to institutional change, whether induced through the market or the state. In response to a case that holds the minifundio as both socially necessary and potentially productive, the pro-agrarian position notes how social differentiation through plot size and access to capital affect output even when other institutional conditions are the same. Thus, the pro-agrarian position promotes a range of measures to support the minifundio peasant, with more recent analyses beginning to reveal how some of these interventions

have not functioned as intended in practice. I do not want to suggest, therefore, that understanding the pro-agrarian position is unnecessary to approaching the impacts of the 1992 reform. On the contrary, one of the architects of the reform, Gustavo Gordillo, can be associated with this position and the institutional framework of the ejido owes much to the institutions and responses to state interventions of the past half century.

The analysis of Neo-Institutional Economics revealed a general approach that presents institutions as determining the response to and means of change, and shows how formal regulation may be unable to contain economic activity and to affect transactions which are then undertaken informally. This is clearly an important device to understand how ejidos, subject to a battery of laws, regulations and interventions, have responded by setting out mechanisms to sell, rent or bequeath land to others, protected by institutional arrangements such as the comisariado or relations with the agrarian bureaucracy. Nonetheless, NIE also presents a case for reform, as a state should read the signals from the market, and social and political conditions, and adjust formal institutions to reality. In terms of property rights in land this is also the stance of Evolutionary Theory (ETLR) and to some extent can be inferred for Mexico, in Article 27 responding to the bureaucracy and corruption outlined by Gordillo (1988) and the need to formalise individual land holdings through PROCEDE.

NIE does not offer, however, a predictive model of change because institutions are complex, interrelated and differ over space. In part this is because of the generality of the theoretical work itself. Take, for example, the statement by North that “Third World countries are poor because the institutional constraints define a set of payoffs to political/economic activity that do not encourage productive activity” (1990: 110). This seems to be saying that institutions play a vital role to development, and is conclusive in how that relationship operates, but it does not indicate which institutions are being spoken about and ignores other factors that may influence development processes. Nor does NIE elaborate a theory of culture even though it emerges as an influence on the development of property rights and as an explanation of behaviour and economic performance (Jones 2000). In the end, culture is not presented as a real-life fact, in its whole diversity, as a changing phenomenon, both historically and regionally, but seems to be something fixed, working as a black box through which all decisions are

processed. I would argue that detailed case studies might elaborate on how cultural factors influence institutions (López and Moguel 1998). Nor does NIE indicate how social and economic conditions are affected by power even though it would be reasonable that people living in poverty are susceptible to pressure from political bosses (*caciques*), who might motivate breaking some regulations such as by cutting trees for timber or fishing out of season. How far are these peasants making decisions according to economic rationality (their poverty, opportunity costs), according to ideology, religion or history (identity as farmers, loggers, fishermen) or because someone more powerful has obliged them to adopt the route of informal institutions? Last, a particular generality important to my research is the consideration of the market itself as an institution. While it is useful to remember that markets are designed by human actions and the intentions of law-makers, and not the perfect rational beings conceived of in neo-classical theory, this should not mean that modifying markets can be achieved through legislation or political decisions alone. Hence, NIE is weak on how we might influence institutions in order to affect other institutions that we might want to change.

From the above, we might criticise NIE for a lack of rigorous method to test hypotheses and reliance instead on logical analysis (Bardhan 1989). As Clague et al. (1997) indicate, how does one model risk and uncertainty related to prices or the environment, and Kherallah and Kirsten (2001) and Toye (1995) note that transaction cost economics is good at describing behaviour but since we can't be very precise about observing transaction costs they wonder whether this is very helpful to predicting policy outcomes. Even Alchian and Demsetz point out that despite the rapid accumulation of articles dealing with property rights and transaction costs, most are "primarily of the 'speculative theory' variety [and] only a handful of empirical studies have been concluded, a few of which are concerned with phenomena old enough to be historical" (1973: 26). Fortunately, the study of property rights influenced by work on the Evolutionary Theory of Land Rights demonstrates how quantitative study can be achieved on the basis of institutions (Carter and Salgado 1998; Olinto and Deininger 2002). ETLR, therefore, does not undo Toye's criticism that NIE "is simply another example of the unfortunate tendency of some theorists to inflate a useful low-level theory until it becomes an unsuccessful global historical generalisation" (1995: 64). But it does take up his point that NIE is useful when analysing problems at the micro level.

## CHAPTER 3: GOING TO THE MICRO LEVEL – METHODOLOGY AND MATAMOROS

### 3.1 Introduction

Chapter Two described some of the empirical and conceptual problems with Neo-Institutional Economics as it relates to the reform of property rights in developing countries. One of NIE's most critical interrogators, however, notes that these problems should not mean the rejection of the theory. As Toye (1995) has put it:

A recital of the weaknesses of the NIE should not be read as a vote in favour of rejecting or ignoring it. Despite these weaknesses, the NIE represents an important breakthrough for development theory . . . Those approaching this discourse from the orthodox or neo-classical side have found, in the NIE, a means of extending the scope of 'economics' as they understand it, and therefore also of widening the range of thoughts which it is permissible and legitimate for them to engage with. Before the NIE, structuralist theories of development were 'too ill-defined' for neoclassicals to understand (1995: 66).

Toye (1995: 64) argues that NIE has been stretched to explain macro economic processes, whereas it is most useful at the micro or sectoral level of analysis. NIE can offer a generic conceptual explanation of processes that we might regard as 'opportunism', which NIE would describe as rationally self-interested behaviour under conditions of deficient information and uncertainty. He also notes why contracts exist under certain circumstances but not others, which NIE would identify with the presence of transaction costs encouraging informal institutional responses. Deininger and Feder (1998) have taken up this last point in relation to the 1992 reforms, arguing that:

little is known about the transaction costs incurred and the degree to which outcomes have been equitable and conducive to improved efficiency. Evaluation of these experiences within a consistent framework would be very desirable and could provide valuable insights to fine-tune the approach and make the experience useful for other countries (1998: 28).

They go on to elaborate the need for case-study-based research as follows:

Research aiming to understand not only the existence and magnitude of productivity benefits arising from the transition from traditional to private property rights, but also the types of welfare benefits provided by different forms of communal arrangements, their magnitude, and possible alternative mechanisms to generate similar effects, would be very useful. It could facilitate better identification of the point at which a transition from traditional to individualized tenure arrangements might be socially optimal and allow adoption of mechanisms that would ensure tenure security with minimal social disruption. Evaluation of country cases where innovative ways to make this transition have been explored recently could be a starting point for such an endeavor (1998: 35).

In this chapter I set out the specific research questions relating to the local impact of changes to property rights and an appreciation of the institutional arrangements in communities that have responded to those changes. These questions are suitable for investigation at the micro scale, drawing upon a framework inspired by NIE-ETLR. The chapter then outlines the methodology followed to address these questions, arguing for the use of a case study approach based upon the Matamoros region of Puebla. Finally, the chapter introduces the three ejidos on which this study is based – Atencingo, Colón and Matzaco – and illustrates the broad evolution of property rights and production organisation, especially in relation to sugar cane, and the economic, political and social implications.

## **3.2 Methodology**

The central theme of my research is how institutional change influences the productive process and organisation of ejidos involved in sugar cane. In order to interrogate this theme a series of specific research questions are posed:

- How has reform altered the structure of land holding in the ejidos?
- What is the new role of the different agents in the organisation of production?
- Has land titling enhanced the flow of capital into ejidos?
- Have the ejidos improved their productive performance in response to liberalisation?
- What are the main constraints on ejido performance?

- How does institutional quality influence the ejidos' productive performance?
- What have been the consequences of the sugar mill privatisation and liberalisation of the sugar market for the ejido economy?
- How important are ideology and historical heritage in explaining the response to change?
- What have been the social effects of liberalisation in ejido communities?
- What are the political effects associated with the institutional changes?
- Is the ejido now more independent of the government?

To interrogate these questions I decided to pursue a case study strategy because so many studies in Mexico have used aggregated data to assess the ejido response to political, legal, or commercial change (Calva 1993a; Chew and Aguilar 2000; Davis 2000; de Janvry et al. 1996, 1997; Gordillo and de Janvry 1998; Olinto and Deininger 2002; Téllez 1994). Despite making a valuable contribution to our general understanding of the countryside, such approaches do not address the complexity and diversity of situations experienced in the ejidos and overlooks the heterogeneity of experience. The case study, however, attempts to seek what Kvale calls “generalizable knowledge” without losing individual context (1996: 289; Bryman 1996; Denscombe 1998; May 1997; Yin 1994). Rueschemeyer (1991) provides the argument for and against the case study as a research strategy for generalisation:

The strategy may be called a strategy of ‘analytical induction’, a mode of research that can be observed in practical use in several of the comparative historical works reviewed. It breaks with the conventional view that research based on one or a few cases can at best stimulate some hypothesis, while only research on a large number of cases can test them. On this view, case studies – even careful comparative case studies – are irrelevant for the validation of theoretical ideas. They belong to the ‘context of discovery’ rather than the ‘context of validation’ – along with anything else that might stimulate intelligent ideas, from reading novels and philosophical treatises to the enjoyment of food, wine and bright conversation. Yet this radical separation of validation from an essentially arbitrary process of ‘discovery’ is manifestly at odds with the ways we come to reasonably reliable knowledge in everyday life or to historical knowledge that transcends the single case at hand and can be used in historical explanation. (1991: 32)

Rueschemeyer has explained this process of analytical induction:



It begins with thoroughly reflected analytic concerns and then seeks to move from the understanding of one or a few cases to potentially generalizable theoretical insights capable of explaining the problematic features of each case. These theoretical generalisations are then tested and retested in other detailed case analyses (1991: 36)

The power of the case study is derived from its ability to penetrate local conditions and provide thorough explanation. Blaxter et al., writing on qualitative research more generally, argue that “it tends to focus on exploring, in as much detail as possible, smaller numbers of instances or examples which are seen as being interesting or illuminating, and aims to achieve ‘depth’ rather than ‘breadth’” (1997: 60). The case study, however, does not ignore the broader context. Indeed, it can offer an analysis of real-life situations from a holistic viewpoint rather than a focus on an isolated variable or collection of variables (Blaxter et al. 1997; Denscombe 1998; Hakim 1987; Ragin 1987). Rather, case studies can be used to show how particular phenomena may be caused by single or multiple circumstances that may be distinct in time and space, and thereby attempt to disentangle context from local conditions (Ragin 1987). Thus, as Yin explains:

A case study is an empirical enquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident. In other words, you would use the case study method because you deliberately wanted to cover contextual conditions – believing that they might be highly pertinent to your phenomenon of study (1994: 13).

For my research the case study seems useful to explore how institutional changes conceived without concern for local geographies have impacts at the local, and other, levels.

Finally, and contrary to the opinion that the case study is descriptive offering what Stake (1995) calls ‘petite generalisations’, I follow a number of authors who suggest its potential for theory building (Denscombe 1998; Hakim 1987; Yin 1994). Referring to what he calls ‘case-based theory building’, Rueschemeyer is particularly forthright pointing out that:

The complex features of successive cases – with each factor remaining embedded in its historical context and therefore more adequately interpretable – serve as empirical ‘road blocks’ that obstruct arbitrary speculative theorizing. In the overall process of theory building, they are the logical equivalent of the standardized coefficients relating a few selected variables in large-scale quantitative research (1991: 32).

An avoidance of arbitrary theorising, therefore, suggests using more than one case study and within each example the adoption of a range of methods or sources of information (Hakim 1987; Pratt and Loizos 1992; Valentine 1997; Yin 1994). For my research a multi-source methodology was designed based upon a survey questionnaire, official documents and statistics from the government, the sugar mill and producers organisations, newspapers and magazines, and direct observation and interviews with key informants in the field.

The principal research method was a questionnaire survey of 324 ejidatarios. As I will outline in more detail below, the questionnaires were conducted in three ejidos: Atencingo, 114 questionnaires; Colón 107 questionnaires and Matzaco 104 questionnaires. The questionnaires were applied mostly from January to July 2001, except for 67 questionnaires that were applied in Atencingo in January 2002. The questionnaire was applied individually to all available plot-holders in the three ejidos, after I have first introduced myself and the research to the municipal president who provided letters of recommendation for the *comisariados ejidales* and leaders of producer organisations. Meetings were held with the *comisariados* in order to explain the purpose of the research, as I knew that they would be important ‘gatekeepers’ to the ejidatarios and others.<sup>60</sup> The *comisariado* provided me with a list of all the ejidatarios in the ejido, and this list became the basis for the application of the questionnaire.

However, although the ejido parcel is given legally to an individual ejidatario<sup>61</sup>, in two particular ways decision-making in relation to the land draws upon members of the

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<sup>60</sup> Valentine (1997) warns against relying too much on gatekeepers as they can add bias to the research whereby the researcher becomes what Pratt and Loizos (1992) call an ‘intellectual prisoner’ of key informants.

<sup>61</sup> According to Olinto and Deininger (2002: 4), the agrarian reform allocated parcels to owner-cultivated family farms for reasons of efficiency as well as equity, in a distinctly Chayanovian sense.

household other than the ejidatario.<sup>62</sup> First, during the fieldwork I found that a high proportion of ejidatarios were absent from the ejido, ‘temporarily’ living in other cities of the region, in Mexico City or the United States. In some cases a family member stayed as the ‘representative’ of the ejidatario to manage the parcel and deal with the mill and government, as if they were the official landholders. In such cases the questionnaire was applied to the representative as if they were the ejidatario him/herself. Second, many ejidatarios were very old (ejidatario status is regarded as a right for life) and were unable to answer questions, in some cases because younger relatives had already taken over the management of the parcel. Again, the questionnaire was applied to the person who claimed to take decisions on the management of the parcel.<sup>63</sup> For consistency, therefore, I approached the ejidatario as the key respondent for the questionnaires, and deferred to others where this was appropriate.

Questionnaires were supplemented by interviews with ejidatarios (ten) who were identified as particularly well informed about the agrarian history of the area, sometimes as former comisariados or agrarian leaders. Interviews were either unstructured or semi-structured as conditions allowed so that the meeting was ‘user-friendly’. Semi-structured interviews were held with officials in government (nine), private producers (three), local residents (four), leaders of agricultural producer organisations (eight) and academics (nine).<sup>64</sup> A particularly useful interview, and other meetings, was with the

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<sup>62</sup> I recognise a complex theoretical debate about household decision-making. NIE’s adaptation of neoclassical economics in general can be applied to the Becker and Samuelson position on households as altruistic where decision-making is based on maximising a family a utility function. NIE uses contract theory that characterises households in Sen’s terms as arenas for ‘cooperative conflict’ that reflects the negotiation between rights and obligations as well as economic incentives without an assumed equality as start or end point. NIE therefore could consider gender and how decisions-outcomes vary across single, nuclear and extended families (Chant 1996, Kabeer 1994), although I am unaware of work that has rigorously sought to do so from an NIE viewpoint. The gendered nature of property rights reform, which is not explicitly discussed in my research, is a possible exception (see Deere and Leon 2001).

<sup>63</sup> In some cases ejidatarios were unable to provide specific answers to technical questions, for example about the type of fertiliser or crop varieties on the parcel. It is possible that this ignorance was because the ejidatario had sold or rented their land without official permission. As the issue of a land market was important to the research I continued with the application of the questionnaire.

<sup>64</sup> Unless it is important to provide the specific name of ejidatario respondents to the questionnaire and participants in the interviews, as well as private producers, I have changed these in the thesis.

Superintendent General de Campo (manager) of the Atencingo mill who explained to me the process of sugar cane production and showed me the mill in some detail. Some interviews and subsequent discussions with questionnaire respondents allowed for direct observation of cane cultivation and the infrastructure used. This provided a sense of the mechanisms of land property fragmentation and allowed respondents to comment upon the condition of roads, canals or electricity infrastructure. Interviews and discussions also corroborated 'data' from the questionnaires; such as if an ejidatario said that his or her house had been remodelled, it was possible to see whether this was only a small wall or an entire room. Above all, it allowed me to understand firsthand the cultivation of cane, irrigation practices, burning of the cane before the harvest, as well as lifting, loading and transporting to the mill, and to get a general sense of the costs of production, the value of labour, local problems, and so forth.

At the start of the fieldwork I went to the municipal president to present myself and inform him about the purpose of the research explaining that I was conducting PhD on ejidos. This first visit facilitated the research: the municipal president introduced me to the leaders of UNPCA and UNC and to comisariados (some of them through phone calls) and provided me with a letter (carta de recomendación). The comisariados in turn provided useful information and especially a list of ejidatarios, introduced me and the team at ejido meetings, and even provided a guide to accompany us around the area in order to locate ejidatarios.

The field team was made up by four persons: an agricultural economist, two students of law and myself. I participated in the survey with the team both in conducting the questionnaire and discussing the results, unless I was conducting interviews with ejidatarios, comisariados or residents. The team worked mainly at the weekend when most ejidatarios are at home. We were provided with a guide; some times an ejidatario went along with the team and showed the houses of fellow ejidatarios, introduced the team and briefly explained the purpose of the visit. So the team moved together along a street or an area of the ejido. Usually ejidatarios invited us to pass to the house and have a seat while the questionnaire was completed. During the lunch break the team would share comments about particular questions, note absent ejidatarios and devise a schedule for possible return visits. At the end of the day the questionnaires were collected and

checked and we planned the work for the next day.

The methodology considered the application of the questionnaire to all the ejidatarios in the list, excluding arrendatarios, posesionarios and avecindados. The latter were only considered for interviews and not the questionnaire because the aim of the research was specifically to assess the economic response of ejidatarios to the reform in productive terms and other economic decisions. If the ejidatario (titular de la parcela) was absent, the plan was to supply the questionnaire to a representative, e.g. his wife or one of his parents or a son or daughter in charge of the parcel. Ejidatarios were identified by using the lists that comisariados provided, which included only ejidatarios and neither arrendatarios nor posesionarios. In some cases there were permanent absentees, mainly those ejidatarios working in other places in the country, and in other cases it was just a temporary absence. In the former case, as already mentioned, a member of the family was asked the questions and responded on behalf of the titular de parcela. In the latter, when we were told that the ejidatario would return we rescheduled a new interview with the ejidatario and the questionnaire was separated into a special section. It is recognised that the exclusion of some migrant ejidatarios from the questionnaire introduces a systematic bias since their decision to work away represents a specific response to the problems of the ejido that will be lost from much of the analysis. In at least one sense, however, the difficulty of meeting migrants may not impose a bias particular to this research project as the absence of some ejidatarios is a feature of all ejidos over time and, as such, might be considered to be a constant factor.

As important a bias is the relative response rate between ejidatarios and other interviewees. Among ejidatarios the rate of response was high, probably because many ejidatarios knew about the research through the comisariado and our introduction at ejido meetings. Non participation of ejidatarios was restricted to evasion of certain questions. It is my intuition that ejidatarios have been cheated so many times in the course of surveys that they do not trust strangers asking questions about income, amount and use of remittances from the US, funding agricultural production, land sales and renting, pensions, and so on (see also Nuijten 1998). One of the most sensitive questions they did not want to answer in a clear and precise way concerned the amount of money they receive from relatives abroad: usual answers talked about “little money”

or “de vez en cuando” (some times). Another topic that provoked evasion was whether they had sold land, mainly before 1992, since this was illegal and perhaps they were afraid about the possible consequences. We tried to deal with these fears by assuring ejidatarios that answers were confidential.

It proved difficult to make contact with land purchasers and the rate of response compared to the ejidatarios was low. In general, the issue of ejido land sales/purchase remains an open secret in the research ejidos that is taboo as a topic of conversation with outsiders. Some ejidatarios and regional leaders tried to arrange appointments with the purchasers of ejido land but those contacted were always too busy or unable to give an interview. We also tried to get in touch with land purchasers through ejidatarios who mentioned that they had sold land, but the response was usually the same. Many ejidatarios however were evasive on the details of sales. My impression is that even though the reformed law already allows the sale of land in the form of “cesión de derechos ejidales” ejidatarios feel that sales are disloyal to the ejido. In the case of Matzaco the assembly agreed to avoid adoption of *dominio pleno* to prevent *caciques* taking over land. The difficulty of pursuing land purchasers suggests that, beyond the reform of law, land transactions continue to be accomplished through informal mechanisms.

Finally, a large number of documentary sources were reviewed. These included laws and regulations relating to the sugar industry and ejidos, documents providing technical and statistical information on production and the ejidos’ files in the Procuraduría Agraria and Registro Agrario Nacional, which were used to complement the information provided by comisariados and organisation leaders. A number of local histories were also valuable for gaining an understanding of the relation of the case study region to wider political processes of the Revolution and to the organisation of sugar cane production. The first was written by Cándido Gadea (1995), a former worker at the Atencingo sugar mill, the second by Manuel Sánchez E. (1963), a former municipal president in Matamoros as well as Director of the cooperative and a federal deputy. I reviewed articles in magazines and newspapers, especially on the agro-sugar industry and dating as far back as the 1970s. These were organised by key themes such as labour issues, land tenure, the sugar market, institutions and firms, political decisions

and the debate on the expropriation of the sugar mills in September 2001, and the trade conflict with the United States.

In conducting the field research I became aware that my own positionality needed to be considered. On the one hand, being a Mexican with an agronomy background was favourable to conducting research. I was familiar with sugar cane cultivation and in general with agricultural issues that allowed me to engage in discussions about production and technological issues to a high level of detail. This knowledge propitiated the willingness of ejidatarios to answer the questionnaire as they sensed some empathy but it also revealed to me that not all ejidatarios were familiar with technical issues of sugar cane production. I was also able to represent the research as being facilitated by a university rather than linked to the government or the mill. This distance raised confidence levels among respondents and probably helped to extend conversations beyond the questionnaire into other topic areas. On the other hand my positionality presented some difficulties to the research. As a non local (I am from Chihuahua) and a non ejidatario, I had to overcome a sense of mistrust from some ejidatarios. As an agronomist I was inclined to emphasise productive and economic issues, and not go into equivalent depth of how institutional changes affect gender, cultural practices, migration or of changes to household composition and dynamics.

### **3.3 The Research Location: The Matamoros Valley**

The decision to select a particular region for case study was based upon a number of considerations. Obviously, for a thesis concerned with the relationship between institutions and production, some attention had to be given to how particular regions were endowed with natural resources (soil fertility, water) and infrastructure (roads, irrigation), both of which may affect the level of market activity (Easterly and Levine 2002; Vogelgesang 1996). It seemed inappropriate, for example, to base the study in a region vulnerable to sudden climatic events (hurricane) or political instability, when trying to isolate the effects of institutional change on production. For these reasons, cane-producing ejidos in Chiapas and Guerrero were discounted. I was also concerned to avoid regions with particular land market characteristics. In the fertile valleys of the

Northwest and El Bajío regions, ejidos have well established and highly active land markets for sale and rent, whereas in the isolated and mountainous regions of Oaxaca and Chiapas, land markets are less active. My assumption was that the markets and production decisions in El Bajío might not be demonstrably affected by institutional change, whereas in Oaxaca almost no amount of institutional change (and certainly not that promoted by the 1992 reforms or the nationalisation of the mills) would encourage capital to flow into poor quality land, at least for agriculture.

I decided that the Matamoros Valley was suitable for the field research. Matamoros is a relatively flat, irrigated, fertile, and deep-soil region, although there are differences amongst ejidos and fields. The area is suitable for the cultivation of a wide range of crops other than sugar cane, mainly vegetables, meaning that ejidos in this area have to make decisions about crop substitution and the timeframe on investment.<sup>65</sup> The valley comprises the municipalities of Izúcar de Matamoros and parts of Tepeojuma, Tilapa, Chietla and Atzala, and is located 68 kilometres from Puebla City, 136 from Mexico City and 108 from Cuernavaca, connected by a good system of roads and motorways, and a network of dirt roads connects communities within the region (see Figure 3.1). Most communities have access to public services such as electricity, health services, education, communications and financial institutions, above the average levels of the state of Puebla (INEGI 1999). The climatic conditions are considered ideal for cultivation of sugar cane, mostly dry with a summer rainy season, and warm with an average yearly temperature of 22.7 degrees Celsius (INEGI 1994). As indicated by Table 3.1 sugar cane is the most important crop in Matamoros and Chietla after corn (maize), and the most important cash crop.

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<sup>65</sup> Puebla has a higher yield of cane per hectare compared to the rest of Mexico, 86.8 tonnes to 59.1 tonnes (Gutiérrez and Godoy 1991; also Singelman 2001). The manager of Guanos y Fertilizantes de Matamoros, the largest fertiliser provider in Matamoros, told me that the amount of light hours a day in the region is ideal for cane, by contrast with Veracruz which has many cloudy days a year.



**Table 3.1 Crops Cultivated in Matamoros and Chietla**

	Municipality					
	Matamoros			Chietla		
Crop	Total	Irrigated	Season/cultiv.	Total	Irrigated	Season/cult
Sugar Cane	5,122	5,122		2,450	2,450	
Corn	5,170	1,165	4,005	5,141	1,708	3,433
Beans	265	251	14	38	38	-
Sweet corn	492	492	-	1	1	-
Sorghum	541	50	491	500	-	500
Tomato	5	5	-	-	-	-
Courgette	90	90	-	-	-	-
Onion	58	58	-	605	605	-
Chile	-	-	-	72	72	-
Green beans	253	253	-	60	60	-
Alfalfa	43	43	-	2	2	-
Total	12,039	7,529	4,510	8,869	4,936	3,933

Source: own calculations from INEGI (1999)

Matamoros also offers an excellent example of a minifundista structure. The state of Puebla in general displays high pressure on land with an average of 174 *sujetos agrarios* (ejidatarios, avecindados and posesionarios) per ejido compared to 123 nationally (Procuraduría Agraria 1999). Puebla, and specifically Matamoros, therefore should provide a laboratory for changing economic and social conditions in the context of an institutional reform that aims to consolidate small-scale land holding. In terms of an evolution of property rights outlined by ETLR, Matamoros also provides an archetype of collective organisation from the 1930s that finally collapsed in the early 1970s, and was replaced by the present dispersed minifundista system. As collective land holding was being de-institutionalised, however, the Atencingo sugar mill was nationalised in 1975 and despite the gradual individualisation of land holdings, a strong sense of collective attachment to the ejido can be detected.

**Figure 3.1 The Matamoros Region**



to the ejido General Assembly which subsequently set up a Comisión Auxiliar (Technical Commission) to assist with the land survey and delimitation of plots and ejido limits. In June 1994 this technical work was completed and ejidatarios received *Certificados de Derechos Parcelarios* (land certificates), symbolically distributed by President Ernesto Zedillo in Matamoros on 10 April 1997. These conditions create a complex situation. Has the better land quality in Matzaco caused a shift from cane to more profitable crops? Would a shift be because of Matzaco's involvement in PROCEDER and/or is this related to the ejido's non-collective past?

President Cárdenas created Colón and Atencingo as collective ejidos in 1938 (*Diario Oficial de la Federación* 21 April 1938). Atencingo is important as the location of the sugar mill and therefore where the economic impact of the sugar crisis is most directly felt<sup>67</sup>, and served as the political centre of the collective ejido (see section 3.4.2). With 11,867 inhabitants it now has the largest population in the valley after Izúcar de Matamoros and is larger than the municipal centre at Chietla which has a population of only 6,344 (INEGI 1999).<sup>68</sup> By presidential decree Atencingo, with a total area of 12,118 hectares, was subdivided into nine new ejidos in 1973 (*Diario Oficial de la Federación* 27 November 1973) and the 1,256 hectares of ejido Atencingo was given over to individual plots that had been a demand of the ejidatarios for many decades. Compared to Matzaco, Atencingo was slow to join PROCEDER. Atencingo began PROCEDER in 2000 but an attempt to hold a General Assembly on 21 August 2002 in order to formally approve the allocation of plots failed to attain quorum (with only 126 out of 287 ejidatarios attending). At another Assembly on 5 September the Procuraduría Agraria allotted plots. In so doing it was discovered that 229 people held plots without formal rights or recognition by the General Assembly, and it was moved that these people be recognised by the Assembly as new posesionarios. Throughout the period of my research, Atencingo was in an indefinite situation, having begun the titling process but not having received land certificates.

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<sup>67</sup> The mill at Atencingo was administered by CAZE and expropriated in 2001.

<sup>68</sup> Atencingo has been the subject of several studies. Possibly the best known is Ronfeldt's (1973) history of agrarian struggle in Atencingo from the Revolution to the early 1970s. Paré (1979) provides a valuable analysis of social class in the region; Otero (1995) has analysed factors determining class formation amongst sugar cane producers in Atencingo and Gómez (1998; 2001) conducted anthropological research in Teruel, one of the ejidos that participated in the cooperative of Atencingo.

Ejido Colón was part of the collective Ejido Atencingo and annexes created in 1938 with a land endowment from the hacienda San Juan Colón which was one of the most important sugar cane haciendas in the valley, even the ruins of which contrast with the poverty that can be seen in the village now. In 26 November 1973 Colón became a self-governing ejido. Its foundation however was not without trouble, as a legal dispute emerged over 132 hectares 'lost' to the ejido San Nicolás Tolentino. This resulted in Colón receiving 790.9 hectares divided among 127 ejidatarios making this the smallest field site with, today, 1,491 inhabitants and 320 households, not all of them ejidatarios (INEGI 2000). At a General Assembly held on the 7 April 1998 Colón rejected PROCEDÉ arguing that as a precondition, the dispute with the ejido of Matamoros concerning control of a field known as Potrero be resolved. Colón, therefore, is the classic 'insecure' ejido and, despite a small land endowment, has experienced population growth, but at the time of fieldwork the Procuraduría Agraria had not managed to advance land titling in Colón. The rejection of PROCEDÉ suggested that Colón would allow me to assess the impact of past and present conflict and observe any differences to titled ejidos such as Matzaco or those in the PROCEDÉ process such as Atencingo.

The three ejidos share certain common features. All are involved in sugar cane production so that changes in policies from the mill and the government, for example the elimination of credit or delays in the final payment, should influence all three ejidos. The sugar cane decree (Decreto Cañero) applies to all three ejidos, as does the local contract to supply the mill, and apart from the comparatively higher fertility of land in Matzaco all three ejidos have broadly similar physical conditions. Finally, all three have been affiliated to the two official peasant organisations, the National Peasants' Confederation (CNC) or the National Confederation of Rural Land Owners (CNPR) that are corporate bodies of the PRI. Nevertheless, these affiliations are somewhat token as indicated by the 2001 municipal elections which saw the PRI lose control of Matamoros and Chietla for the first time due in part to the actions of sugar cane producers and mill workers.<sup>69</sup>

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<sup>69</sup> As a part of resistance to the PRI and the government generally, in late 2001 a new but name-less organisation in Atencingo claimed the right to represent sugar cane

The three ejidos also present different conditions with respect to security of property rights and formal land-titling processes. Matzaco has been titled through PROCEDER, Atencingo is in an advanced stage of the process and Colón has rejected the programme. My concern is whether the differences regarding land titling affect economic performance. If the assumptions of policymakers promoting the 1992 reform and the underlying theory of the ETLR are correct, it might be expected that Matzaco will display an accelerated agricultural intensification (see Migot-Adholla et al. 1991), higher levels of capital inflow and a more active land market than either Atencingo or Colón. The three ejidos also have different organisational histories, notably with respect to collective ejido formation and the cooperative created in the 1930s. Whether the institutions set out by history affect decisions today, in a form of path dependence, or whether their evolution has served precisely in order to undo that past is an intriguing subject for research. And, finally, the three ejidos demonstrate different crop patterns: Matzaco cultivates cane but in a smaller proportion than Atencingo or Colón. The research will address to what extent the higher proportion of cash crops, mainly vegetables (sweet corn, cucumber, green beans, courgettes), in Matzaco has to do with the institutional framework or is caused by other circumstances. Nevertheless, my prediction prior to fieldwork was that the 1992 reforms had not caused significant impacts in any of the three case study ejidos, for better or worse (in the minds of the reformers), but may have induced or confirmed smaller scale changes, detectable at the ejidatario or household level.

### **3.4 The Evolution of Property Rights in Matamoros**

In this section I look at the evolution of property rights in Matamoros, identifying the driving forces that have shaped land tenure. This section also addresses some implications of the change in property rights for the local economy, as well as its political and social consequences.

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producers in a clear defiance of the Decreto Cañero that only recognises PRI-affiliated organisations as legitimate representatives of sugar producers.

### 3.4.1 Haciendas and the Mexican Revolution

Sugar cane was introduced in Matamoros in 1529 and an indigenous workforce was used for its cultivation on large haciendas (Gutiérrez and Godoy 1991). The initial system for control in the early colony was the *reparto* and *encomienda*, through which the Spanish crown granted land to conquistadors putting in their custody the native population who were obliged to work for the *hacendado*. However, due to the physical nature of the work and the dramatic reduction of the indigenous workforce, the *encomienda* was prohibited on the sugar plantations and a black slave workforce was introduced (Gutiérrez and Godoy 1991). According to Manuel Sánchez, a local historian, Matamoros was an important slave market and it has been reported that in 1643 almost 200 slaves worked on the hacienda of San José Teruel (Paredes 1991). Although the *encomienda* was eventually abolished in 1570 it took until 1810 for slavery to end, to be replaced by a peonage scheme of indebted labour.

According to Mendieta y Núñez (1986: 62) Puebla had a significant concentration of land during the colonial period with the church owning perhaps as much as four fifths of the territory and, as a consequence of concentration, the state suffered from frequent agrarian struggles (Gómez 1991). Much of this violence was in response to the invasion of indigenous land by haciendas, as in 1806 when the hacienda Colón invaded land owned by a local community. One motive to acquire land was that sugar production had become the principal activity with four mills working in the valley, in line with the basic formulation of ETLR. The peasant defence of their land against the haciendas is given as one reason why the region actively supported the war of independence led by José María Morelos (Gómez 1991). During the nineteenth century the region continued to be one of the most important sugar producing areas and by 1877-78 just three states (Puebla, Morelos and Veracruz) accounted for 45 per cent of Mexico's total sugar production, and 75 per cent by 1910-11 (Gutiérrez and Godoy 1991; Ronfeldt 1973). This consolidation continued to be based on the hacienda with the Ley Lerdo of 1856 and the presidency of Porfirio Díaz (1876-1911) encouraging the hacendados to seize communal indigenous land and take advantage of new infrastructure such as the railway connecting Puebla and Izúcar, inaugurated in 1890 (Bonilla and Malpica 1991). Significantly, Matamoros was the main sugar producer region in Puebla, so that by 1908

it contributed 45.8 per cent of production in the state (Gutiérrez and Godoy 1991).

During the Mexican Revolution (1910-17) the region was at the core of Emiliano Zapata's area of influence, about 100 kilometres from Anenecuilco (Zapata's birth place) and Chinameca (the hacienda where he was assassinated) (Womack 1970). In what could be considered an example of path dependence, a set of outstanding Zapatista agrarian leaders in Atencingo in the first half of the twentieth century have left a profound ideological inheritance amongst the ejidatarios in their attitude to land ownership, mostly amongst the elderly (Gómez 1998; also de Grammont 1979; Otero 1999; Sánchez 1963). In the aftermath of the Revolution, the sugar haciendas were destroyed and had been replaced by the early 1920s by a capitalist agro-industry. In this process a crucial role was played by William Jenkins, a former consul of the United States to Puebla City, who bought Atencingo in 1921 and began to buy other haciendas in the valley. In 1925 he founded a firm engaged in sugar production (Compañía Civil e Industrial de Atencingo) with an initial investment of \$US 3.5 million (Gómez and Verdugo 1988.). The firm invested heavily in modern farm equipment and built its own railway network, finally controlling around 123,000 hectares which Ronfeldt describes as "The greatest concentration of land under a single owner in the history of Puebla" (1973: 10). The transformation of a semi-feudal hacienda system to a modern capitalist industry was achieved through a brutal system of organisation as well as some extra-legal ventures such as export of sugar and alcohol to United States during Prohibition (Paré 1986; Ronfeldt 1973).

Capitalist agro-industry marked a setback to the Zapatista movement's hopes which were finally dashed when Lázaro Cárdenas granted land in 1938 to the collective ejido. Neither the Zapatista nor local peasant demand was for a collective ejido, which was imposed by the federal government and the mill. The evolution of property rights and the organisation of production in the region, therefore, was reshaped according to the needs of the state and not in response to local economic requirements. Furthermore, the 1938 collective ejido recognised as ejidatarios Jenkins's *peones acasillados* (resident debt-peons) and close employees who could still be controlled by the hacienda (Gadea 1995). This manoeuvre was orchestrated by Jenkins in order to be seen to respond to agrarian demands while at the same time keeping control of the land and the sugar

industry. In a controversial decision, Cárdenas left the mill as Jenkins's private property, even though mills elsewhere were expropriated and transformed into cooperatives (de Grammont 1979; Gledhill 1993; Singelman and Tapia 1979). In addition, the mill was in control of providing government credit to the ejidos rather than the Banco Nacional de Crédito Ejidal which had the responsibility for finance in other sugar cane areas (Ronfeldt 1973). One explanation put forward for the 'special' treatment for Atencingo is that Maximino Avila Camacho, governor of the state, was a business partner and *compadre* (godfather) of Jenkins and brother of Manuel Avila Camacho who was Minister of War under Cárdenas (de Grammont 1979; Rich et al. 1998; Ronfeldt 1973; Sánchez 1963; Singelman 1993). Cárdenas may however have been influenced by a need not to disrupt the operation of a highly productive mill, at the time a valuable source of foreign currency.<sup>70</sup>

### 3.4.2 The Collective Ejido in Atencingo

In 1938 presidential decree created the Atencingo collective ejido and eight annexes: Lagunillas and Jaltepec in the municipality of Chietla; Teruel in Tepeojuma; Rijo in Tilapa; and La Galarza, Raboso, Colón, and San Nicolás Tolentino in Matamoros. In all, the ejido comprised 8,268 hectares (8,076 irrigated and 192 seasonally cultivated) granted to 2,043 ejidatarios. Each ejidatario received an average plot of four hectares of irrigated land but the decree prohibited the subdivision of land into individual plots and insisted that work had to be organised on a collective basis (Article 139 of the Agrarian Code). Nationally, it was argued at this time that ejidos should be collectively organised "... so that the beneficiaries cannot divide them into individual plots, because cane growing requires a process of industrialization and demands investments greater than the individual capacities of the ejidatarios" (Ronfeldt 1973: 26 citing a 1938 report from the Mixed Agrarian Commission). Collective organisation was therefore seen as necessary for competitiveness. While this policy implies a tacit acceptance of the importance of achieving economies of scale in cane cultivation and an indication of government worries about the potential fragmentation of land property, it rejects private property as the means to obtain productivity.

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<sup>70</sup> In accordance with the Agrarian Code 150 hectares were left as private property of the mill company which in the early 1950s under reforms of President Miguel Alemán was increased to a maximum legal private property for sugar cane plantations of 300 hectares.



Indeed, regulatory control as a result of the 1938 decree granted the government extraordinary powers to intervene in the ejidos' production organisation. The Sociedad Cooperativa Ejidal de Atencingo y Anexas (Ejidal Cooperative Society of Atencingo and Annexes), which was in charge of administering production on the ejido, made the cultivation of sugar cane compulsory, except for rice as a fallow crop. This rule was reinforced by a decree issued by Manuel Avila Camacho that created Zonas de Abastecimiento (supply areas) for the mills where cane was the only crop permitted (Diario Oficial de la Federación, 22 September 1943; also Pérez 1979). The cooperative therefore provided the state and Jenkins with control over property rights, so that despite the decree recognising the ejidatarios as the formal 'owners' of the land they continued to be peons (de Grammont 1979; Gómez 1998; Ronfeldt 1973). According to Jesús Espinosa (former President of Consejo de Vigilancia, Ejido Atencingo, interview 7 April 2001): "William Jenkins gave the land to his employees, not to the peasants fighting for land, and with them he formed the cooperative. In fact he continued to be the owner of the land and in charge of the organisation of cane production. We were told we were the owners but the manager was really who decided".

From the start there was tension between the collective experiment and the demands of the ejidatarios. In brief, the ejidatarios wanted the division of the collective ejido into nine independent entities, individual plots instead of collective ownership, the direct management of the cooperative by the ejidatarios and not by the mill or the government and permission to cultivate crops other than cane for profit as well as self-subsistence. In February 1947 a new leader of the cooperative, Porfirio Jaramillo, took office with the aim of bringing in moderate changes under the first real period of popular ejidatario control (Ronfeldt 1973: 67-8). Jaramillo adopted the 1943 presidential decree to allow all sugar cane producers to use ten per cent of the land for non-cane production, acquired farm equipment to avoid renting from the mill and set up a credit society in 1948 which received funds from official institutions instead of from the mill as before (de Grammont 1979; Gadea 1995; Otero 1999). Jaramillo was not able to secure the subdivision of individual plots or split the collective into independent ejidos. Indeed, amid falling production and political instability, in 15 February 1952 the Diario Oficial published the presidential decree through which the federal government took over the

control of the cooperative and by presidential decree published in the *Diario Oficial* in 13 April 1954, the ejido received an additional endowment of 3,261 hectares and new ejidatarios were incorporated.<sup>71</sup> Control of decision-making was also tightened. A commission in charge of production organisation was headed from 1952 to 1957 by Colonel Félix Guerrero, a close collaborator of governor Avila Camacho, and from 1957 to 1961 by Manuel Sánchez Espinoza, a local deputy and former collaborator of Jenkins (Boege and Avila 1979).<sup>72</sup> At this time the ejidatarios were denied any effective representation in the running of the cooperative and the 1952 decree confirmed cane as the only crop allowed.

For 1961 political pressure from the ejidatarios allowed them to gain control of the cooperative again (de Grammont 1979) running the collective ejido until 1970. However, the ejidatario leaders were co-opted and did not pursue demands for individual plots (Ronfeldt 1973). In 1965 the Local Ejidal Credit Society of Atencingo and Annexes did take over from the cooperative but provision of credit on an individual basis remained unthinkable – fitting a widespread use of credit as an instrument for political control and profiting (Mackinlay 1996). In fact, it was practically impossible as it would take until 1968 for the land surveyors to calculate the total area of the ejido (11,425 hectares) (Ronfeldt 1973), which made it possible in December 1968 for the annexes to acquire independence from Atencingo and form their own credit societies (Gómez 1995, 1998). However, the official authorisation for the break up of Atencingo, now recognised as a total area of 12,118 hectares, into nine ejidos was not issued until 1973, officially as a response to a 1948 application from the ejidatarios to separate the ejidos, but even then individual plots were not granted (*Diario Oficial de la Federación*, 27 November 1973). So, paradoxically the large cooperative of Atencingo founded by Lázaro Cárdenas came to an end under the administration of President Echeverría, who pursued a policy based on land distribution with an emphasis on collective organisation, having outlined his commitment to the collective ejido during a campaign address to sugar cane producers in Matamoros in 1970 (Boege and Avila 1979; Del Villar 1976; Otero 1998).

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<sup>71</sup> In 1955 Jenkins sold the mill and in the same year Jaramillo was assassinated.

<sup>72</sup> At this time and others political control of the ejidos involved corruption, the presence of gunmen and even the army (de Grammont 1979; Gadea 1995; Otero 1998).

By this time, and despite political and economic support from the federal government, the Atencingo complex had not recovered the high productivity it had enjoyed before it was granted cooperative status. Moreover, it had not kept up with technological modernisation and the organisation of the productive process and income levels in 1970 were the same as in 1959 (Ronfeldt 1973).<sup>73</sup> Certainly, Atencingo met with Kherallah and Kirsten's general observations:

The history of traditional cooperatives, on the other hand, suggests that cooperatives have not always been successful at serving the needs of its members. One major problem with the traditional cooperatives in developing countries was that members never had a major financial stake in the cooperative; cooperatives were supported by governments. Furthermore, cooperatives suffered from various organizational problems and a lack of clearly defined property rights assignments resulting in opportunistic behavior (such as free riding, moral hazard, agency problems, etc.), bureaucratic inefficiencies, and under-investment in the cooperative (2001: 28).

In Matamoros, the failure of the cooperative was made worse by population growth that was an important driving force in the ejidatarios' claims for land, and pressure from others who regarded sugar cane as an attractive crop with a secure market, controlled price, official credit and social security for the ejidatarios. In response to the inability of formal institutions to meet local demand, ejidatarios used areas for subsistence crops and increasingly adopted individual management. In Teruel, for example, Gómez (1998) records that before the official authorisation of individualisation, ejidatarios were working on the basis of *areas de responsabilidad individual* (areas of individual responsibility). The ejido response, therefore, in the face of the kinds of land and commercial pressures outlined in ETLR fits the institutional economics literature (North 1990, 1995). The state, here, instead of providing a framework for the operation of market pressures imposed a series of constraints, which it saw as 'protection', upon the efficiency of the ejido largely in response to political interests and these shaped the evolution of land property rights in Matamoros. These interests included those, directly, of Jenkins and the Avila Camacho family, as well as less directly the Cárdenas project of political control through collective organisation. As a form of state participation,

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<sup>73</sup> The lack of technological change is somewhat contrary to the ETLR position that argues for technological progress as a driving force of the evolution of property rights (Platteau 1996).

changes in the law have been of great importance in this process and helped shape the configuration of property rights, again directly through legislation on land tenure and indirectly in the form of social security, the Decreto Cañero and the regulation of finance. Yet neither state intention nor the ejidatario response attained an efficient institutional arrangement. The role of the state remained pervasive; reforms were limited and imposed rather than negotiated; local information was insufficient and markets poorly developed; and property rights were insecure, producing complex institutional responses.

### **3.4.3 The Atencingo Sugar Mill Today**

As the state began to release its grip on property rights in land, it tightened its hold on the refining of sugar. Although during the 1930s, the Atencingo mill was said to have been the most productive in Mexico, and the fields, to produce the highest yield in all Latin America (Lara 1979; Ronfeldt 1973: 11), in 1973, Atencingo was taken over by the government and a programme of technological renewal began under President López Portillo (1976-1982). The new mill began operation in 1985 with a capacity to process up to 9,000 tonnes per day, twice the capacity of the old factory (Ing. Daniel García, Secretary CNPR, 22 February 2001). In 1988 Atencingo was the first sugar mill to be privatised (18 October 1988) when it was sold to CAZE for 47,500 million (old) pesos, officially, although it is widely believed that only ten per cent of this sum was really paid (Proceso 15 September 2001). Under private management Atencingo processed 1,215,000 tonnes of cane and produced 154,400 tonnes of sugar (Comité de la Agroindustria Azucarera, 2002).<sup>74</sup> Table 3.2 shows that the efficiency of the mill improved from 1995 to 2000, with reductions in sucrose lost as mash, yield of sugar-to-cane higher, less fibre in the cane, higher sugar recovery etc. An important improvement under private administration was a reduction in time lost in processing (Table 3.3). Table 3.2, however, shows that the mill's gains were set against a lower yield per hectare over time and the exception to the time efficiency was in the fields where the trend is unclear, but suggests that substantial inefficiencies remain although a leader of the CNPR claimed that steps had been taken to save time between the cut and milling of cane (Ing. Daniel García, Secretary, CNPR 22 February 2001).

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<sup>74</sup> According to Paré (1979) 80 per cent of the molasses produced in the mill are sold to Bacardí which has a plant on the outskirts of Matamoros.

**Table 3.2 Performance of the Atencingo Mill Area (1995-2000)**

<b>Concept</b>	<b>Unit</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>
Area cultivated	Ha	8,684	10,682	10,257	10,789	11,327	10,470
Gross yield of cane per hectare	Ton	125.17	119.06	107.93	108.1	103.57	114.25
Yield of sugar B.E. per hectare	Ton	13.94	13.92	13.14	13.54	13.03	14.87
Fibre in cane	%	13.06	12.81	12.5	12.41	12.59	12.4
Total sugar produced	Ton	120,450	147,899	134,593	145,879	147,447	155,536
Yield in Factory sugar real/cane	%	11.08	11.63	12.16	12.51	12.57	13
Sucrose lost as Mash	%	1.08	0.99	0.72	0.57	0.52	0.6
Sucrose in cane	%	14.01	14.25	14.29	14.51	14.46	15.09
Recovery of sucrose (efficiency in factory)	%	79.01	81.52	84.69	85.84	86.46	85.77
Oil used in factory per ton of cane	Lt	24.34	18.66	12.79	13.92	13.72	9.68
Total net cane milled	Ton	1,085,815	1,268,489	1,103,948	1,164,775	1,171,062	1,194,430

Source: Comité de la Agroindustria Azucarera (2001)

**Table 3.3 Lost Time by Factors, Harvests 1995-2000 (percentages)**

	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>
In factory	16.46	22.01	9.35	12.35	7.32	9.3
Personnel	5.69	5.84	3.29	1.44	0.93	4.61
Festivities	1.96	1.03	1.17	1.72	2.23	1.75
Field	3.22	14.48	9.8	8.55	18.07	5.05

### 3.5 Conclusion

The agrarian reform following the Mexican Revolution is sometimes represented as based upon an idealistic notion of small-scale agriculture marred by inappropriate institutionalisation through the ejido, and despite considerable state intervention to support equity and a basic family income. This idea is held by those who believe the ejido needs minimal reform but less state intervention and those who believe that the ejido needs to be radically changed with more state intervention. As we have seen here, the situation in Matamoros, in advance of detailed case study developed in the next three chapters, is far more complex. Governments have consistently held to a position that has fixed an ideal size of plots (four hectares of irrigated land or eight seasonally cultivated) despite recognising the need for economies of scale. One response has been the formation of cooperatives, but with relatively little autonomy from state interference which appeared to increase as social pressure for land and the need for political stability grew. One somewhat ironic consequence of trying to hold a minimum land holding and attain economies of scale has been, as Chapter Four will discuss in more detail, the progressive subdivision of plots.

The Matamoros region also demonstrates the antagonism of the ejido to collectivism. Atencingo possessed what Otero calls, with a degree of exaggeration, a “phobia toward collectivism” (1999: 109). In part this rejection might be seen as the influence of cultural values manifest in the support for the Zapatista movement during the Revolution (Núñez 1995; Womack 1970) and as a practical response to the economic and social pressures on land and other resources along the lines suggested by ETLR. It is worth noting that ejidatarios did not reject collective action where this meant small, cohesive and relatively homogeneous organisations, illustrated by the individual ejido and the demand for the break up of the great Atencingo ejido and annexes. By contrast, the ejidatarios rejected collective action where this brought the kind of disadvantages identified by Olson through inefficient large, dispersed and heterogeneous organisations. Ejidatarios mistrusted the cooperative as an organisation that they had never asked for, and as one which sought to control their day-to-day decision-making, in opposition to the pressure for more individual control not less. The cooperative therefore failed not because of the state alone or despite the ejidatarios; rather, it was

brought down by their agency within the ejido (also Paré and Juárez 1986; Romo 2001). As far as the evolution of property rights is concerned, the ejido was not the 'loyal' agrarian sector but one that was constantly organising against official regulations, adopting individual plots, cultivating crops other than sugar, leaving their land to work in the city, and selling up.

The chapter has also indicated how an understanding of property rights opens up the empirical possibilities for research in ways that considering tenure alone do not. The ejidos in Matamoros possessed a distinct form of land tenure which, admittedly, had many problems as social pressures increased and market conditions changed. Nevertheless, it is the issue of ejidatarios' ability to feel secure, informed and in control of decisions on their property rights that is critical. The ejidos were for a long period under Jenkins's control, even when the institutional arrangement was apparently a cooperative. At other times, the land and decisions on what to grow, with what finance, and who to sell the production to was decided by the state. In this context, individualisation was not simply a claim for a particular form of tenure, private property freehold, or a shift of legal regime; rather it was about exerting effective rights to use land in more efficient ways. It seems clear that without effective property rights, the ejidatarios' welfare suffered. Contrary to the views of Paré (1979) and Lara (1979), my research supports Boege and Avila (1979) who claim that individualisation of plots was the central and final goal of the ejidatario movement in Atencingo.

## **CHAPTER 4: PROPERTY RIGHTS AND ACCESS TO FINANCE**

### **4.1 Introduction**

In this chapter I analyse, first, tenure structure and the land market in the case study of ejidos in the context of the PROCEDE titling process, and in particular the question of land concentration or fragmentation, and second I look at how access to finance has changed, from a reliance on government and sugar mill credit, to a situation where the ejidatarios should now have access to financial intermediaries. The principal argument is that the provisions of the Article 27 reform, and specifically the provisions made by PROCEDE, have not lead to the changes predicted either by the reform's sponsors or its critics. In part, this is because some of the supposed consequences of reform, such as an active land market, were in existence as an institutional response to earlier restrictions. But also, to the extent that this non-sanctioned land market institution is retained, post reform I look to weaknesses in how the new laws and regulations understood ejido practice and ejidatario reluctance to change for change's sake. One consequence, therefore, is that land holdings in the case study of ejidos appear to offer neither the productive minifundista scenario envisaged by Salinas, since plots are too small, nor a trend toward land concentration. Previous and present land sales are fragmenting land holding as much as they are consolidating some holdings. Finally, I show that even if PROCEDE has provided greater security of property rights, ejidatarios have few options to acquire finance, and I argue that land holdings are too small to provide the collateral necessary to overcome transaction costs to either potential borrower or lender.

### **4.2 PROCEDE and Dominio Pleno**

I explained the normative intentions of PROCEDE in Chapter One and general achievements in Chapter Two. In order to complete the explanation about the titling programme a detailed diagram is provided (Figure 4.1), which summarises the procedures followed to the individualisation of ejido land and the provision of PROCEDE certificates and titles for urban lots, and eventually private titles for plots to those ejidos adopting Dominio Pleno.



**Figure 4.1 The Main Stages of PROCEDE Programme**  
 (Source: Adapted from Procuraduría Agraria, Estudios Agrarios 10, 1998, p.40)

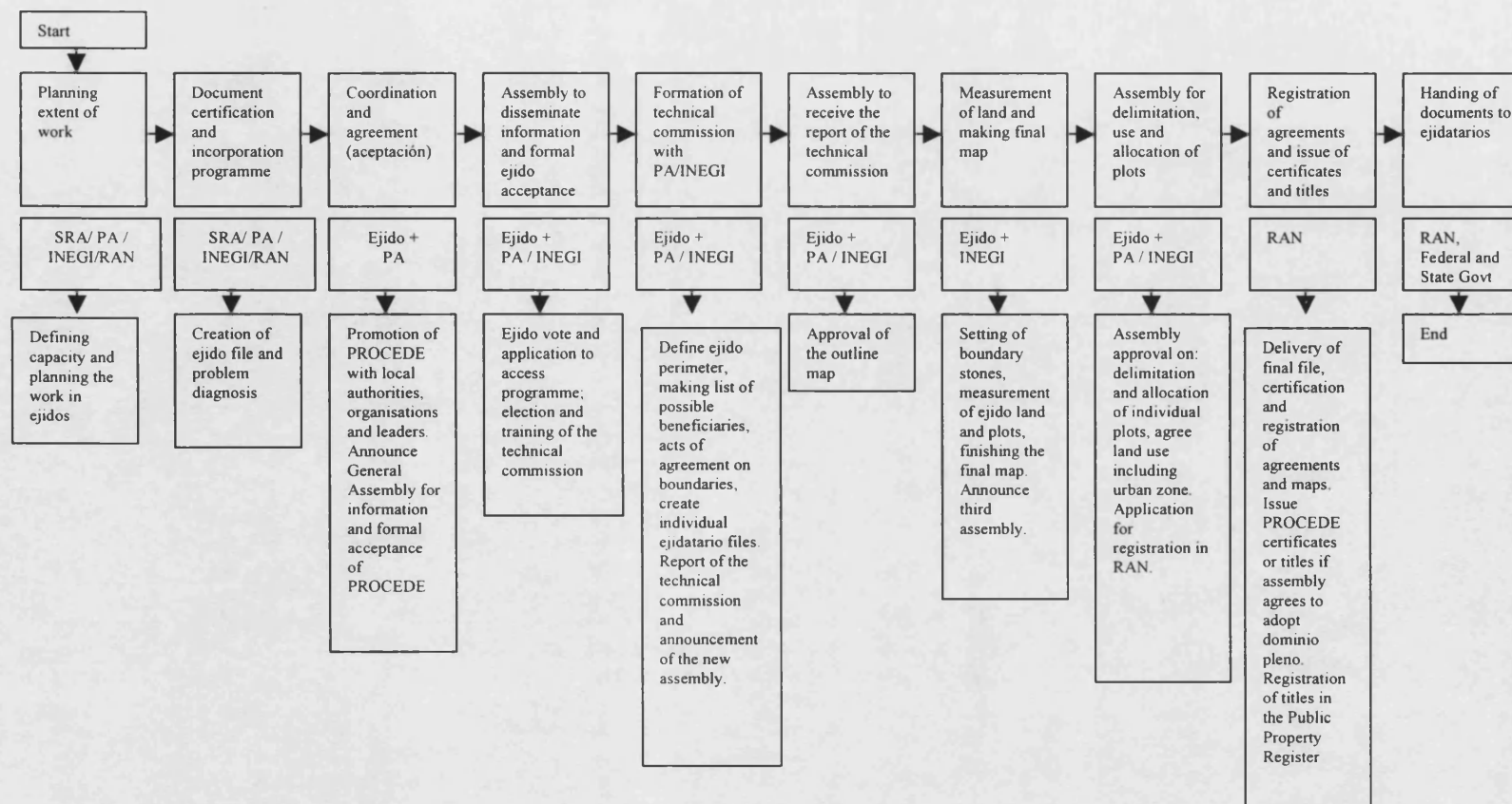


Figure 4.1 shows the process of individualisation established through PROCEDURE. The initial key step is the first ejido assembly where the Procuraduría Agraria presents the programme and the ejido officially applies for access. This step requires that the ejido has no boundary conflicts with other ejidos or private land owners; if it does then it is required to settle them as a condition of access to the programme. At the assembly a technical commission (Comisión Auxiliar) is appointed to help the personnel from the government agencies. This commission defines and marks ejido boundaries with agreements (actas) signed by landowners sharing boundaries if necessary (Reglamento, Article 26) and a list of beneficiaries is produced. Beyond such formality however it is at the point that the Procuraduría Agraria puts pressure on ejidatarios to accept posesionarios, some of whom may have acquired land through irregular means, as new ejidatarios. An Assembly can recognise the rights of posesionarios under Article 17 of the Reglamento (also Article 30 and 34, and 36-40), in exchange for an economic contribution in favour of the ejido (Reglamento, Article 32). Although many posesionarios are children of ejidatarios, a large number of these “new ejidatarios” will have invaded or bought plots, a process that the new law permits as a cesión de derechos (Ley Agraria, Article 155 and Reglamento PROCEDURE, Article 53) so long as the potential purchaser does not hold an area exceeding five per cent of the whole ejido (Reglamento, Article 33). The intention of the Procuraduría Agraria is to “finish” conflicts between ejidatarios and private owners holding ejido land. Yet, the reform allows new ejidatarios to seize land in the common area of the ejido, for example, or to acquire more than five per cent by using prestanombres (cover names).

The next key step in PROCEDURE is the accomplishment of a second ejido assembly to receive the report of the technical commission, the list of possible beneficiaries and a sketch map of the ejido (Reglamento, Article 26). After that assembly INEGI carries out the definitive measurement of the whole ejido area and the division of plots according to the approved list. Once the INEGI map is completed, a third assembly is called to discuss the allocation of the main tracts of ejido land (i.e. the urban, communal and parcelled areas) (Reglamento, Articles 19-23). At this stage the right to individual plots is also allotted which should mean the regularisation of holdings for those without a certificate. There are cases that it is at this stage that some urban areas, mainly those occupied by *avecindados*, are reallocated as common areas “by mistake”, but which

forces *avecindados* to seek regularisation of their situation, sometimes initiating a process whereby the ejido authorities receive additional payments (as compensation for the 'loss' of land already sold).

Once the map and land allocations are agreed the next main step is for the RAN to issue official certificates (called PROCEDE certificates, *certificado parcelario*) that grant individual rights to plots. All maps and agreements (*actas*) will also be registered in RAN (*Reglamento*, Articles 60-68) although it is worth recalling that according to the law the community continues to be the real owner of the ejido's complete area so an individual ejidatario's certificate only confirms the right for usufruct. Finally, a non-compulsory step in the programme is for a General Assembly to be held in order to discuss the adoption of *dominio pleno*, i.e. freehold on the plots, which implies the transformation of the regime of property from the ejido to private property. Agreement at this Assembly begins a process whereby the land is transferred from the ejido regime and will be registered in the Public Property Register (*Ley Agraria*, Articles 81 and 82). Officially the Assembly is required to have a quorum of more than 50 per cent in order to authorise the adoption of *dominio pleno*, but for many ejidos the main purpose of the assembly is not to reform land tenure but to create another step through which past land transactions can be reactivated or for new, and informal, sales to take place.

After this brief explanation of PROCEDE in general, in this section, I will discuss implementation of the programme in Matamoros. As a reminder of the details provided on the case study of ejidos in Chapter Three, Atencingo is the largest of the three ejidos covering 1,256 hectares and throughout the period of field research was in an indefinite situation awaiting a General Assembly that eventually failed to accept PROCEDE in August 2002 due to a lack of quorum, and despite the *Procuraduría Agraria* moving quickly to hold a second Assembly at which it also allotted plots, certificates have not been distributed. Matzaco accepted PROCEDE in May 1993 and set up a *Comisión Auxiliar* (Technical Commission) to assist with the land survey, completing its work by June 1994 and the distribution of certificates began, symbolically, at a ceremony conducted by President Zedillo in April 1997. Finally, the 1,227 ejidatarios of Colón rejected PROCEDE in April 1998. An initial question, therefore, was to gauge knowledge of PROCEDE among the ejidatarios. At the time of fieldwork in 2000-2001,

almost one decade after the reforms to Article 27 were initiated, many of the ejidatarios in my survey were unfamiliar with the new laws. Some were able to offer opinions because they had heard about the changes from people who they trust, their children, friends, etc. Overall, of the 223 ejidatarios giving an opinion (from a total sample of 324), 23.5 per cent thought that the reform would affect them negatively, whereas 22.2 per cent thought that the effects would be positive. Almost two-thirds of respondents (52.9 per cent) offered a neutral opinion or were positive without identifying a specific reason. Interestingly, in Colón, which had not begun PROCEDER, only 12.8 per cent of respondents considered that the reform would be negative. Knowledge of the reform, then, was not universal with fewer than one quarter of ejidatarios believing that its impacts would be strongly negative, but the willingness to perceive the reform favourably might not explain the adoption of reform in specific cases, as Colón indicates.

Among respondents who believed the reforms a positive step, many thought that the new laws would give them papers securing property rights on the parcel forever, removing the risk of being deprived of rights by official decisions. In the new circumstances they considered themselves to be “real owners”. Martín Osorio, 70, an ejidatario in Atencingo since 1952, said that with the paper which he was about to receive, he would gain more security of ownership, unlike now when the ejidatarios are “in the hands of the government” (*en manos del gobierno*). Raquel Leyva, a widow ejidataria holding 1.5 hectares in Atencingo, argued that the reform was good for ejidatarios because it makes them free on their plots. In Matzaco, Francisco Aguilar has three irrigated hectares and has bought private property for his children to cultivate and which he funds. Now, he argues, the ejidatario has more freedom in his decisions (*es más libre en sus actos*) and will no longer be subject to the Secretaría de la Reforma Agraria.<sup>75</sup> Rigoberto Vega in Colón, 67, can be considered a model ‘Salinas’ ejidatario. In 1956 he got a 5.6 hectares plot, has bought two other plots and sometimes rents others, cultivating one hectare with maize and 4.5 hectares with sugar cane. He owns a tractor and his two children own shops. His view was that the reform provided ejidatarios with security, whereas before they owned nothing. Some respondents were critical of the reform as not going far enough, pointing to the potential limits of a single

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<sup>75</sup> This theme of ejidatarios associating the reform with freedom from arbitrary government is also noted by Nuijten (1998).

legal change. For instance, Camilo Alvarado, 34, one of the youngest and most educated ejidatarios participating in the questionnaire, having completed second year of high school, supported the reform but said that ejidatarios needed more than legal security and in particular they needed finance. Interestingly, Camilo has to supplement his income from agriculture with work as an electrician.

Respondents opposed to the reform agree with some of its supposed benefits, but regard these as negatives. So, some ejidatarios observed that the ejidatario is now free to sell land but, as argued by Zenobio Méndez in Atencingo who inherited 3.2 hectares in 1991, that freedom is dangerous because it allows the expansion of *caciquismo* in ejidos. Jorge Alcázar, 72, ejidatario in Colón, who has 3.3 irrigated hectares said that the reform is good because that way they have the real ownership of the land, but that it will also mean that eventually ejidatarios will not have the same support as before. Gaudencio Leal, 63, and Juan Méndez, 54, both in Atencingo, agreed that despite its benefits, the reform could be bad because it obliges the ejidatarios to pay taxes, although they were not sure and, in fact, unless they acquire *dominio pleno* ejido land remains exempt from land tax. Whether informed speculation or not, these views suggest that the conversion of reform into secured property rights, and rights into economic and social outcomes, is subject to less mechanical decision-making processes than the reform's supporters and Neo-Institutional Economics is apt to appreciate.

One consequence is that in Matzaco, which was quick to accept PROCEDER, the General Assembly has rejected the adoption of *dominio pleno*. As the Comisariado explained, the decision was taken "not to accept the adoption of *dominio pleno*, because outsiders could take over the plots and eventually [take] complete control so the ejido's internal rule prohibits the sale of plots".<sup>76</sup> In this sense, according to the Comisariado "we do not find any advantage in being a private owner instead of an ejidatario." A number of the respondents confirmed during the questionnaires and discussions that they rejected *dominio pleno* for fear of losing their plots. So, while the reform permits the sale of land, locally, the ejido may refuse such a right and reaffirm its control on land as a means of exerting ownership. In the assessment of positive-negative perceptions of the

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<sup>76</sup> This decision is in line with the *derecho del tanto* that subordinates the decision of an ejidatario on the matter of land sale to the agreement of the Assembly and the authorisation of the family (Ley Agraria, Article 80).

reform, Matzaco has furthered a shift to individual holding but strengthened the authority of the community to have the last word over important decisions.

In terms, then, of the Article 27 debate one might expect there to have been a more active land market in Matzaco prior to PROCEDE, one which the reform now formalises, and may possibly extend as a backlog of deals is cleared allowing less productive ejidatarios or those with better opportunities elsewhere to sell up to others. In Colón, ETLR would suggest that there is less pressure on land holdings as this pressure has not translated into demand for individual and formal holdings. One might expect a less active land market, but also perhaps less access to finance as commercial pressure has not motivated individualisation either. Atencingo might present a case for an ejido 'in limbo' in which there is considerable demand, historically and today, for individualisation as well as a commercial rationale, indicated by the presence of an active land market. However, the difficulty of entering PROCEDE means that the response to these pressures continues to operate through informal institutional mechanisms. Overall, land markets might be creating more concentrated land holdings, formally and informally, but one might also expect active and informal land markets in all three ejidos regardless of PROCEDE if the reform does not reduce the transaction costs of being formal, by not reducing for example the lack of information held by ejidatarios, a desire to ignore the state supported by a path dependence of informality lasting decades, and the influence of other institutional arrangements concerning, for example, inheritance that are not adequately captured by the reforms.<sup>77</sup> Here, the dominant trend would be toward a continuation of fragmentation.

### **4.3 Fragmentation and the Land Market**

In the minds of agrarian reformers prior to 1992, the prototype ejido plot was between four and ten hectares which was believed to be sufficient to provide ejidatarios with a subsistence standard of living as a minimum. Numerous authors have noted, however, that plots were subdivided prior to and after the 1992 reforms (Bouquet 1999;

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<sup>77</sup> Platteau and Baland (2001) studied partible inheritance, associated with land fragmentation, in the history of land property rights in Europe, in contrast to the economies of scale inherent in a system of impartible inheritance associated with primogeniture. They also found that in Sub-Saharan Africa the equal division of land remains dominant despite a commercial rationale for impartible inheritance causing land fragmentation.

Concheiro and Diego 2001; Zendejas and Mummert 1998). For an ejido in Jalisco Nuijten reports:

On the basis of the genealogy of land I concluded that in 1942 the land was divided into 119 different plots among 77 ejidatarios. As a result of fragmentation of plots and the clearing of new land, in 1993 there were 136 plots divided among 94 ejidatarios (three of the 97 ejidatarios do not possess an ejido plot but only a coamil). As the amount of land has only scarcely augmented (by clearing new lands) it is clear that the average size of plots has diminished, as has the average number of hectares each ejidatario possesses (1998: 159)

Concheiro (2001) notes that in the ejido of Oacalco, Morelos, after PROCEDE the number of ejidatarios grew from 125 to 171 in just a few years. In Matamoros, the original land distribution tended toward small plot sizes and despite a clear prohibition on subdivision in Article 83 of the Ley Federal de Reforma Agraria (March 1971), many ejidatarios divided plots among family members and in particular among children (Jesús Márquez, Procuraduría Agraria Matamoros, interview 27 February 2001). Indeed, the process of implementing PROCEDE in Matzaco highlighted the extent of fragmentation over time. In May 1989 the minutes of the General Assembly formally recognised 135 ejidatarios, whereas in May 1994 there were 149 ejidatarios identified, and by 27 May 1997, 165 ejidatarios. In Atencingo the formal recognition of plots following the second Assembly that accepted PROCEDE discovered that 229 people held plots without formal recognition by the ejido, motivating the Procuraduría to identify them as new *posesionarios*.

From the survey data, 37 plots had been subdivided between the original allocation and the time of fieldwork, creating 101 new plots. If we take into account a survey sample size of 324 ejidatarios then new plots created through subdivision account for one third of all plots by 2001. Subdivided plots were divided more or less evenly over the three case study ejidos relative to their size. In Atencingo, 41 new plots had been created, 32 new plots were formed in Matzaco and 28 in Colón. In some cases, subdivision is informal with the land unfenced or bounded (by *mojoneras*) but jointly cultivated, whereas others divide the area and cultivate the land separately. Subdivision has clearly resulted in a process of land fragmentation in the ejidos. Table 4.1 shows the range of

land holdings of ejidatarios whether in many separate plots or as consolidated holdings. According to the data almost 74 per cent of ejidatarios hold less than three hectares, over 43 per cent own less than two and only 2.2 per cent (seven cases) report an area larger than five hectares. Clearly, ejidatarios in Matamoros fall short of the prototype subsistence holdings.

Table 4.2 provides a more qualitative breakdown of land holdings, important in this region because non-irrigated land is useless for the cultivation of sugar cane, and takes account of the separation of holdings into plots. The data show that the average plot holding per ejidatario in Atencingo, Colón and Matzaco is 2.6, 3.4 and 2.2 hectares, with the average size of each individual plot as little as 1.3, 1.8 and two hectares.<sup>78</sup> Within these data the pattern of land holdings in Matzaco is interesting. Average holdings are the smallest of the three ejidos but average individual plot size the largest. The explanation is probably that Matzaco possesses more irrigated land relative to its size than the other two ejidos which encourages the non separation of plots. It means that Matzaco which has always been organised as an individual-based ejido (unlike Atencingo and Colón that formed part of the cooperative), has a lower level of fragmentation and higher capital investment than the other two.

These data suggest high levels of land fragmentation before the reform. They also pose a problem for how the government and multi-lateral agencies have recorded the potential of minifundista ejidatarios, once titled through PROCEDER, to undertake improvements on their land. The reports of the Procuraduría Agraria and Secretaría de Reforma Agraria are based on the total land holdings of officially registered ejidatarios.<sup>79</sup> As Jesús Márquez, a lawyer and the Residente (Representative) of the Procuraduría Agraria in Izúcar de Matamoros commented:

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<sup>78</sup> These data are close to those of INEGI (1998), which calculates that the average size of parcel cultivated with cane in Puebla is 2.3 hectares. The case study ejidos might be better off than elsewhere in the valley. Juan Márquez, a former Comisariado, said that Ejido Jaltepec had parcels of one or one-half hectare (Interview 28 February 2001). Núñez (1995) reports that in Mahuixtlán, a sugar cane producing ejido in Veracruz, ejidatarios cultivate an average of 1.2 hectares, while in San Francisco and San Pedro the average area cultivated is 2.9 and 2.4 hectares. In San Francisco, 47 per cent of ejidatarios have less than two hectares and only one per cent has between ten and 50 hectares.

<sup>79</sup> The ideal was for each ejidatario to have two non-contiguous parcels (Robles 2000).



Before the reform, there was one certificate for the whole area that the ejidatario held, even if there were more than two plots. The government registered one plot corresponding to one person with a single certificate, when in reality there was more than one person holding that land. One of the heirs had the certificate, but among them all have the land. That meant that reality was in one place and the law in another very different one. (Interview 27 February 2001)

Officially, it is assumed that the ejidatarios neither subdivided nor sold land. The result is that official data are based on an empirical falsehood, inspired by a need to pretend that the law is being obeyed and minimum land holdings are sufficient. As Nuijten reports, “It will be obvious that this led to a situation in which official statistics and registers give few insights into land use and transactions in the ejido” (1998: 144).

**Table 4.1 Land Area per Ejidatario in all Case Study Ejidos**

Area	Frequency	Percentage	Cumulative Percentage
One hectare or less	30	9.3	9.3
1.1 – 1.5 ha	34	10.5	19.8
1.6 – 2 ha	76	23.5	43.2
2.1 – 2.5 ha	19	5.9	49.1
2.6 – 3 ha	80	24.7	73.8
3.1 – 3.5 ha	31	9.6	83.3
3.6 – 4 ha	29	9	92.3
From 4.6 to 5	9	2.8	97.8
More than five	7	2.2	100
Total	324	100	

Source: own calculations from questionnaire data

**Table 4.2 Land Holdings by Case Study Ejido**

	Atencingo	Colón	Matzaco
Average plot size (hectares)	1.3	1.8	2
Number of plots reported	214	172	111
Total area in Sample (hectares)	273	314.1	224.8
Total Average area per ejidatario (hectares)	2.6	3.4	2.2
Number of ejidatarios in Sample	103	93	103
Average Irrigated area per Ejidatario (hectares)	2.2	1.8	2.2
Total Irrigated area (hectares)	225.2	166	224.8
Number of irrigated plots	178	138	111
Average Size of Irrigated plots (hectares)	1.3	1.2	2

Source: own calculations from questionnaire data

So what has caused fragmentation? One answer is related to the economic and geographical context of land holding and agricultural requirements. To some extent fragmentation is a response to micro-scale differences in land quality and topography in Matamoros, which accentuates difficulties with drainage during the rainy season (Consorcio Azucarero Escorpión 1999). Irrigated and seasonally cultivated areas vary over quite short distances, imposing quite different requirements of labour and capital and therefore costs. When the land was collectively controlled the ejidatarios appear not to have given great importance to these conditions. Rather, each ejidatario received a small plot of about 0.5 hectares known as a *parcela económica* on the edge of the sugar fields in order to grow staple crops for consumption. Nevertheless, as the individual allocation of plots evolved one solution was to subdivide ejidos into plots with more homogeneous characteristics and, in order to retain a notion of equity, small plots of different quality were allocated to every ejidatario. In some cases this individualisation meant the division, swap or purchase of the *parcela económica* and in Colón fragmentation may have been aggravated when an additional 239 hectares at the boundary with the ejido of Matamoros were taken over, because ejidatarios each received a new plot rather than seeing their holdings consolidated across the larger area. Equalisation, therefore, may have accentuated fragmentation.

A second explanation of fragmentation relates to the decisions of ejidatarios to bequeath land to children. The extent of this process is evident in Matzaco, which accepted PROCEDE, received titles in 1994 and held a General Assembly on 21 June 1996 in order to approve a new *Reglamento Interno* (internal constitution) which is a requirement of the new Ley Agraria (Article 23). However, according to the Comisariado Ejidal, only 15 of the 165 ejidatarios have completed the titling process which includes the naming of a *sucesor designado* (appointed heir) (Articles 17 and 18). Some provide names of heirs that are recorded by the ejido, but there is no supporting documentation. There seems to be reluctance among ejidatarios to fulfil this obligation of the reform because, rather than confirm property rights, the reglamento threatens to stir up conflict between ejidatario rights-holders and their families, especially where commitments have been given to recognise all children as equal heirs (also Diego 2001; Nuijten 1998). As the reglamento is, technically, invalid until all ejidatarios have signed it, non-compliance is a constraint on the property rights of those ejidatarios who are clear about their inheritance duties while compliance may mean that some heirs are denied recognition in the interests of family unity. Fragmentation can limit discontent and preempt the obligation to cede land to the principal heir.

Of course, the third explanation for land fragmentation is that the ejidatarios have sold the land. The questionnaire results indicate an active land market in all the case study ejidos.<sup>80</sup> Forty nine ejidatarios (15.1 per cent of respondents) had bought land involving 52 plots, principally in Atencingo where 30 people had bought land and 16 ejidatarios report acquiring their plot through purchase.<sup>81</sup> This shows the Atencingo ejido to have the most active land market amongst the three under research. Few of these sales appear to have been registered with the RAN or officially with the ejido, suggesting that sales remain based upon informal institutional arrangements. Indeed, it is clear that many ejidatarios were reluctant to talk openly about their dealings in the land market; discussion of land sales was conveyed almost like a secret possibly because sales were

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<sup>80</sup> A trader in land in Atencingo told me that more than 100 hectares have been sold in Atencingo but that in Lagunillas ejidatarios are selling even more. Raúl Sánchez in Matzaco says that in neighbouring Nicolás Tolentino large areas are being sold.

<sup>81</sup> The fact that some people acquired their ejido parcel through purchase (4.9 per cent of sample) is interesting but it remains the exception. Asked about acquisition of ejido land rights, most said their parcels were from original endowment (25 per cent) or inheritance (68.8 per cent). It was important to make clear that sales were not long-term rent or sharecropping arrangements which are often used as a means to mask sales.

against the Ley Agraria and still attract a series of sanctions. Numerous respondents were willing to comment on the sale of land by others and the problems this had caused. Juana Acevedo in Matzaco for instance reported that fellow ejidatarios are selling land secretly to non-ejidatarios, but that nobody has the strength to denounce them in the Assembly. Pablo Gudiño also in Matzaco added that sales cause problems among relatives who find out later and complain or attempt to reclaim the land. In Atencingo Esteban Hernández, 47, said that sales meant that some ejidatarios no longer had any plots left, although as Manuel Ibarra, 53, according to others he has already sold his four plots, when in fact he still has at least one left and another is being sharecropped (he was reluctant to comment on the others).

The 1992 reform allows ejidatarios to sell the rights to their plot through what is called *cesión de derechos*. Have more land transactions occurred before or after the 1992 reform? From the questionnaire, 20 out of 46 people who admit to the purchase of land say that the agreement was made before 1992. Pre-1992 sales were more likely in Matzaco (3 to 1) and Colón (8 to 5) whereas in Atencingo land sales may have accelerated since the reform with nine sales before 1992 and 20 since. If we summarise these data as, broadly, business as usual then we must also note consistency with other studies (Bouquet 1999; Jones 2000; Jones and Ward 1998). The results prompt a question: why should ejidatarios ignore a reform that appears to formalise the previous institutional response of an informal land market? Again, we might offer a number of possible explanations.

First, it is possible that ejidatarios are unaware of the possibilities for formal sales under the new arrangements and, therefore, instead of making decisions on whether to buy and sell land in obedience to precise legal mandates have opted for local institutional arrangements (Baitenmann 1998; Bouquet 1999). Participants were asked whether or not they knew the 1992 reform permitted land sales (under certain conditions). Altogether 67.3 per cent said they did not and only 28.1 per cent answered that they did. Respondents in Matzaco claimed the greatest knowledge of the reform (38.5 per cent knew of the new arrangement) whereas in Colón only 22.9 per cent were aware of this point. The relatively high level of legal awareness of ejidatarios in Matzaco was confirmed by the Comisariado, who nevertheless noted that ejidatarios rarely proceed

according to the law but make decisions in terms of traditional arrangements. From the perspective of NIE one might suggest that the reform has left considerable information asymmetries implying transaction costs to formalisation, but also that the advantages of informal institutions outweigh revised formal ones.

A second explanation relates to the secrecy with which information on sales was often conveyed during questionnaires and interviews. Many sales may not comply with the formal rules post reform but they may also transgress informal arrangements associated with belonging to an ejido. The ejido community has a strong role regarding authorisation of land sales that seems little affected by the reform. One ejidatario for example referred to a woman ejidatario in Matzaco who sold her plot without the approval of the Comisariado and the plot is now in legal dispute. Indeed, the reform actually empowers the ejido community, either as represented by the General Assembly or the Comisariado, to block, delay or condition transactions. A *cesión de derechos* requires the participation of two witnesses and authorisation of the ejido Assembly, through the Comisariado, who stamps and signs the contract. The contract typically states the willingness to transfer the rights, location and number of the plot, boundaries and neighbours. This procedure is subject to *derecho del tanto* which gives relatives and fellow ejidatarios the right to first refusal on the plot in order to keep it inside the ejido. Formally, the contract is reported to the RAN so that a new certificate can be issued. The reform, if seen as an attempt to make formal a long-standing informal arrangement of land sales, threatens to bring these sales to the attention of all ejidatarios including those with a say (*voz*) over land transactions in ways that break with how deals are usually arranged i.e. in private with the approval of the Comisariado. We could also see in the process described above the possibility of attracting opposition from the ejido, family or others, as well as costs associated with compliance with the new procedures compared to unauthorised transactions.

These costs can be linked to a third explanation. Land sales occur because of ‘distress’, a motive that has been as prevalent since the reform as before. At one extreme ‘distress’ includes Margarita García in Matzaco who reported that she sold one hectare because her mother was seriously ill. She also rents out the rest of the land. At the other extreme, Epifanio Lara in Colón sold one hectare to pay education costs for his children, one of

whom was at law school, the other an engineer and the other an accountant. Distress sales, however, have their own rationale that indicates why sales may produce fragmentation rather than concentration. When faced with a family emergency ejidatarios try to avoid the sale of all their land. In Atencingo and Colón this is much easier because of the dispersion of plots, but even in Matzaco where some ejidatarios hold certificates to two plots the Comisariado claimed that only one would be sold. In Atencingo 10.4 per cent of respondents hold only a part of their allocation and 8.7 per cent hold no land at all. By contrast, in Matzaco 94 per cent claim to hold all their original allocation and only 5.8 have lost a part, and in Colón, less than two per cent have sold all or a part of the land.<sup>82</sup> In just over one-half of the cases that admitted to the loss of land from the original allocation, the loss was through sale (5.2 per cent of respondents) compared to a transfer in favour of a relative (3.4 per cent). Again, the highest proportion of those selling land is in Atencingo where 12.2 per cent of respondents said that they had sold some land. It may even be that the reform has assisted these sales, contributing to fragmentation, by issuing certificates in the case of ejidos joining PROCDE per plot whereas ejidatarios had previously received documents per right holder.

The attraction of retaining some land even under distress conditions is that the right to ejidatario status is maintained. In the case study ejidos an important right is access to social security (also Bouquet 1999; Singelman and Otero 1995). This is especially important in Colón which has the largest proportion of elderly and widowed ejidatarios, for whom social security is a vital source of income. Until recently, ejidatarios also had access to credit from the mill and the support of cane-producer organisations for various activities in cropping and harvesting. Finally, being an ejidatario entails the possible political support of ejidos and peasant organisations, not available to a private grower (Goldring 1996).

So, has this partially formal but mostly informal land market produced the much-feared concentration of land? The data would seem to suggest not if we consider who has purchased land in the case study ejidos. There are rumours of a lawyer from Matamoros

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<sup>82</sup> National data show that only 807 out of 14,860 ejidatarios who registered a sale of land between 1993 and 1998 sold all their land, and 206 were deprived of their ejido rights as a result of land sale (Rodríguez 1998: 28).

who has bought land in Matzaco since 1992 but this was never confirmed. From among the respondents, 32 ejidatarios had bought only one plot, 14 ejidatarios had bought two plots, five had bought three plots each and only one had bought more than five. It was clear that the most obvious potential latifundio, the mill at Atencingo, has no interest in the ownership of the land and in assuming the risk of cane production when it can exert control of the productive process through long-term contracts. Other potential latifundistas are the vegetable buyers in Matzaco who, again, show little interest in buying land as returns, albeit highly volatile, are greater in commerce. Rather, it would seem that the buyers of ejido land are the more prosperous ejidatarios, and especially migrants to the US (*norteños*), and those with employment at the mill (Daniel García, Secretary CNPR, 22 February 2001; former President of Consejo de Vigilancia, Ejido Atencingo, 7 April 2001; also Nuijten 1998). Some of these buyers are engaged in sugar cane production – I met one inspector from the mill, who owns ejido land and is a cane producer. Whether the purchase of land by mill workers is an insurance against deteriorating wages and job security and loss of trade union power is unclear but this might suggest that their interest in ejido land is short term.

One proxy indicator of a demand for ejido land could be land price. Concheiro and Diego (2001), Diego (2001) and Romo (2001) have found a considerable increase in the price of ejido land. Although no systematic analysis that controls for factor endowments is possible here, most of the interview informants believed that land prices had increased substantially. Jesús Espinosa, the former President of the Consejo de Vigilancia in Atencingo, estimated that the price of irrigated land in 1990 was 10,000 pesos per hectare whereas in 2001 it was 22,900 (in constant 1990 pesos). Aegréfico González, Comisariado in Matzaco, maintains that the price of one hectare passed from between 25,000 and 90,000 pesos to about 22,900 pesos (1990). Rosa Alvarado, 66, a Matzaco ejidataria who owns three hectares, referred to a recent transaction of 1.5 hectares of irrigated land for 47,900 pesos. Micaela Castillo reported a case where one hectare was sold at 22,900 pesos and Laura Téllez in Matzaco has known land sales of 26,700 pesos per hectare. Land prices appear to have doubled in real terms over ten years which suggests that, at most, PROCEDE has had a marginal impact and that most transactions are conducted according to criteria related not only to formality of tenure.

## 4.4 Access to Finance: from Government to the Private Sector

As already mentioned, official funding through credit and subsidies has been reduced over the past two decades. FIMAIA granted its last loan to Atencingo in 1983, BANRURAL also eliminated credit to ejidos in the valley in 1995 and FINASA suspended credit to ejidatarios in 1999 (Mariano Guevara, former president Consejo de Vigilancia, Matzaco, 17 January 2001). A shift toward private finance offered opportunities for greater freedom from the mill and the state. Under the previous system credit from FINASA was channelled through the mills that acted as financial intermediaries (*paraфинancieras*). Credit was provided in instalments based on a list of activities with a corresponding quotation (*tarifa de trabajo*) with each activity having to be undertaken before the next payment was received, and credit was recovered through a discount on the final sale of the harvest. With the harvest as collateral<sup>83</sup>, and payment based on completion of the previous activity, both the government and the mill were protected against default, which amounted to one per cent according to Daniel García (Secretary CNPR, 22 February 2001). The arrangement put the mill in a position of considerable power and during the early 1970s alternatives were sought through the CNC. The result was a mess, as ejidatarios did not feel obliged to repay the loans and defaults soared, forcing the old system to be reinstated (Del Villar 1976). Inefficient and nepotistic allocation remained a problem. As Daniel García reported, the mill received its largest subsidy in 1973, but the sugar harvest that year was one of the lowest despite the absence of natural disaster.<sup>84</sup> Instead, it is claimed that large sums were lost through perks for workers and poor administration (Paré and Juárez 1986; Sánchez 1995).

Privatisation of the mill, to CAZE in the case of Atencingo, brought a virtual end to the provision of credit as well as an increase in costs to the local ejidos. CAZE's relationship to the ejidos was closer to credit-only with assistance only for the harvest and some transportation costs. By contrast the mill-FINASA arrangement had included the mill maintaining roads (ejidatarios now have to pay 50 per cent of the costs) and partial payment for the lifting of the cane (*alza*) (under CAZE the mill pays nothing).

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<sup>83</sup> Under agrarian law neither the government nor the mill could take the parcel as collateral, so the solution to default was to stop credit.

<sup>84</sup> Data provided by Pérez on productivity confirms this perception. As he notes: "Whereas the cultivated area constantly grew up to almost five times, the industrial yield, which in 1940 was 9.7% (kilos of sugar per kilo of milled cane), reduced to 8.6 for years 1973 and 1974" (1979: 21).



There had also been an insurance scheme in the event of disaster affecting cane production (*cañas siniestradas*) according to which the mill and producers organisations would each pay 33 percent of the cane value.<sup>85</sup> A number of ejidatarios claimed that the mill had also helped with funeral and school expenses and occasionally with emergency loans when it was in public ownership. The withdrawal of the mill as a source of credit was resented by many respondents and provoked nostalgia among many for the old arrangement with FINASA and the mill under public ownership.<sup>86</sup>

The safety net for the reduction of credit through government or the private mills was a direct support scheme called Procampo, but even though Procampo was supposed to make payments as of right 59.3 per cent of ejidatarios claimed not to receive Procampo payments and only in Matzaco were a significant proportion (70.2 per cent) in receipt of Procampo compared to Atencingo (12 per cent) and Colón (32.1 per cent). Matzaco's privileged situation may be connected to the pattern of crops, because a large proportion of ejidatarios in Matzaco grow maize and vegetables. Although the amount provided by Procampo is negligible, ranging from 290 to 700 pesos per hectare a year (US\$26-62) it would seem to be allocated to the ejido least in need. This may be because, as many ejidatarios claimed, the allocation has favoured relatives and friends. It also remains likely that Matzaco's involvement in PROCEDER has been rewarded, not least because this provides documents that are most readily accepted by Procampo officials for the distribution of funds.

So, with Procampo insufficient to cover the shortfall in credit that had previously been provided by the mill and FINASA, have the ejidos gained access to private sector funds? Has Matzaco, which has been titled ("regularised") through PROCEDER, had greater access to private finance? A fundamental aim of the reform was to enhance private investment in ejidos. It was expected that ejido-private associations (*Sociedades de Producción Rural*) and direct credit from the bank sector would follow the greater security of tenure among ejidatarios and removal of the prohibition on firms holding

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<sup>85</sup> For details of reduced mill involvement in the sugar ejidos see Powell (1995) and Rich et al. (1998).

<sup>86</sup> The end of credit has probably affected ejidatarios and especially the poorest most as previously the more prosperous private producers turned down credit to purchase fertiliser, preferring to use their own capital or alternative sources of finance (Jorge Vélez, manager Guanos y Fertilizantes, Matamoros, 8 May 2001).

ejido land suppressed in Fractions IV and VI of Article 27 (H. Cámara de Diputados 1999; see also Jones and Pisa 2000). To test these claims the questionnaire asked if and when ejidatarios had received credit, from both formal and informal sources, as well as why some did not borrow.

As a general picture, since the reform, ejidatarios have not received credit from banks. In Atencingo, 94.1 per cent responded that they do not receive any credit, in Colón 98 per cent receive no credit and in Matzaco 85.6 per cent do not receive credit. To some extent, the higher proportion of ejidatarios receiving credit in Matzaco is due to their participation in PROCEDE. It should also be recalled, that Matzaco has better quality land, especially more irrigated land, and a greater range of non-cane crops. Asked why they had not looked for finance, Table 4.3 shows that most ejidatarios were concerned about the cost (interest rates), were prevented from accessing finance (not possible, too many requirements) or feared losing the plot.<sup>87</sup> However, in my view the underlying reason why ejidatarios do not seek credit is the small size of plots, which restricts the ability of ejidatarios to generate sufficient income to repay credit or to use only part of their holding as collateral, or to make the leveraged credit worthwhile given the transaction costs of accessing the funds.

**Table 4.3 Reasons Given by Ejidatarios for not Accessing Finance**

	Frequency	Percentage
Interest rates too high	94	29
Not possible to access finance	50	15.4
No need to borrow	43	13.3
Fear of losing the plot	40	12.3
Too many requirements	32	9.9
Receives finance (credit)	14	4.3
Delayed supply of money	2	0.6
Other	16	4.9
No response	33	10.2
Total	324	100

Source: own calculations from questionnaire data

<sup>87</sup> Bouquet (1999) reports that family members and General Assemblies may be antagonistic to sales to outsiders so that buyers are sometimes unable to take over a parcel or access irrigation which deters them from using the land as collateral.

Some support for this view, linking access to credit with fragmentation, comparing ejidatarios with ejidatarios in possession of larger holdings, some of them in Matzaco, who engage in cash crops (vegetables in particular). Although these ejidatarios obtain access to finance through moneylenders and sometimes harvest buyers, they rarely get funds from banks. More usually, they finance cultivation by relying on two or sometimes three harvests a year which allows them to get a faster cash turnover but even then many lack secure contacts with the *Central de Abastos* and are unable to break the monopoly of the buyers to increase prices, or of the transport firms, to sell crops to markets away from the mill or Matamoros. Finally, even among the more prosperous ejidatarios or small private property owners there is no agro-industrial facility to transform produce and add value, so everything is sold fresh with significant waste (also Friedland 1994; Preibisch 1995).

Under these conditions, it is clear that accessing credit would be difficult for ejidatarios as they are unlikely to be accepted by the banks. Everardo Torres, a private sugar cane producer with 300 hectares near La Providencia sugar mill, Veracruz, argued that banks will not lend to minifundistas because they know that risk is higher with small plots and because the transaction costs against lending, typically one-third the value of collateral, are high (Interview 19 April 2001). This was also the view of Gerardo Salazar, the Director of Corporate Banking at Bancomer, the second largest bank in Mexico, who told me that the bank does not provide credit to ejidos because of the cost of getting the necessary information about the solvency of individual ejidatarios; because the cost of paperwork for granting thousands of small loans is higher than for medium firms borrowing larger amounts; and because ejido land remains difficult to repossess in case of default since there are political difficulties to overcome and the bank does not want to acquire lots of small plots scattered across the countryside.

Asked if there were or had been opportunities to gain finance through association with private firms, almost all respondents answered that no associations existed or had been offered, a view confirmed by Dr. Jorge Plascencia, the deputy director of the Colegio de Postgraduados in Puebla, one of the most important institutions engaged in education and research in the agricultural sector (Interview March 2001). The one exception is a

firm promoted by SAGAR and the state government, with private participation, which is engaged in the cultivation of *sábila* (aloe). SAGAR launched the project in the Mixteca region in 1999 as part of a national programme aimed at the replacement of traditional and non-profitable crops by new ones, sometimes called *exotic crops*.<sup>88</sup> The Aloe project brought together ejidatarios, the private Sociedad de Producción Rural Aloe Mixteca de R.I. and the processing firm Mexicana de Sábila, S.A. de C.V. SAGAR and the state government were to provide technical, legal and financial support through the Fideicomisos Instituidos en Relación con la Agricultura (FIRA). The ten-year contract would guarantee the purchase of harvest at prices defined in advance. The firm would set up two plants for initial processing and the intermediate product would be taken to the state of Tamaulipas for its final transformation and export, mostly to the US and Japan. The hope was that the Aloe project would expand rapidly from 500 hectares in 2000, to 1,700 hectares by 2002 and eventually 3,000 hectares involving 2,850 farmers. According to SAGAR, by early 2001, 480 producers from 38 villages in the Matamoras region were engaged in the project (Venegas B. 2001).<sup>89</sup> However, by the time of the fieldwork the project appeared to have stalled and only around 80 hectares of ejido land in the region have been planted. Ejidatarios have been reluctant to participate. Francisco Aguilar in Matzaco was asked to participate but did not accept because the cost of cultivating aloe is high and Soledad Lara in Atencingo judged that there was not enough profit largely because the harvest period is so long.

#### 4.5 Access to 'Alternative' Sources of Finance

According to the evidence ejidatarios get credit, not from the banks but from *agiotistas* (moneylenders) and micro-finance organisations such as village banks (*cajas populares*).<sup>90</sup> One of these, the Caja de Ahorro Arturo Márquez was registered in Matzaco and gave loans to associates at relatively low rates compared to those charged by moneylenders. The existence of only one village bank suggests limited small-scale

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<sup>88</sup> According to SAGAR, aloe is an environmentally friendly crop since it does not require pesticides and can survive with little water, although if irrigated it can yield 30 tonnes per hectare per year for eight years.

<sup>89</sup> Anselmo Venegas B. was Director of Rural Development District No. 06 SAGAR in Matamoras.

<sup>90</sup> Myhre (1998) reports on the role of moneylenders in the absence of formal credit and Preibisch (1995) presents information on the usurious rates of moneylenders in South central Puebla.

capitalisation at local level, supported by the relative success of cash crop production. The questionnaire asked ejidatarios to assess their access to informal or non-bank funds now and before the reform. In 1991 only 1.8 per cent of respondents said that they received loans, but that percentage has now increased to 6.8 per cent. Matzaco shows the highest increase: 4.8 per cent in 1991 and 15.5 in 2001. These changes are significant in two senses. First, they may show that the more secure property rights of ejidatarios has allowed access to finance. Second, however, moneylenders as a source of funding impose higher rates of interest than government credit. Although moneylender are willing to offer short-term credit, sometimes without documentation if the borrower is known, the average rate across the three ejidos was reported to be 15 per cent per month. These are higher rates than those faced by ejidatarios who belong to the village bank, all of whom are in Matzaco, for whom the rate can be as low as five per cent over six months.

Without access to government credit or new forms of private credit and with the high rates charged by moneylenders, ejidatarios report that their main source of funds for agriculture post reform is self-funding. In 1991 16 per cent of ejidatarios used self-funding to meet costs not covered by credits from the mills, but by 2001 approximately 85 per cent of ejidatarios use self-funding to some extent and almost 74 per cent use their own funds to finance over one-half of costs (Table 4.4). Interestingly, self-finance is most prominent in Colón (90.9 per cent), Atencingo records 83.5 per cent and Matzaco has the lowest use of self-finance at 77.9 per cent. This means that when ejidatarios face family emergencies, they substitute money that might have been used for agricultural investment. Consequently, as I elaborate in Chapter Five, cane may be cultivated beyond the ideal age and inappropriate amounts of fertiliser may be used. Self-finance also relies on the timing of particular sources of income. For example, María Andrade, a widow and childless ejidataria in Colón, funds the cultivation of her plot with a pension from Seguro Social, and because that is insufficient she has to give out the plot for sharecropping. Florencio Méndez in Colón has been funding the cultivation of 2.5 hectares with maize with the revenue from previous harvests; Josefina Martínez, a widow ejidataria in Colón also funds the cultivation of cane on her two hectares with the earnings from the previous harvest and her work as a midwife; Baltazar Gutiérrez in Atencingo relies on his salary as a farm worker to buy the inputs

needed for growing cane in his one hectare plot and Imelda Hernández, a widow ejidataria in Colón, funds the cultivation of her plots from the revenue of a video rent business, a pension from Seguro Social and remittances from her two children in the US.

**Table 4.4 Self-funding of Agricultural Production in Case Study Ejidos**

	Frequency	Percentage
Zero	49	15.1
Less than 25 %	7	2.2
Between 25 and 50%	29	9.0
Between 50 and 75%	32	9.9
Between 75 and 100%	207	63.9
Total	324	100.0

Source: own calculations from questionnaire data

**Table 4.5 Proportion of Ejidatarios Renting out Land**

	Frequency	Percentage
Zero	295	91.0
Less than 25	4	1.2
Between 25 and 50	7	2.2
Between 50 and 75	1	0.3
Between 75 and 100	17	5.2
Total	324	100.0

Source: own calculations from questionnaire data

The lack of funding impinges on the land market, especially on the renting of plots and sharecropping. The evidence collected suggests an association between the financial market (rather than changes in the agrarian law) and the rental land market: because of the lack of funding, ejidatarios rent out some of their plots to fund cultivation in the others. This strategy has notably increased in the last few years. In 1991, according to their response to the questionnaire, 4.6 per cent of ejidatarios rented some areas to fund cultivation in others. As Table 4.5 shows, this proportion has almost doubled, rising to 8.9 per cent. Matzaco registers the highest increase from 9.6 to 19.3 per cent. It could be argued, therefore that not only is the lack of support likely to lead in the long term to a consolidation of land property (also Myhre 1996; Powell 1995), but also that it is

already leading to concentration of control and use, if not of ownership. Officials from the Procuraduría Agraria confirmed that despite the legal prohibition, ejido land was sold and rented under the previous legal scheme in the valley.

So far we have dealt with the lack of funding, alternative sources and the cost of loans for ejidatarios; however, that is not the only problem concerning funding. Its appropriate management is an additional complication. Minifundistas are at a serious disadvantage in this regard compared to large private producers who are able to manage their resources in a more efficient way and minimise losses resulting from interest payments on loans, exposure to market or environment risk, and, where relevant, taxation. Professional management is only attainable by those holding a large farm profitable enough to hire accountants and managers, which requires knowledge and technical training to improve the use of resources and take advantage of opportunities for business as well as for the reduction of costs. With that professional support, large farmers also have access to information about the market (best prices and places) as well as official programmes. This leads us to the problem of asymmetry of information proposed by Stiglitz (1989, 1998) as a factor for economic success and differentiation in profitability.

## **4.6 Conclusion**

The current agrarian structure in the case study ejidos contrasts with the original purpose of the agrarian reform as mentioned in Chapters One and Three. Decrees and other official measures have set different minimum areas ranging from four to ten hectares of irrigated land as the ideal size of plot to provide families with the necessary income for survival. Over time, however, the real size of plots has been reduced to less than half of that target area. Land holdings have been subject to what I call fragmentation, a term which captures not only the process of subdivision of plots but also the fact that many ejidatarios (and others) will possess land in numerous holdings in different parts of the ejido. Fragmentation has occurred through hidden and informal processes, and it is one of the virtues of PROCEDURE that it tries to recognise real as opposed to officially assumed land holdings. Nonetheless, fragmentation also means that the claim of the 1992 reform to initiate a formal market in ejido land needs to be

treated carefully, because clearly a very active land market existed before the reform. While the law now allows transactions to be recognised, it does not necessarily address the factors that made it attractive previously to conduct transactions informally (also Jones 2000). While the 1992 reform, therefore, marks an attempt to bring law and reality together (by regularising reality), it also establishes new opportunities for law and reality to remain separate. Consequently, land transactions and inheritance remain subject to informal institutions. As such, the evidence from Matamoros also suggests that we might rethink how the 1992 reform should be conceived. In addition to being intended to initiate a land market, it was also a response to a market that demanded some form of regulation, lest the state's position within the ejido was undermined by every transaction that went against the letter of agrarian law.

The empirical evidence from the case studies also challenges the arguments of opponents to the 1992 reform who argue that it would bring about a massive and accelerated sale of land. In fact, it seems that the sale of ejido land has continued at about the same rate as before the reform. Most ejidatarios remain in possession of their plots and the will to sell is low (even allowing for how previous sales have been legitimated by creating new ejidatarios from among land buyers). Nor has the 'new' land market attracted the participation of private investors on any significant scale, but rather that of migrants, employees of the mill and a few rich ejidatarios. Post reform there are some cases of land concentration, with a number of plots being assembled into single holdings or multiple plots being held by one person, but the outcome has mostly been further fragmentation as ejidatarios sell part of their holdings. The ejido communities (through the General Assembly and the Comisariado Ejidal) have maintained a hold over land sales and to a lesser extent on rentals and on joint ventures by having the right to authorise or reject transactions, and on ejidatario family members through the preferential treatment of the *derecho de tanto*. Thus, the reform has not established a free market in land based on autonomous individual decisions, open information and low transaction costs. As such, the reform did not change the system of property rights as much as either proponents or opponents believed, and full individual ownership was not delivered.

The demise of official funding to the ejido from FINASA and FIMAIA has been the



subject of considerable criticism (Calva 1993a; Chew and Aguilar 2000). In my view the critics' argument that subsidies or subsidised credit should be reintroduced is difficult to maintain as, first, the recent past shows that official credit did not enhance production to any significant extent and, second, subsidies were misused by both businessmen and ejidatarios (also Myhre 1996, 1998; Paré 1986; Powell 1995; Singelman and Otero 1995). Nevertheless, the expectation of ETLR and the government that a land market in which property rights are more secure legally and consistent with peoples' demands for land provokes private investment to flow into the agricultural sector is not supported by the research either. Private capital has not arrived, leaving a vacuum in funding the agricultural process and an increase in informal sources (also Myhre 1998). Reform to the system of property rights has not been enough to make the ejido attractive as a lending opportunity, and the financial system is presented with opportunities elsewhere, considers the ejidos to be high-risk environments, socially and economically, and regards lending small sums to mostly poor small land owners as involving unacceptably high transaction costs. Moreover, the variety of restrictions placed upon the ejido, which have impeded the productive assimilation of subsidies and other official support and resulted in land fragmentation reducing productivity, would make the absorption of finance impossible. The lack of small-scale capital may be having an influence on the land market and land tenure. A lack of funds may be compelling ejidatarios to rent or sell land informally as a form of funding, increasing the level of fragmentation. There is a possibility here that the land-finance relationship will lead to a further abandonment of the smallest plots and eliminate the most vulnerable ejidatarios, for example those without relatives in the United States or additional work (de Janvry et al. 1996: 76). To some extent, then, the reform is necessary to enhance changes in the land market but the nature of such change will depend also on the direction and pace of other changes, such as changes to economic conditions. In Matamoros land market conditions will therefore be dictated by the relationship of the mill to the ejidos. As this chapter has shown, the mill has been losing some of its grip on the productive process but mill workers have become the most identifiable purchasers of ejido land.

## CHAPTER 5: ORGANISATIONS AND AGRICULTURAL PRODUCTION

### 5.1 Introduction

It was pointed out in Chapter Two that institutions shape and impinge on production but that over time institutions should respond to the needs of production. Institutions, will, however, affect different organisations in the productive process differently, making a claim that a single institutional reform has had a single impact difficult to sustain. Moreover, from the theoretical approach of Olson (1971) we might expect organisations and other forms of collective action to shift from larger to smaller arrangements as these should be more attuned to collective needs and should impose lower fixed costs. In this chapter the economic implications of the reformed institutional arrangement are assessed. The chapter looks first at organisational issues, mainly those regarding agents participating in sugar cane production and the sugar market. Changes in the role of the government, the mill, producer organisations, the ejidos and individual ejidatarios are explored in order to explain the impact of the legal change on the role of participants and their relationships.

The chapter then focuses on the productive process. In particular, I look at the implications of the agrarian structure, specifically the fragmentation of holdings, which impinges on the costs of production. According to Sánchez “ . . . if plots are small, but numerous and individually worked, a huge disorder is created, greatly reducing productivity; moreover, some areas are misused because ejidatarios want to be clearly separated from each other so they leave some strips of land without cultivation or they set fences to keep their plots separate” (1995:17). Such a problem, if found, should be greater in Atencingo and Colón where ejidatarios frequently own more than one plot. Without discussing in depth the technical agronomic aspects of production the chapter investigates the efficient use of land and water, agricultural intensification, changes to the agricultural cycle of sugar cane and transport.

## 5.2 The Government and the Mill

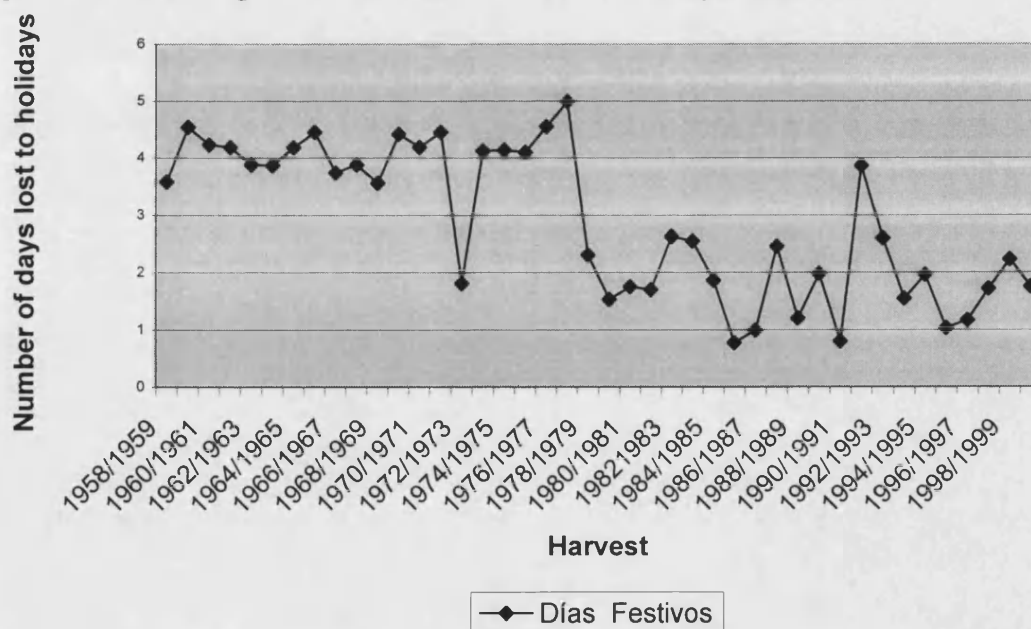
We have already noted that one important organisation of production has been the government, which controlled the sugar sector from the 1930s to the mid-1970s, when nationalisation was used by Luis Echeverría to impose order, a level of control that appeared to be ended in 1989 when the mills were re-privatised only for some to be expropriated again in September 2001. Beyond direct ownership, the government has also attempted to organise production through a number of trusts and agencies, such as FIMAIA, which subsidised the acquisition of farm equipment on a collective basis, and the Decreto Cañero which made sugar production an issue of national interest.

The government was also involved in what Boege and Avila (1979) have termed “tripartismo” (the tripartite scheme), the creation of interlocked organisations to administer production and serve as an instrument for political control. One such organisation is the Comité de la Agroindustria Azucarera which had the power to regulate production, contracts, organisation and commercialisation, and which included two representatives from the federal government (Secofi and SAGAR), two from the private sector (CNIAA) and two from producer organisations (UNPCA and UNC, see below) (Diario Oficial de la Federación 31 May 1991). Another set of tripartite organisations were formed by the Decreto Cañero, which obliged the mills and sugar cane producers to sign a series of standard contracts (Contrato Uniforme de Siembra, Cultivo, Cosecha, Entrega y Recepción de Caña de Azúcar) that laid out the basic conditions for production. These contracts had to be approved nationally by the Comité de la Agroindustria Azucarera and locally by the Comité de Producción Cañera (CPC, Sugar Cane Production Committee). In the Matamoros valley at least, the local committee was dominated by the mill which dictated which varieties of cane would be cultivated and imposed itself on ejido production as the monopoly supplier of credit, the principal provider of equipment, monopsony buyer of the harvest and an important voice in decisions on the *caña diferida* (cane for which harvest is postponed to next year, see Convenio de Aseguramiento y Pago de Cuotas de los Productores de Caña, between IMSS and UNC-CNPR). Without formal ownership of the land, the government and the mill have attempted to engage in what is almost a form of contract agriculture, avoiding fixed costs and passing risk to ejidatarios, and which attempts to

‘micro-manage’ virtually every aspect of production.

Did the organisation of production change, and specifically did it improve, as the control of the government declined during the 1990s and the mill passed in to private hands once more? One important measure is the change to time lost through holidays. As Figure 5.1 shows, the percentage of working time lost to holidays decreased before privatisation, although the private administration managed to keep to fewer holidays than when the government administered the mill. In terms of sugar cane production, however, the mill has been less effective at maintaining discipline. According to engineer Rafael Solórzano, Superintendente General de Campo (agronomist in chief in the mill), once the mill lost control of making loans to ejidatarios it was no longer possible to tell them what to sow, when and how. Instead, the mill has had to rely upon prolonged delays in the final payment of cane (the balance between interim payments and the final payment owed) to maintain its power over the ejidos. At the time of fieldwork, the delay in paying the final payment was up to six months after delivery of the cane (and not one month as rules specify).

**Figure 5.1 Percentage of Work Time Lost in Holidays per Annum**



Source: own elaboration with data from Ingenio de Atencingo, S.A. de C.V. (2001)

### 5.3 Producer Organisations or Political Intermediation?

After the dissolution of the cooperative in the early 1970s, the government was faced with the problem of how to coordinate the more than five thousand ejidatarios in Matamoros. Moreover, as we noted previously, the ejidos have suffered from the enormous fragmentation of land holdings such that in the three ejidos under research there are possibly as many as 724 producers cultivating 1,152 hectares, and perhaps as many as 7,000 producers serving the mill in general with an average of about 1.6 hectares each. In order to facilitate the organisation of production the Unión Nacional de Productores de Caña de Azúcar (UNPCA), an organisation of the CNC, and the Unión Nacional de Cañeros (UNC), incorporated to CNPR, both affiliated to the PRI, were established and given the exclusive right to negotiate the local contracts and organise production through participation in the Comité de Producción Cañera (CPC, Sugar Cane Production Committee).<sup>91</sup> In that the UNPC and UNC organised the harvest, operated transport, controlled the contract of cane cutters and managed their payment they in effect became a quasi cooperative without effective member representation (Núñez 1995). Both organisations possessed an extensive membership in the Matamoros area: in Matzaco, 13 members of the CNC, 95 CNPR; Atencingo 322 CNC, 109 CNPR; Colón 27 CNC and 160 CNPR (Ingenio de Atencingo 2001).<sup>92</sup>

These producer organisations should put the ejidatarios in a stronger position in negotiations with the mill, government and private agents by removing information asymmetries, and some ejidatarios such as Camilo Alvarado did argue that “we unite to negotiate with the mill to get better conditions”. In NIE terms, these two organisations might be seen as a response to the transaction costs incurred in coordinating the work of the mill and an increased number of producers (see Coase 1988 for explanation of the formation of organisations to tackle transaction costs through the rearrangement of property rights). The liberalisation of the 1980s and 1990s poses two paradoxes to the existence of these organisations. First, at a time when economic efficiency was

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<sup>91</sup> Diario Oficial de la Federación, Carlos Salinas de Gortari, “Decreto por el que se Declaran de Interés Público la Siembra, el Cultivo, la Cosecha y la Industrialización de la Caña de Azúcar”. México DF: 30 May 1991. Under articles 8, 17 and 18 local agreements cannot contravene the standard national contract.

<sup>92</sup> UNPCA is the most important producer organisation affiliated to the CNC in terms of dues paid and official membership accounting for 70 per cent of the total 120,000 cane producers in the country (Mackinlay 1996).

apparently being promoted as more important than political and to some extent social stability, the UNPCA and UNC represent a response to an inefficient institutional framework that is clearly characterised as a means of political control. Second, if there were less land fragmentation there would be no need for these organisations as every producer would be in a stronger position to negotiate contracts directly. The problem here is that the presence of these organisations, in political terms especially, is an important impediment to the possibility of reduced fragmentation, in part because they fail to reduce transaction costs (but impose new ones of their own) and perpetuate minimum welfare levels for small producers.

From an economic point of view the duopoly of organisations with legal barriers to access and conditions for collusion between themselves, the mill and the government, does not seem to be the most appropriate for the good management of contracts and for representation of ejidatarios.<sup>93</sup> Rather, and as was previously the case with the cooperative, the producer organisations have worked as political mechanisms for promoting candidacies to municipal presidents and deputies (see Otero 1999; Rappo 2002; Singelman 1993). The PRI has always won the elections for the two municipalities and for state and federal deputies with the support of cañeros, with some ejidos still returning over 80 per cent of the vote to the PRI as recently as the 1994 presidential elections (Gómez 1998). However, political control seems to have weakened. In 2001, a new organisation loosely supported by the Partido Acción Nacional (PAN) appeared to challenge the UNC, UNPCA and the Decreto. According to ejidatarios, this new organisation is regarded as 'local' to Matamoros (although the PAN nationally seems to have decided to undermine the PRI's traditional base organisations) and is still in the process of registering sufficient members to establish an official name. During field discussion many ejidatarios mentioned that they are members of producer organisations in name only, a standard response, but some also claimed that they had actively tried to leave the CNC and the Unión Cañera, mentioning that the government only deceives ejidatarios, ignores its own laws and fails to distribute economic resources. Despite its own weakness, the new organisation has tapped discontent with the traditional political structure that probably contributed to the loss of both Chietla and Matamoros by the PRI in the 2001 municipal elections. The

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<sup>93</sup> Indeed, the existence of only two organisations allowed by the Decreto Cañero seems to be in conflict with the constitutional right (Article 9) of free organisation.

PRD won the municipal presidency in Matamoros and Chietla was won by a new national party, Convergencia por la Democracia, suggesting that the *cañero* vote is no longer loyal to the PRI -- see Concheiro (2001: 203) and Rich et al. 1998 for weakening loyalty of sugar cane producers to the PRI nationwide, and Powell (1995) on how fewer resources have weakened corporatist organisations' political influence. The demise of the UNPCA and UNC, then, is only partially linked to the ejido reforms: As these reforms did not enhance political freedoms directly, nor reduce transaction costs one might expect organisations to remain important.

## 5.4 The Ejido and the Organisation of Production

Under the new legislation the ejido Assembly remains the highest authority in matters concerning property and the internal management of ejidos. Issues like quotas for maintaining public services (such as roads, irrigation canals, ejido machinery and the local school) and resolving conflicts amongst ejidatarios are discussed and decided in the Assembly. It also has the power to decide on the sale of land as well as the acceptance of outsiders as ejidatarios, the adoption of PROCEDE and dominio pleno, the location of houses in the urban settlement and access to common land. In the Atencingo ejido in particular the comisariado elaborates the lists of those who will benefit from official programmes such as Procampo and all decisions involving government agencies must be validated by the comisariado. The comisariado may also become directly involved in the productive process, influencing decisions on when to harvest and how to allocate cane cutters. In Matzaco the Assembly banned animals because of crop damage and in Colón the growing of cane, according to many ejidatarios (more than in Matzaco or Atencingo), was the result of an Assembly agreement banning the cultivation of other crops except cases such as that of Pedro Gómez who negotiated an agreement with the Comisariado to sow beans and sorghum on 1.5 hectares. Ejidos may also manage local irrigation systems, water allocation, the construction and maintenance of wells and canals and the collection of contributions from ejidatarios to pay for these services.<sup>94</sup>

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<sup>94</sup> Two new wells have been drilled in Colón since 1995 and administered by the ejido.

Outside the Assemblies there are some examples of ejidatarios adopting collective action as a means to overcome transaction costs and attain scale economies.<sup>95</sup> Before the reform, in 1991, 15 ejidatarios in Matzaco formed a Sociedad de Solidaridad Rural to buy a tractor, applying for credit from BANRURAL. It seems, however, that they were unable to repay the loan, resulting in seven of the 15 abandoning the group, and in 2001 the Sociedad still owed 50,000 pesos although none of the members wanted to honour the payment. Another attempt to purchase farm equipment seems to have been similarly unsuccessful. According to Eva Maldonado, a 54 year old ejidataria, a group of 90 sugar cane producers from Matzaco agreed to purchase a combined harvester for 3,600,000 pesos with each repaying 3,500 pesos per hectare for three years. Many ejidatarios opposed the project which Guerrero claims failed to repay the loan.

Interest in collective action may be low, but the questionnaires seem to suggest that is also little interest among ejidatarios in attending the ordinary assemblies, which may mark a general decline in the General Assembly and a loss of cohesion among ejidatarios since the 1992 reform (also Baitenmann 1998; Núñez 1995: 59). This attitude changes in periods of elections of new authorities or of conflict, when a majority of ejidatarios claim attendance. In order to ensure wider attendance ejidatarios can be fined or face other economic punishments for absenteeism, but these measures do not tackle the explicit reason for non-attendance – the lack and cost of time – or the implicit reason: mistrust of the comisariados. Faced with fewer resources to distribute, some regard the comisariado as less important than in the past (see Bouquet 1999; Escalante 2001: 35), whereas Núñez (1995) and Baitenmann (1998), and the experience of Matamoros suggests that comisariados have reinforced their influence as intermediaries between outside organisations and the ejido, in a context of weakening of the General Assembly as the official mechanism for decision-making.

While involvement in the General Assembly may be on the wane post 1992, there remain a number of advantages to being an ejidatario. The case study ejidos, for

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<sup>95</sup> Nationally, there are few ‘success stories’ of collective arrangements. Almeida (2001) records that in the Tuxtla region of Veracruz in 1996 the cigarette-producer firm La Moderna arranged with six ejidos to extend the land area used for black tobacco production for cigars to 220 hectares in large consolidated fields. The land was rented at 1,500 pesos per hectare, a good rent for the region, and the company offered to hire ejidatarios and their relatives at wages 35 per cent above those prevailing in the region.



example, are collective owners of farm equipment, or in the case of Colón the farm equipment belongs to and is managed by the UNC-CNPR, and ejidatarios pay a small rent of about 600 pesos per hectare to maintain the tractors and other machines, a sum which is considerably less than the rent paid by private landowners. Although the equipment is quite old, some of it 50 years or more, it is an important arrangement as ejidos do not own trucks (some are rented from private owners) but need tractors to pull up to five carts per tractor in what is called a *corrida* (convoy).<sup>96</sup> This shows how, even though plots are individually owned and many decisions are made on an individual basis, some forms of collective organisation remain to offset the fragmented agrarian structure and the higher costs of not achieving other economies of scale.

A further reason to remain an ejidatario relates to the renting of land. Table 5.1 shows that 22 per cent of respondents rent out or sharecrop all or part of their land. This is a vital source of revenue that is relatively secure as tenants would be unable to occupy the land permanently without becoming an ejidatario. Minerva Osorio, 55, ejidataria in Colón since 1980, clearly said “rather than selling the plot I prefer to rent it out or give it in sharecropping”. Carlos Torralba, in Colón, gives one of his two plots (0.9 hectares) over to sharecropping to get money to cultivate the other one (two hectares), but sometimes he rents this too for 2,100 pesos. Land rental, however, permits the ejidatario to maintain access to social security that is valuable for the old, widowed or single, and is useful to those with heirs who have careers outside agriculture. Teresa Juárez in Matzaco holds one hectare that is rented, receiving 4,000 pesos per hectare every three months if the plot is cultivated with alfalfa and 2,000 pesos per month when maize is cultivated. In this case Teresa prefers to rent the whole area as her daughter is a teacher, as it is probably more profitable than cultivating the land herself (especially if hired labour were required) and as she can continue to access social security. Joaquín Zurita is an ejidatario who has held two hectares in Atencingo since 1946 but is sick and lives alone. He gives his plot over to sharecropping and although he has trouble getting a fair and timely rent, he told me that because of his personal circumstances it is better to keep the land and rent it than to sell it. Also in Atencingo, Mateo Rosales who is 47 and receives a disability pension holds two hectares that are sharecropped although he too complains that he does not get the expected profit, and Benjamín Martínez in Matzaco

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<sup>96</sup> A *corrida* usually consists of five carts conveying eight to nine tonnes of cane for which ejidatarios pay 40 pesos per ton.

has rented his land for growing maize since 1988 because he is ill and unable to cultivate the plot. In many of these rental arrangements the tenant is a relative or even a child of the ejidatario as this formal arrangement confers the status of an *arrendatario* that also gives the tenant access to medical attention via the social security.<sup>97</sup>

In terms of the characteristics of renting ejido land, three further observations can be made. First, as we saw in Chapter Four, land holding as ‘ownership’ in the case study ejidos is highly fragmented. Now, including rent and sharecropping we can appreciate that the real structure of land-holding is more fragmented still. According to a 2001 study by the Atencingo mill that lists all cane producers per ejido, whether ejidatarios or *arrendatarios*, their size of land-holding, and the costs and earnings per producer, the real average size of plot in the three ejidos is almost 1.7 hectares (Table 5.2) (Ingenio de Atencingo 2001). Second, we can observe that the hire of a permanent labour force for the cultivation of cane and other crops, beyond that used at time of harvest, is much higher in Atencingo where, as we noted previously, there is a more active land market with the involvement of ‘absentee’ purchasers (especially workers at the mill). Overall, 23.8 per cent of respondents said that they hired workers on a more or less permanent basis, but in Atencingo the proportion was 33 per cent, compared to 23.9 per cent in Colón and 12.5 per cent in Matzaco.<sup>98</sup>

**Table 5.1 Regime of Work on the Ejido Parcel**

	Frequency	Percentage
Yourself or Family	172	53.1
Hired workforce	77	23.8
Rented to another person	27	8.3
Sharecropped	24	7.4
Mix of self, rental or sharecropping	21	6.5
No response	3	0.9
Total	324	100

Source: own calculations with data from the questionnaire

<sup>97</sup> Table 5.1 records a formal contract with children as rent or sharecrop, and only if the children work the land without contract is this recorded as ‘family work’.

<sup>98</sup> The higher proportion of wage labour in Colón may be due to the greater numbers of elderly ejidatarios and also of ejidatarias.

**Table 5.2 Average Size of Plot by Ejido**

	Atencingo	Colón	Matzaco	Total
Total Number of Producers	434	184	106	724
Average size of unit	1.4	1.9	1.7	1.6

Source: Source: own calculations with data from the Atencingo sugar mill<sup>99</sup>

Third, the data provide only limited evidence that renting plots has increased since the 1992 reforms. Of those ejidatarios who said that they rent out or sharecrop their plots, 20.8 per cent admit that they did so before the reform when such an arrangement contravened Article 76 of the Ley Federal de Reforma Agraria (16 March 1971). In all probability, the real proportion renting land before 1992 was substantially higher and the reform has simply brought these arrangements into the open. Yet a ‘before and after’ approach must take care not to think of renting and sharecropping as fixed relationships as many ejidatarios mentioned that they shift from self-cultivation to rent or sharecropping from one year to the next. There is little evidence that renting or sharecropping has become more contractual as they are motivated by concerns to access social security rather than concerns with security of tenure. Ejidatarios are not abandoning collective action in every sense but are adopting more individualised forms of property rights and organisation of production while still attached to the community.

## 5.5 The Reform and the Efficiency of Agricultural Production

Obviously the efficiency of agricultural production is determined by many more factors than land tenure or property rights, and some of these factors, such as weather conditions and luminosity which is especially important for the concentration of sucrose in cane, are beyond the control of producers. Property rights and the agrarian structure, however, can have a direct and strong influence on the productive process and Neo-Institutional Economics-ETLR proposes that a reform in property rights should enhance

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<sup>99</sup> There is a difference of 0.5 hectares between the average parcel size obtained from the sugar mill data and my questionnaire results. The mill records a smaller average size (see Chapter 4) because ejidatarios respondents to the questionnaire claimed to have kept plots that in practice they may have sold or rented, or, as I show in Chapters Four and Six, land may have been given to children or other relatives in order to help them to become sugar cane producers. The mill is more likely to have accurate information as their work involves updating a register of cane producers, including ejidatarios and arrendatarios.

technological improvement (Brizzi 2001; Heath 1990; North 1990; Olinto and Bresciani 2000; Olinto and Deininger 2002). I have already indicated, for example, how land-holding in the case study ejidos is highly fragmented. During fieldwork it was apparent that a system of property rights that provoked fragmentation was working against the efficient planning of production. Clearly, the extremely fragmented tenure structure meant that cane cultivation is divided across several thousand plots, and despite an attempt at coordination through contracts with the mill and the CPC, the mosaic of canes of different ages and levels of maturity, requiring different activities at different times of the year, means that tasks cannot be organised on a large scale and with efficiency in mind. According to a number of writers, without economies of scale in the planning of sugar cane cultivation there is likely to be a considerable increase in costs (Sánchez 1995: 14-15; Pérez 1979).

Assessing the true cost of fragmentation would require detailed mapping of the ejidos in order to calculate the cost of land lost from production. In Matamoros fields may be divided into *tablas* (about 150 hectares) which in turn are subdivided into *machuelos* and then into plots. Between these divisions are roads that at about five metres wide and 400 metres long consume 2,000 square metres. Then, dividing the *machuelos* there are lanes called *guardarrayas* that help to avoid fire from passing from one plot to another during harvest and are 1.5 metres wide and 150 metres long, and with four lanes per division this means a loss of 900 square metres per *tabla*. Overall, a field may lose 26,100 square metres, but according to Rafael Solórzano, the agricultural manager of the Atencingo mill, such a system of roads wastes about one per cent or about 140 hectares in the area supplying the mill. The roads, that serve as much to reinforce property boundaries as for transport, impose costs on all producers.

The lanes themselves, however, may be ineffective at their secondary function of preventing the spread of fire, partly because the burning of cane takes place for reasons other than the scheduled harvest. In 2000-2001, 800 hectares were affected by burning according to engineer Solórzano and about 80 hectares were lost due to fire spreading across plots. There are many motives to burn cane in ways that is sub-optimum for the yield and puts others' crops at risk. Damaged cane (*caña siniestrada*) will be burnt, with the damage often the result of harvesting methods on adjacent plots (see 5.5.4 below).

Moreover, in order for an ejidatario to be included in the schedule of harvest they need to receive a document called an *orden de corte* (cut order) that is issued by the mill once the laboratory has confirmed that the cane is mature. However, ejidatarios' income requirement may not wait for full maturity and they know that if cane is not harvested during the season it will be reclassified as *caña quedada* (cane left uncut) for the following year and the payment will be smaller. As mills often do not make advance payments for the *caña quedada*, as they are obliged to do by the terms of the contract, the ejidatarios will harvest and burn immature cane (also Powell 1995: 51).

Data from the Ingenio de Atencingo (2001) and the questionnaires allow a tentative analysis of the relationship between plot size and costs. As Figure 5.3 shows the costs per hectare fall as plot size increases. I stress 'tentative' because the questionnaire data show that the yield per hectare for Colón, which has the largest plot size, are lower than Matamoros which has mid-range units of production but the highest yield per hectare.

**Table 5.3 Average Yield per Hectare**

	Atencingo	Colón	Matzaco	Total
Average yield per hectare (tonnes)	126	113	130	123
Average size plot (hectares)	1.4	1.9	1.7	1.67

Source: own calculations with data from the questionnaire

Let us look in more detail at five issues in which the structure of property rights affects efficiency: namely, the ability to replace old cane with new; the ability to manage water resources; the ability to manage labour inputs; the ability to manage mechanical and fertiliser inputs and cash-crop substitution.

### 5.5.1 Efficiency in the Replacement of Cane

Of particular importance to the efficiency-cost relationship is the age of the cane. In Matamoros the *zafra* (harvest) runs from late November to mid-June with the best yield in terms of sucrose concentration obtained from the first three harvests. Of these, the best is the *plantilla* (plant-cane), which gets to maturity after 18 months from planting and provides the new shoots for the second generation (called the *soca* or first ratoon) which after the cut (*machete*) will produce *resoca* (second-ratoon). As the sugar cane ages the output decreases both in sucrose concentration and in weight per hectare, as well as becoming more vulnerable to rodents and other forms of damage, thereby requiring greater expenditure on pesticides, and the stems become harder and so more difficult to cut. Experts say that the maximum profitable age of cane ranges from five to six years, and that beyond that age it must be replaced (*voltear la caña*). In large plantations (100-hectares plus), 20 hectares are renewed every year in rotation with no more than 60 per cent devoted to second ratoon (García 1997; on the problem of old cane nationwide see CNPR 1998).<sup>101</sup>

Table 5.4 and Figure 5.3 show the age of cane in the case study ejidos. It is evident that plantations are old with over 35 per cent of plantations over six years and some

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<sup>101</sup> The yield on cane in Matamoros is superior to other regions of Mexico due to soil conditions (de Grammont 1979; Otero 1998; Ronfeldt 1973; Paré 1979). These geographical conditions may mislead ejidatarios who consider their harvests to be good and not consider how they could be better with younger cane.

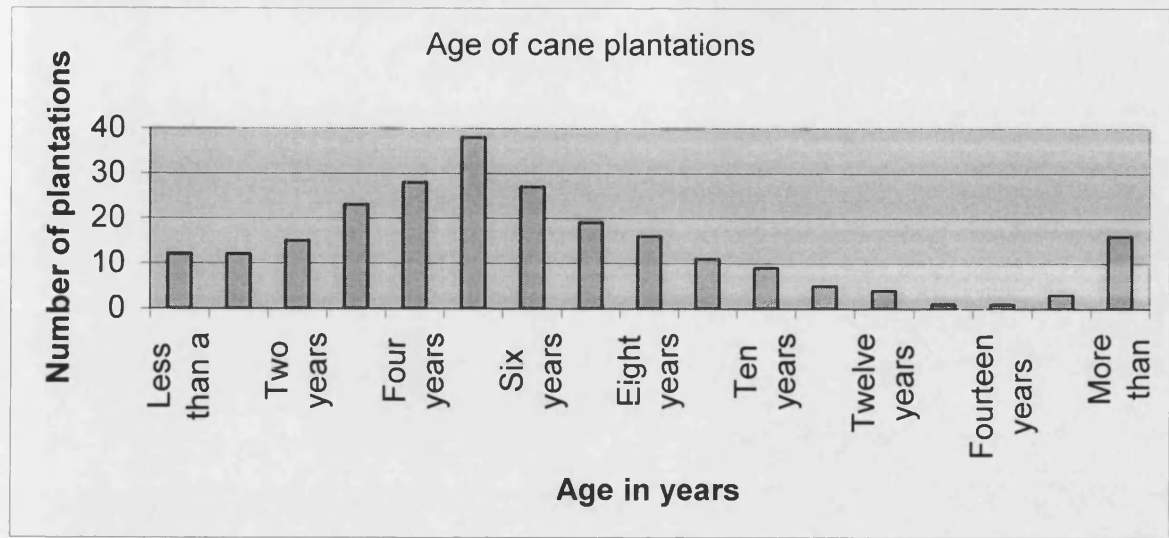
ejidatarios relying on cane that is 14 years old. Almost unanimously the ejidatarios claimed to postpone the renewal of plantations due to the lack of funding. This has two dimensions. First, new cane requires 18 months to provide a return on investment, which means 18 months without revenue. Given the relatively favourable yield per hectare in Matamoros, ejidatarios prefer to postpone the *volteo* of cane and have an immediate albeit smaller income rather than invest and wait. Second, there is the cost of renewing the plantation. According to engineer Solórzano, replanting costs between 12,000 and 15,000 pesos per hectare. For small producers, such as most of the ejidatarios in the case study ejidos, planting costs will be at least this much and possibly more as they are unable to plant small cuttings (*trozos*) because they have no access to stock areas (*semilleros*) from which to select cane but rely on purchasing the stems for planting which they must cut and transport to their plots (costing an additional 70 pesos per ton).

**Table 5.4 The Age of Cane Plantations**

	Frequency	Percentage	Cumulative percentage
Less than a year	12	5	5
One year	12	5	10
Two years	15	6.25	16.25
Three years	23	9.6	25.8
Four years	28	11.7	37.5
Five years	38	15.8	53.3
Six years	27	11.3	64.6
Seven years	19	7.9	72.5
Eight years	16	6.7	79.2
Nine years	11	4.6	83.8
Ten years	9	3.8	87.5
Eleven years	5	2.1	89.6
Twelve years	4	1.7	91.3
Thirteen years	1	0.4	91.7
Fourteen years	1	0.4	92.1
Fifteen years	3	1.3	93.3
More than fifteen years	16	6.7	100.0
Total	240	100	

Source: own calculations with data from the questionnaire

Figure 5.3 Age of Cane in Ejidos



Source: own calculations with data from the questionnaire

### 5.5.2 Efficiency in the Use of Water

Water for irrigation in Matzaco is taken from the Atoyac and Nejapa Rivers, but the flow has been declining and water from wells is increasingly used. In Colón, water is obtained from wells three of which were drilled in 1995.<sup>102</sup> However, in the whole supply area of the mill, water is becoming scarce, demanding a more efficient irrigation

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According to Sánchez et al. (2000) losses might account for 40 per cent of water. And engineer Solórzano told me that he has witnessed how in the driest season on cracked soil water can take between eight and ten hours to travel one kilometre.

Under other circumstances the pattern of land holding can also result in too much water being taken to certain plots. According to Dr. García Chávez when a plot is irrigated water filters to adjoining areas and is absorbed by cane that might be about to be harvested reducing the sucrose concentration.<sup>103</sup> One solution is for ejidatarios to level the soil in order to prevent irrigation water inundating some places and leaving others dry, or to continue pouring water onto a plot in the hope that eventually the dry areas will be covered: the tendency is for the latter approach. Without some form of collective redress, some ejidatarios' only solution is to switch to crops that can tolerate indifferent water supply or whose value is lower. Imelda Hernández, a widow ejidataria in Colón, for example, grew tomato, sweet corn and beans on eight hectares of irrigated land until 1988 but shifted to cane because water from the neighbouring plots flooded her plot and damaged the crops. If capital were invested to level plots, water could be used more efficiently and larger areas could be irrigated, but this possibility is restrained by the minifundista structure and the poverty of plot holders. Alternatively, greater attention to collective action might in the short term at least counter some of the worst effects of water mismanagement over complex groupings of small plots.<sup>104</sup> A number of ejidatarios explained that water management is only possible with larger plots and greater synchronization of irrigation activities or more uniform cropping varieties. Nonetheless, it was recognised that large infrastructure works among fragmented land holdings may not be effective if individuals are neither willing nor able to afford the works or can claim that their soil, topography or water management does not need irrigation.

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<sup>103</sup> Improved irrigation might also damage vegetables by passing harmful herbicides used for cane, such as "Faena", to crops such as papaya, mango and zapote.

<sup>104</sup> This seems to be taking place in nearby Jaltepec, where according Mr. José Silva from Escape de Lagunillas a system of "chained" parcels has improved water management by providing irrigation by *tabla*, as in the time of "El gringo" (Jenkins).

### 5.5.3 Efficiency of Labour Management

We have already seen that a significant proportion of ejidatarios in the case study ejidos used hired labour despite prohibition in the pre-1992 legislation that continued to represent the ejido as a non-capitalist form of land holding with an ejidatario working the land and making a living from it. The 1992 reform therefore adjusted the law to reality by formalising existing conditions. Will formalisation induce efficiency or merely confirm the status quo? If that status quo, now formalised, remains inefficient because of the remaining regulations and fragmentation, what will the reform have achieved?

An approximate audit of the cost of hiring labour to work on the small plots of ejidatarios compared to larger holdings shows substantial economies of scale for the latter that are lost to the ejidatario. The fragmentation of holdings means that times of ripening are different over short distances. This means that cutters waste time and are idle when the work on one plot is complete and they may have to move to another plot which imposes transport costs on the team (*cuadrillas*) and reduces their income which is usually piecework (*a destajo*). A reduction in the number of *frentes de corte* would increase the cutters' output and consequently their wage (Lara 1979; Paré 1979). As a consequence, labour is more expensive in small plots where work times are shorter and less regular – for one day a cutter will charge between 120 and 150 pesos whereas for longer periods, say a month, the rate is 70 or 80 pesos a day. When supplying fertiliser, workers charge 5 pesos per sack in large estates whereas ejidatarios pay 7 – 8 pesos, but workers are always on the look-out for more stable and permanent jobs with larger farms, and private farmers say that on the large estates, which can offer secure and long-lasting work, labourers come to the farm for work whereas ejidatarios must search for cutters (also Paré and Juárez 1986). Hiring, managing and supervising labourers is especially difficult for women and the elderly which imposes additional costs when, for instance, the cane is cut too high which requires less effort and is quicker (allowing the cutter to increase his piecework paid in tonnes). For the ejidatario, however, the lack of supervision may mean substantial losses because the higher concentration of sugar is in the low part of the stems and so high-cut cane leaves sucrose in the field. In Matamoras with an average yield of sugar per hectare of about eleven per cent (eleven tonnes of

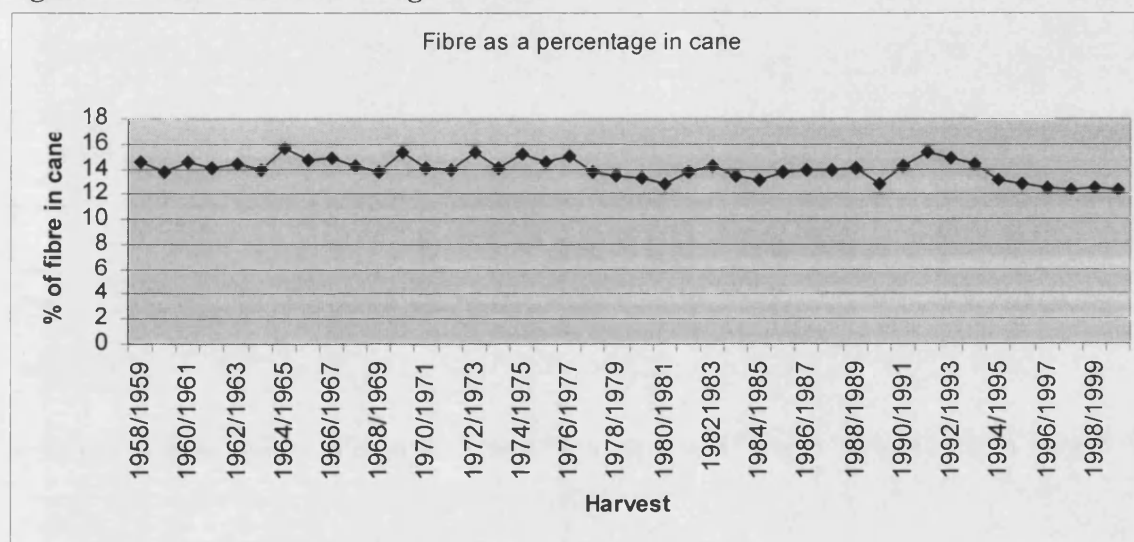
sugar per one hundred tonnes of cane) a high cut will mean losing one ton of sugar per hectare (García 1997 claims the loss can be between four and six tonnes per hectare). In addition, a lack of supervision and a high cut leaves stumps (*tocones*) which necessitate additional labour to eliminate them (*destronque*) at a cost, according to some respondents, of about 700 pesos per hectare. The conventional means to offset these limitations are for hires to be organised by the UNPCA and UNC and not by individual ejidatarios, but since 1992 at least this collective form of organisation has been in decline.

#### **5.5.4 Efficiency of Mechanisation and Fertiliser Use**

Encouraging agricultural intensification was one of the positive expectations of the 1992 reform. We have already noted that the hoped-for capital inflow has not happened. It is perhaps, then, no great surprise that little evidence was found pointing to the improved use of mechanisation or other inputs. The findings here are in line with de Janvry et al. who found that from 1990 to 1994 “there was a severe retrogression in the technological level of the ejido on virtually all fronts and across all types of farms . . . Use of animal traction remained relatively constant. The ejido sector thus coped with the profitability crisis by extensifying the use of technology and reverting to family labour” (1996: 80; also García 1997; Mackinlay 1996). In the specific case of Matamoros, one should note that this region presents few physical impediments to the use of technology in the cultivation of cane – unlike Michoacán (Powell, 1995). Moreover, the potential cost saving of mechanisation over larger areas is well known at least to agricultural agencies and producer organisations. According to Sánchez (1995) mechanised processes cost about 70 to 75 per cent of manual cutting, and Paré and Juárez (1986: 46) point out that a tractor reduces the number of journeys required for the cultivation of one hectare to 40 compared to 60 using an oxen team (although the latter authors are opposed to mechanisation at the expense of self-cultivation). Among respondents, however, it was noted that the main cost saving of mechanisation would be to reduce the time between the burning and its delivery to the *batey* (loading bay) that should be no more than 72 hours (to keep the concentration of sucrose high and fibre content low).

Ejidatarios in the case study ejidos were asked about their ownership of farm equipment. Seventy one per cent said that they rent machinery for ploughing, 6.2 per cent rent oxen teams and 10.2 per cent rent both. Where respondents grow vegetables, ploughing is carried out by tractor and sowing by oxen team and despite the cash-crop nature of vegetable cultivation it is more likely that oxen will be used. Thus, in Matzaco, which is less dependent on sugar cane than Atencingo or Colón, respondents claimed to use oxen more than machinery.<sup>105</sup> Harvest of cane is accomplished by hand and access to combined harvesters is extremely limited. Consequently, it is not surprising to note that the content of fibre in cane has not been reduced markedly since 1992 (Figure 5.4).

**Figure 5.4 Fibre as a Percentage of Cane**



Source: Ingenio de Atencingo (2001)

From respondents and field observation one can identify three reasons for the non-use and to a much greater degree of non-ownership of machinery. First, and most obviously, the cost of accessing farm equipment is a factor. Superficially, it is more expensive to hire equipment, pay the operator and pay for running costs than it is to purchase that

<sup>105</sup> Maize is grown by those lacking good land and/or water especially on the *parcela económica*, which in Colón and Atencingo provides for family consumption with some sale as ripened grain. Matzaco diversified from sugar cane in 1956 to grow maize which is regarded as high quality and motivates an annual fair (*feria del elote*) and prizes from SARH.

equipment. In Atencingo, according to Solórzano, the cost of ploughing one hectare with one's own tractor is around 200 pesos whereas with a rented tractor it amounts to 450 pesos. Jorge Leyva Duarte, a private owner growing cane in Matamoros, provided similar calculations claiming that the wage of a tractor operator is 100 pesos a day and the price of a tank of diesel is 300 pesos, and growers ploughing with rented farm equipment pay 600 pesos per hectare with old cane while farmers with their own equipment pay 100 pesos a day to the operator and 200 pesos for diesel. The cost of loading cane is about 11 pesos for those who rent machinery and five pesos for those who own. Yet renting an ox team brings these costs down considerably and repayments (interest) to the cost of purchasing equipment must be added.

The inability to access transport, however, imposes costs on the ejidatarios. At the end of harvest there is always some cane left on the plot that does not fit on the last truckload. These leftovers are popularly termed *muertos* (dead ones) and according to Solórzano they can account for about 20 per cent of the cane. The *muerto* needs to be transported in a special journey of usually half-loaded trucks or carts called *fletes falsos* (false cargos) by the drivers – combining muertos with cane from neighbour plots is not possible as each ejidatarios load has to be weighted separately at the mill. At the *batey* half-loaded trucks or carts waiting to be unloaded are clearly seen and affect everyone's efficiency. According to the contract the cost of the muertos however is shared among all the ejidatarios as a means to equalise costs and so everyone's profitability is to some extent reduced by the inefficiency of individual ejidatarios.<sup>106</sup>

Second, the minifundista structure restricts the use of farm equipment. At optimum operation, about ten 100-150 horse-power tractors are required to sow and cultivate 1,000 hectares of cane but García reports that on average there are under seven tractors per 1,000 hectares. According to Mr. Torres, to justify the purchase of a tractor the minimum profitable cane area is 50 hectares and 200 hectares would be optimum. At best, a tractor can work 120 hectares per month and a cane loader can move 600-1,000 tonnes per week and needs to load about 120 tonnes per day for minimum cost-effectiveness, from about 50 hectares per month. The technical capacity of most machinery therefore exceeds the minifundista areas, so operating times are shorter and

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<sup>106</sup> In 2001, a truck loaded with ten tonnes of cane charged 430 pesos.

machines need to be relocated frequently, leading equipment to be under-used. Movement of machinery adds costs in fuel, operator wages and wear and tear. The small size of plots also encourages heterogeneity of cane maturity meaning that it is often impossible to move say a harvester from one plot to the adjacent one. The sowing patterns on the small plots add to the inconvenience. As noted above, ejidatarios tend to plant along narrow furrows that make it difficult to use machines which, because of the small plot size, need to be turned frequently at the end of each furrow. According to Solórzano, the agronomist in Atencingo, since a tractor takes one minute to turn and a harvester around two minutes, in a small plot with 30 or 40 furrows a significant part of a working day is lost. Finally, the increased number of turns at the end of a plot damages the machinery as the weight, tilling practices and location of irrigation ditches pose risks.

Third, in all three ejidos there was some evidence that mechanisation was being rejected because of its impacts on family income. From his research in ejido Teruel (part of the old Atencingo cooperative) Gómez (1998) has argued that ejidatarios oppose using machinery and pesticides because they replace manual work and they are keen to preserve traditional labour-intensive systems, opposing attempts to make *jornaleros* redundant. A similar view was found in the case study ejidos where ejidatarios cited a need to maintain two kinds of income: from land which are paid according to the amount of cane entering the mill, and from the labour of ejidatario family members that is included in the *tarifa* as a cost of production. So, paradoxically, the more labour incurred in the production process, the higher the income to the ejidatario (family), at least in the short term.

The use of fertiliser should also be considered, especially in the light of government concerns about its low level of use in the production of sugar cane (INEGI-CP 1998; CNPR 1998).<sup>107</sup> In order to get a general picture of the use of fertiliser in Matamoros I interviewed Mr. Jorge Vélez sales manager of Guanos y Fertilizantes, S.A. de C.V., the largest fertiliser supplier in the region (8 May 2001). According to Mr Vélez the usual price of fertiliser is about 1,880 pesos per ton with a reduction of 40 pesos for people buying large amounts. However, he noted that most ejidatarios buy the formula without

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<sup>107</sup> Sánchez (1995) says that nationwide fertiliser is supplied to 60 or 70 per cent of the land cropped with cane.

Potassium preferring an ammonium sulphate formula that costs 1,290 pesos per ton. During questionnaire discussions a number of ejidatarios admitted using the sulphate formula. The reason is partly due to expense but it is also connected with the system of paying for sugar cane set by the Decreto Cañero in 1991 (Diario Oficial de la Federación 30 May 1991). The key to payment is weight rather than sucrose concentration, although this is also taken into account, and so ejidatarios see no need to add to their costs by producing cane with more sucrose (the principal purpose of adding Potassium to the mix).

Respondents identified three other reasons for the limited use of fertiliser or the use of the reduced mix. First, a price discount is only available on purchases of more than six tonnes. However, the amount of fertiliser prescribed per hectare is two tonnes and as the average size of plot is less than two hectares few ejidatarios have an incentive to acquire more than six tonnes at one time. Furthermore, according to Mr Vélez, low incomes mean that perhaps 30 per cent of ejidatarios at most apply the required dose of two tonnes per hectare with most buying far less.<sup>108</sup> Low income also seem to account for the failure of an organic material project that uses the cane leaves and tips, which ejidatarios appear to have rejected as they prefer to sell the organic material as cattle feed (for about 400 pesos per hectare).<sup>109</sup> Second, use of fertiliser depends upon access to transport. According to Mr Vélez, the cost of transport from Matamoros to Atencingo is eight pesos and to San Nicolás Tolentino it is four pesos. The same task with one's own truck comes to about one-half the cost but also, in the view of Mr Torres (who transports fertiliser from Córdoba to the plantation), his truck can carry ten tonnes whereas an ejidatario using a pick-up might carry three or four tonnes. Moreover, lacking their own trucks, ejidatarios must depend on the availability of others' trucks

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<sup>108</sup> It would appear that use is related to income as 95 per cent of ejidatarios in Matzaco use fertiliser according to Mr Vélez and ejidatarios admitted that when the mill used to provide fertiliser many sold their allocation to cover family expenditure.

<sup>109</sup> By contrast, in Matamoros, one of the private sugar cane producers has an excellent deal with the Bacardí plant which provides him for free with the vinasse, an organic waste resulting from the distillation of alcohol, rich in Potassium. 35 litres per second of that fertiliser continuously flows through pipelines and then through canals to the cane, permanently blending with water for irrigation. Really his plantation does not require any other fertiliser. Through this deal Bacardí manages to eliminate an industrial waste without further environmental complications. Obviously, these opportunities are possible for those having the appropriate connections, and of course, a large enough area in cultivation to take full advantage of the benefit.

and time and as a result the application of fertiliser may be delayed and the crop damaged.

Third, ejidatarios are unable to diagnose the chemical needs of every *machuelo*, *tabla* or plot so they fail to supply the dose and formula required.<sup>110</sup> Consequently, ejidatarios spend money buying fertilisers that may be inappropriate or they ask the supplier for a “good fertiliser” for cane and get a standard formula. Consequently, yields are not increased and may even be reduced if the physiology of the plant is affected, but ejidatarios incur unnecessary cost. Damage can also result from adopting an inappropriate schedule of fertilisation. Regionally, it is accepted that fertiliser must be supplied twice a year, but the lack of money to pay workers or buy the fertiliser means that many ejidatarios put in just one application. As the cane may not assimilate the fertiliser the single application may be a waste of time and resources. According to Mr Vélez, perhaps no more than 15 or 20 per cent of ejidatarios apply the correct dosage at the right time. Measuring the impact of reform on technological uptake may therefore be misleading as a great deal of the fertiliser that is already used is really increasing costs and having limited impact on ejidatario incomes.

Clearly, then, technological improvements as possible outcomes of the 1992 reform will require training. Ejidatarios were asked whether they had received training or met agricultural extension workers. Recalling prior to 1992, 87 per cent said they had not, whereas 6.5 per cent said that they had, while now a very similar 86 per cent say that they have not received any training with only 7.7 per cent claiming that they have done so. It is known that neither the mill nor SAGAR have promoted training recently. Yet without training it is difficult to see how the institutional reform can reduce information asymmetries, not only in the use of technology but also in knowledge of market conditions.

### 5.5.5 Cash-Crop Substitution

From the late 1930s to the early 1970s, in both Atencingo and Colón sugar cane has been almost the sole crop; the only significant exception has been the use of rice for

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<sup>110</sup> Sebastián Acosta, in Colón, said that the mill provided all ejidatarios with the same fertiliser formula, despite soil differences as a result the fertiliser sometimes causes damage.



short periods in order to improve soils. Sugar cane was ‘institutionalised’ by the cooperative, support from the mill and funding from the government. Although Matzaco has had a more diversified crop regime since the 1950s, it too is highly dependent on sugar cane and during periods of ‘cheap money’ shifted into sugar even though world prices would suggest a different direction of change (see Chapter One). From the data collected in 2001 and presented in Table 5.5 one can see still the dominance of cane: over 70% of respondents claimed they only grow cane and if those growing cane and other crops are taken into account the percentage of respondents growing cane is 82.4 percent. A shift from cane to cash crops, with vegetables the most profitable alternative locally (Preibisch 1995) and nationally (USDA 2003: 11), offering three harvests per annum and probably more consistent cash flow, has not taken place. Only 39 ejidatarios (12 per cent) in the questionnaire survey have moved to cash crops since 1982 and the Informe General of the mill shows that during the harvest cycle 2000-2001 only 57 ejidatarios who had grown cane in the previous year did not appear to do so in 2000-2001: 6 from Matzaco; 49 from Atencingo and 2 in Colón.<sup>111</sup> It is just as likely that many of these 57 have sold or left agriculture altogether. By contrast, it should be noted that 27 ejidatarios (8.3 per cent) claimed to have left the cultivation of cash crops in order to grow cane: 15 did so before 1992 and 12 after the reform.

**Table 5.5 Pattern of Crops in all Three Ejidos**

	Frequency	Percentage
Only cane	227	70.1
Cane and other	40	12.3
Only other	51	15.7
Non response	6	1.9
Total	324	100.0

Source: own calculations with data from the questionnaire

The respondents who had changed to cash crops were asked whether they did so before or after the 1992 reform. Twelve (31 per cent) said that they had grown cash crops from before 1992 and 26 (68 per cent) since the reform. Although these numbers are quite small, they might indicate a limited move towards cash crops. A number of these

<sup>111</sup> Cash crops in the region are melon, watermelon, alfalfa, sweet corn, courgette and green beans.

respondents cited the greater regularity of income as a primary reason for leaving cane. Broadly they claimed to get an income every three months or so with cash crops compared to every 12 to 16 months from cane. This argument was sustained by Pedro Galicia, 79, an ejidatario in Matzaco with three hectares acquired in 1942, Felipe Alonso, who gave one plot to his son to grow maize, green beans and alfalfa after 1999 and Rosa Alvarado, who has three hectares in Matzaco. Essentially the same assessment was provided by Jesús Zárate, 62, who possesses one hectare, Ana María Maldonado, 75, a widow ejidataria holding two hectares since 1990. Other ejidatarios sharing the same view were Germán Calderón, 59, in Atencingo who grows maize for feeding milk cows, Alvaro Villa, who grows alfalfa in Matzaco and Alfonso Gallardo, 54, who also grows alfalfa on 1.5 hectares in Matzaco. Their emphasis on the regularity of income, however, appears to be as much a reaction to the difficulties of growing cane than an assessment of the post 1992 environment. As Rich et al. report, citing a union leader in Atencingo, “efforts to grow tomatoes and onions as a substitute for cane have not been successful” (1998: 7), whereas most of my respondents note that they left cane because “everything is worse with the mill” (Socorro Luna, 70, Matzaco, also Alvaro Villa, 72, Matzaco, Valentín Rueda and Clara Villarreal, 77). The shift to maize or vegetables involves risk losses, so there is a trade off between security with cane and higher profits. As others have observed elsewhere, peasants are risk averse (Bardhan 1989; Dujon 1997; Platteau 1996; Stiglitz 1992).

So, why have so few ejidatarios abandoned cane even though it is not profitable? Table 5.6 outlines the principal reasons given by respondents for growing cane. In more detail, in questionnaire discussion a broad list of reasons were identified. First, the more irregular income from cane is compensated by access to social security and medical services through IMSS and a pension for elderly growers that are only available through cane cultivation. Some respondents even commented that they had left cane to grow vegetables but had later gone back to cane because of the benefit of having social security. Second, while vegetables offer potentially higher and more regular incomes, they are more vulnerable than cane to providing no income at all due to plague, poor weather and periodic over-supply in a sector in which buyers hold oligopolistic positions and can reduce prices dramatically (Preibisch 1995; Rappo 2002). As a number of ejidatarios observed, in the case of Marcelo Correa in Matzaco his entire

harvest of courgette was wrecked because of a plague, reducing his marketable produce from 800 boxes to only 200 and leaving him with insufficient capital to replant. By contrast, the sugar contracts overseen by the producer organisations and the mill and legitimated by presidential decree provide a sense of security and offer a fixed price.<sup>112</sup> Third, cash crops require more inputs such as fertiliser which, as we have seen, is only cost effective if purchased in quantities larger than are appropriate for small plots. Fourth, sugar cane requires less labour throughout the year except at harvest which is important to the old and, in the words of Sebastián Acosta of Colón, “cane production is very easy, even women are sugar cane producers because they do not need to get involved in the work”. This was a view supported by a number of ejidatarios including Manuela Hernández, aged over 70, an ejidataria in Colón and Socorro Luna, 70, in Matzaco. Fifth, vegetables such as alfalfa require more regular and greater quantities of water than cane (alfalfa needs irrigation every 15 days). Manuela Hernández said that she stopped growing melon and watermelon because of the scarcity of water and Micaela Castillo, an ejidataria in Matzaco, used to sow tomato, melon and beans but because of problems with water she quit. Moreover, cane is more resistant to polluted water and as one ejidatario told me “The waste water from the mill is polluted with caustic soda so it damages crops and reduces yields”. Sixth, the presence of cane makes the growing of cash crops difficult especially if cane growers are using herbicides which are especially harmful to tomato, beans and courgette over an area of up to one kilometre. Finally, there is a tradition of growing cane: people value the skills learned from parents and the sense of belonging to a cañero community.

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<sup>112</sup> Many respondents mentioned the reliability of sugar cane and social security. In Matzaco, Liborio Piña, 37, who cultivates 1.2 hectares with cane, and Macario Hernández, 89, an ejidatario since 1940, holding two hectares with cane and Federico Avila, 65, a pensioner; in Colón, Rafael Vargas, 81, Rigoberto Palacios, Matías Esquivel, Bertha Sandoval, and Lino Valencia. Laura Téllez, 56, in Matzaco once grew courgette but it failed because of low prices.

**Table 5.6 Reasons why Ejidatarios Grow Cane**

	Frequency	Percentage
A combination of reasons	20	7.9
It is the most profitable crop in the region	51	20.2
Technical complications and risk in others (plagues, soil)	22	8.7
Social security and pensions	59	23.3
Ejido's agreement	52	20.6
Restrictions on access to water for other crops than cane	7	2.8
Cane requires less work and attention than others	25	9.9
The market for cane is more secure than for vegetables	17	6.7
Total	253	100

Source: own calculations with data from the questionnaire

## 5.6 Conclusion

This chapter has marked the relative decline in the role of organisations involved with the production of sugar cane in three case study ejidos. Although, despite a rhetoric of economic liberalisation, the government continues to regulate sugar cane production through the Decreto Cañero which sets the terms of the contract between cane producers and the mill, its direct role as the provider of finance and other support mechanisms has been dramatically reduced over the past decade or more. The mill continues to be the most powerful local organisation in Matamoros thanks to its role as a financial intermediary, but it is losing control of planning and the organisation of production is becoming more dispersed. Producer organisations, namely the CNC-affiliated UNPCA and the UNC incorporated to CNPR remain official intermediaries between the mill and ejidatarios and they continue to work as a mechanism to tackle the cost structure caused by fragmentation so that the mill does not incur the cost of contract, supervision and monitoring of the activities of thousands of ejidatarios. They do however provide some opportunities for economies of scale through the management of farm equipment, hiring sugar cutters, and coordinating the harvest and transport. Producer organisations therefore respond to but also perpetuate the fragmented agrarian structure, but they are in any case being undermined by greater political competition. The General Assembly is

not performing its legal duties and there seems to be considerable resistance to active engagement by ejidatarios. A degree of collective action is retained, contrary to Otero's (1999) claim about a "phobia toward collectivism" in the region, but these are smaller in scale than the ejido itself and mostly deal with single issues such as the replacement of old crops; they have not been enough to permit significant economy of scale over larger areas. The ejido as a whole deals with a few issues, such as the use of machinery, the approval of crops (for example, in Matzaco the Assembly prohibited livestock), and the resolution of some conflicts in the use of water. A key conclusion of this chapter is that ejidos per se are less relevant in production organisation than their prominence in policy discourse would suggest.

Looking at the impact of the 1992 reform through the production process, this chapter has provided evidence that the 'opportunity' of the reform has been missed.<sup>113</sup> Central to the reason for this missed opportunity is the small size of plots, which causes high production and transaction costs, constrains the application of mechanisation and hampers the efficient use of water or labour management (the one possible exception being better discipline at the mill). Thus, the reform has not affected the ability of ejidatarios to increase their income. Indeed, as, since the reform, cane continues to be grown beyond the ideal age limit and the fibre content has not improved there may be a case for negative income impacts. This view of minifundismo is in contrast to Bartra (1996), Calva (1993a), Concheiro and Diego (2001), de Grammont (1979), Paré and Juárez (1986) and Warman (1981). Rather, land fragmentation makes the use of tractors, combined harvesters, fertiliser and coordinated labour teams unfeasible. Asymmetric information is a constraint for small farmers, but I would stress that the small scale of production and poverty are causes for asymmetric information, making it difficult for the most vulnerable to access organisations such as the producer organisations, the mill or even the General Assembly or to weave their way through the many regulations that still affect ejidatarios. Collective action could overcome some of these problems, although the local history of cooperatives is not promising, and most other formal organisations seem to be in decline, partly as a result of the 1992 reform.

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<sup>113</sup> Although the specifics of the reforms are very different these findings are consistent with the absence of agricultural intensification post property rights reform noted by Dujon (1997), Migot-Adholla et al. (1991) and Platteau (1996).

The inability of the ejidatarios to initiate and sustain collective action supports the views of Commons (1931) and Olson (1971).

Going it alone, ejidatarios might have seen the greater security of property rights as a means to convert from sugar cane to cash crops. To date, however, the shift has been limited to a few ejidatarios and mostly to Matzaco where there is a longer history of non-sugar cultivation. Part of the reason for the limited change is the inability of the reform to deliver other changes, such as greater access to credit and improvements to cultivation practices with better management of fertilisers, labour and water. A shift from cane to vegetables requires higher levels of investment than can be provided by the poorest ejidatarios. This could suggest stratification among ejidatarios where those with the appropriate land, and especially with access to funding, can engage in growing vegetables, whereas those lacking funding remain sugar cane producers. There is a possible link to the renting out and sharecropping of land, which does not generate capital for ejidatarios but is used as a source of income, since it is the tenants who appear to be more likely to grow cash crops.

Post reform it would seem as though the organisation of production is facing the worst of both worlds. On the one hand, the individualisation of property rights without full ownership has cemented a process of fragmentation without providing the means to draw down finance and increase mechanisation. On the other hand, the decline in collective action and the more distant relations between the ejidos and the mill means that the traditional opportunities to overcome diseconomies of scale are lost. In order to achieve an optimum use of farm equipment and reduce the costs of harvesting it would be necessary to plant the same variety in larger areas according to a schedule that permitted the harvest to be coordinated across as many plots or tablas as possible so as to have fewer frentes de corte (cutting fronts); this would also assist with the supply of fertiliser, pesticides and water to the cane.

## CHAPTER 6: THE MARKET, INCOME AND SOCIAL CONDITIONS

### 6.1 Introduction

This chapter explores the commercialisation of sugar and other crops grown in the three ejidos and the possible connection between the economic performance of the plots and ejidatarios' direct income, supplementary extra-farm income and social conditions. If the reform of Article 27 has not radically transformed the land holding system within the ejidos (Chapter Four) or the organisation of production (Chapter Five), has it at the very least made it easier for ejidatarios to meet their subsistence needs? How have their conditions, in terms of income poverty, education, gender and age structure and migration changed?

### 6.2 The Sugar Cane Market

As a result of the Decreto Cañero (the sugar cane decree), sugar has one of the most strongly regulated markets notwithstanding economic liberalisation in Mexico. The broad terms of the contract between sugar cane producers and the mills nationwide are set out in the decree, including the system of payment.<sup>114</sup> In particular the decree mandates that payments will be determined according to a formula based on a combination of the weight of individual loads and the average sugar concentration of the whole harvest received by a mill, not that of the individual load delivered by each producer (Article 12). Furthermore, the decree sets a fixed price calculated as a percentage of the value of the wholesale price of sugar which is set by the government; from 1991 to 1994 the price was 54 per cent which increased to 56 per cent from 1995-1996. In accordance with that scheme, the amount paid per ton of cane in 1999-2000 was 315 pesos, and in the harvest 2000-2001, it was 327 pesos.

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<sup>114</sup> Articles 9-16, Diario Oficial de la Federación, "Decreto por el que se Declaran de Interés Público la Siembra, el Cultivo, la Cosecha y la Industrialización de la Caña de Azúcar". México DF: 31 May 1991, and Diario Oficial de la Federación, "Decreto que reforma el diverso por el que se declara de interés público la siembra, el cultivo, la cosecha y la industrialización de la caña de azúcar", México DF, 23 July 1993.

Such a system provides little incentive to raise productivity because individual producers do not gain unless the average of all producers increase sugar concentration and the government does not adjust the percentage or level of wholesale prices. Ejidatarios face virtually a classic collective dilemma in that their property rights do not dictate their ability to access resources because these are dependent upon the actions of others. Investment to increase sucrose concentration or reduce the content of fibre may not bring sufficient reward since the return will depend on the actions of all producers.<sup>115</sup> The price system rewards “free riders” by not setting out any punishments for delivering poor quality cane to the mill. Indeed, while it is acknowledged that in Atencingo well-cultivated cane can have sucrose content of 14 per cent, García (1997) refers to research carried out by a team from the University of Chapingo that sampled loads at the entrance of the loading bay and found that some had sucrose concentration of eight per cent and some as much as 16.

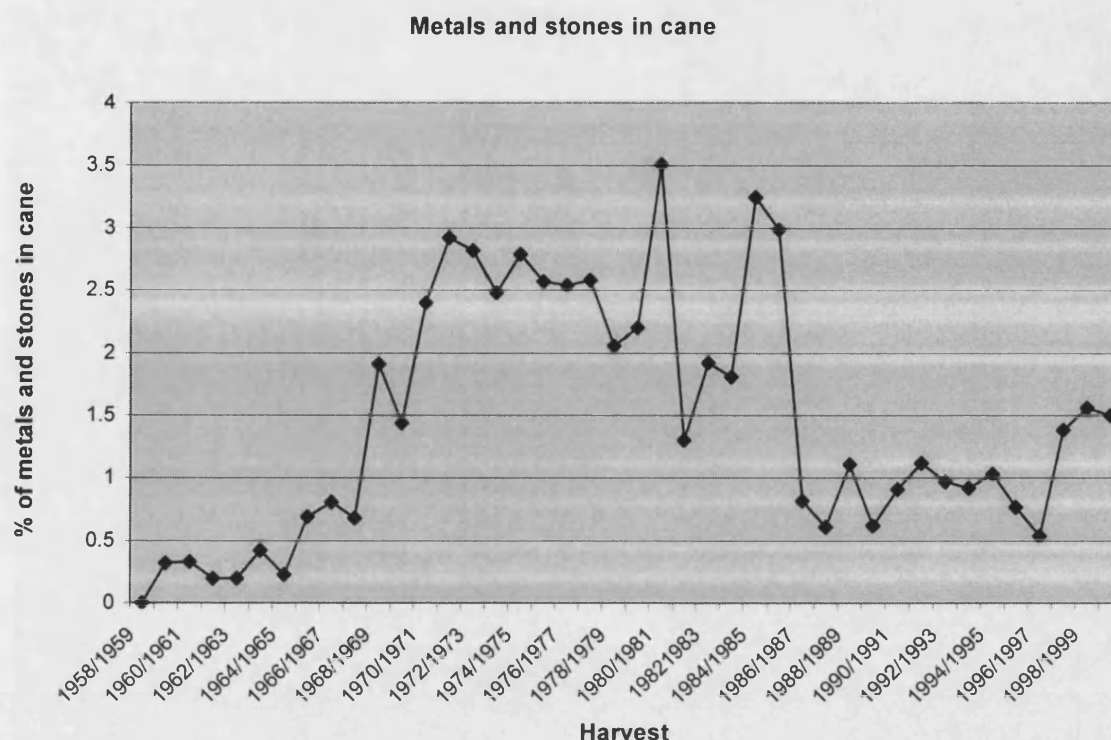
In addition, the pricing system puts the mills in a powerful position vis – à – vis the ejidatarios in assessing sugar concentration and the weight of loads. During fieldwork I was told that the mill is not exact when weighing cane and that the “scales are a big problem” according to Rolando Gómez in Colón (also Otero 1999). According to some participants, these problems affect minifundistas but not large private producers, whose loads are normally weighed fairly. With the mill in private ownership, there is some evidence that greater care is being given to the measurement of loads. An indirect indicator of this is the time wasted in the mill because of stones and metals mixed with cane which has been reduced to 1960s levels (Figure 6.1). When the government took control of the mill in the 1970s there seems to have been a relative laxity about the quality of cane taken by the mill, which was good news for the ejidatarios who were paid for stones and metal but worked to the eventual disadvantage of the economic performance of the sector.

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<sup>115</sup> In a similar situation, Mackinlay (1999) found in Nayarit that the parastatal administration paid for tobacco by weight, so undermining quality, whereas under private administration payment was based on quality in a search for efficiency. For sugar, Sánchez (1995: 56) reports that in El Mante, Tamaulipas, once the payment system was set according to the general sucrose yield quality decreased and never recovered over the subsequent 35 years.



**Figure 6.1 Time Lost in the Mill Because of Metal and Stones in Cane**



Source: own calculations with data from Ingenio de Atencingo, S.A. de C.V. (2001).

While Figure 6.1 gives some evidence that the mill's profitability is linked to improved productivity, it is reliant on the government setting wholesale prices, and the most obvious recourse in the event of tighter market conditions is to extract greater margins from payments for the cane (Singelman and Otero 1995: 15). Beyond the issue of property rights in land, therefore, regulations dictate that the agro-sugar industry receives poorer quality cane than it is capable of producing, with the result that less sugar per ton is milled and, one might assume, the more entrepreneurial-minded ejidatarios receive no incentive to change conditions.<sup>116</sup>

I have already mentioned the problem of final payment. According to Articles 12 and 13 of the sugar decree the mill must pay a partial payment of 80 per cent of the assessed value of the cane within 15 days of the harvest being delivered and the final payment (*alcance*) no more than one month after the end of the harvest. However, in practice the

<sup>116</sup> During an interview García Chávez talked about calculations according to which a pricing system based only on sucrose concentration over the same area of cultivation and with the same industrial infrastructure would produce an additional 500,000 tonnes.

mill delays payments and the perception of ejidatarios is that the delay has increased with the private running of the mill by CAZE.<sup>117</sup> Under government control, ejidatarios report that payments were prompter and subsidies or credit were used to pay producers even when the sugar could have not been sold (also Otero 1999; Rappo 2002). Moreover, according to ejidatarios such as Rosario Gómez in Colón, the mill pays the final payment in a number of part payments. Many ejidatarios agreed with the comment of Josefina Vega, a 44 year old ejidataria in Atencingo, that the final payment is often paid up to one year late. These delays make it extremely difficult for some ejidatarios to schedule replanting or cover payments on the hire of machinery or labour and creates uncertainty about whether they can cover their family needs.<sup>118</sup>

The response of the mill is that it should not have to buy more cane than it can process and sell – meaning that the mill is transferring the risk of a lack of effective demand for sugar to the ejidatarios. Indeed, the mill can make profit from delaying the final payment. The sugar contracts establish that in the event of default on payments the mill must pay interest to ejidatarios at the same rate charged for loans to ejidatarios. As these loans are subsidised the interest on late payment is lower than bridging finance from commercial banks, so there is an incentive for the mill to delay payments as the eventual payments will be cheaper than having to borrow money either to make the final payment or for other purposes. In terms of NIE, the Sugar Decree imposes a perverse transaction cost on ejidatarios who serve as a means to subsidise commercial credit to the mill. These transaction costs include the loss of real income through inflation, the costs of having to mobilise to demand payment that may involve visits to Mexico City and the opportunities lost of being able to use the final payment to cover shortfalls in agricultural or domestic expenditure that may mean diverting resources or doing

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<sup>117</sup> About delays from CAZE in Atencingo, see a statement by Daniel García, regional leader of CNPR, *Síntesis* newspaper, Puebla, 27 February 2002; also *El Universal* (22 July 2001 and 24 July 2001) and *La Jornada*, 28 August 2001.

<sup>118</sup> Privatisation seems to have removed certain ‘rights’ that helped ejidatarios in the past to overcome shortfalls. Jorge Loreto, in Colón, said that since 1990 benefits such as free alcohol, guarapo (fresh juice of sugar cane), punta (the tips of sugar cane stalks), bagazo (sugar cane bagasse from the residue of crushed stalks from which juice has been expressed), and mieles incristalizables (molasses) had been removed.

without.<sup>119</sup> Theoretically, these are unrecorded transaction costs and indicate how Neo-Institutional Economics can help identify the distribution of costs and benefits as a result of multiple institutional changes. Property rights may be more secure, but transaction costs borne by ejidatarios because of the contradictory nature of the Sugar Decree and their political weakness are probably higher than previously.

### 6.3 The market for Other Crops

The cultivation of cash crops introduces a wider set of agents to negotiate prices and arrangement for payment. In Matamoros there are dedicated buyers (*coyotes*) of vegetables who will establish contracts for purchase, often struck with the ejidatario in the field (*al tiempo*). Some producers prefer taking the crop (especially courgette) to the Central de Abastos (wholesale market) in Mexico City and alfalfa is sold to cattle raisers. Some coyotes give an advance and fix a price in order to secure the exclusivity of the deal, but prices can be low compared to the Central de Abastos, although there the producers have to avoid the collusion of brokers (*corredores*) who are often linked to the coyotes and will avoid competition among themselves for certain crops in certain regions (thus setting up an oligopoly that again drives prices down). According to one broker that I interviewed, at the Central de Abastos brokers fix a maximum price and do not strike deals early in the day so that producers are forced to accept lower prices or return with unsold perishable produce. Ejidatarios told me that if they go with grains or seeds then they can stay for three days waiting for a better price, but sometimes unsuccessfully. Another tactic is for brokers to select part of a load and reject the rest, saying it is not the colour they want, or that it is too small or damaged, which puts pressure on producers to reduce their price. The weak position of ejidatarios in selling their crop is aggravated by their lack of information about market conditions, including the collusion of brokers and coyotes, the cost of moving produce to the Central de Abastos with local estimates of 3,500 pesos per load, and a reliance on transporting fresh produce as there are no agro-industrial plants for packing, drying, freezing or other value-adding processes, and there are no stores to keep products until prices increase.

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<sup>119</sup> On the mobilisation of producers against the Atencingo mill and CAZE see Susana Rappo in *La Jornada de Oriente*, 6 July 2001; also *Excelsior*, 25 July 2001, *El Universal* (11 October 2000, 24 July 2001), *Reforma*, 4 September 2001 and *La Jornada de Oriente*, 9 October 2001.

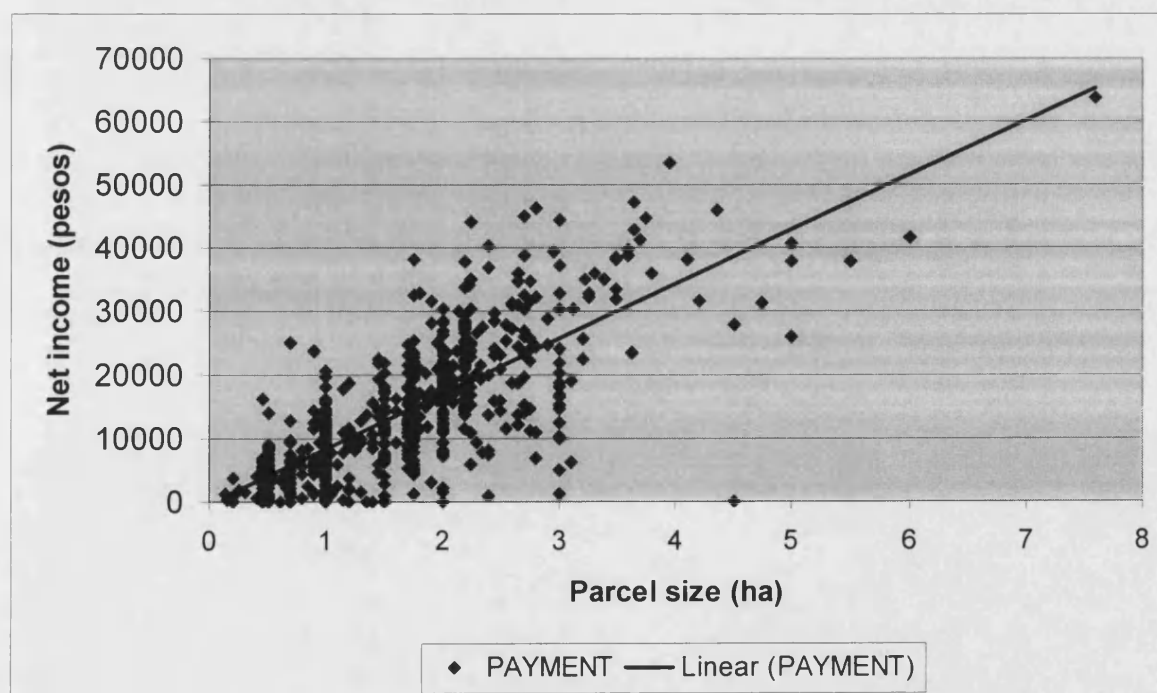
Many ejidatarios growing vegetables emphasised problems for trading their crops. Laura Téllez, 56, in Matzaco, once grew courgette but it was a failure because of sudden price falls, and Gilberto Oropeza, 37, Matzaco, who now grows cane again on his three hectares said that with vegetables one has to find many buyers rather than just one. Ejidatarios in Matzaco, supposedly the most market oriented of the three ejidos, reported the problems of not having a secure income from the sale of vegetables, and although some such as Rosa María Valencia, 74, with three irrigated hectares, complained about the unprofitability of cane it is better than her experience of growing sweet corn, green beans and tomato where prices varied on a daily basis (also Preibisch 1995). Another ejidatario, Lino Valencia, who has two hectares in Colón, has grown onions and melon on one hectare but the results have been disappointing and he has now gone back to cane because, he explained, if the price of vegetables or fruit falls there is no minimum below which he might not have to go and the government will not step in to help. Similar points were raised by Alvaro Villa, 72, who cultivated 1.5 hectares in Matzaco with alfalfa before prices collapsed in 1999; Rodrigo Padilla, 51, with one hectare in Matzaco whose courgette harvest in 2000 failed because of over supply; and Hermelinda Santana, 61, who had grown green beans on three hectares in Matzaco but gave up when prices fell sharply. According to Aegréfico González in Matzaco, some ejidatarios have given up on selling in Mexico City and have contracts to supply green beans to the United States.

My sense is that the immature market for cash crops is having particular consequences for the land market. The product market may be inducing ejidatarios not to cultivate their plots themselves, but to rent them to third parties, thereby restraining the sale of land as ejidatarios need to maintain a stream of income. The renting out of plots may even work against land concentration because incomes from production are too uncertain to motivate extensive investment in land acquisition. Rather than the Revolutionary and even Salinas ideal of small plots sufficient to provide family necessities with opportunities for more entrepreneurial activities as property rights become more secure, the instability of product markets further encourages the process of fragmentation. How far have these trends affected income and social conditions?

## 6.4 Income, Wages and Employment

The questionnaire asked 324 ejidatarios whether their earnings from agriculture now were better than in 1992. Only 92 (28.4 per cent) answered that incomes had improved; 105 (32.4 per cent) answered that they were about the same and 91 (28.1 per cent) said that income had got worse (11.1 per cent did not respond or were uncertain). Ejidatarios do not therefore perceive an improvement in agricultural incomes after the reform. When asked, however, whether incomes from agriculture were enough to maintain their families only 89 (27.5 per cent) responded that they were and 223 (68.8 per cent) said that incomes were not sufficient. These conditions are supported by official documents such as the “Informe General” which reports a total of 724 producers (i.e. ejidatarios and *arrendatarios* who grow cane). From the data, Figure 6.2 shows the relationship between the individual area cultivated by producers and the final payment (i.e. less costs and other debts).

Figure 6.2 Final Payment and Plot Size



Source: Ingenio de Atencingo, S.A. de C.V. (2001)

Figure 6.2 shows that there is a direct correlation between the size of plots and income.

There is a group of producers with large land holdings and low earnings which can perhaps be explained by the poor quality of land and old cane, but the bulk of producers are concentrated at a scale below three hectares and revenue under 3,000 pesos as a final payment. There is also a cluster of producers with land holdings around three hectares whose earnings are higher than the average; almost certainly producers located in Matzaco where some plots have yields double those in other ejidos. According to the same source, the net average income per producer received as the final payment from the mill in the three ejidos in 2000-2001 was 13,442.7 pesos (37.3 pesos per day). This is the revenue obtained from a plot of about 1.66 hectares. This average can be broken down by ejido (Table 6.1).

**Table 6.1 Income and Size of Plots per Ejido and Income per Hectare**

	Atencingo	Colón	Matzaco	Total
Average size plot	1.4	1.9	1.7	1.6
Average income per farmer	13,188.80	15,618.10	10,706.40	13,442.70
Average income per hectare	9,183.7	8,265.2	6,245.9	8,520.1
Total amount of producers	434	184	106	724

Source: own calculations from Ingenio de Atencingo, S.A. de C.V. (2001)

Singelman and Otero (1995) suggest that for land growing sugar cane a minimum of five hectares is required to meet most basic household needs. According to García Chávez eight hectares of cane suffice to get an income of about 4 minimum wages. García (1997: 69) looks at the net profit in sugar cane nationwide and concludes that producers earn an average of 2,914.30 pesos per hectare (at the time of his study) or 61 per cent of the minimum wage, requiring four hectares to earn 2.45 minimum wages. Nuijten (1998) reports that peasants in Jalisco reckon to need four irrigated hectares to earn enough income to maintain their family. These assessed returns have to be compared with the minimum wage in the region in order to assess the real capacity of sugar cane production to provide family necessities. In Matamoros, we can take the income per hectare (8,520.1 pesos) to calculate the minimum area needed to meet an acceptable standard of living. According to the Comisión Nacional de Salarios Mínimos, in 2001 the official minimum wage in Puebla (state) was 35.85 pesos

(increased to 38.30 pesos in 2002).<sup>120</sup> Thus the daily income obtained from the plot almost equals a minimum wage in the area, at an exchange rate of 9.5 pesos per dollar, equals US\$ 3.9 dollars a day. This assessment is in line with data from the Procuraduría Agraria which reports that 72.1 per cent of ejidatarios in Puebla earn one or less than one minimum wage, compared with a national average of 61.4 per cent (Robles 1999).

**Table 6.2 Income Structure in Matamoros**

Income level in minimum wages	Percentage
No income	5.2
Less than one	22.3
From one to two	39.8
More than two and less than three	13.9
From three to five	7.2
More than five	5.1
Not specified	6.5

Source: own calculations, with data from INEGI (1994)

By comparing these figures with those shown in Table 6.2 we can see that ejidatarios in Matamoros are among the poorest members of the population, given that 22.3 per cent of the general population earn less than one minimum wage and 67.3 per cent earn two or less minimum wages. Almost all ejidatarios fall in those two categories and a disproportionate number are in the lowest. We can further this analysis by considering household size (Table 6.3). Across the three ejidos there are on average 4.5 people per household, fewer than the average number per household in the state of Puebla generally (4.8 persons) (INEGI 2000) and fewer than in all ejidos nationwide (5.5) or ejidos in Puebla (5.8) (Robles 1999). Thus, if we consider 37.3 pesos a day as the average income of each ejidatario household and divide that figure by the average household size, the average income per capita from agriculture is 8.3 pesos per person per day which is less than one US dollar, a global poverty indicator. So the ejido plot is not providing households with the necessary income to meet their needs. For those without land, such as cane cutters, however wages may be even less. Despite the legal minimum wage, cane cutters earn 70 pesos a day, about one half the minimum wage.

<sup>120</sup> Minimum wages in Mexico are determined by economic zone. Zone A comprises Mexico City and the metropolitan area; zone B includes cities like Guadalajara and Monterrey and zone C encompasses states such as Puebla, Veracruz and Guanajuato.

**Table 6.3 Number of People Living in the Household**

	Frequency	Percentage
From one to 3	114	35.2
From 4 to 5	108	33.3
From 6 to 7	50	15.4
From 8 to 9	33	10.2
Ten or more	19	5.9
Total	324	100.0

Source: own calculations with data from the questionnaire

## 6.5 Off-Farm Income

To supplement inadequate agricultural incomes, ejidatarios engage in alternative off-farm activities. As Table 6.4 shows, only 30 ejidatarios claim to have only one source of income (9.3 per cent) whereas almost 90 per cent have to resort to supplementary sources and 10.2 per cent engage in four or more activities.<sup>121</sup> Among the most common activity for men is to work as labourers on other plots. For women, frequently mentioned sources of income were from selling tacos, baking and selling bread, small shops at home and selling clothes on credit to neighbours. A few are teachers, nurses or secretaries. Ejidatarios were asked to rank the different income sources, and the principal source is outlined in Table 6.5.

**Table 6.4 Number of Income Sources**

	Frequency	Percentage	Cumulative Percentage
One	30	9.3	9.3
Two	139	42.9	52.2
Three	114	35.2	87.3
Four or more	33	10.2	97.5
No response	8	2.5	100.0
Total	324	100.0	

Source: own calculations with data from the questionnaire

According to these data only 75 per cent of ejidatarios regard income from the plot as the main source for their household. This figure includes respondents who understood income from the plot as meaning direct cultivation and sale of produce, and those who

<sup>121</sup> Originally, the questionnaire only considered at most three additional sources of income per household but this soon had to be amended.



understood income as rent. In terms of importance, income from migration is the third most important source. We can also note that government subsidies are a negligible principal contribution to income. Although providing incomes below the poverty line for most ejidatario households, income from agriculture (parcel) seems to be more important in Matamoros than elsewhere, and compared to de Janvry et al.'s claim that on farms of up to ten hectares, off-farm incomes exceed over agricultural and livestock incomes. They note that "if we call 'farmers' households that derive more than half of their income from farming, this label would apply to only 25 percent of the households" (1996: 86). Table 6.6 shows the rank of second sources of income.

**Table 6.5 First Source of Income**

	Frequency	Percentage
Cultivation of the parcel	244	75.3
Employee	27	8.3
Migrant and other relatives' support	23	7.1
Pension	11	3.4
Non-agricultural family business	10	3.1
Government subsidies	1	0.3
Other	1	0.3
No response	7	2.2
Total	324	100

Source: own calculations with data from the questionnaire

**Table 6.6 Second Source of Income**

	Frequency	Percentage
Pension	102	35.7
Cultivation of the parcel	59	20.6
Migrated and other relatives' support	57	19.9
Employee	50	17.5
Non-agricultural family business	9	3.1
Government subsidies	7	2.4
Other	2	0.7
Total	286	100

Source: own calculations with data from the questionnaire

From Table 6.6 one can appreciate the importance of the pension to ejidatario household

incomes: 35.7 per cent cite this as their main second source of income. Cultivation of the parcel is still important (20.6 per cent) and so are remittances from migrant relatives in the US. Off-farm activities are however not as numerous nor as important as one might gather from most studies of rural (ejido) poverty in Mexico. Many of these activities are 'family businesses' with examples given including selling fruit and vegetables at stalls, butchery, milking cows and selling milk, selling clothes at home, shopkeepers (7), taxi drivers (5), working for producer organisations (5), building workers (3), temporary migrants (3), electrical repairs, printing and selling posters, selling sweets, selling chicken, a video rent shop, bakers (2), making and selling tortillas and one midwife. A typical case was that of Martín Osorio, 70, in Atencingo, who holds four small and dispersed plots and who tops-up his family income by selling chicken in the market and with remittances from two children in the US. Employees and workers are more important in Atencingo and Matzaco, and obviously in Atencingo working in the mill is an important off-farm activity, whereas in Colón off-farm work is not frequent. This is confirmed by Table 6.3 which provides details of the proportion of ejidatarios receiving extra-farm income by source and which shows that Matzaco and Atencingo have a higher proportion of employees, because of proximity to the mill and to Matamoros which facilitates getting jobs in stores and other businesses as well as in different government agencies. The cost of transport for getting to jobs is also comparatively lower than in Colón.

**Table 6.7 Sources of Income per Ejido**

Ejido	Plot	Employee	Non-agricultural family business	Support from relatives	Pension	Govt. Subsidy	Other
Matzaco	104	40	29	61	41	32	3
Atencingo	114	33	11	43	50	2	2
Colón	106	17	8	55	68	2	2
Total	324	90	48	159	159	36	7

Source: own elaboration with data from the questionnaire.

## 6.6 Migration to the United States

It is worth looking more closely at the importance of remittances from migration to the United States as this shows that not only is the prevailing agrarian structure unable to provide ejidatarios with sufficient income, but at the same time, the rest of the economy has proved unable to absorb ejidatarios needing off-farm incomes. Instead, however, of reinforcing the dependence of ejidatarios on the plot, as might have been the result in the past, the lack of local economic development has motivated migration. Mario Riestra, Coordinador Nacional de Oficinas Estatales de Atención a Migrantes (Conofam) a federal government agency, declared to a newspaper "The Mixteca Poblana is poorer than Chiapas. Political, economic and social stability exist thanks to the remittances sent from the United States: 800 million dollars a year" (El Universal 4 February 2002). A standard argument heard in Mexico is that migration is pushed by landlessness (Lara 1979). I would argue that land fragmentation, which has hampered productivity in a wide variety of ways, has been an important factor causing migration but that this remittance income is facilitating the retention of small-scale land holdings by keeping just enough ejidatarios at or just above the poverty line.

For much of the mid-twentieth century migration was to Puebla city or Mexico City, but for the past decade or more it has been increasingly to the United States (Binford 1998: 2; Gendreau and Giménez 1998: 2; Preibisch 1995). In 1990 Puebla did not appear among the principal 16 states (plus the Federal District) in Lozano's (1993) study of migrant remittances whereas Binford cites a study carried out by the Society of Rural Ejidos of the South that claims 60 per cent of families in the Mixteca have at least one member residing in the United States. According to INEGI, the state of Puebla is one of the most important places of origin of migrants to the US, notably to New York, Chicago and Los Angeles (Gendreau and Giménez 1998). The importance of migration in economic terms can be seen from INEGI (1994) which reports an increase in the amount of remittances from the United States to the state of Puebla and to Matamoros in particular. The report records that bank orders (giros) sent to Matamoros rose from 3,028 in 1987 to 3,291 for 1993, and money orders received increased from 18,858 in 1987 to 20,497 in 1993. By 1998, Matamoros receives 4,347 bank orders by telegraph

from abroad (INEGI 1999).<sup>122</sup> The value of money deposited in saving accounts in Matamoros increased from 1.7 million (new) pesos in 1987 to 2.7 million in 1993, a 58.5 per cent increase, and according to municipal authorities Matamoros now has 30 bureaux de change in a municipality with only 66,000 inhabitants: one bureau de change for every 2,200 inhabitants.

Questionnaire participants were asked whether or not they have migrated. The results, at first, are surprising. Migration among plot holders is low: only eight per cent responded that they have gone at least once to the US. However, when questioned about whether their children, siblings or parents have migrated the responses are more conclusive (Table 6.8). Ejidatarios were asked first whether they have adult children, because they are potential migrants, and of those with adult children (259) who responded to the questionnaire, 135 (52 per cent) have at least one nuclear family member working in the US.<sup>123</sup> In one case, Soledad Lara, a 69 year old ejidataria in Matzaco, has all five of her children in the US. We need to recall that Matamoros is not a region of rain-fed and hilly land with poor quality soils, totally lacking in official support, but an area of good quality land, flat and irrigated, and which because of sugar still enjoys some official support such as social security. It is notable that migration was usually referred to as a male phenomenon, and INEGI (2000) data show that the gender balance in the case study ejidos is significantly slanted towards women (Table 6.9).

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<sup>122</sup> Ironically given the crisis in agriculture in Puebla, the region's 'most famous son' in the US is Félix Sánchez G., a businessman in New York who was born in the municipality of Piaxtla near to Matamoros and who produces and sells tortillas and other food products in several states of the US. Forbes magazine called him "El Rey de la Tortilla" (The tortilla king) (El Universal, 9 February 2002).

<sup>123</sup> This is consistent with Gendreau and Giménez (1998) who found in Atlixco that 69.3 per cent of families have at least one close relative (husband, brother, son) outside Mexico.

**Table 6.8 At Least One Nuclear Family Member Working in the US**

	Frequency	Percentage
At least one nuclear family member working in the US	135	41.7
No nuclear family member working in the US	124	38.3
No adult children or no children at all	56	17.3
No response	9	2.8
Total	324	100

Source: own calculations with data from the questionnaire

**Table 6.9 Composition by Gender of Ejidos and Municipalities**

	Total population	Male	%	Female	%
Municipality of Matamoros	70,739	33,371	47.2	37,368	52.8
Ejido Matzaco	2,576	1,179	45.8	1,397	54.2
Ejido Colón	1,491	684	45.9	807	54.1
Municipality of Chietla	36,606	17,501	47.8	19,105	52.2
Ejido Atencingo	11,867	5,700	48.0	6,167	52.0

Source: own calculations from INEGI (2000)

Of course, as Chant has put it, migration might be “a polite word for desertion” (1996: 23) and it would be dangerous to suggest that all migrants support their families in Matamoros. However, the questionnaire asked whether relatives provided support, as well as the regularity and amount of that support. Ninety migrant relatives (27.8 per cent) regularly send money, 98 (30.2 per cent) occasionally send money and 58 (18 per cent) never send money at all. Ejidatarios were asked about the use to which remittances were put, and how this had changed over time. In 1991, when the mill still provided credit, remittances were allocated mostly to family consumption, acquisitions, saving or housing, and only 3.4 per cent of ejidatarios used remittance income as a source of agricultural funding. By 2001 17.7 per cent used remittances as the principal source of agricultural funding: Atencingo and Colón showed the highest proportions with 22 and 20.9 per cent, respectively, whereas in Matzaco only 8.7 per cent used remittances to fund agriculture. The next most important use of remittances appeared to be for housing projects. Of all respondents, 51.2 per cent answered that they had improved their housing in the recent past, but most changes were relatively minor such as painting or

putting up a new wall. Major improvements seemed to be linked to the presence of migrant incomes, with respondents such as Evelia Jiménez, a 73 year old widow in Matzaco, saying that her house was a result of money from her son in the United States and Marcelo Correa in Matzaco, with seven children living in the US, saying that they helped him to complete the building of his house.<sup>124</sup>

**Table 6.10 Third Source of Income**

	Frequency	Percentage
Migrant and other relatives' support	66	41.0
Pension	33	20.5
Employee	10	6.2
Non-agricultural family business	10	6.2
Cultivation of the parcel	8	5.0
Government subsidies	8	5.0
Other	26	16.1
Total	161	100

Source: own calculations with data from the questionnaire

Recall that for 23 ejidatarios (7.1 per cent) remittances were the first source of off-farm income and for 57 respondents, the second (20 per cent from 286). Now, Table 6.10 shows that for those able to identify three or more income sources, remittances are the third source for 66 ejidatarios (or 20 per cent of all 324 participants).

Beyond their importance for ejidatarios' revenues, remittances have implications for the local economy, especially in terms of land. In interviews it was suggested that remittances had increased the price of land. According to some of the interviewees, remittances are usually used first to fund spending on food and other basic necessities such as clothes, school and medicines; second, for buying furniture and making some improvements in housing, and after that for funding crops or buying land. It was also suggested that as migration involves the younger members of the community and tends to involve them in non agricultural jobs, upon return they will not be interested in

<sup>124</sup> José Tello, Municipal President in Chiautla near Matamoros said in a newspaper interview that US \$30,000 are received daily by the six bureaux de change operating in the village, causing serious price distortion and inflation in houses and land (El Universal 4 February 2002). Before migration became so common, it was possible to tell which houses had relatives abroad by satellite dishes.

learning how to make a living in agriculture (Cornélius 1998; Gendreau and Giménez 1998; Rich et al. 1998).<sup>125</sup> Evidence from the case study ejidos suggests, however, that instead of distancing themselves from agriculture migrants are using part of their income to buy land through their relatives in Mexico. In the questionnaire six ejidatarios responded that they have more than five hectares, and interestingly, five out of those six have at least one child in the US. In the questionnaire 135 ejidatarios reported that they have at least one child in the US, and 124, not; others did not answer or do not have adult children at all.

As such, with migrant remittances being an important source of agricultural funding, the renting and acquisition of land we could be witnessing the early phase of enhanced economic differentiation as increased prices, including land prices, reduce the real purchasing power of the poorest. The idea of a migration-land link leading to new social differentiation receives some support from Table 6.11. First, those with migrant children have an advantage over those without, and this might allow us to conclude that migrants can become the leading force in ejidos, taking advantage of their privileged income situation. Second, this advantage remains weak because migrants are not yet indisputably the dominant economic or social actors, but they are the group most clearly taking on the opportunities of the 1992 reforms and liberalisation more generally.

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<sup>125</sup> Migration elicits comments on a wide range of social and cultural impacts. Respondents in Matamoros referred to how migrants have changed their culture, attitudes and values; for example in clothes, styles of hair cut, food and language.

**Table 6.11 Difference Between Households With and Without Migrant Children (percentages)**

	With migrant Children	Without migrant Children
Has bought land	17	14
Rent land from others	6	3
Area rented	7 (<2ha) 3 (2.1-3ha) 1 (>5ha)	1 (<1ha) 1 (2.1-3ha)
Willing to sell the plot	8	13
Knowledge of the law	28	23
Only engaged in cash crops	20	11
Agricultural income is enough	31	27
Has improved the house	53	48

Source: own calculations with data from the questionnaire

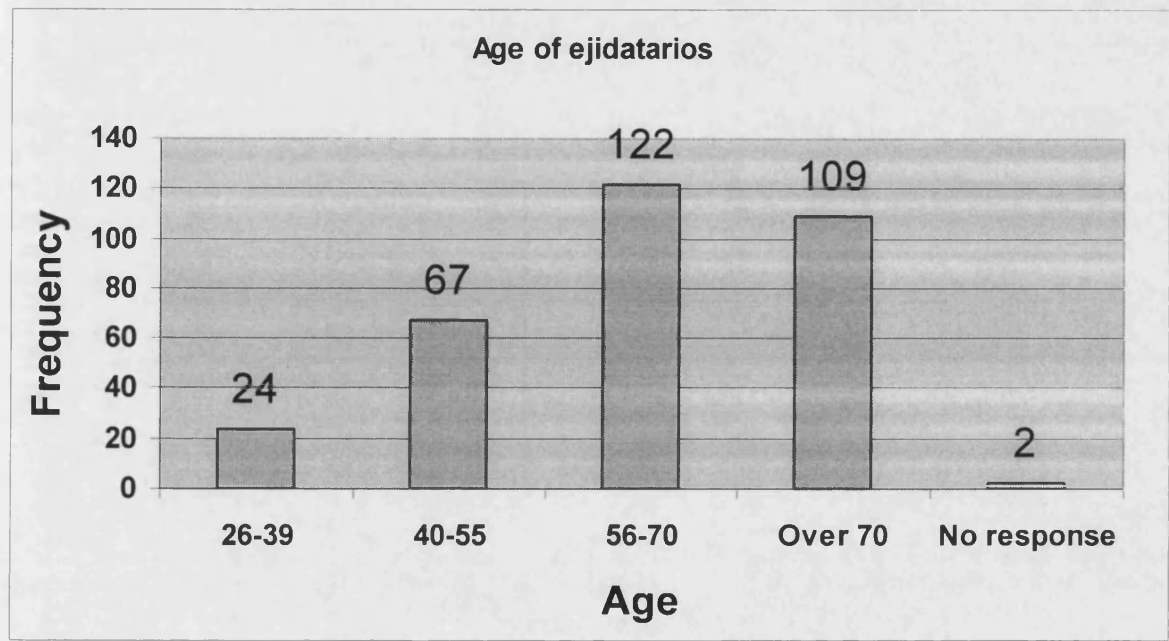
## 6.7 Social Conditions: Age, Gender, Education and Social Security

Since the right to ejido land is life-long, ejidos are characterised by an ageing population with an average age of ejidatarios nationally of 51.4 years (Robles 1999). The age structure of ejidatarios has important implications for land market behaviour and the productive process. Olinto and Deininger (1990) and Heath (1990) point to an ageing population of land holders as perpetuating the low productivity of ejido land, since not only are older ejidatarios less efficient at cultivation but, they argue, they are more wary of renting out surplus land for fear of losing ownership rights. As Figure 6.3 shows, the case study ejidos possess an ageing population of ejidatarios and we have already noted that the attractions of social security and pensions has caused some ejidatarios to remain sugar cane producers rather than risk ventures with cash crops. Fifty-nine per cent responded that they remain cane producers because of social security and the pension, but elderly ejidatarios do not seem especially reluctant to rent out their plots. Jorge Alcázar, 72, in Colón, rents part of his land; Marcos Ledezma, 68, in Matzaco, and Rosa Alvarado, 66, in Matzaco, rent out part of their land; Raquel Leyva in Atencingo, a widow aged over 70, hires two workers to cultivate her land and Evelia Jiménez, 73, in Matzaco, holds a two-hectare plot and her son hires farm workers to



cultivate the land. Amalia González, an ejidataria in Matzaco left cane cultivation and sometimes rents her one-hectare plot to people who grow vegetables; she is thinking of renting the plot for perhaps ten years to get a regular income and avoid the problems of cropping. The list goes on.

Figure 6.3 Age of Ejidatarios



Source: own calculations with data from the questionnaire

Nor, contrary to expectation, does a cross tabulation of age and willingness to sell show a correlation. But there is a greater knowledge of the 1992 reform by age with 50 per cent of the youngest age group knowing about the reform, 32 per cent of the second youngest, 27 of the third youngest and 21 per cent of the oldest ejidatarios. Age is also associated with migration: specifically, 33 per cent of those under 39 have migrated at least once compared to eight per cent of those 40 to 70, compared to only three per cent of those currently over seventy years. Age does not seem to influence who works the land or whether cane is replanted (age of cane), partly because these decisions are affected by the government, the mill, producer organisations and to some extent the ejido.

The reform of Article 27 appeared to provide women landholders or women as the heirs

of ejidatarios greater property rights, but both in the wording of the final laws and in the practice of PROCEDURE, gender equality has been harder to achieve although the data nationally show a trend toward more women becoming plot holders (Goldring 1998; Nuijten 1998; Robles 1999). The questionnaire sought to differentiate the roles of male and female ejidatarios. According to the data, of the 324 participants, 68.2 per cent (221) are men and 31.8 per cent (103) are women. Gender seems to influence important decisions. For example, 19.4 per cent of men have bought land compared to only 5.8 per cent of women; 6.3 per cent of men have taken land in sharecropping but only 1.9 per cent of women. However, ejidatarios' willingness to sell land seems not to be influenced by gender. Gender also seems to influence knowledge of the law; 33 per cent of male ejidatarios claimed to be familiar with the essential points of the new agrarian law but only 17 per cent of women claimed knowledge. Finally, gender has influenced the change from cane to other crops: ten per cent of men have left cane as against 22 per cent of women. Although women, profess to finding the cultivation of cane easier than other crops for a variety of reasons but especially due to the lower level of labour intensity, with the assistance of relatives many more women than men have adopted a flexible approach to cropping choices.

It is possible that the opportunities offered by institutional reform are not being taken up because of the low educational attainment of the ejidatario population. Social capital, including education, training and health are key factors to enhance productivity through supporting an ability to innovate, to assume risks and to acquire and use market information (Kherallah and Kirsten 2001). In the fieldwork, a sub sample of 110 ejidatarios were used to assess educational level (Table 6.12): 51.8 per cent of ejidatarios lacked any form of education, a further 27.2 per cent had not completed primary education and 16.3 per cent had only primary instruction. In sum, 95.3 per cent of ejidatarios hold an educational level of, at most, primary school level.<sup>126</sup> These results are considerably worse than those for the municipal areas as a whole where illiteracy (over age 15) decreased from 52.3 per cent in 1950 to 20.8 per cent in 1990,

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<sup>126</sup> "No school" includes both those who attended one year of primary school and those who said they are illiterate because in practical terms one year of primary school in a rural area is virtually equivalent to illiteracy.

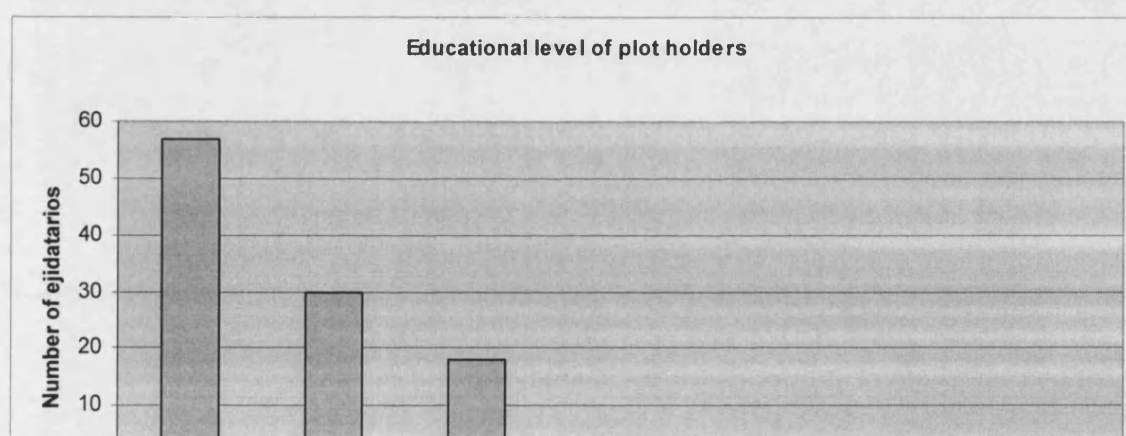
and 15.8 per cent by 2000 (INEGI 1994, 2000).<sup>127</sup> In the municipality, 20.5 per cent lacked any form of instruction, 26.4 per cent had failed to complete primary school, 15.9 per cent completed primary school and 31.3 per cent had post-primary instruction (INEGI 2000).

**Table 6.12 Educational Level of Plot Holders in Matzaco, Atencingo and Colón**

	No school	Primary not completed	Primary completed	Secondary not completed	Secondary completed	High School	Professional
Matzaco	19	8	2	0	0	0	1
Atencingo	33	19	13	1	1	2	0
Colón	5	3	3	0	0	0	0
Total	57	30	18	1	1	2	1

Source: own calculations with data from the questionnaire

**Figure 6.4 Education Level of Plot Holders**



Looking ahead, this situation may not improve significantly. Data from INEGI (1999) show the number of students registered by education level (Table 6.13). In Matamoros, only 3.8 per cent of all students registered in primary school are registered at the undergraduate level, and only 2.5 percent if Matamoros out of the total when Matamoros and Chietla are combined. The table also shows a dramatic reduction of those studying at the secondary level compared with those at primary school. Only 36.2 per cent in Chietla and 36.9 per cent in Matamoros of those in the primary level go on to register at the secondary school and only 10.7 per cent in Chietla and 19.2 in Matamoros enrol at the higher secondary school level (*preparatoria* or *bachillerato*). Clearly, an ejidatario cultivating a one-hectare plot is unable to afford professional studies for their children. Again, the agrarian structure is working as a constraint for both education and productivity. However, one must also wonder whether, if more ejidatarios or their children gained professional training, this would raise productivity if plots are so small or is there a minimum scale required to use such knowledge in an efficient manner? An agronomist or administrator engaged in the management of one hectare would probably not be able to raise incomes significantly. Larger scales of production are needed to afford the education of children and to make sure that education enhances production.

**Table 6.13 Number of Students Registered in Chietla and Matamoros**

Level	Chietla		Matamoros	
	Number of students	Primary level	Number of students	Primary level
Total	10743		22263	
Kindergarten	1234		2988	
Primary	6173		12073	
Secondary	2234	36.2	4449	36.9
Secondary school: 15-17 year old (Preparatoria or bachillerato)	659	10.7	2315	19.2
Technical school	403	6.5	438	3.6
Undergraduate	0	0.0	460	3.8

Source: own calculations with data from INEGI (1999).

Finally, let us turn to the importance of social security to social conditions. In Chapter Five the importance of the pension to ejidatarios was discussed, noting that the provision of social security provides incentives to ejidatarios to remain sugar cane producers and to subdivide the land. Sugar cane producers are the only rural sector to benefit from medical services provided by the Seguro Social since 1963 and organised through a collective contract via the UNPCA-CNC and UNC-CNPR (Del Villar 1976, Juárez 1986; Singelman 2001). In return for a small contribution each month to the Social Security Institute (IMSS), collected by the unions or the mill from every producer as a deduction against their final payment, cane producers receive medical attention and, after the age of 65, the right to a pension.<sup>128</sup> The producer contribution is added to by the mill which pays 50 per cent of the contribution and the government which provides 25 per cent, leaving the producer's deduction only 25 per cent of the payment to IMSS. The medical and pension benefits are linked to one's status as a cane producer and not to the amount of cultivated area. Indeed, it has been part of the producer organisations' platform that they are committed to help ejidatarios with the smallest plots and the lowest production.<sup>129</sup> As social and economic conditions in Matamoros become more difficult the role of social security becomes more important. According to INEGI (1994), the number of people registered with the IMSS in Matamoros rose from 6,497 in 1987 to 7,855 in 1993, an increase of 226 persons a year or 21 per cent in six years, and in Chietla by 1998 26,352 people were registered with IMSS. These figures mean that in Matamoros 49 per cent and in Chietla 73.5 per cent of the population – high figures by national standards – have access to social security (INEGI 1999).

The impacts of social security on land are difficult to tease out but we can note that as an indication of the incentive to remain a sugar cane producer and to subdivide the plot, 177 of 324 ejidatarios (54.6 per cent) receive a pension. In Colón 68.8 per cent hold a

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<sup>128</sup> Cane cutters also enjoy medical attention from IMSS, but only during the harvest. To get assistance cutters used to receive from ejidatarios a document called "Aviso de Trabajo" (notification) but this system was eliminated due to a black market in Avisos which were sold to people not working as cane cutters. A doctor working in Matamoros called my attention to this issue.

<sup>129</sup> On the regulations related to sugar cane producers and social security see "Convenio de Aseguramiento y Pago de Cuotas de los Productores de Caña de Azúcar", the contract signed between UNC (CNPR) 24 September 2001 and UNPCA (CNC) 18 October 2001 with IMSS.

pension whereas in Matzaco where a lower proportion of ejidatarios grow cane, only 38 per cent do so. Of course, the amount of the pension is quite small: Griselda Palacios, 66, ejidataria since 1978 holding 1.7 hectares, receives 1,150 pesos a month from the mill and 1,023 pesos from IMSS; Juana Escobar in Atencingo receives a pension of 1,227 pesos a month; Amelia Alvarado, a widow in Matzaco living with her daughter and three grand children, receives a pension of 1,071 pesos a month and Federico Avila, in Colón, 1,200 pesos a month. Nevertheless, in addition to the medical cover, the pension is paid regularly and still allows ejidatarios to subdivide plots for additional income, which if they grew vegetables would be a direct attack on income or profit by impeding economies of scale.

## 6.8 Conclusion

In this chapter I have looked at the market for cane and cash crops, and at the social conditions within the case study ejidos to gauge how these might have changed as a consequence of the reform. The overriding conclusion is that, far more than the system of property rights and more than the reform to Article 27, it is the system of paying for cane that both keeps ejidatarios from utter destitution but still poor, and that the system of payments and other benefits such as social security maintain what is from the viewpoint of the Article 27 reformers a 'perverse incentive' not to convert to cash crops or sell land but to continue the process of subdivision and fragmentation. The results of this chapter then point to the need to question the system of paying for sugar, shifting from a combination of weight and sucrose concentration that hampers productivity to one that puts more emphasis on cane quality and sucrose. There also needs to be greater supervision of the extensive delays imposed by the mill on payments to sugar producers that motivates a condition of moral hazard; as a consequence, in real terms ejidatarios are providing the mill with an enforced commercial loan. Delays to payments also show the weakness of minifundistas' access to information and political agency, strong in the past but which may have become weaker as forms of collective action have declined. Although the evidence is mixed on social conditions and change I would argue that these have not significantly improved in the past decade and have even got worse for many people, and that there are signs of social differentiation. This differentiation is dictated principally by access to migrant incomes rather more than agricultural

productivity.

Because of the inadequacy of agricultural incomes, a large proportion of ejidatarios have been obliged to resort to extra-farm incomes. Rather than represent the Chayanovian small-scale self-producer or serve as a sector of labour retention, ejidatarios are now more likely to be employees of small family businesses or become part-time electricians, taxi drivers and so on. In a context in which access to capital has all but dried up, the balance between labour and land as factors of production has shifted further in favour of labour. Ejidos themselves seem unable to absorb younger generations – recall that family size of ejidatarios is lower than national or state averages – leaving many to migrate to the United States. Ironically, however, while small plot sizes and the dispersed nature of holdings across ejidos motivates an economic and social need to migrate, incomes remitted from migrants are an important source of funding for agriculture as well as for family income. Furthermore, it seems that migrants, together with more prosperous ejidatarios and mill workers, are the most active group buying ejido land. In the long term they could become the principal factor for land concentration in the region. From a viewpoint informed by Neo-Institutional Economics it is the regulations surrounding sugar payments and the additional incomes, mainly from migration, that are providing the basis to secure property rights, and not the legal mandates. While the latter seek to move the ejido toward greater economic rationality, the property rights engendered by other regulations and processes can work in different directions. While this might militate against the threat of land loss feared by Article 27 opponents, there seems little possibility of the ejido raising productivity and income in the short to medium term.

## CHAPTER 7: GENERAL CONCLUSIONS

### 7.1 Introduction

Despite what most observers of Mexican agriculture would describe, in different ways, as an inefficient institutional structure, the Matamoros region achieves some of the highest yields of sugar cane in Mexico. This is not a paradox if one asks whether the valley should be performing significantly better. As a start point for this thesis I was concerned by the institutional constraints that reduced the potential yields of a region's natural endowment. This concern was heightened by personal observations of low productivity and poverty in areas of rich natural resources and of the rapidly changing conditions of agricultural liberalisation and of the integration of Mexico into international markets for sugar cane. The principal aim of this thesis, therefore, was to assess the effects of institutional changes on ejido performance by tracing the links between particular institutions and specific productive activities. Rather than resort to national data that has been used by many researchers in Mexico, who must hope that such data have been collected accurately, I decided to adopt a case study approach at the micro level. This approach allowed me to understand but also to control for local circumstances although, admittedly, it also meant a much-reduced scope of the research. My argument was that the ejido was being undermined by its very purpose, to maintain a significant minifundio presence in the countryside, and by regulations that deprived landholders of real ownership and hampered their agricultural performance. The ejido was not originally conceived as an economically efficient unit of agricultural production but as a system of production subject to political interference. The Matamoros valley was identified as a good laboratory to view this situation. Despite local resistance, ejidos in Matamoros were subject to collectivisation from 1938, which took until 1973 to collapse, but they were then forced to deal with a government owned mill and through exclusive contracts administered by politically-inspired producer organisations. As a region already producing a cash crop but with the endowments to produce others, Matamoros might have been expected to embrace the opportunities of Article 27 reform.

According to Neo-Institutional Economics (NIE) and the Evolutionary Theory of Land



Rights (ETLR) there should be a demand for institutional reform to install private property rights on the ejido. Without reform, institutional changes will take place outside a system of formal recognition through, for example, illegal land sales or sharecropping arrangements. Following an appropriate institutional response, there should be activation of the land market, credit and private investment, technological absorption, opportunities for new forms of association, agricultural intensification and greater productivity (Heath 1990). Although not motivated by a close reading of the NIE or ETLR literature these were broadly the expected results of reformers of the ejido in Mexico (H. Cámara de Diputados 1992; Salinas 2000; Téllez 1994). Critics of the reform assumed that many of these expectations would in fact be the result, but argued that their impact would be negative, predicting dispossession of ejidatarios from their land through accelerated sales and land consolidation into large latifundios which in turn would provoke massive migration (Calva 1993a). In areas such as Matamoros one might expect these optimistic, or pessimistic, scenarios to be even more strongly felt because at the same time as Article 27 was reformed there was a process of privatising the sugar mills and the general liberalisation of the agro-sugar industry (García 1997; Sánchez et al. 1993). To what extent, one decade on, would we be able to see the impacts of institutional reforms on the ejido and the sugar agro-industry?

## **7.2 Land Markets, Fragmentation and Access to Credit**

In the three case study ejidos a land market existed long before the 1992 reforms. There is little evidence to suggest that the reform has significantly increased the scale or quality of land transactions. Matzaco, the only one of the three ejidos to have been titled at the time of the research, did not display a more active land market, whereas Atencingo, which had not yet been titled by PROCEDA, recorded a slight increase in transactions. An important component of the Atencingo market is the role of mill workers who have become important buyers of land. Where PROCEDA was adopted, the reform confirmed existing holdings, although not all the de facto holdings have been formalised through the programme, but neither the previous prohibition on sales or the reform seem to have prevented informal land transactions in Matamoros, and specifically in Matzaco which engaged in PROCEDA since 1993. In titling the land the reform was expected to lead to a formalisation of the land market, but transactions

continue to take place through more local institutional arrangements than are captured by legal procedures, and the permissiveness toward sales seems to have as much to do with the general recognition of transactions in a local area by the Comisariado (who may issue some form of paperwork recognising the new 'owner') as with what the law does or does not allow. The motives for sale in all three ejidos but especially in Atencingo is what we call 'distress'. By contrast to sales, much more pronounced changes concern the preference among ejidatarios for renting land. The response of participants was far more knowledgeable about this part of the new law, which they also considered to be an economically rational adjustment as it allows them to rent plots without risk of losing their rights. Thus, contrary to the fears expressed by opponents to the 1992 reforms, ejidatarios do not see the law as a threat to ownership and usufruct.

The reform has not reversed a long standing process of land fragmentation. The questionnaire found that the average size of an irrigated plot in the three case study ejidos is about 1.6 hectares. Sales and rentals are not expected to increase this amount in coming years as few 'new buyers' seem to be accumulating large amounts of land. In fact PROCEDURE may have motivated further fragmentation simply by recognising, as in Matzaco, a large number of people who were not formally ejidatarios but who had access to ejido land (mostly as sharecroppers). As in Atencingo, many of the people are now incorporated as new ejidatarios and there is some evidence that they, just like ejidatarios in the past and today, are engaged in sales and rentals of parts of their plots. An important motivation for this process is to convert as many relatives as possible to being cane producers, thereby enabling them to gain rights to social security. In the process of fragmentation the ejido community retains an important role. Indeed, as indicated by Matzaco's rejection of *dominio pleno*, a move to full individual ownership could not get past the Assembly. In part, the retained strength of community may be because the reform has been urged upon ejidos that would adopt it easily – Matzaco began PROCEDURE in 1993 and was supported by the Procuraduría Agraria because it had no boundary conflicts, compared to Colón which has a number of problems but has rejected PROCEDURE and where the Procuraduría is only luke-warm about intervening.

Confirmation of property rights, especially for those adopting PROCEDURE, should create the opportunities in de Soto's famous phrase to transform dead assets into "live capital".

This has not proven to be the case in Matamoros. In part this is not the fault of the theory of property rights per se but the result of other processes reducing the availability of credit to ejidos through the scaling-down or closure of agencies such as FINASA, BANRURAL and FIMAIA. Nevertheless, it was hoped by reform proponents that once property rights were formalised credit would flow into the vacuum left by the cancellation of official funding. As the results show, even ejidatarios with titles, in Matzaco, have failed to get loans even though the ejido is well located, has irrigated land and a longer tradition than most ejidos of engaging in cash crops. In order to finance agricultural production, therefore, ejidatarios rent out parts or the whole of the plot, or in a few cases some have abandoned the land for short periods to seek work elsewhere. I can only hypothesise that the unfilled vacuum in funding will cause the poorest producers to leave cane production first. For almost all ejidatarios, however, it seems that the lack of funding means that plantations are not being renewed as they should, so reducing sucrose concentration and increasing time and costs for cutting and the incidence of pests. The attempt to confer more secure property rights in an environment in which opportunities for credit were being withdrawn shows that the reform was not well thought through, either relying too much on an assumption that markets would rapidly respond or a misperception that government agencies possessed the coordination of effort and will to dedicate more limited resources to those who could use them best. Instead of formal finance, or the more long-standing reliance on moneylenders which imposes high financial costs, in recent years remittances from migration have been a growing source of funding. Although primarily used to cover household expenses, remittances were the most significant new source of finance to buy or improve land. In the short term, migration remittances disguise the diseconomies of land fragmentation, but they might eventually produce land consolidation. Contrary to what some scholars suggest – that migrants will be more prone to sell land – I found the opposite, with migrants tending to buy land or improve the housing of relatives, taking advantage of their relative economic situation.

### **7.3 Technology, Productivity and Social Conditions**

The successive subdivision of plot, before and after the 1992 reforms, motivated by the need to raise income in order to cover household expenses, has got to a point where

plots are so small and dispersed that they are insufficient to meet basic needs. The minifundio as a measure to avoid impoverishment is therefore deepening the poverty of the ejido today. Of course, if the productivity of small plots was high or had been increased this conclusion might be avoided and the Revolutionary-Chayanovian ideal of a self-sufficient peasantry could be regained or realised. But most new technology, particularly in the sugar sector, is most suitable for large plots and the economics of small plots means that technologies such as ox ploughs have an advantage over tractors. The owners of combined harvesters complain about the inconvenience of multiple journeys and deterioration of equipment, with the consequent increase in costs. Although the evidence does not go so far as to support the suggestion that since 1992 there has been a technological regression (Appendini 1996; de Janvry et al. 1996), there has certainly not been a dramatic technological intensification of the ejido. Moreover, fragmentation is also imposing other production and transaction costs, many of which neither officials nor the ejidatarios themselves seem to be fully aware of. As plots become smaller and an individual may hold many plots over a large area, with either mixed cropping of sugar and maize or the growing of cane at different stages of maturity, it is almost impossible to set a schedule for using farm equipment (individually or collectively), to synchronise cane cutters to avoid frequent moves across the ejido or to prevent them cutting down unripe canes, to prevent accidental cane burning or to use fertilisers appropriately and economically.

From the theorists, and especially from North (1990), we learn that in the event of institutional constraints organisations should be formed that address these problems. In Matamoros, the analysis of the changing organisational landscape does not support this view. First, the mill as the key organisation in the region is not subject to the demands of ejidatarios. As a consequence the simultaneous privatisation of the mill did not oblige the new owners to fulfil their promise to invest. Instead, in a strategy of rent seeking, the private mills have kept looking for official subsidies and other supports without improving the agro-sugar industry's productive capacity. That behaviour was due to the opportunity cost of investing in the sugar sector compared to alternative investment in more profitable sectors. Despite some improvements to the organisation of sugar refining and the weighing of cane in Atencingo, data on the mill's performance show that the assumption of the superiority of private administration is unrealistic. Just as in

the previous period of private ownership before 1976 (as well as under public ownership) the sugar mill has remained technologically backward, lacks liquidity and is subsidy-dependent. Conflicts with cane growers because of delays to payments continue and impose transaction costs on ejidatarios.

Under these conditions, producer organisations should be playing a more important role after the 1992 reforms. Usually analysed in terms of their political rationale, sugar cane producers organisations could perform vital economic functions to offset the high transaction costs of the minifundio. With the Atencingo mill being supplied by around 7,000 producers with an average 1.6 hectares over a number of plots, organisations should be demanded by both the producers and the mill as a means to create some order and, for the ejidatarios, to ensure that the mill does not pass undue agricultural risk to the producers. Unfortunately, at present, producer organisations do not act as a corrective to fragmentation but only cushion some of its consequences. Although one line of NIE would suggest, again, that where there is institutional inconformity a new form of organisation should emerge, the interests of the government were to prevent organisational innovation. Indeed, in the same year as the reform of Article 27 took place, and in an environment in which measures were being taken to restrain official funding to agriculture, price controls and extension services, a new sugar decree was issued reaffirming the monopoly of producer organisations in negotiating contracts between cane producers and the mill and in allocating social security. The general theory, however, is ambivalent as to the precise nature of the organisational response. In Matamoros ejidatarios seem especially reluctant to resolve problems of agricultural intensification and embedded transaction costs by collective organisation, perhaps because of previous bad experiences (especially in Colón and Atencingo) (for elsewhere see Gledhill 1993; Otero 1999; Singelman and Tapia 1979). Matamoros, then, supports Olson's view on the disadvantages of large organisations and the advantages of smaller ones, with the practical evidence showing that organisational change does not move in neat jumps from collective arrangements towards individual ones. What North (1990) describes as "path dependence" – the legacy of existing organisations on present economic behaviour – means that there has not been a complete elimination of collective structures but a reduction of their scope in search of greater room for individual action. Recent attempts at collective action to offset the minifundio's

negative features, for example getting a loan from BANRURAL to buy a tractor, have been small-scale and largely unsuccessful. Political changes beyond the control of the sector, however, have seen the emergence of an as-yet unnamed organisation of cane producers which, were it to take off (and history is against it given the strength of the CNC), might force producer organisations to read the signals from ejidatarios and address their weakness vis-à-vis the mill and coyotes as well as the unsuitability of the 1992 reform to their members real economic needs.

Another possibility to respond to the combination of problematic relations with the mill and greater security of individual rights to land would be to shift the allocation of resources from sugar cane toward other crops. The field research attempted to track shifts to cash and more basic crops such as maize and beans, but even in Matzaco which had almost half a century of experience with maize and vegetables, there is no strong evidence of a significant change, and in Atencingo and Colón ejidatarios continue to grow cane. Indeed, there is some evidence in all three ejidos of ejidatarios who had moved completely or partly away from cane returning to sugar cane cultivation. The reasons have little to do with property rights, but assessments of the risk of cash crops, technical restrictions on growing vegetables, the lack of water, investment requirements for other crops and the attractions of maintaining social security cover. The research also found evidence that ejidatarios also faced significant transaction costs in the commercialisation of cash crops in markets dominated by *coyotes* and brokers. Ejidatarios continue to sell their crops to middlemen, usually on the spot at low prices as ‘fresh food’ with the minimum of value added. There is no evidence, at least in Matamoros, of ejidatarios setting up more modern organisational productive schemes through new associations or joint ventures with private companies. Most ejidatarios hold a deep mistrust of associations with private companies and, probably rightly, perceive that these links do not reduce their exposure to market risk. In theoretical terms, while NIE tells us what should happen – in this case the design of new production models and the monitoring and evaluation of contracts to promote associations and contract farming – it provides few clues as to why these responses are not being followed. The ejidos appear to be in a lose-lose scenario of being unable to achieve economies of scale because of the fragmentation of land holding and too disorganised to overcome these constraints through collective action within a minifundista

structure. Indeed, it seems as though individualisation and fragmentation are working to raise the costs of production by making the planning of sowing, supplying fertiliser, watering, harvesting, moving farm equipment and managing labour more difficult.

In such circumstances it is not surprising that the research found little evidence of improving living standards in the ejidos since 1992. Nor did I find that social conditions are more appropriate to raising the future productivity of ejido land. Poverty remains common endemic among the ejidatarios and it is difficult to imagine how they are going to work their way out of this condition on the basis of more secure rights to holdings of less than two hectares. I found that the average family income from the plot amounts to one official minimum wage (about four dollars per day) and even those with irrigated land need to acquire multiple extra farm incomes. In almost one quarter of cases, non-agricultural activities are the first source of income – the minifundio has not protected the ejidatario from selling his/her labour. Linking off-farm income to the finding of new forms of finance for agricultural improvement one can grasp the extent of the illusion that the possession of land (in a context in which so many other institutional constraints work against the ejido) would suffice to create subsistence without massive self-exploitation (Bartra 1982) and how higher productivity will make little difference without many other complimentary changes (Deininger and Binswanger 1999). To enhance growth and create wealth, land and labour are not enough, even in the fertile, irrigated and well-communicated valley of Matamoros. In practical terms, we need to think beyond the ejido property as a means to improve conditions for rural income generation and wealth creation. In one sense, ejidatario households are themselves taking this step. Fifty-two percent of families with adult children have at least one nuclear family member working in the United States, and this trend has increased over the past decade. Remittances are working in practice as a safety valve to cushion poverty, improve housing and, contrary to the stereotypical image of migrants as more detached from the land, as an important means to retain land or acquire more. In the near future, social conditions in Matamoros therefore seem most likely to be determined, at least in part, by the balance between migrant remittances allowing ejidatarios to hold on to low-productivity assets and migrants with sufficient income beginning to bring about land concentration.

## 7.4 Explanation of Results and Implications for Theory and Policy

So, why did the reform not succeed in delivering the results expected of it? Did Salinas and his team mis-calculate the potential effect of the reform? Was the diagnosis of problems correct but the solutions inappropriate? Was the reform right but mis-timed? Did Salinas's desire to 'sell' the reform divorce the rhetoric of intended outcomes from what the details of the reform could actually deliver (see Jones and Pisa 2000; Nuijten 1998)? Were broader macro-economic shifts or those affecting sugar markets internationally as set out in Chapter One just too much for a reform that sought to alter property rights? Can Neo-Institutional Economics-ETLR assist with identifying causes for the limited results of a 'radical' reappraisal of property rights? A small case study can only point to a few possible explanations and their implications.

One explanation is that the limited impacts of the reform were due to the lack of an integrated institutional reform in the first place. The lack of a formal financial market capable of delivering finance and in ways that are competitive with informal sources in order to bring down costs and at least raise the possibility of an investment-productivity link was missed. The removal of official sources of funding rather than perhaps a greater flexibility on how these funds could be used and greater emphasis on their repayment was a mistake. Second, the reform itself was inconsistent in addressing the problems identified by its creators and the conditions on the ground. Securing property rights for the holders of land areas too small to economically, and in some cases physically, use technology is unlikely to encourage them to do so. Similarly, seeing the 'ejido problem' as one of restrictive institutions failed to address how social differentiation influences economic impacts. NIE, as with neo-classical economics, seems to expect all actors to respond to changes in more or less similar ways. Nonetheless, to take just one example, an ageing cohort of ejidatarios, many of whom are widowed and therefore dependent on others whose time commitment might be limited, and who have only weak links to forms of collective organisation, seem unlikely candidates to intensify the use of technology. Third, the reform may not have set out a realistic mechanism for providing full property rights. The process of realising property rights through PROCEDER for instance could not be achieved individually in



that it required the consent of the General Assembly and the Comisariado, but it also seems to have imposed transaction costs on ejidatarios by requiring them to journey to numerous offices to formalise possession. Once confirmed new rules restricted holdings to only five per cent of ejido land (as it turns out a symbolic limit in the case of Matamoros), but nor could ejidatarios sell land, rent it, bequeath it or in some circumstances invest in it without decisions being made by others (via the *derecho del tanto* or more formally in the *reglamento ejidal*). Under such conditions the notion that the reform instituted individual rights that could be collateralised seems hard to sustain even if funding were available. In line with findings of Migot-Adholla et al. (1991) and Platteau (1996) for Africa, my results from Mexico suggest doubt that reform has reduced the transaction costs sufficiently (if at all) to induce landholders to conduct previously informal transactions such as rent and sale under the provisions of the new laws. As ETLR suggests, only when formal institutions prove able to respond to the demands for the evolution of property rights will they be adopted.

Fourth, the ejido was able to operate in a condition of productive stasis while the economy was subject to Import-Substitution-Industrialisation and the state was able to determine the purchase of produce and prices. In that context too relations with the mill were subject to high levels of official control either through nationalisation or political pressure, but almost simultaneously with the pressure to reform the ejido, the conditions in the commodity market for sugar changed too. As entrepreneurs have emphasised in defending their record as private mill owners, trade liberalisation and NAFTA have deepened the sugar crisis, downplaying the effect of their mismanagement and making it difficult to sell sugar on an international market in which prices are declining due to competition from more modern factories overseas and reduced margins demanded by multinationals while trade agreements protect other producers. The Mexican agro-sugar industry has been especially vulnerable to the import of fructose. In this situation, the old system of formally negotiated contracts with the mill seems outdated and I propose that the support for social security should be matched with an increase in productivity. At a time when mills should be increasing their productivity, the payment system for cane places too little emphasis on quality. True, this system provides ejidatarios with the image of security but it leaves mill owners little option but to realise their power and delay payments whenever possible. Contrary to Heath (1990) who saw the lack of

profitability as an explanation for the poor performance of the ejido, in my view it is the low profitability of a potentially profitable sugar sector that needs to be explained by looking at institutional arrangements.

Fifth, with regards to the role that land holding plays in the region (and perhaps Mexico generally) where the labour market in particular is extremely weak: with few alternatives to agriculture, even at low levels of productivity, keeping land is a rational decision. Holding land provides some income which acts almost as an insurance against risk, and in so far as sugar cane production permits access to social security then the land to insurance link is more direct still. The almost unanimous answer to the question about willingness to sell land was that everyone would continue to hold land, however little, and if distress motivated sales the evidence suggests that ejidatarios lose as little land as possible as a form of income rather than as a means to release capital for other economic purposes. Only a few ejidatarios mentioned that they remain attached to the land because of the agrarian struggle, suggesting that, while ideology, emotions, culture and identity matter, these factors are subordinated to economic considerations. Consequently and as noted in Chapter 4, a lack of stable and well-paid jobs in the region keeps fragmentation and hampers the development of what Article 27 reformers would understand as an efficient land market. This observation provokes the suggestion that regions with more mature labour markets might display the more dramatic responses to Article 27 reforms that are more in line with reformer expectations.

What are the implications of this study for policy prescription in Mexico? That present conditions need further reform is suggested by the results outlined here relating to problems of technological absorption, capital inflow, the lack of access to new markets and problems posed by social conditions. More generally, the agricultural sector and ejidos involved in cane production in particular are faced with exposure to foreign competition and uncertainty about the future of nationalisation-privatisation. If the reforms of 1991 and 1992 failed to deliver the results expected of them, the imperative to enhance productivity and competitiveness remains as strong as ever. Further adjustment of land and the agro-sugar industry – and in this I stress the need to coordinate reform – is necessary to raise agricultural productivity and develop more efficient markets for land, capital and labour. This view is contrary to some opinions in

the Mexican media that call for a renegotiation of NAFTA. I believe that changing the terms of trade will mean little if domestic institutional arrangements continue to promote fragmentation of landholdings and prevent the creation of jobs that are linked to, and not divorced from, the ability of land markets to operate.

A reform of ejido and agricultural sectors in such a way that raises productivity of land, labour and capital markets, and takes into consideration social conditions, needs to consider at least four processes. First, a debate should be promoted in civil society to consider how the ejido can be 'reassembled' as an autonomous form of collective action rather than as a unique form of land tenure and social organisation subject to specific institutional arrangements. As part of this debate we need to consider the possibility of a convergence of agrarian and conventional property law to recognise the holding of 'ejido' land as private property. As I have outlined here, to the extent that the 1992 reforms promoted the 'privatisation' of property rights it did so within an institutional arrangement that kept agrarian and private law separate and therefore maintained the same arrangement of political and social interests that created or maintained the 'ejido problem'. I stress that convergence should take place through debate in civil society and not through top-down juridical reform. In the meantime, however, a certain convergence in reality would be aided by efforts to reduce transaction costs of realising the demand for the individualisation of property rights by, for example, locating offices of the RAN in a larger number of towns and to facilitate paperwork for land sales and the adoption of *dominio pleno*. Changes to the agrarian law might also be brought about to facilitate and reduce transaction costs for *cesión de derechos* and the admission of new ejidatarios, reducing the paperwork, corruption and additional payments to the price of the land.

Second, we need to consider procedures to create or enhance opportunities for ejidatarios to engage in collective action, not only in terms of determining land holding but also in relation to production, credit and work. As the thesis has shown, ejidatarios suffer from problems of land fragmentation and diseconomies of scale even in situations in which adoption or adaptation to the 1992 reforms might be considered positive. In part the reason is because the reform installs a representative from the Procuraduría Agraria as a channel to validate elections, contracts and joint ventures that instead of

setting ejidatarios free of corporate forms of organisation to engage in new forms of collective actions, imposes restrictions on their ability to do so. Moreover, all decisions of collective action still have to be formalised by a General Assembly that involves coercion and dangers of moral hazard. I would propose therefore that relatively modest changes, for example to the minimum number of 'ejidatarios' required to set up organisations could be introduced. Collective action at the sub-ejido level and without the oversight of ejido or Procuraduría should be supported to accomplish tasks such as irrigation that may reduce the quantity of waste water. Although the mill has been shown to exert considerable power over ejidos by dealing with smaller more agile organisations arrangements will have to be negotiated openly rather than behind doors with Comisariados.

Third, assistance needs to be provided to enhance the abilities of ejidatarios to increase production. Some measures may mean having to 'put the state back in', but there needs to be much greater emphasis on transparency and effectiveness. At present, in an environment after which state organisations have been scaled down or closed, the official support programme Procampo remains as untransparent and politically biased, and fails to stress the productive criterion for the distribution of subsidy or to measure the impact of such largesse. At numerous points in the thesis I have also indicated how the Sugar Decree is designed as a 'safety net' but at the expense of lower productivity by basing payments on the weight of cane rather than sucrose concentration. Moreover, to an ejido sector already vulnerable to land fragmentation the Decree provides additional perverse incentives to maintain fragmented forms of land holding by, for example, providing registered holders with social security rights. Raising production will also require improved technical proficiency, with which Mexico has had considerable experience, as well as addressing issues such as information acquisition and use, market awareness and the ability to negotiate contracts. While some programmes should also be promoted, such as training for ejidatarios, for example on financial and product markets I would propose that the ejido sector should be opened to greater NGO involvement. This is essentially a political decision as agrarian organisations and especially the CNC have regarded the ejido as their domain. But further, the government needs to consider how it can genuinely create the conditions for partnerships between ejidos and civil society such as NGOs, that exist as rhetoric in the

1992 reforms but are undone by political antagonism and the transaction costs of NGO involvement.

One such partner is the mill that should share the costs of activities essential for production such as the maintenance of roads, canals and ditches and renewing of plantations, rather than leaving these costs to ejidatarios. Reform of the ejido therefore must be considered in coordination with reform of the mill, and regulations need to be created to create opportunities for mutual working rather than as a means of breaking down the current situation of exploitation. For mills and ejidos to work together a fourth process needs to be captured by reforms. Instead of regarding the 'problem' of the agro-sugar industry as one of ownership, a brief history of which was outlined in Chapter One, attention needs to be given to how the industry has been mis-shaped by institutional arrangements that oblige private mill owners to adopt rent seeking behaviour. Moreover, ejidatarios appear to lack adequate representation to send signals of the constraints that they face to the owners and producer organisations. Sugar cane production needs to be opened to the same plurality of organisation as other sectors of the economy and polity, and the exclusivity of only two cane producer organisations needs to be eliminated. The new organisations could be membership based, but their registration should be subject to performance, including the oversight that mills meet contract obligations to deliver payments to cane producers and with access to an ombudsman or regulator in cases of unreasonable delay.

## BIBLIOGRAPHY

- Adelman, J. (1995) "The Politics of Money in Mid-Nineteenth-Century Argentina" in Harriss, J., Hunter, J. and Lewis, C. M. (eds.) *The New Institutional Economics and Third World Development*, Cambridge: Cambridge University Press, 233-49.
- Alchian, A. (1977) *Economic Forces at Work*, Indianapolis, IN: Liberty Press.
- Alchian, A. and Demsetz, H. (1973) "The Property Rights Paradigm", *The Journal of Economic History* 33 (1): 16-27.
- Almeida M. E. (2001) "Dimensiones emergentes del mercado de tierras ejidal. Estudio de caso: el ejido El Salto de Eyipantla, San Andrés Tuxtla, estado de Veracruz" in Concheiro, L. and Diego, R. (eds.) *Una Perspectiva Campesina del Mercado de Tierras Ejidales: Siete Estudios de Caso*, México DF: UAM-Casa Juan Pablos, 229-60.
- Appendini, K. (1993) "Los Productores Campesinos", in Calva, J. L. (ed.) *Alternativas Para el Campo Mexicano*, México DF: Fontamara, 195-211
- Appendini, K. (1996) "Introduction to panel II, Columbia University Seminar on México, April 6-7, 1995", in Randall, L. (ed.) *Reforming Mexico's Agrarian Reform*, New York: M. E. Sharpe, 65-69.
- Appendini, K. (1998) "Changing Agrarian Institutions: Interpreting the Contradictions" in Cornelius, W. A. and Myhre, D. (eds.) *The Transformation of Rural Mexico*, U.S.-Mexico Contemporary Perspectives Series, Center for U.S-Mexican Studies, University of California Press, 25-38.
- Armendariz de A., B. and Ferreira, F. (1995) "The World Bank and The Analysis of The International Debt Crisis" in Harriss, J. Hunter, J. and Lewis, C. M. (eds.) *The New Institutional Economics and Third World Development*, Cambridge: Cambridge University Press, 215-29.
- Arrow, J. K. (1974) *The Limits of Organization*, New York: Norton.
- Azuela, A. (1989) *La Ciudad, La Propiedad Privada y el Derecho*, México DF, El Colegio de México.
- Baitenmann, H. (1998) "The Article 27 Reforms and the Promise of Local Democratisation in Central Veracruz" in Cornelius, W. A. and Myhre, D. (eds.) *The Transformation of Rural Mexico*, U.S.-Mexico Contemporary Perspectives Series, Center for U.S-Mexican Studies, University of California Press, 105-23.
- Baltasar, H. (2001) "Estructura y dinámica del mercado de tierras ejidales: El caso de Acocul, municipio de Metepec, estado de Hidalgo" in Concheiro, L. and Diego, R. (eds.) *Una Perspectiva Campesina del Mercado de Tierras Ejidales: Siete Estudios de Caso*, México DF: UAM-Casa Juan Pablos, 303-31.

Barbosa, R. and Maturana, S. (1972) *El Arrendamiento de Tierras Ejidales: Un Estudio en Michoacán*, México DF: Centro de Investigaciones Agrarias.

Bardhan, P. (1989) "Alternative Approaches to the Theory of Institutions in Economic Development" in Bardhan, P. (ed.) *The Economic Theory of Agrarian Institutions*, Oxford: Clarendon Press, 3-17.

Barkin, D. (1987) "The End to Food Self-sufficiency in Mexico", *Latin American Perspectives* 14 (3): 271-97.

Barkin, D. (1997) "Una Política Alternativa para Enfrentar al Neoliberalismo" in Calva, J. L. (ed.) *El Campo Mexicano: Ajuste Neoliberal y Alternativas*, México DF: CIESTAAM-Juan Pablos Editor, 220-30

Barro, R. J. (1998) *Determinants of Economic Growth: A Cross - Country Empirical Study*, Cambridge, MA: The MIT Press.

Barros, M. (2000) "The Mexican Peasantry and the Ejido in the Neo-liberal Period" in Bryceson, D., Kay, C. and Mooij, J. (eds.) *Disappearing Peasantries? Rural Labour in Africa, Asia and Latin America*, London: Intermediate Technology Publications, 159-75.

Barry, T. (ed.) (1992) *Mexico, a Country Guide*, Albuquerque, New Mexico: The Inter-Hemispheric Education Resource Center.

Bartra, A. (1996) "A Persistent Rural Leviathan" in Randall, L. (ed.) *Reforming Mexico's Agrarian Reform*, New York: M. E. Sharpe, 173-84.

Bartra, R. (1982) "Capitalism and the Peasantry in Mexico", *Latin American Perspectives* 9 (1): 36-47.

Bartra, R. (1987) *Estructura Agraria y Clases Sociales en México*, México DF: Ediciones Era, Instituto de Investigaciones Sociales, UNAM (First edition, 1974).

Barzel, Y. (1997) *Economic Analysis of Property Rights*, Cambridge: Cambridge University Press.

Bates, R. H. (1995) "Social Dilemmas and Rational Individuals: An Assessment of the New Institutionalism" in Harriss, J., Hunter, J. and Lewis, C. M. (eds.) *The New Institutional Economics and Third World Development*, Cambridge: Cambridge University Press, 27-48.

Bates, R. H. (1998) "The Political Framework for Agricultural Policy Decisions" in Eicher, C. and Staatz, J. (eds.) *International Agricultural Development*, Baltimore: The Johns Hopkins University Press, 234-39.

Bazdresch, C. and Levy, S. (1991) "Populism and Economic Policy in Mexico, 1970-1982", in Dornbusch, R. and Edwards, S. (eds.) *The Macroeconomics of Populism in*

*Latin America*, Chicago: The University of Chicago Press, 223-62.

Bhagwati, J. (1989) *Protectionism*, Cambridge, MA: The MIT Press.

Binford, L. (1992) "Peasants and Petty Capitalists in southern Oaxacan Sugar Cane Production and Processing, 1930-1980", *Journal of Latin American Studies* 4 (1): 33-55.

Binford, L. (1998) "Accelerated Migration Between Puebla and New York" Paper presented in the Seminar "Mexican Migrants in New York and Mexico: New Analytical and Practical Perspectives on Transnationalisation and Incorporation", Barnard College, October 16-17, New York.

Blakely, E. J. (1994) *Planning Local Economic Development: Theory and Practice*, Thousand Oaks, CA: SAGE publications.

Blaxter, L., Huges, C. and Tight, M. (1997) *How to Research*, Buckingham: Open University Press.

Boege, E. and Avila, R. (1979) "La Estructura de Poder en la Zona Cañera de Atencingo" in Paré, L. (ed.) *Ensayos sobre el problema cañero*, México DF: Universidad Nacional Autónoma de México, Instituto de Investigaciones Sociales, 263-337.

Bonilla, M. and Malpica, S. (1991) "Atencingo: Origen de un Poderoso Grupo Financiero", *Memoria del Simposio Internacional de Investigaciones Regionales, Izúcar*, Puebla, México: Arte y Letra, Publicidad Gráfica, Instituto Nacional de Antropología e Historia, Consejo Nacional Para la Cultura y las Artes y Presidencia Municipal de Izúcar de Matamoros, 85-90.

Booth, A. (1995) "The State and The Economy in Indonesia in the Nineteenth and Twentieth Centuries" in Harriss, J., Hunter, J. and Lewis, C. M. (eds.) *The New Institutional Economics and Third World Development*, Cambridge: Cambridge University Press, 283-305.

Botey, C. (1996) "Introduction to Panel I", in Randall, L. (ed.) *Reforming Mexico's Agrarian Reform*, New York: M. E. Sharpe, 15-20.

Bouquet, E. (1999) "Mercado de tierras ejidales en Tlaxcala: Formalidad e Informalidad del Cambio Institucional", *Estudios Agrarios*, 67-106.

Brandão, A. S. P. and Feder, G. (1995) "Regulatory policies and reform: the case of land markets" in Frischtak, C. (ed.) *Regulatory Policies and Reform: A Comparative Perspective*, *The World Bank*, <http://www.worldbank.org/landpolicy/>, 191-209.

Brett, E.A. (1995) "Institutional Theory and Social Change in Uganda" in Harriss, J., Hunter, J. and Lewis, C. M. (eds.) *The New Institutional Economics and Third World Development*, Cambridge: Cambridge University Press, 200-14.



Brizzi, A. (2001) "Rural Development and Agriculture", in Giugale, M. M., Lafourcade, O. and Nguyen, V. N. (eds.) *Mexico: A Comprehensive Development Agenda for the New Era*, Washington DC: The World Bank, 319-45.

Brown, P. (1997) "Institutions, Inequalities, and the Impact of Agrarian Reform on Rural Mexican Communities", *Human Organization* 56 (1): 102-110

Bryceson, D. F. (2000) "Peasant Theories and Smallholder Policies: Past and Present" in Bryceson, D., Kay, C. and Mooij, J. (eds.) *Disappearing Peasantries? Rural Labour in Africa, Asia and Latin America*, London: Intermediate Technology Publications, 1-36.

Bryman, A. (1996) *Quantity and Quality in Social Research*, London: Routledge.

Buttler, C. And Otero, G. (1995) "Sweet neighbors? The State and the Sugar Industries in the United States and Mexico under NAFTA" in Singelman, P. *Mexican Sugarcane Growers: Economic Restructuring and Political Options*, Transformation of Rural Mexico, Paper No. 7, Center for U.S.-Mexican Studies, San Diego, 63-74.

Byerlee, D. (1992) "The Political Economy of Third World Food Imports: The Case of Wheat" in Wilber, Ch. K. and Jameson, K. P. (eds.) *The Political Economy of Development and Underdevelopment*, New York: McGraw-Hill, 305-26.

Calva, J. L. (1988) *Crisis Agrícola y Alimentaria en México, 1982-1988*, México DF: Fontamara.

Calva, J. L. (1993a) *La Disputa por la Tierra: La Reforma del Artículo 27 y la Nueva Ley Agraria*, México DF: Fontamara.

Calva, J. L. (1993b) "El Nuevo Modelo de Desarrollo Agropecuario Impulsado en México", in Calva, J. L. (ed.) *Alternativas Para el Campo Mexicano*, México DF: Fontamara, 15-42

Calva, J. L. (1997) "Políticas Públicas para el Desarrollo Agropecuario Sostenido con Equidad" in Calva, J. L. (ed.) *El Campo Mexicano: Ajuste Neoliberal y Alternativas*, México DF: CIESTAAM-Juan Pablos Editor, 201-19

Camp, R. A (2002) *Mexico's Mandarins: crafting a power elite for the twenty-first century*, Berkeley and Los Angeles: University of California Press.

Capalbo, S. and Antle, J. (eds.). (1988) *Agricultural Productivity: Measurement and Explanation*, Washington DC: Resources for the Future.

Cardoso, C., and Faletto, E. (1971) *Dependency and Development in Latin America*, Berkeley: University of California Press.

Cardoso, E. and Helwege, A. (1992) *Latin America's Economy: Diversity, Trends and Conflicts*, Cambridge, MA: MIT Press.

Carmagnani, M. (1979) *Formación y Crisis de un Sistema Feudal*, México DF: Siglo XXI Editores.

Carter, M. and Salgado, R. (1998) "Land Titling and Property Rights Reform: Enabling or Disabling Peasant Land Access?", paper prepared for the WIDER Land Reform Project Conference, Santiago de Chile, 27-29 April.

Carter, M. (2000) "Old Questions and New Realities: land in post-liberal economies" in Zoomers, A. and Van der Haar, J. (eds.) *Current land policy in Latin America: regulating land tenure under neo-liberalism*, Amsterdam: KIT, 29-43.

Carter, M. (2003) "Viejos Problemas y Nuevas Realidades: La Tierra y la Investigación Sobre las Políticas Agrarias en América Latina y el Caribe" in Tejo, P. (ed.) *Mercados de Tierras Agrícolas en América Latina y el Caribe: Una Realidad Incompleta*, Santiago de Chile, CEPAL, 61-83.

Castillo, L. and Lehman, D. (1983) "Agrarian Reform and Structural Change in Chile, 1965-79" in Ghose, A. K. (ed.) *Agrarian Reform in Contemporary Developing Countries*, London: Croom Helm, 240-72.

CEPAL (1986) *Economía Campesina y Agricultura Empresarial: Tipología de Productores del Agro Mexicano*, México DF: Siglo Veintiuno Editores.

Cerro, J. and Vélez, F. (2000) "La agricultura a cinco años de vigencia del Tratado de Libre Comercio de América del Norte" in Leycegui, B. y Fernández de Castro, R. (eds.) *Socios Naturales: Cinco años del Tratado de Libre Comercio de América del Norte*, México DF: ITAM, FCE and Miguel Angel Porrúa Editor, 395-438.

Chant, S. (1996) *Gender, Urban Development and Housing, United Nations Development Programme*, Publication Series for Habitat II, Volume Two, New York; UNDP.

Chant, S. (2002) "Researching Gender, Families and Households in Latin America: From the 20<sup>th</sup> into the 21st Century", *Bulletin of Latin American Research* 21 (4): 545-75.

Chayanov, A. V. (1986) *The Theory of Peasant Economy*, Madison: The University of Wisconsin Press (first published, 1925).

Chew, F. And Aguilar, L. (2000) "El Campo Mexicano en el Sexenio Zedillista: El Recuento de 18 Años de Neoliberalismo" in Solís de A., A., Ortega, M. and García, M. E. (eds.) *El Ultimo Gobierno del PRI: Balance del Sexenio Zedillista*, México DF: Editorial Itaca, 225-39.

Chollet, D. L. (1994) "Renouncing The Mexican Revolution: Double Jeopardy Within The Sugar Sector", *Urban Antropology* 23 (2-3): 121-69.

Chollet, D. L. (1995) "Restructuring the Mexican Sugar Industry: Campesinos, the State, and Private Capital" in Singelman, P. (ed.) *Mexican Sugarcane Growers:*

*Economic Restructuring and Political Options*, Transformation of Rural Mexico, paper No. 7, Center for U.S.-Mexican Studies, San Diego, 23-39.

Clague, C. (1997a) "The New Institutional Economics and Economic Development" in Clague, C. (ed.) *Institutions and Economic Development: Growth and Governance in Less-Developed and Post-Socialist Countries*, Baltimore: The Johns Hopkins University Press, 13-36.

Clague, C. (1997b) "The New Institutional Economics and Economic Reform" in Clague, C. (ed.) *Institutions and Economic Development: Growth and Governance in Less-Developed and Post-Socialist Countries*, Baltimore: The Johns Hopkins University Press, 368-79.

Clague, C., Keefer, P., Knack, S. and Olson, M. (1997a) "Democracy, Autocracy, and the Institutions Supportive of Economic Growth" in Clague, C. (ed.) *Institutions and Economic Development: Growth and Governance in Less-Developed and Post-Socialist Countries*, Baltimore: The Johns Hopkins University Press, 91-120.

Clague, C., Keefer, P., Knack, S. and Olson, M. (1997b) "Institutions and Economic Performance: Property Rights and Contract Enforcement" in Clague, C. (ed.) *Institutions and Economic Development: Growth and Governance in Less-Developed and Post-Socialist Countries*, Baltimore: The Johns Hopkins University Press, 67-90.

Coase, R. H. (1988) *The Firm, The Market and The Law*, Chicago: The University of Chicago Press.

Collier, G. A. (1994) "Reforms of Mexico's Agrarian Code: Impacts on the peasantry", *Research in Economic Anthropology* 15: 105-27.

Comité de la Agroindustria Azucarera (2001) Statistics on the Sugar Agroindustry, <http://www.sagar.gob.mx/Coaazucar/coaazucar.htm>, 13 February 2002.

Commons, J. R. (1931) "Institutional Economics", *The American Economic Review* 21 (4): 648-57.

Concheiro, L. (2001) "Mercado de tierras en el ejido Santa Inés Oacalco, municipio de Yautepec, estado de Morelos" in Concheiro, L. and Diego, R. (eds.) *Una Perspectiva Campesina del Mercado de Tierras Ejidales: Siete Estudios de Caso*, México DF: UAM-Casa Juan Pablos, 189-227.

Concheiro, L. and Diego, R. (2001) "Una Perspectiva Campesina del Mercado de Tierras Ejidales: Análisis Comparativo de Siete Estudios de Caso" in Concheiro, L. and Diego, R. (eds.) *Una Perspectiva Campesina del Mercado de Tierras Ejidales: Siete Estudios de Caso*, México DF: UAM-Casa Juan Pablos, 15-37.

Confederación Nacional de Propietarios Rurales (CNPR) (1998) Cadena Productiva del Azúcar, Atencingo, Puebla, unpublished paper.

Consorcio Azucarero Escorpión (1999) "Fertilización en Caña de Azúcar Ingenio

Atencingo, Dirección General de Operaciones”, Subdirección de Campo, Nutrientes y Suelos, Atencingo, México (unpublished).

Cornelius, W. A. (1998) “Ejido Reform: Stimulus or Alternative to Migration?” in Cornelius, W. A. and Myhre, D. (eds.) *The Transformation of Rural Mexico*, U.S.-Mexico Contemporary Perspectives Series, Center for U.S-Mexican Studies, University of California Press, 229-46.

Cornelius, W. A. and Myhre, D. (1998) “Introduction” to Cornelius, W. A. and Myhre, D. (eds.) *The Transformation of Rural Mexico*, U.S.-Mexico Contemporary Perspectives Series, Center for U.S-Mexican Studies, University of California Press, 1-20.

Covarrubias, D. (1996) “An Opinion Survey in the Countryside – 1994” in Randall, L. (ed.) *Reforming Mexico’s Agrarian Reform*, New York: M. E. Sharpe, 107-16.

David, M. B. de A., Dirven, M. and Vogelgesang, F. (2000) “The Impact of the New Economic Model on Latin America’s Agriculture”, *World Development* 28 (9): 1673-88.

Davis, B. (2000) “Las políticas de ajuste de los ejidatarios frente a la reforma neoliberal en México”, *Revista de la CEPAL* 72: 99-119.

De Grammont, H. C. (1979) “Historia de las Luchas Sociales en la Zona Cañera de Atencingo” in Paré, L. (ed.) *Ensayos sobre el problema cañero*, México DF: Universidad Nacional Autónoma de México, Instituto de Investigaciones Sociales, 185-261.

De Janvry, A., Gordillo, G. and Sadoulet, E. (1997) *Mexico’s Second Agrarian Reform: household and community responses, 1990-1994*, Center for U.S – Mexican Studies, University of California Press, San Diego.

De Janvry, A. and Sadoulet, E. (2001) “Income Strategies Among Rural Households in Mexico: The Role of Off-farm activities”, *World Development* 29 (3): 467-80.

De Janvry, A. and Sadoulet, E. and Davis, B. (2001) “Cash Transfer Programs with Income Multipliers: PROCAMPO in Mexico”, *World Development* 29 (6): 1043-56.

De Janvry, A., Sadoulet, E. and Fafchamps, M. (1989) “Agrarian Structure, Technological Innovations, and the State” in Bardan, P. (ed.) *The Economic Theory of Agrarian Institutions*, Oxford: Clarendon Press, 356-82.

De Janvry, A., Sadoulet, E., Davis, B. and Gordillo, G. (1996) “Ejido Sector Reforms: From Land Reform to Rural Development” in Randall, L. (ed.) *Reforming Mexico’s Agrarian Reform*, New York: M. E. Sharpe, 71-106.

De la Peña, S. (1992) *La Formación del Capitalismo en México*, México DF: Siglo Veintiuno Editores, Instituto de Investigaciones Sociales UNAM (First Published 1975).

De Soto, H. (1989) *The Other Path: The Invisible Revolution in the Third World*, New York: Harper & Row.

De Soto, H. (2000) *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else*, London: Bantam Books.

Deere, C.D. and Leon, M. (2001) *Empowering Women: Land and Property Rights in Latin America*, Pittsburgh: University of Pittsburgh Press

Del Villar, S. I. (1976) "Depresión de la Industria Azucarera Mexicana", *Foro Internacional*, 15 (4): 526-85.

Deininger, K. and Binswanger, H. (1999) "The Evolution of the World Bank's Land Policy", *The World Bank Research Observer* 14 (2): 247-76.

Deininger, K. and Feder, G. (1998) "Land Institutions and Land Markets", Policy Research Working Paper 2014, Washington DC: The World Bank.

Demsetz, H. (1967) "Toward a Theory of Property Rights", *The American Economic Review* 57 (2): 347-59.

Demsetz, H. (1993) "The Theory of the Firm Revisited" in Williamson, O. and Winter, S. (eds.) *The Nature of the Firm: Origins, Evolution and Development*, New York: Oxford University Press, 159-78.

Denscombe, M (1998) *The Good Research Guide: for small-scale social research projects*, Buckingham: Open University Press.

DeWalt, B. R. (1998) "The Ejido Reforms and Mexican Coastal Communities: Fomenting a Blue Revolution?" in Cornelius, W. A. and Myhre, D. (eds.) *The Transformation of Rural Mexico*, U.S.-Mexico Contemporary Perspectives Series, Center for U.S-Mexican Studies, University of California Press, 357-79.

Diario Oficial de la Federación (1938) Presidential Decree: "Resolución en el Expediente de Dotación de Ejidos al Poblado de Atencingo y Anexas, Estado de Puebla", México DF: Secretaría de Gobernación, 21 April.

Diario Oficial de la Federación (1943) Presidential Decree: "Decreto que Establece un Plan de Intensificación de la Producción Azucarera", México, DF: Secretaría de Gobernación, 22 September.

Diario Oficial de la Federación (1952) Presidential Decree: "Acuerdo que Crea una Comisión que se Encargará de Vigilar los Bienes e Intereses de la Unidad Ejidal Atencingo y Anexas en el Estado de Puebla", México DF: Secretaría de Gobernación, 15 February.

Diario Oficial de la Federación (1971) Ley Federal de Reforma Agraria, México DF: Secretaría de Gobernación, 16 March.

Diario Oficial de la Federación (1973) Presidential Decree: “Resolución Sobre la División del Ejido de Atencingo y Anexos”, México DF: Secretaría de Gobernación, 27 November.

Diario Oficial de la Federación (1975) Presidential Decree: “Decreto por el que se Reforman Diversos Artículos del Decreto que Crea el Organismo Federal Descentralizado Denominado Comisión Nacional de la Industria Azucarera”, México DF: Secretaría de Gobernación, 27 October.

Diario Oficial de la Federación (1991) Presidential Decree: “Decreto por el que se Declaran de Interés Público la Siembra, el Cultivo, la Cosecha y la Industrialización de la Caña de Azúcar”. México DF: Secretaría de Gobernación, 31 May.

Diario Oficial de la Federación (1992) Presidential Decree: “Decreto por el que se Reforma el Artículo 27 de la Constitución Política de los Estados Unidos Mexicanos”. México DF: Secretaría de Gobernación, 6 January

Diario Oficial de la Federación (1993) “Decreto que reforma el diverso por el que se declara de interés público la siembra, el cultivo, la cosecha y la industrialización de la caña de azúcar”, México DF: Secretaría de Gobernación, 23 July.

Diario Oficial de la Federación (2001) Presidential Decree: “Decreto por el que se Expropián por Causa de Utilidad Pública, a Favor de la Nación, las Acciones, Cupones y/o los Títulos Representativos del Capital o Partes Sociales de las Empresas que Adelante se Enlistan” (27 ingenios azucareros), México DF: Secretaría de Gobernación, 3 September.

Diego, R. (2001) “Lucha agraria y mercado de tierras en Telolotla, municipio de Zihuateutla, en la Sierra Norte de Puebla” in Concheiro, L. and Diego, R. (eds.) *Una Perspectiva Campesina del Mercado de Tierras Ejidales: Siete Estudios de Caso*, México DF: UAM-Casa Juan Pablos, 107-52.

Diego, R. and Concheiro, L. (2001) “Reflexiones sobre una propuesta de política pública para el desarrollo rural: el mercado campesino de tierras” in Concheiro, L. and Diego, R. (eds.) *Una Perspectiva Campesina del Mercado de Tierras Ejidales: Siete Estudios de Caso*, México DF: UAM-Casa Juan Pablos, 333-45.

Dirven, M. (1999) “The role of agents in agricultural policies: intentions and reality”, *CEPAL Review* 68: 175-90.

Dornbusch, R. and Fischer, S. (1994) *Economía*, Mexico DF: McGraw Hill.

Dornbusch, R. and Edwards, S. (1991) “The Macroeconomics of Populism” in Dornbusch, R. and Edwards, S. (eds.) *The Macroeconomics of Populism in Latin America*, Chicago: The University of Chicago Press, 6-13.

Dorner, P. (1992) *Latin American Land Reform in Theory and Practice: A Retrospective Analysis*, Madison: The University of Wisconsin Press.

Douma, S. and Schreuder, H. (1998) *Economic Approaches to Organizations*, London: Prentice Hall.

Dujon, V. (1997) "Communal Property and Land Markets: Agricultural Development Policy in St. Lucia", *World Development* 25 (9): 1529-40.

Dunn, M. H. (2000) "Privatization, Land Reform, and Property Rights: The Mexican Experience", *Constitutional Political Economy* 11: 215-30.

Duranton, G. (1998) "Agricultural Productivity, Trade, and Industrialisation", *Oxford Economic Papers* 50 (2): 220-36.

Dussel, E. (2002) *Territorio y Competitividad en la Agroindustria en México: condiciones y propuestas de política para los clusters del limón mexicano en Colima y la piña en Veracruz*, México DF: Plaza y Valdés.

Easterly, W. and Levine, R. (2002) "Tropics, germs, and crops: How endowments influence economic development", Washington DC, National Bureau of Economic Research, NBER Working Paper 9106.

Echeverría, R. G. (2000) "Opciones para reducir la pobreza rural en América Latina y el Caribe", *CEPAL Review* 70: 147-60.

El Ghonemy, M. R. (1984) "La Participación: una solución posible de la pobreza rural" in *Estudios Sobre la Reforma Agraria y la Pobreza Rural*, Rome: Organización de las Naciones Unidas para la Agricultura y la Alimentación, 1-20.

Ellis, G. (1992) "In Search of a Development Paradigm: Two Tales of a City" in Wilber, Ch. K. and Jameson, K. P. (eds.) *The Political Economy of Development and Underdevelopment*, New York: McGraw-Hill, 251-60.

Escalante, R. (2001) *El Mercado de Tierras en México*, Santiago de Chile: CEPAL/ Sociedad Alemana de Cooperación Técnica (GTZ).

Espinosa, G. and Sandoval, R. (1979) "Capital Industrial y Explotación Campesina en Oacalco, Morelos" in Paré, L. (ed.) *Ensayos sobre el problema cañero*, México DF: Universidad Nacional Autónoma de México, Instituto de Investigaciones Sociales, 37-58.

Estache, A., Foster, V. and Wodon, Q. (2002) "Cómo Hacer que la Reforma de la Infraestructura en América Latina Favorezca a los Pobres", *Revista de la CEPAL* 78: 105-24

Evenson, R. and Kislev, Y. (1975) *Agricultural Research and Productivity*, New Haven: Yale University Press.

Feder, G. and Nishio, A. (1998) "The benefits of land registration and titling: economic and social perspectives", *Land Use Policy* 15 (1): 25-43.

Feder, G. and Feeny, D. (1991) "Land Tenure and Property Rights: Theory and Implications for Development Policy", *The World Bank Economic Review* 5 (1): 135-53.

Feder, G. and Feeny, D. (1993) "The Theory of Land Tenure and Property Rights" in Hoff, K. R., Braverman, A. and Stiglitz, J. E. (eds.) *The Economics of Rural Organization*, Oxford: Oxford University Press, 240-58.

Feeny, D. (1993) "The Demand for and Supply of Institutional Arrangements" In Ostrom, V., Feeny, D. and Picht, H. (eds.) *Rethinking Institutional Analysis and Development: Issues, Alternatives and Choices*, San Francisco, CA: ICS Press, Institute for Contemporary Studies, 159- 209.

Fitzgerald, E. V. K. (1985) "Financial Constraint on Relative Autonomy: the state and capital accumulation in Mexico, 1940-82" in Anglade, C. Christian and Fortin, C. (eds.) *The State and Capital Accumulation in Latin America*, London: Macmillan, Vol. 1: 210-35.

Flowerdew, R. and Martin, D. (1997) *Methods in Human Geography*, Harlow, Longman.

Flyvbjerg, B. (1998) "Empowering Civil Society: Habermas, Foucault and the Question of Conflict" in Douglass, M. and Friedmann, J. (eds.) *Cities for Citizens: Planning and the Rise of Civil Society in a Global Age*, Chichester: John Wiley and Sons, 185-211.

Fox, J. (1994) "Political Change in Mexico's New Peasant Economy" in Cook, M. L., Middlebrook, K. J. and Molinar H., J. *The Politics of Economic Restructuring: State-society Relations and Regime Change in Mexico*, San Diego: Center for U. S. – Mexican Studies, University of California Press, 243-76.

Fox, J. (1996) "National Electoral Choices in Rural Mexico" in Randall, L. (ed.) *Reforming Mexico's Agrarian Reform*, New York: M. E. Sharpe, 185-209.

French-Davies, R., Muñoz, O. and Palma, J. G. "The Latin American Economies, 1950-1990", in Bethell, L. (ed.) *The Cambridge History of Latin America*, Vol. VI, Cambridge: Cambridge University Press, 159-243.

Friedland, W. (1994) "The New Globalization: The Case of Fresh Produce" in Bonanno, A., Bush, L., Friedland, W., Gouveia, L. and Mingione, E. (eds.) *From Columbus to ConAgra: The globalization of agriculture and food*, Lawrence, KS: University Press of Kansas, 210-31.

Friedmann, J. (1998) "The New Political Economy of Planning. The rise of Civil Society" in Douglass, M. and Friedmann, J. (eds.) *Cities for Citizens: Planning and the Rise of Civil Society in a Global Age*, Chichester: John Wiley and Sons, 9-35.

Gadea, C. (1995) *74 Años de Historia en la Vida Real de Atencingo: 1920-1994*, Mimeograph.



García, L. R. (1997) *La Agroindustria Azucarera de México frente a la apertura comercial*, Chapingo: Universidad Autónoma Chapingo, Centro de Investigaciones Económicas, Sociales y Tecnológicas de la Agroindustria y la Agricultura Mundial (CIESTAAM).

Gendreau, M. and Giménez, G. (1998) "A Central Community Among Multiple Peripheral Communities: The effects of Economic and Cultural Globalisation on Traditional Rural Communities in Central Mexico", *Latin American Issues* 14 (1): 1-12.

Gilbert, A. (2002) "On the Mystery of Capital and the Myths of Hernando de Soto: What difference does legal title make?", *International Development Planning Review* 24 (1): 1-19.

Gledhill, J. (1993) *Casi Nada: Capitalismo, Estado y los Campesinos de Huaracha*, Zamora: El Colegio de Michoacán.

Gledhill, J. (1996) "The State, the Countryside . . . and Capitalism" in Aitken, R. Craske, N., Jones, G. A., and Stansfield, D. E. (eds.) *Dismantling the Mexican State?* Basingstoke: Macmillan, 169-87.

Goldring, L. (1996) "The Changing Configuration of Property Rights Under Ejido Reform", in Randall, L. (ed.) *Reforming Mexico's Agrarian Reform*, New York: M. E. Sharpe, 271-87.

Goldring, L. (1998) "Having Your Cake and Eating It Too: Selective Appropriation of Ejido Reform in Michoacán" in Cornelius, W. A. and Myhre, D. (eds.) *The Transformation of Rural Mexico*, U.S.-Mexico Contemporary Perspectives Series, Center for U.S-Mexican Studies, University of California Press, 145-72.

Gómez, C. and Verdugo, W. (eds.) (1988) *Fundación Mary Street Jenkins: México 1954-1988*, México DF: Studio Beatrice Trueblood.

Gómez, F. J. (1998) *Tanto que Costó: Clase, Cultura y nueva ley agraria en un ejido*, México DF: Serie Antropología Social, Instituto Nacional de Antropología e Historia.

Gómez, F. J. (2001) "Cañeros, Estado y Crisis de la Industria. Acción Colectiva y cultura política regional", paper presented in the International Congress of the Latin American Studies Association, Washington DC, 6-8<sup>th</sup> of September 2001.

Goodwin, R. (1989) "The world sugar market" in Kaplinsky, R. (ed.) *Cane Sugar: The Small-Scale Processing Option*, Proceedings of Joint ITDG / IDS conference, 10-11 September, London: Intermediate Technology Publications, 37-40.

Gordillo, G. (1988) *Campesinos al asalto del cielo: de la expropiación a la apropiación campesina*, México DF: Siglo XXI.

Gordillo, G. and de Janvry, A. (1998) "Between political control and efficiency gains: the evolution of agrarian property rights in Mexico", *CEPAL Review* 66: 151-69.

Greenhill, R. G. (1995) "State Intervention in the Brazilian Coffee Trade During the 1920s: A Case Study for New Institutional Economics?" in Harriss, J., Hunter, J. and Lewis, C. M. (eds.) *The New Institutional Economics and Third World Development*, Cambridge: Cambridge University Press, 184-99.

Grindle, M. S. (1990) "Agrarian Reform in Mexico: A Cautionary Tale" in Prosterman, R. L., Temple, M. N., and Hanstad, T. M. (eds.) *Agrarian Reform and Grassroots Development, Ten Case Studies*, Boulder: Lynne Rienner Publishers, 179-204.

Grindle, M. S. (1995) "Reforming Land Tenure in Mexico: Peasants, the Market, and the State", in Roett, R. (ed.) *The Challenge of Institutional Reform in Mexico*, Boulder, CO: Lynne Rienner Publishers, 39-56.

Gutiérrez, C. And Godoy, E. (1991) "Izúcar de Matamoros en el Entramado Regional", *Memoria del Simposio Internacional de Investigaciones Regionales, Izúcar, Puebla, México*: Arte y Letra, Publicidad Gráfica, Instituto Nacional de Antropología e Historia, Consejo Nacional Para la Cultura y las Artes y Presidencia Municipal de Izúcar de Matamoros, 96-107.

Gwynne, R. (1999a) "Globalisation, Commodity Chains and Fruit Exporting Regions in Chile", *Tijdschrift Voor Economische en Sociale Geografie* 90 (2): 211-25.

Gwynne, R. (1999b) "Globalization, neoliberalism and economic change in South America and Mexico" in Gwynne, R. and Kay, C. (eds.) *Latin America Transformed: Globalization and Modernity*, London: Arnold, 67-97.

Gwynne, R. and Kay, C. (1997) "Agrarian Change and Democratic Transition in Chile: an Introduction", *Bulletin of Latin American Research* 16 (1): 3-10.

Gwynne, R. and Kay, C. (1999) "Latin America transformed: changing paradigms, debates and alternatives" in Gwynne, R. and Kay, C. (eds.) *Latin America Transformed: Globalization and Modernity*, London: Arnold, 2-30.

Gyimah-Boady, E. (1995) "Explaining the Economic and Political Successes of Rawlings: The Strengths and Limitations of Public Choice Theories" in Harriss, J., Hunter, J. and Lewis, C. M. (eds.) *The New Institutional Economics and Third World Development*, Cambridge: Cambridge University Press, 306-22.

Haber, S. (1995) "Regulatory Regimes, Capital Markets and Industrial Development: A Comparative Study of Brazil, Mexico and the United States of America, 1840-1930" in Harriss, J., Hunter, J. and Lewis, C. M. (eds.) *The New Institutional Economics and Third World Development*, Cambridge: Cambridge University Press, 265-82.

Hagelberg, G. (1989) "The structure of world production and consumption" in Kaplinsky, R. (ed.) *Cane Sugar: The Small-Scale Processing Option*, Proceedings of Joint ITDG / IDS conference, 10-11 September, London: Intermediate Technology Publications, 41-50.

Hakim, C. (1987) *Research Design: Strategies and Choices in the Design of Social*

Research, Boston, MA: Allen & Unwin.

Ham, C. and Hill, M. (1993) *The Policy Process in the Modern Capitalist State*, New York: Harvester Wheatsheaf.

Handoussa, H. (1995) "The Role of The State: The Case of Egypt" in Harriss, J., Hunter, J. and Lewis, C. M. (eds.) *The New Institutional Economics and Third World Development*, Cambridge: Cambridge University Press, 133-54.

Harriss, J., Hunter, J. and Lewis, C. M. (1995) "Introduction: Development and Significance of NIE" in Harriss, J., Hunter, J. and Lewis, C. M. (eds.) *The New Institutional Economics and Third World Development*, Cambridge: Cambridge University Press, 1-13.

Harriss-White, B. (1995) "Maps and Landscapes of Grain Markets in South Asia" in Harriss, J., Hunter, J. and Lewis, C. M. (eds.) *The New Institutional Economics and Third World Development*, Cambridge: Cambridge University Press, 87-108.

Harrison, M. (2001) *King Sugar: Jamaica, The Caribbean and the World Sugar Economy*, London: Latin American Bureau.

Harvey, N. (1998 a) "Rural Reforms and the Question of Autonomy in Chiapas" in Cornelius, W. A. and Myhre, D. (eds.) *The Transformation of Rural Mexico*, U.S.-Mexico Contemporary Perspectives Series, Center for U.S.-Mexican Studies, University of California Press, 69-89.

Harvey, N. (1998 b) *The Chiapas Rebellion: The Struggle for Land and Democracy*, Durham, Duke University Press.

Heath, J. (1988) "An Overview of the Mexican Agricultural crisis" in Philip, G. (ed.) *The Mexican Economy*, London: Routledge, 129-63.

Heath, J. (1990) "Enhancing the Contribution of Land Reform to Mexican Agricultural Development", Washington DC: World Bank, Agriculture and Rural Development Department, Working Paper Number 285, 1-85.

Hewitt, C. (1999) *La Modernización de la Agricultura Mexicana, 1940-1970*, México DF: Siglo Veintiuno Editores (First edited in 1976).

Hill, B. E. and Ingersent, K. A. (1982) *An Economic Analysis of Agriculture*, London: Heinemann Educational Books.

Hodgson, G. M. (1988) *Economics and Institutions*, Cambridge: Polity Press.

Hojman, D. (1994) "The Political Economy of Recent Conversion to Market Economies in Latin America", *Journal of Latin American Studies* 26 (1): 191-219.

Honorable Cámara de Diputados, México, LV Legislatura (1992) *Crónica de la Reforma al Artículo 27 Constitucional*, Mexico DF: Instituto de Investigaciones

Legislativas.

Ibarra, J. L. (1996) "Recent Changes in the Mexican Constitution and Their Impact on the Agrarian Reform" in Randall, L. (ed.) *Reforming Mexico's Agrarian Reform*, New York: M. E. Sharpe, 49-60.

INEGI (1994) *Izúcar de Matamoros Estado de Puebla, Cuaderno Estadístico Municipal, Edición 1994*, México DF: INEGI, Gobierno del Estado de Puebla y H. Ayuntamiento Constitucional de Izúcar de Matamoros.

INEGI (1998) *Análisis a Nivel Nacional de la Producción de Caña de Azúcar*, Aguascalientes, México: INEGI, Colegio de Postgraduados.

INEGI (1999) *Anuario Estadístico del Estado de Puebla*, Edición 1999, México DF: INEGI-Gobierno del Estado de Puebla.

Ingenio de Atencingo, S.A. de C. V., (2001) Estudio General de Todas las Agrupaciones de la Liquidación Final Correspondiente a la Zafra 2000/2001, Research material, 4 October, Atencingo, México.

Jansen, K. (2000) "Structural Adjustment, Peasant Differentiation and the Environment in Central America" " in Bryceson, D., Kay, C. and Mooij, J. (eds.) *Disappearing Peasantries? Rural Labour in Africa, Asia and Latin America*, London: Intermediate Technology Publications, 192-212.

Johnson, N. (2001) "Tierra y Libertad: Will Tenure Reform Improve Productivity in Mexico's Ejido Agriculture?", *Economic Development and Cultural Change* 49 (2): 291-309.

Jones, G. A. (1996) "Dismantling the Ejido: A Lesson in Controlled Pluralism" in Aitken, R., Craske, N., Jones, G. A., and Stansfield, D. E. (eds.) *Dismantling the Mexican State?* Basingstoke: Macmillan, 188-203.

Jones, G. A. (2000) "Between a Rock and a Hard Place: institutional reform and the performance of land privatisation in peri-urban Mexico", in Zoomers, A. and van der Haar, G. (eds.) *Current land tenure policy in Latin America: regulating land tenure under neo-liberalism*, Amsterdam: KIT, 201-26.

Jones, G. A. (2003) "Bridging the Rural-Urban Divide: What can the Urban Learn from the Rural?" in Hamza, M. and Zetter, R. (eds.) *From Welfare to Market: The State, Aid and Policy Shifts in Urban Development Programmes*, London: Earthscan.

Jones, G. A. and Pisa, R. A. (2000) "Public-private partnership for urban land development in Mexico: a victory for hope versus expectation?", *Habitat International* 24, 1-18.

Jones, G. A. and Ward, P. M. (1998) "Deregulating the Ejido: The Impact on Urban Development in Mexico" in Cornelius, W. A. and Myhre, D. (eds.) *The Transformation of Rural Mexico*, U.S.-Mexico Contemporary Perspectives Series, Center for U.S-

Mexican Studies, University of California Press, 247-75.

Jones, M. (1989) "Overview" in Kaplinsky, R. (ed.) *Cane Sugar: The Small-Scale Processing Option*, Proceedings of Joint ITDG / IDS conference, 10-11 September 1987, London: Intermediate Technology Publications, 17-23.

Juárez, I. (1986) "Evaluación de las políticas estatales hacia los cortadores de caña: 1979-1982", in Paré, L., Juárez, I. and Salazar, G. (eds.) *Caña Brava: Trabajo y Organización Social entre los Cortadores de Caña*, México, México, DF: UNAM-UAM, Biblioteca de Ciencias Sociales y Humanidades, 119-46.

Kabeer, N. (1994) *Reversed Realities: Gender hierarchies in Development Thought*, London: Verso.

Kahn, M. (1995) "State Failure in Weak States: A Critique of New Institutional Explanations" in Harriss, J., Hunter, J. and Lewis, C. M. (eds.) *The New Institutional Economics and Third World Development*, Cambridge: Cambridge University Press, 71-86.

Kaplinsky, R. (1989) "Small-scale cane sugar processing: The way forward" in Kaplinsky, R. (ed.) *Cane Sugar: The Small-Scale Processing Option*, Proceedings of Joint ITDG / IDS conference, 10-11 September, London: Intermediate Technology Publications, 183-97.

Katz, F. (1996) "The Agrarian Policies and Ideas of the Revolutionary Mexican Factions Led by Emiliano Zapata, Pancho Villa, and Venustiano Carranza", in Randall, L. (ed.) *Reforming Mexico's Agrarian Reform*, New York: M. E. Sharpe, 21-34.

Katz, I. M. (1999) *La Constitución y el desarrollo económico de México*, México DF: Cal y Arena

Kaufmann P, S. (1981) "Business-Government Relations in Mexico: The Case of the Sugar Industry", *Comparative Politics* 13 (2): 211-33.

Kaufman, R. R. (1988) "Economic Orthodoxy and Political Change in Mexico: the stabilisation and adjustment policies of de la Madrid administration" in Kaufman, R. R. and Stallings, B. (eds.) *Debt and Democracy in Latin America*, Boulder, CO: Westview Press, 109-26.

Kaufman, R. R. and Stallings, B. (1991) "The Political Economy of Latin American Populism" in Dornbusch, R. and Edwards, S. (eds.) *The Macroeconomics of Populism in Latin America*, Chicago: The University of Chicago Press, 15-43.

Kay, C. (1983) "The Agrarian Reform in Peru: An Assessment" in Ghose, A. K. (ed.) *Agrarian Reform in Contemporary Developing Countries*, London: Croom Helm, 185-239.

Kay, C. (1990) "Reflections on the Latin American Contribution to Development Theory", Occasional Paper No. 7, Centre for Development Studies, Glasgow: University

of Glasgow 1-33.

Kay, C. (1997) "Globalisation, Peasant Agriculture and Reconversion", *Bulletin of Latin American Research* 16 (1): 11-24.

Kay, C. (2000) "Latin American's Agrarian Transformation: Peasantization and Proletarianization" in Bryceson, D., Kay, C. and Mooij, J. (eds.) *Disappearing Peasantries? Rural Labour in Africa, Asia and Latin America*, London: Intermediate Technology Publications, 123-38.

Kennedy, P. L. and Petrolia, D. (2001) "Disputes in Sugar and Agricultural-based Sweeteners" in Lyons, R. M. A., Meilke, K., Knutson, R. D., Yúnez-Naude, A. (eds.) *Trade Liberalization Under NAFTA: Report Card on Agriculture*, Altona, Manitoba, Canada: Texas A&M University, University of Guelph and El Colegio de México, 234-249.

Kherallah, M. and Kirsten, J. (2001) *The New Institutional Economics: Applications for Agricultural Policy Research in Developing Countries*, Washington DC: IFPRI, Discussion Paper No. 41

Kirk, J. and Miller, M. L. (1986) *Reliability and Validity in Qualitative Research*, Qualitative Methods Series 1, London: Sage.

Klank, L. (1997) *Income Protection for Farmers: Improving the Income of Farmers and Rural People*, Agricultural Policy and Economic Development Series, Rome: FAO, 55-80.

Klitgaard, R. (1997) "Information and Incentives in Institutional Reform" in Clague, C. (ed.) *Institutions and Economic Development: Growth and Governance in Less-Developed and Post-Socialist Countries*, Baltimore: The Johns Hopkins University Press, 293-315.

Knight, A. (1985) "The Political Economy of Revolutionary Mexico, 1900-1940", in Abel, C. and Lewis, C. M. (eds.) *Latin America, Economic Imperialism and the State: The Political Economy of the External Connection from Independence to the Present*, London: The Athlone Press, 288-317.

Knight, A. (1996) "Salinas and Social Liberalism in Historical Context" in Aitken, R. Craske, N., Jones, G. A., and Stansfield, D. E. (eds.) *Dismantling the Mexican State?*, Basingstoke: Macmillan, 1-23.

Krugman, P. (1995) *Development, Geography, and Economic Theory*, Cambridge, MA: MIT Press.

Kvale, S. (1996) *Interviews: an Introduction to Qualitative Research Interviewing*, London: Sage.

Lamartine, P. (1978) *El Campo Mexicano*, México DF: Ediciones El Caballito.

- Lara, S. (1979) "La Importancia de la Comunidad Campesina y las Formas de la Conciencia Social de los Jornaleros de Atencingo" in Paré, L. (ed.) *Ensayos sobre el problema cañero*, México DF: Universidad Nacional Autónoma de México, Instituto de Investigaciones Sociales, 115-84.
- Larson, D. F. and Borrell, B. (2001) "Sugar Policy and Reform", Washington DC: The World Bank, Working Paper 2602.
- Lehmann, D. (1974) "Agrarian Reform in Chile, 1965-1972: An Essay in Contradictions" in Lehmann, D. (ed.) *Agrarian Reform and Agrarian Reformism: Studies of Peru, Chile, China and India*, London: Faber and Faber, 71-119.
- Lemmens, L. (1989) "The Kabras experience: An exploratory socio-economic impact analysis of the West Kenya sugar factory" in Kaplinsky, R. (ed.) *Cane Sugar: The Small-Scale Processing Option*, Proceedings of Joint ITDG / IDS conference, 10-11 September, London: Intermediate Technology Publications, 105-42.
- Lipton, M. (1974) "Towards a Theory of Land Reform" in Lehmann, D. (ed.) *Agrarian Reform and Agrarian Reformism: Studies of Peru, Chile, China and India*, London: Faber and Faber, 269-315.
- Liu, S., Carter, M. and Yao, Y. (1998) "Dimensions and Diversity of Property Rights in Rural China: Dilemmas on the Road to Further Reform", *World Development* 26 (19): 1789-1806.
- Llambí, L. (2000) "Global-Local Links in Latin America's New Ruralities" in Bryceson, D., Kay, C. and Mooij, J. (eds.) *Disappearing Peasantries? Rural Labour in Africa, Asia and Latin America*, London: Intermediate Technology Publications, 176-91.
- Lone, H. (1989) "The Sugar industry in developing countries: Import substitution, government policy and scale of production" in Kaplinsky, R. (ed.) *Cane Sugar: The Small-Scale Processing Option*, Proceedings of Joint ITDG / IDS conference, 10-11 September, London: Intermediate Technology Publications, 151-68.
- López, P. and Moguel, J. (1998) "Ejido Reform in the Isthmus of Tehuantepec: The Case of Juchitán" in Cornelius, W. A. and Myhre, D. (eds.) *The Transformation of Rural Mexico*, U.S.-Mexico Contemporary Perspectives Series, Center for U.S-Mexican Studies, University of California Press, 203-25.
- Love, J. L. (1994) "Economic Ideas and Ideologies in Latin America since 1930", in Bethell, L. (ed.) *The Cambridge History of Latin America*, Vol. VI, Cambridge: Cambridge University Press, 393-460.
- Mackinlay, H. (1996) "Las organizaciones campesinas y la nueva agricultura de contrato: la rama del tabaco", *Estudios Agrarios* 4: 153-64.
- Mackinlay, H. (1996) "La CNC y el 'Nuevo Movimiento Campesino' (1989-1994)" in de Grammont, H. (ed.) *Neoliberalismo y Organización Social en el Campo Mexicano*,

México DF: UNAM-Plaza y Valdés, 165-238.

Makanda, D. (1989) "Sugar policy in Kenya: A farmer's dilemma" in Kaplinsky, R. (ed.) *Cane Sugar: The Small-Scale Processing Option*, Proceedings of Joint ITDG / IDS conference, 10-11 September, London: Intermediate Technology Publications, 94-104.

Marañón, B. (2001) "La Agricultura de Contrato en el Sector Hortícola Exportador en El Bajío, México", Estudio de Caso, México DF: Oficina Regional de la FAO para América Latina y el Caribe, 1-26.

Markiewicz, D. (1993) *The Mexican Revolution and the Limits of Agrarian Reform 1915-1946*, Boulder: Lynne Rienner Publishers.

Marsh, R. R. and Runsten, D. (1998) "Smallholder Fruit and Vegetable Production in Mexico: Barriers and Opportunities" in Cornelius, W. A. and Myhre, D. (eds.) *The Transformation of Rural Mexico*, U.S.-Mexico Contemporary Perspectives Series, Center for U.S-Mexican Studies, University of California Press, 278-306.

May, T. (1997) *Social Research: Issues, Methods and Process*, Buckingham: Open University Press.

May, T. (2001) *Qualitative Research in Action*, London: Sage.

Mckinley, T. and Alarcón, D. (1995) "The Prevalence of Rural Poverty in Mexico", *World Development* 23 (9): 1575-85.

Mendieta y Núñez, L. (1986) *El Problema Agrario de México*, México DF: Editorial Porrúa Hermanos.

Menegus, M. (1990) *El Agrarismo de la Revolución Mexicana*, Madrid: Ediciones de Cultura Hispánica.

Migot-Adholla, S., Hazell, P., Blarel, B., and Place, F. (1991) "Indigenous Land Rights Systems in Sub-Saharan Africa: A Constraint on Productivity?", *The World Bank Economic Review* 5 (1) 153-75.

Moody-Stuart, G. (1989) "Realizing scale economies" in Kaplinsky, R. (ed.) *Cane Sugar: The Small-Scale Processing Option*, Proceedings of Joint ITDG / IDS conference, 10-11 September, London: Intermediate Technology Publications, 64-8.

Myhre, D. (1996) "Appropriate Agricultural Credit: A Missing Piece of Agrarian Reform in Mexico" in Randall, L. (ed.) *Reforming Mexico's Agrarian Reform*, New York: M. E. Sharpe, 117-38.

Myhre, D. (1998) "The Achilles's Heel of the Reforms: The Rural Financial System" in Cornelius, W. A. and Myhre, D. (eds.) *The Transformation of Rural Mexico*, U.S.-Mexico Contemporary Perspectives Series, Center for U.S-Mexican Studies, University of California Press, 39-65.



Neto, F. (forthcoming) "A Market-based approach to land reform: The case of South Africa" in *Natural Resources Forum*, 28

North, D. C. (1990) *Institutions, Institutional Change and Economic Performance*, Cambridge: Cambridge University Press.

North, D. C. (1995) "The New Institutional Economics and Third World Development", in Harriss, J., Hunter, J. and Lewis, C. M. (eds.) *The New Institutional Economics and Third World Development*, Cambridge: Cambridge University Press, 17-26.

North, D. C. (1998) "Economic Performance through Time" in Eicher, C. and Staatz, J. (eds.) *International Agricultural Development*, Baltimore: The Johns Hopkins University Press, 78-89.

Nuijten, M. (1998) *In the Name of the Land: Organization, Transnationalism, and the Culture of the State in a Mexican Ejido*, Wageningen, The Netherlands: Ponsen en Looijen bv.

Núñez, C. (1995) "New Social Actors in the Sugarcane Sector? Restructuring Mexico's Sugar Agroindustry" in Singelman, P. (ed.) *Mexican Sugarcane Growers: Economic Restructuring and Political Options*, Transformation of Rural Mexico, Paper No. 7, Center for U.S.-Mexican Studies, San Diego, 55-62.

Ochoa, E. C. (2000) *Feeding México: The Political Uses of Food Since 1910*, Wilmington, DE: Scholarly Resources Inc.

Olinto, P. and Deininger, K. (2002) "Land Property Rights, Rental Markets and Rural Poverty: Theory and Evidence from the Mexican Ejido", <http://www.aec.msu.edu/agecon/seminars/landpropertyrights.pdf>.

Olson, M. (1971) *The Logic of Collective Action: Public Goods and the Theory of Groups*, Cambridge, MA: Harvard University Press.

Olson, M. (1997) "The Institutional Economics: The Collective Choice Approach to Economic Development" in Clague, C. (ed.) *Institutions and Economic Development: Growth and Governance in Less-Developed and Post-Socialist Countries*, Baltimore: The Johns Hopkins University Press, 37-64.

Ostrom, E. (1993) "Institutional Arrangements and the Commons Dilemma" In Ostrom, V., Feeny, D. and Picht, H. (eds.) *Rethinking Institutional Analysis and Development: Issues, Alternatives and Choices*, San Francisco, CA: ICS Press, Institute for Contemporary Studies, 101-39.

Ostrom, E. (1997) "Investing in Capital, Institutions, and Incentives" in Clague, C. (ed.) *Institutions and Economic Development: Growth and Governance in Less-Developed and Post-Socialist Countries*, Baltimore: The Johns Hopkins University Press, 153-81.

Ostrom, E. (2001) "The Puzzle of Counterproductive Property Rights Reforms: A Conceptual Analysis" in de Janvry, A., Gordillo, G., Platteau, J.P. and Sadoulet, E.

(eds.) *Access to Land, Rural Poverty and Public Action*, Oxford, Oxford University Press, 129-50.

Ostrom, V., Feeney, D. and Picht, H. (1993) "Institutional Analysis and Development: Rethinking the Terms of Choice" In Ostrom, V., Feeney, D. and Picht, H. (eds.) *Rethinking Institutional Analysis and Development: Issues, Alternatives and Choices*, San Francisco, CA: ICS Press, Institute for Contemporary Studies, 439-66.

Oswald, U. (2003) "Sustainability in a Globalizing World", paper prepared for presentation at the "Contemporary Mexico", LSE-Mexican Society Workshop, February.

Otero, G. (1995) "Antinomies of Neoliberal Reform in Rural Mexico: Mentalities and Productive Strategies Among Sugar Cane Growers in Atencingo, Puebla", paper prepared for presentation at the Workshop of the Ejido Reform Research Project "Assessing the Rural Reforms in Mexico, 1992-1995" 25-26 August, San Diego: Center for U.S.-Mexican Studies, University of California Press, 1-15.

Otero, G. (1998a) "Atencingo Revisited: Political Class formation and Economic Restructuring in Mexico's Sugar Industry", *Rural Sociology* 63: 272-99.

Otero, G. (1998b) "Mexico's Rural Reform and Contradictions within the Sugarcane Sector" in Cornelius, W. A. and Myhre, D. (eds.) *The Transformation of Rural Mexico*, U.S.-Mexico Contemporary Perspectives Series, Center for U.S.-Mexican Studies, University of California Press, 91-103.

Otero, G. (1999) *Farewell to the Peasantry?: Political Class Formation in Rural Mexico*, Boulder: Westview Press.

Oxfam (2002) *The Great EU Sugar Scam: How Europe's sugar regime is devastating livelihoods in the developing world*, Oxford: Oxfam Briefing Paper No. 27, 1-38.

Paré, L. (1979) "El Análisis Económico de las Clases Sociales en Atencingo" in Paré, L. (ed.) *Ensayos sobre el problema cañero*, México DF: Universidad Nacional Autónoma de México, Instituto de Investigaciones Sociales, 59-113.

Paré, L. and Juárez, I. (1986) "El proceso productivo de la caña de azúcar" in Paré, L., Juárez, I. and Salazar, G. (eds.) *Caña Brava: Trabajo y Organización Social entre los Cortadores de Caña*, México DF: UNAM-UAM, Biblioteca de Ciencias Sociales y Humanidades, 25-70.

Paredes, C. (1991) "Trabajo y Esclavitud en la Región de Izúcar, Siglos XVI y XVII", *Memoria del Simposio Internacional de Investigaciones Regionales, Izúcar*, Puebla, México: Arte y Letra, Publicidad Gráfica, Instituto Nacional de Antropología e Historia, Consejo Nacional Para la Cultura y las Artes y Presidencia Municipal de Izúcar de Matamoros, 22-25.

Parsons, K. H. (1984) "La reforma agraria y las políticas de desarrollo rural" in *Estudios Sobre la Reforma Agraria y la Pobreza Rural*, Rome: Organización de las Naciones

Unidas para la Agricultura y la Alimentación, 21-46.

Pearson, J. (1989) "History and development of the technology" in Kaplinsky, R. (ed.) *Cane Sugar: The Small-Scale Processing Option*, Proceedings of Joint ITDG / IDS conference, 10-11 September, London: Intermediate Technology Publications, 30-33.

Pérez, F. (1979) "El Marco Económico y Jurídico del Problema Cañero" in Paré, L. (ed.) *Ensayos sobre el problema cañero*, México DF: Universidad Nacional Autónoma de México, Instituto de Investigaciones Sociales, 13-36.

Pérez, R. (2001) "Mercado de Tierras Ejidales: El Caso de San Juan Huiluco, Municipio de Huaquechula, Región de Atlixco, Estado de Puebla" in Concheiro, L. and Diego, R. (eds.) *Una Perspectiva Campesina del Mercado de Tierras Ejidales: Siete Estudios de Caso*, México DF: UAM-Casa Juan Pablos, 39-105.

Piccioto, R. (1997) "Putting Institutional Economics to Work: From Participation to Governance" in Clague, C. (ed.) *Institutions and Economic Development: Growth and Governance in Less-Developed and Post-Socialist countries*, Baltimore: The Johns Hopkins University Press, 343-67.

Pickvance, C. and Preteceille, E. (1991) "Conclusion" in Pickvance, C. and Preteceille, E. (eds.) *State Restructuring and Local Power*, London: Pinter, 197-224.

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.

Platteau, J.P. and Baland, J.M. (2001) "Impartible Inheritance Versus Equal Division: A Comparative Perspective Centered on Europe and Sub-Saharan Africa" in de Janvry, A., Gordillo, G., Platteau, J.P. and Sadoulet, E. (eds.) *Access to Land, Rural Poverty and Public Action*, Oxford, Oxford University Press, 27-67

Polanyi, K. (1987) *The Great Transformation: the political and economic origins of our time*, Boston, MA: Beacon. (First Published 1944).

Pollitt, B. H. (1986) "Sugar, 'Dependency' and the Cuban Revolution", *Development and Change* 17 (2): 195-230.

Porter, G., Rufino, Ch. and Ramos, H. (2001) "Local Labour Markets and the Reconfiguration of the Sugar Industry in Northeast Brazil", *Antipode* 33 (5): 826-54.

Powell, K. (1995) "Socioeconomic Implications of Destatization in the Sugar Industry: the Case of Los Reyes, Michoacán" in Singelman, P. (ed.) *Mexican Sugarcane Growers: Economic Restructuring and Political Options*, Transformation of Rural Mexico, No. 7, Center for U.S.-Mexican Studies, Sand Diego, 41-53.

Pratt, B. and Loizos, P. (1992) *Choosing Research Methods*, Oxford: Oxfam.

Preibisch, K. L. (1995) "No Room for Dissent: A Case Example of Day Laborers' Lived Realities in the Atlixco Valley", paper presented in the International Congress of

the Latin American Studies Association, Washington DC, September 28-30.

Procuraduría Agraria (1997) *Marco Legal Agrario*, México DF: Dirección General de Estudios y Publicaciones.

Procuraduría Agraria (1999) "Principales características del ejido-tipo por entidad federativa", *Estudios Agrarios* 13: 139-82.

Ragin, C. (1987) *The Comparative Method: Moving Beyond Qualitative and Quantitative Strategies*, Berkeley: University of California Press.

Randall, L. (1996) Introduction to *Reforming Mexico's Agrarian Reform*, in Randall, L. (ed.) New York: M. E. Sharpe, 3-10.

Rappo, S. (2002) "¿La Expropiación resuelve la crisis azucarera? Nuevos y Viejos Conflictos", *Aportes, Revista de la Facultad de Economía BUAP* 19: 107-32.

Redclift, M. R. (1981) "El estado frente al campo", México DF: *Nexos* 47: 11-16.

Rello, F. (1986) *El Campo en la Encrucijada Nacional*, México DF: Secretaría de Educación Pública.

Reyes-Heroles, J. (1988) *El Liberalismo Mexicano*, México DF: Fondo de Cultura Económica.

Reynolds, R. R. (1973) "Replication and Substantive Import: a critique on the use of statistical inference in social research" in Cochrane, R. (ed.) *Advances in Social Research*, London: Constable, 324-36.

Rivera, G. (2000) "Por qué los ejidatarios están ignorando la reforma del ejido?: dos experiencias en el centro de México", paper presented in the International Congress of the Latin American Studies Association 2000, 1-25.

Rich, P., de los Reyes G. and Lara, A. (1998) "The Mexican Sugar Industry and its Labour Problems Under NAFTA", Paper presented in the International Congress of the Latin American Studies Association, 23-27 September, Chicago, 1-10.

Robles, H. (1999) "Similitudes y diferencias entre propiedad privada y ejidal", *Estudios Agrarios* 13: 31-60.

Rodríguez, A. (1998) "Procede: conceptos básicos y un perfil sobre sus avances", *Estudios Agrarios*, 10: 9-48.

Rodríguez, M. R., Taylor, J. E. and Yúnez-Naude, A. (1998) "The Impacts of Economic Reform on an Ejido Community: a Quantitative Analysis" in Cornelius, W. A. and Myhre, D. (eds.) *The Transformation of Rural Mexico*, U.S.-Mexico Contemporary Perspectives Series, Center for U.S-Mexican Studies, University of California Press, 333-54.

- Romo, E. L. (2001) "Mercado de tierras desde la perspectiva del campesinado. El caso del ejido Buaysiacobe en el estado de Sonora" in Concheiro, L. and Diego, R. (eds.) *Una Perspectiva Campesina del Mercado de Tierras Ejidales: Siete Estudios de Caso*, México, DF: UAM-Casa Juan Pablos, 153-88.
- Ronfeldt, D. (1973) *Atencingo: the politics of agrarian struggle in a Mexican ejido*, Stanford, CA: Stanford University Press.
- Rosenblueth, A. (1971) *El Método Científico*, México DF: Ediciones Científicas La Prensa Médica Mexicana, CINVESTAV-IPN.
- Rueschemeyer, D. (1991) "Different Methods – Contradictory Results? Research on Development and Democracy" in Ragin, C. C. (ed.) *Issues and Alternatives in Comparative Social Research*, New York: E.J. Brill, 9-38
- Runsten, D. and Nigel, K. (1996) "Contract Farming in Developing Countries: Theoretical aspects and analysis of some Mexican Cases", paper prepared for ECLAC, FAO and GTZ, 1-81.
- Ruttan, V. (1997) "Participation and Development" in Clague, C. (ed.) *Institutions and Economic Development: Growth and Governance in Less-Developed and Post-Socialist Countries*, Baltimore: The Johns Hopkins University Press, 217-32.
- Salinas, C. (2000) *México: un Paso Difícil a la Modernidad*, Barcelona, España: Plaza y Janés Editores.
- Sánchez, M. (1963) *Atencingo, de Cárdenas a López Mateos: 1937-1963*, Puebla, Mex.
- Sánchez, M. (1995) *Aspectos Agronómicos y Socioeconómicos de la Actividad Azucarera Mexicana*, Texcoco, México: Colegio de Postgraduados en Ciencias Agrícolas.
- Sánchez, M. (1997) *Desarrollo de la Producción de Caña y Azúcar en la República Mexicana*, Texcoco, México: Colegio de Postgraduados en Ciencias Agrícolas.
- Sánchez, M., Corona, R., Ochoa, O., Herrera, L. F., Olvera, A. and Sepúlveda, E. (1993) "The Privatization Process in México: Five Case Studies" in Sánchez, M. and Corona, R. (eds.) *Privatization in Latin America*, Centers for Research in Applied Economics, Washington DC: Inter-American Development Bank and Instituto Tecnológico Autónomo de México, The Johns Hopkins University Press, 101-99.
- Sánchez, M., Arana M., Arteaga, R, and Reyes, A. (2000) "Diagnóstico Técnico Económico del Módulo de Riego No. 7 "Espíritu Santo" La Venta-Unión Hidalgo, Oax. Mex." Paper presented in X Congreso Nacional de Irrigación, ANEI, A.C., Chihuahua, Chih. 16-18 August, 25-32.
- Sandercock, L. (1998) "The Death of Modernist Planning: Radical Praxis for a Postmodern Age" in Douglass, M. and Friedman, J. (eds.) *Cities for Citizens: Planning and the Rise of Civil Society in a Global Age*, Chichester: John Wiley and Sons, 163-84.

Schejtman, A. (1992) "The Peasant Economy: Internal Logic, Articulation, and Persistence" in Wilber, C. and Jameson, K. P. (eds.) *The Political Economy of Development and Underdevelopment*, New York: McGraw-Hill, 276-304.

Schumacher, E. F. (1993) *Small is Beautiful: a study of economics as if people mattered*, London: Vintage, (First published in 1973).

Secretaría de la Reforma Agraria (1997) *La transformación Agraria: Origen, Evolución, Retos, Vol. I y II*, México DF: SRA.

Senado de la República, LVII Legislatura (2000) *Análisis de los efectos del Tratado de Libre comercio de América del Norte en la economía mexicana: Una visión sectorial a cinco años de distancia*, México DF: Senado de la República.

Singelman, P. (1993) "The Sugar Industry in Postrevolutionary Mexico: State Intervention and Private Capital", *Latin American Research Review* 28 (1): 61-88.

Singelman, P. (1995) "Introduction", in Singelman, P. (ed.) *Mexican Sugarcane Growers: Economic Restructuring and Political Options*, Transformation of Rural Mexico, No. 7, Center for U.S.-Mexican Studies, San Diego, 1-6.

Singelman, P. (2001) "Market Liberalization, Privatization and New Rules of Articulation: Mexico's Cane Growers and Sugar Industry", FAO, Prioridades Regionales, Desarrollo Rural, 26 June 2002, <http://www.fao.org/Regional/Lamerica/prior/desrural/alianzas/casos.htm>

Singelman, P. and Otero, G. (1995) "Campesinos, Sugar, and the Mexican State: From Social Guarantees to Neoliberalism" in Singelman, P. (ed.) *Mexican Sugarcane Growers: Economic Restructuring and Political Options*, Transformation of Rural Mexico, No. 7, Center for U.S.-Mexican Studies, San Diego, 7-21.

Singelman, P. and Tapia S., J. (1979) "La Empresa cooperativa como medio de dominación: el caso de un ingenio azucarero", in Bertrab de M., V. (ed.) *Dinámica de la empresa mexicana: perspectivas políticas, económicas y sociales*, México DF: El Colegio de México, 121-49.

Sinha, R. (1984) "La carencia de tierras: ¿tiene solución?" in *Estudios Sobre la Reforma Agraria y la Pobreza Rural*, Rome: FAO, 47-64.

Smith, A. (1981) *An Enquiry into the Nature and Causes of the Wealth of Nations*, The Glasgow Edition of the Works and Correspondence of Adam Smith, Indianapolis, IN: Liberty Fund (First published in 1776).

Smith, P. H. (1990) "Mexico Since 1946" in Bethell, L. (ed.) *The Cambridge History of Latin America*, Vol. VII, Cambridge: Cambridge University Press, 83-157.

Sobhan, R. (1993) *Agrarian Reform and Social Transformation: Preconditions for Development*, London: Zed Books.

Stake, R. E. (1995) *The Art of Case Study Research*, London: Sage.

Stanford, L. (1998) "Opportunities under Privatization: Restructuring Commodity Systems in Michoacán" in Cornelius, W. A. and Myhre, D. (eds.) *The Transformation of Rural Mexico*, U.S.-Mexico Contemporary Perspectives Series, Center for U.S.-Mexican Studies, University of California Press, 307-31.

Stein, H. (1995) "Institutional Theories and Structural Adjustment in Africa" in Harriss, J., Hunter, J. and Lewis, C. M. (eds.) *The New Institutional Economics and Third World Development*, Cambridge: Cambridge University Press, 109-32.

Stephen, L. (1998) "Interpreting Agrarian Reform in Two Oaxacan Ejidos: Differentiation, History and Identities" in Cornelius, W. A. and Myhre, D. (eds.) *The Transformation of Rural Mexico*, U.S.-Mexico Contemporary Perspectives Series, Center for U.S.-Mexican Studies, University of California Press, 125-43.

Stiglitz, J. E. (1989) "Rational Peasants, Efficient Institutions, and a Theory of Rural Organization: Methodological Remarks for Development Economics" in Bardan, P. (ed.) *The Economic Theory of Agrarian Institutions*, Oxford: Clarendon Press, 18-29.

Stiglitz, J. E. (1992) "The New Development Economics" in Wilber, C. and Jameson, K. P. (eds.) *The Political Economy of Development and Underdevelopment*, New York: McGraw-Hill, 261-75.

Stiglitz, J. E. (1998 a) "Markets, Market Failures, and Development" in Eicher, C. and Staatz, J. (eds.) *International Agricultural Development*, Baltimore: The Johns Hopkins University Press, 103-12.

Stiglitz, J. E. (1998 b) "Redefining the Role of the State: What should it do? How should it Do it? And How should these decisions be made?" Presented to the Tenth Anniversary of MITI Research Institute, Tokyo, Japan, March 17<sup>th</sup>, 1-23, ([www.worldbank.org](http://www.worldbank.org), 13/10/2001).

Stiglitz, J. E. (2002) *Globalization and its Discontents*, London: Allen Lane.

Sunkel, O. and Zuleta, G. (1990) "Neo-structuralism versus neo-liberalism in the 1990s", *CEPAL Review* 42: 35-51.

Tarrío, M. (2001) "Modernización y mercado: procesos de movilidad de la tierra en el ejido San Vicente, Valle de Santiago, estado de Guanajuato" in Concheiro, L. and Diego, R. (eds.) *Una Perspectiva Campesina del Mercado de Tierras Ejidales: Siete Estudios de Caso*, México DF: UAM-Casa Juan Pablos, 261-301.

Taylor, E., Yunez-Naude, A. and Hampton, S. (1999) "Agricultural Policy Reforms and Village Economies: A Computable General-Equilibrium Analysis from Mexico", *Journal of Policy Modelling* 21 (4): 453-80.

Téllez, L. (1994) *La Modernización del Sector Agropecuario y Forestal: Una Visión de*

*la Modernización de México*, México DF: Fondo de Cultura Económica.

The Economist, (1993) Survey on Mexico “Mexico: Respect restored”, London: The Economist. 13 February.

The Economist, (2000) Survey on Mexico (Supplement). 28 October.

Teubal, M. (1987) “Internationalization of Capital and Agroindustrial Complexes: Their Impact on Latin American Agriculture”, *Latin American Perspectives* 14 (3): 316-64.

Thiesenhusen, W. (1996) “Mexican Land Reform, 1934-91: Success or Failure?” in Randall, L. (ed.) *Reforming Mexico's Agrarian Reform*, New York: M. E. Sharpe, 35-47.

Thomson, G. P. C. (1991) “Protectionism and Industrialization in Mexico, 1821-1854: The Case of Puebla”, in *Latin America, Economic Imperialism and the State: The political Economy of the External Connection from Independence to the Present*, London: The Athlone Press, 125-46.

Todaro, M. (1997) *Economic Development*, London: Longman.

Tomlinson, B. R. (1995) “Productivity and Power: Institutional Structures and Agricultural Performance in India and China, 1900-50” in Harriss, J., Hunter, J. and Lewis, C. M. (eds.) *The New Institutional Economics and Third World Development*, Cambridge: Cambridge University Press, 172-83.

Toye, J. (1995) “The New Institutional Economics and its Implications for Development Theory” in Harriss, J., Hunter, J. and Lewis, C. M. (eds.) *The New Institutional Economics and Third World Development*, Cambridge: Cambridge University Press, 49-68.

Tribe, M. (1989) “Scale considerations in sugar production planning” in Kaplinsky, R. (ed.) *Cane Sugar: The Small-Scale Processing Option*, Proceedings of Joint ITDG/ IDS conference, 10-11 September, London: Intermediate Technology Publications, 53-60.

Turner, J. K. (1997) *México Bárbaro*, México DF: Gernika.

Uphoff, N. (1984) “La estrategia del desarrollo rural: papel de las organizaciones locales y cambios en la burocracia de la oferta” in *Estudios Sobre la Reforma Agraria y la Pobreza Rural*, Rome: FAO, 65-95.

United States Department of Agriculture (USDA) (2003) “Mexico: Agricultural Situation, a Profile of Mexico's Agricultural Sector 2003”, *USDA Foreign Agricultural Service*, GAIN Report Number MX3055.

United States, Executive Office of the President (1993) *North American Free Trade Agreement Between The Government of The United States of America, The Government of Canada and The Government of The United Mexican States*, Washington DC: US Government Printing Office.



- Valentine, G. (1997) "Tell me about . . . : using interviews as a research methodology" in Flowerdew, R. and Martin, D. (eds.) *Methods in Human Geography: a guide for students doing a research project*, Harlow: Longman, 110-26.
- Varley, A. (1985) "Urbanization and Agrarian Law: the case of Mexico City", *Bulletin of Latin American Research* 4 (1): 1-16.
- Varley, A. (1996) "Delivering the Goods: Solidarity, Land Regularisation and Urban Services" in Aitken, R., Craske, N., Jones, G. A. and Stansfield, D. E. (eds.) *Dismantling the Mexican State?* London: Macmillan Press, 204-24.
- Varley, A. (2002) "Private or Public: Debating the Meaning of Tenure Legalization" in *International Journal of Urban and Regional Research*, 26 (3): 449-61.
- Venegas B., A. (2001) "El Cultivo de la Sábila", paper presented at Universidad Tecnológica Izúcar de Matamoros, Cuarta Reunión de Vinculación, 15-16 March.
- Venezian, E. and Gamble, W. K. (1969) *The Agricultural Development of Mexico: Its structure and Growth Since 1950*, New York: Frederick A. Praeger, Publishers.
- Vogelgesang, F. (1996) "Property Rights and the rural land market in Latin America", *CEPAL Review* 58: 95-113.
- Vogelgesang, F. (2003) "Derechos de Propiedad, Costos de Transacción, Externalidades y Mercados de Tierras Rurales en América Latina y el Caribe" in Tejo, P. (ed.) *Mercados de Tierras Agrícolas en América Latina y el Caribe: Una Realidad Incompleta*, Santiago de Chile, CEPAL, 29-59.
- Warman, A. (1976) . . . *Y Venimos a Contradecir: Los Campesinos de Morelos y el Estado Nacional*, México DF: Ediciones de la Casa Chata.
- Warman, A. (1981) "Alimentos y Reforma Agraria, el Futuro de una Crisis", *Nexos* 43: 3-14.
- Whiteford, S. and Bernal, F. (1996) "Campesinos, Water, and the State: Different Views of La Transferencia" in Randall, L. (ed.) *Reforming Mexico's Agrarian Reform*, New York: M. E. Sharpe, 223-34.
- Whiteford, S., Bernal, F. A., Díaz, H. and Valtierra-Pacheco, E. (1998) "Arid-Land Ejidos: Bound by the Past, Marginalized by the Future" in Cornelius, W. A. and Myhre, D. (eds.) *The Transformation of Rural Mexico*, U.S.-Mexico Contemporary Perspectives Series, Center for U.S.-Mexican Studies, University of California Press, 381-99.
- Wignaraja, P. (1984) "De la aldea al orden mundial" in *Estudios Sobre la Reforma Agraria y la Pobreza Rural*, Rome: FAO, 97-118.
- Williamson, O. (1985) *The Economic Institutions of Capitalism*, New York: The Free

Press.

Womack, J. (1970) *Zapata and the Mexican Revolution*, New York: Vintage Books.

Womack, J. (1986) "The Mexican Revolution, 1910-1920", in Bethell, L. (ed.) *The Cambridge History of Latin America*, Vol. V, Cambridge: Cambridge University Press, 79-153.

Yetman, D. and Búrquez, A. (1998) "Twenty-Seven: A Case Study in Ejido Privatisation in Mexico", *Journal of Anthropological Research* 54: 73-95.

Yin, R. (1994) *Case Study Research: design and methods*, London: Sage Publications.

Yúnez-Naude, A. and Taylor, J. E. (2001) "The Determinants of Nonfarm Activities and Incomes of Rural Households in Mexico, with Emphasis on Education", *World Development* 29 (3): 561-72.

Zabin, C. (1998) "Free Markets and Forests: Community-Based Forestry in the Era of Neoliberal Reform" in Cornelius, W. A. and Myhre, D. (eds.) *The Transformation of Rural Mexico*, U.S.-Mexico Contemporary Perspectives Series, Center for U.S-Mexican Studies, University of California Press, 401-25.

Zendejas, S. (1996) "U.S.-Bound Migration and the Future of the Ejido: Changing Pragmatic Commitments to the Ejido Among Different Cohorts of Villagers in a Hamlet in Michoacán" in Randall, L. (ed.) *Reforming Mexico's Agrarian Reform*, New York: M. E. Sharpe, 305-21.

Zendejas, S. and Mummert, G. (1998) "Beyond the Agrarian Question: The Cultural Politics of Ejido Natural Resources" in Cornelius, W. A. and Myhre, D. (eds.) *The Transformation of Rural Mexico*, U.S.-Mexico Contemporary Perspectives Series, Center for U.S-Mexican Studies, University of California Press, 173-201.

## APPENDIX ONE: FIELDWORK QUESTIONNAIRE

1. Ejido \_\_\_\_\_

2. Name of the ejidatario \_\_\_\_\_

3. Age ( )

1. < 25
2. 26 to 39
3. 40 to 55
4. 56 to 70
5. More than 70
6. No response

4. Sex 1. M 2. F

5. Number of family members living in your home ( )

1. 1-3
2. 4-5
3. 6-7
4. 8-9
5. Ten or more
6. No response

6. Level of education of the members of your family over 15 ( )

1. Primary incomplete
2. Complete primary
3. Secondary incomplete
4. Complete secondary
5. High School incomplete
6. High School complete or professional education
7. No response

Level of education of the ejidatario \_\_\_\_\_

7. How did you get your plot(s)? ( )

1. Ejido endowment
2. Inheritance
3. Buying
4. No response

When? \_\_\_\_\_

8. If inherited, was an original parcel subdivided? ( )

What was the area of the original parcel? \_\_\_\_\_ hectares

9. Do you keep your parcel? ( )

1. Yes      2. No      3. No response

10. Did you sell it or pass it? ( )

1. It was sold      2. It was transferred      3. No response

When? \_\_\_\_\_

11. Since the creation of the ejido, in how many parts was the original parcel subdivided? ( )

1. One
2. Two
3. Three
4. Four
5. Five
6. Six
7. Seven or more
8. No response

12. What is the area of your plot(s) ( )

1. Less than one hectare
2. Between 1.1 and 2 hectare
3. Between 2.1 and 3 hectare
4. Between 3.1 and 4 hectare
5. Between 4.1 and 5 hectare
6. Between 5.1 and 6 hectare
7. Between 6.1 and 10 hectare
8. More than ten hectares
9. No response

13. Do you have a PROCEDE certificate or dominio pleno?

- |                  |         |        |
|------------------|---------|--------|
| 1. PROCEDE       | Yes ( ) | No ( ) |
| 2. Dominio pleno | Yes ( ) | No ( ) |

14. If you have adopted dominio pleno, say why: ( )

1. More security in the ownership of the parcel
2. You are planning to sell the parcel
3. Other reason, be specific \_\_\_\_\_
4. No response

15. If you have not received PROCEDE certificate or adopted dominio pleno, say why  
PROCEDE ( ) Dominio pleno ( )

1. Too much paperwork
2. You think it is unnecessary
3. Conflicts in the ejido
4. It has been applied, but it has not been received yet
5. The assembly has not allowed
6. You are fear to lose your parcel
7. Other reason, be specific \_\_\_\_\_
8. No response

16. Who cultivates your parcel? ( )

1. You hire wage labour
2. Yourself
3. It is rented out
4. Sharecropper
5. No response

17. If you rent out your parcel, say since when ( )

1. Before 1992
2. After 1992
3. No response

18. Besides the parcel you received from the ejido or in inheritance, have you bought another(s)? ( )

1. Yes
2. No
3. No response

19. If so, say how many plots have you bought and the area

Number of plots bought ( )

1. One
2. Two
3. Three
4. Four
5. Five
6. More than five
7. No response

Area bought ( )

1. Less than two hectares
2. Between 2.1 and 5 hectares
3. Between 5.1 and ten hectares
4. Between 10.1 and 15 hectares
5. Between 15 and 20 hectares

20. When did you buy those plots ( )

1. Before 1992
2. After 1992
3. No response

21. Do you rent other plots? ( )

1. Yes
2. No
3. No response

If so, how many plots/hectares? \_\_\_\_\_ ( )

1. Less than two hectares
2. Between 2.1 and 5 hectares
3. Between 5.1 and ten hectares
4. Between 10.1 and 15 hectares
5. Between 15 and 20 hectares
6. No response

22. Would you sell your parcel? ( )

1. Yes
2. No
3. No response

Under which conditions you would do it? \_\_\_\_\_

23. Are you familiar with the 1992-Reform to the agrarian law? ( )

1. Yes
2. No
3. No response

24. For ejidatarios you think the reform is ( )

1. Good
2. Bad
3. Neutral
4. No response

25. In which of the following programmes do you participate now? ( )

1. Procampo
2. Progresa
3. Alianza Para el Campo
4. Crédito a la Palabra
5. Programa de Empleo Temporal
6. Programa de Fertilizante
7. No response

Which one do you had before and then it lost it? \_\_\_\_\_

26. Do you receive any pension? ( )

1. Yes
2. No
3. No response

If so, which one? \_\_\_\_\_

27. Which are your source(s) of funding for agricultural activity ( )  
and in which proportion \_\_\_\_\_

1. Development bank
2. A private bank
3. An intermediary
4. Local moneylenders
5. A firm associated with you
6. Relatives migrated to the US or other place in Mexico
7. State or municipal support
8. SAGAR

9. None of them
10. Other, be specific \_\_\_\_\_
11. No response

28. How did you get funding ten years ago? (    ), how much and for what?

1. Development bank
2. A private bank
3. An intermediary
4. Local moneylenders
5. A firm associated with you
6. Relatives migrated to the US or other place in Mexico
7. State or municipal support
8. SAGAR
9. None of them
10. Other, be specific \_\_\_\_\_
11. No response

29. If you do not get credit, say why (    )

1. Fear of losing the parcel
2. Too high interest rates
3. Untimely supply of money
4. Too much paperwork
5. Not needed
6. Applied, but impossible to get it
7. Other reason, be specific \_\_\_\_\_
8. No response

30. Which crops have you cultivated every year on your parcel since 1982?

31. If you have changed the crop, say why (    )

1. The price of the previous one decreased
2. Official support for a new crop
3. The yield of the previous one decreased
4. The costs of the previous one increased
5. Difficult access to water
6. There is no more official support for the previous one
7. Other, be specific \_\_\_\_\_
8. No response

32. If you grow cane, say why do you prefer that crop (    )

1. It is the most profitable crop
2. Technical impediments like water, soil, and plague
3. The benefit of social security and the pension
4. Official indications
5. It is an agreement of the ejido

6. It demands less work
7. It is less risky than other crops
8. Other reason, be specific \_\_\_\_\_
9. No response

33. If you do not grow cane, did you do it before? ( )  
 1. Yes      2. No      3. No response

34. Your actual sugar cane plantation was sowed in which year? \_\_\_\_\_

35. Which amount of fertiliser do you apply by hectare in cane \_\_\_\_\_ kg.  
 Which amount did you apply in 1990? \_\_\_\_\_ kg.

36. Say which formula of fertiliser do you apply now \_\_\_\_\_  
 Which one did you use in 1990? \_\_\_\_\_

37. When did you change the last time the variety of cane you grow  
 \_\_\_\_\_

38. Of the following inputs, say whether you use more, less or the same since 1990

	More	Less	The same
Insecticide	( )	( )	( )
Improved seed	( )	( )	( )
Machinery	( )	( )	( )

39. Do you have machinery or oxen team of your own? ( )

1. Only machinery
2. Only oxen team
3. Both
4. None of them
5. No response

If you have your own machinery, when did you buy it? \_\_\_\_\_

40. Do you take in rent machinery or oxen team? ( )

1. Only machinery
2. Only oxen team
3. Both
4. None of them
5. No response

41. Did you irrigate your land in 1990? ( )  
 1. Yes      2. No      3. A part of the land      4. No response

42. Of the land you have, which area did you irrigate in 1990 and now ( )  
 \_\_\_\_\_



Now	tonnes	1990	tonnes
-----	--------	------	--------

	Yes	No
1. Technical assistance	( )	( )
2. Training	( )	( )
3. No response	( )	

1. Yes      2. No      3. No response

1. Before 1992      2. After 1992      3. No response

1. Yes      2. No      3. No response

1. Yes      2. No      3. No response

1. Yes      2. No      3. No response

50. If you have associated with a firm, say its name and the conditions

1. The government
2. A private firm or the mill
3. An intermediary
4. Other, be specific \_\_\_\_\_
5. No response

1. You receive a better price for your harvest
2. The payment is timely
3. Better conditions in the deal
4. Costs of selling are less
5. Other advantages, be specific \_\_\_\_\_
6. No response

53. Your agricultural profits now, compared with those in 1990 are ( )  
1. The same      2. Higher      3. Lower      4. No response

54. Do you sell all or part of your harvest to an exporter? ( )  
1. Yes      2. No      3. No response

55. Do you have another income besides the one from the parcel? ( )  
1. Yes      2. No      3. No response

Specify \_\_\_\_\_

56. Is your agricultural income enough to afford family necessities? ( )  
1. Yes      2. No      3. No response

57. Do you emigrate temporarily to supplement your agricultural income? ( )  
1. Yes      2. No      3. No response

58. Where do your adult children work? ( )

1. The ejido parcel
2. Non-agricultural family business
3. Employees in the region
4. Migrated to the US
5. Other place in the country
6. No response

59. If you have children migrated, do they support you? ( )

1. Regularly
2. Some times
3. Never
4. No response

60. If so, which proportion do you invest in the parcel? ( )

1. Nothing
2. Less than a quarter
3. From a quarter to the half
4. From a half to three quarters
5. More than three quarters
6. No response

61. Have you improved your house since 1990? ( )  
1. Yes      2. No      3. No response

62. Arrange from one to three the principal sources of family income ( )

1. Cropping of the ejido parcel
2. Work as an employee

- 3. Non-agricultural own business
- 4. Support from relatives
- 5. Pension
- 6. Subsidies from the government
- 7. Other, be specific \_\_\_\_\_
- 8. No response

63. Do you hire waged labour? ( )

- 1. Yes
- 2. No
- 3. No response

## **APPENDIX TWO: LIST OF INTERVIEWEES**

### **Academics**

Dr. Rita Schwentesius Rinderman, Director of CUESTAAM, Universidad Autónoma Chapingo, and adviser of CONACYT in agricultural economics, January 2001

Dr. Soledad Loaeza, Historian, Colegio de México, 10 March 2000

Dr. Jorge Fernández Plascencia, Subdirector Colegio de Postgraduados, Campus Puebla, March 2001

Dr. Emmanuelle Bouquet, researcher in land market, CIMMYT Texcoco, March 2001

Dr. Luis Ramiro García Chávez, Universidad Autónoma Chapingo, two interviews: 25 April and 9 May 2001

Dr. Alicia Puyana, FLACSO, 12 June 2001

Dr. Scott Robinson Studebaker, Department of Anthropology, Universidad Autónoma Metropolitana, 2 July 2001

Dr. Antonio Yúnez Naude, professor at Colegio de México in agriculture economics, department of economics, 9 July 2001

Dr. Antonio Azuela, Universidad Nacional Autónoma de México, 8 November 2002

### **Government officials**

Mauro Gómez, Subdelegado for Special Programmes, Procuraduría Agraria Puebla, 8 September 2000

Dr. Manuel Díaz Pineda, Chief adviser of Eduardo Robledo Rincón, Secretario de Reforma Agraria, November 2000

Javier Ramírez, Delegate Procuraduría Agraria Puebla, December 2000

Salvador Ramírez, Residente, Procuraduría Agraria Puebla, December 2000

Francisco López, teacher and Secretary of the Municipal Council in Matamoros and PRI leader, 29 January 2001

Juan Manuel Vega Rayet, Mayor of Matamoros, 5 February 2001

Jesús Márquez, Residente Procuraduría Agraria, Matamoros, 27 February 2001

Dr. Francisco Javier Alejo, Secretary of the Presidency in the Cabinet of Luis Echeverría, former President of the Consejo Técnico Consultivo of the CNC and presently Director of the MSc. Programme in Economics, Colegio de Mexico, April

2001

Héctor Robles Berlanga, engineer, Director de Investigación y Publicaciones at the Procuraduría Agraria, 20 September 2001.

Maribel Méndez, Chief adviser of the General Director of Procuraduría Agraria 20 September 2001

### **Ejidatarios**

Javier Espinosa, ejidatario in Atencingo, February 2001

Adela Vargas, ejidatario in Matzaco, 5 March 2001

Roberto Andrade, ejidatario in Matzaco, 24 March 2001

Alberto Estrada, ejidatario in Colón, March 2001

Rafael Reyes, ejidatario in Atencingo, 22 April 2001

Esteban Medina, ejidatario in Colón, 13 May 2001

Gerardo Mateos, ejidatario in Colón, 20 May 2001

Ramón Quintana, ejidatario in ejido Teruel, and worker in the sugar mill, 5 June 2001

Esperanza Alvarez., ejidataria in Atencingo, January 2002.

Hipólito Lara, ejidatario in Colonia Revolución, Atlixco, 21 April 2002

### **Leaders of ejidos and organisations**

Aegréfico González M., Comisariado Ejidal Matzaco, 22 January 2001

Manuel Méndez, former comisariado in Colón, and member of the municipal council in Matamoros, 1 February 2001

Daniel García, leader of the CNPR in Atencingo, 22 February 2001

José Silva, ejidatario and Ejido Escape de Lagunillas, 24 February 2001.

Juan Márquez, ejidatario in Jaltepec, former Comisariado and former leader of UNPCA-CNC in the region, February 2001.

Vicente López, Presidente Comisariado Ejidal Ejido Colón, March 2001

Fernando Sánchez, regional leader of the UNPCA-CNC in Atencingo. He introduced me to the manager of the sugar mill. A journey through the sugar mill facilities, 8 May 2001.

Jesús Espinosa Méndez, former president of Consejo de Vigilancia in Atencingo, 7 April 2001

**Private producers**

Everardo Torres, sugar cane producer in Omealca, Veracruz, 19 April 2001

Rafael Solórzano, Field General Manager of the Atencingo Sugar Mill, 8 May 2001.

Jorge Leyva Duarte, 20 June 2001.

**Local residents**

Manuel Sánchez, local historian of Matamoros, and director of the local Native Cultures Museum, 28 February 2001.

Jorge Vélez, sales manager of Guanos y Fertilizantes, Fertilización, S.A. de C.V., 8 May 2001.

Antonio Jiménez, agronomist working in the sugar mill as deputy manager of crops in the Atencingo sugar mill, 14 May 2001

Alfredo Carmona, physician in Instituto Mexicano del Seguro Social, Matamoros, June 2001