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Agricultural Trade Liberalization and Mexico

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Executive Summary

Mexico's experience of liberalization is a canary in the mineshaft for other agricultural economies in the Global South. Mexico's political and economic ties to the United States mean that it is subject, perhaps more than any other country in the world, to the direct political-economic intervention of its powerful northern neighbor. The effects of such interventions have unequivocally hurt the poorest people in the country: those who work on the land in rural areas.

Following open market policies, we have seen increases in raw measures of economic change in foreign direct investment, aggregate GDP per capita, and export volumes. For example, Mexico's overall exports increased 7-fold between 1981, the year before liberalization, and 2001.¹ Imports have matched this rise, with a 6.7-fold increase from 1981 to 2001.²

At an aggregate level, then, it would seem as if Mexico has profited from liberalization. Yet closer scrutiny of the figures show that the benefits have been divided very unequally. Some farmers have been able to take advantage of newly open markets in the U.S. Since the onset of NAFTA, exports of fruits and vegetables have increased 57%.³ Yet, given that tariff barriers in these products were already low, before NAFTA, it is more reasonable to attribute the shift to these crops as a response to "push factors", foremost among which is the rapid fall in the domestic price of maize.

Maize farmers have been particularly badly hit, and given the rural dependence on corn farming, this means that the poorest farmers have been hit the hardest. Subsistence farmers account for 45 % of all corn growing units in Mexico, and production for household consumption represents 38 % of total production. For the most part these farmers operate under inferior conditions with poor quality rain-fed soil, slopping terrain, irregular rainfall, and little if any access to technology, credit, storage facilities and marketing channels. These producers are often forced to sell their crops immediately after harvest, when local prices are at the lowest, because they are too poor to afford the appropriate storage facilities.

These farmers were subject to the full onslaught of the US corn industry, a recipient of substantial US government subsidy. The opening of the Mexican market to US corn led to a massive influx of subsidized, and hence cheaper, US corn. Corn prices are currently \$1.74 a bushel, and the latest US Department of Agriculture figures show production costs at about \$2.66 a bushel, the difference being attributable to direct and indirect subsidy.⁴ Mexico has experienced devastating crop "dumping" - when the international price is lower than the domestic cost of production.

The response of Mexican peasants to this dumping has puzzled proponents of free trade. Economic theory suggests that when prices decrease, supply should contract. But that has not happened. In fact, when prices fell, the amount of corn planted increased. This was predicted in advance by NAFTA's critics⁵. Without options or access to credit, and with the "opportunities" under NAFTA being so limited for Mexican producers, peasant farmers responded by increasing their reliance on their 10,000-year-old staple, expanding

the area under cultivation even as prices fell, as a last-ditch attempt to grow and sell enough corn to fight off life-threatening poverty.

And there continues to be substantial poverty and inequality in Mexico, despite the rosy aggregate statistics. Real wages are decreasing and incidence of poverty in rural areas is on the rise. Indeed, inequality is higher after the reforms than before.

Proponents and critics like knew that free trade would hurt rural producers– the corrective winds of the global market were intended to “weed out” inefficient producers. Research has shown, however, that small producers are more efficient in terms of total farm output than large-scale producers. But lacking the subsidies and support of their larger competitors, these poor producers have been left to twist in the wind.

The one group in whose name these reforms have been carried out, however, is consumers. With a dramatic fall in domestic corn prices, we would expect to see cheaper food for the Mexican people. Yet tortilla prices have increased 279 % in real terms. 6 This can be explained through the combination of two factors: first, the tortilla market has long been a duopoly; second, consumer price supports were removed by the government through its agricultural liberalization program.

The poorest farmers have adopted a number of coping strategies. Rural out-migration has been increasing since trade liberalization. People migrate in order to secure jobs and send remittances home. In 1998, 130,661 Mexicans were known to have migrated to the US, compared to 56,680 in 1980.

Aware of the inherently political character of NAFTA and the liberalization program around it, farmers have been taking to the streets, with the largest assembly of peasants in Mexico City since the 1930s taking place earlier this year, under the slogan “El Campo No Aguanta Más” – The Countryside Can’t Take It Anymore.

Yet the political will to address the hardship undergone by the poorest people in Mexican society is lacking. Under NAFTA rules, the Mexican government could legally, and without prejudice, have invoked tariffs on US corn imports once they exceeded a certain threshold. This threshold was set at a high level at the beginning of the NAFTA phase-in period and has continued to rise. Each year since NAFTA began, this threshold has been exceeded. Yet the Mexican government chose not to invoke these protection right, despite clear economic incentives to do so; the revenue forgone was around US \$2 billion. We can only conclude that political pressures - from the US government, from domestic processors, and from the increasing number of foreign food processing companies who have invested in Mexico since NAFTA - outweighed both the interests of small domestic corn producers, and the \$2 billion in revenue.

Farming communities have made clear demands for an end to the agricultural provisions within NAFTA and, by extension, the cessation of Mexican participation in the WTO Agreement on Agriculture. These demands have been made by the poorest, and most numerous, production sector in Mexico. Their political will seems fixed. It remains to be seen whether the Mexican government is willing to cede to it.

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Glossary of Terms:

Alianza para el Campo – Alliance for the Countryside. Current government program intended to augment farming efficiency through crop substitution.

ASERCA – Agricultural marketing agency responsible for direct income transfers to farmers and marketing initiatives.

Campesino – peasant farmer

CONASUPO – Previous government support program started in 1965 and eliminated in 2000.

Ejido – Communal farms set up as part of land reform initiatives

Ejidario – Member of *Ejido* community

EOI – Export Oriented Industrialization

GATT – General Agreement on Trade and Tariffs

Import Competing Farmers – Farmers that grow crops in Mexico that are being imported from other countries, for example, corn farmers.

ISI – Import substitution Industrialization

Jornaleros – Day laborers

NAFTA – North American Free Trade Agreement

PRI – (Partido Revolucionario Institucional) Political party that had dominated the Mexican government since the revolution and up until the election of Vincente Fox

PROCAMPO – Government program that offers support payments to producers decoupled from production based on acreage.

PROGRESA – Program that provides mothers with cash transfers for sending kids to schools and health centers.

Opening – Refers to the opening of the economy or the lifting of trade restrictions, beginning in 1982

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Introduction

In the early 1990s, when negotiations began for the North American Free Trade Agreement (NAFTA) proponents assured the Mexican people that free trade would catapult them into the First World. The economic gains from the agreement were expected to exceed any of the potential losses. By capitalizing on the country's comparative advantages and proximity to the U.S., by enhancing its climate for foreign investment, and by increasing production efficiency, conditions for all Mexicans, it was said, would improve. The architects of the agreement understood, however, that in the short run, there would be both winners and losers and that import competing farmers would lose out. The magnitude of these losses was large – particularly in agriculture. Although agriculture accounts for less than 5% of the gross domestic product, one-quarter of the Mexican workforce still lives off the land⁷. The agreement was signed, and, as predicted, there were winners and losers. The geographical and social distribution of those who lost out was also predictable - those living in rural areas, and people who were already poor. This is because agriculture was hit particularly hard by liberalization - imports that competed with nationally produced goods have squeezed many farmers out of their own market. Within this sector, the hardest hit have been small-scale peasant producers, who were already the poorest sector in the Mexican economy, with the least disposable income and the least production flexibility.

The purpose of this analysis is to look at different macro-economic and social indicators, as well as the case of the corn market, in an attempt to answer the question of how farmers in the import competing sectors of Mexican agriculture have been impacted by trade liberalization. The analysis uses the case of corn production to illustrate the problems resulting from a shift from highly protected production to a liberal agricultural trade regime.

From an economic perspective, the opening of the economy seems significantly to have increased the opportunity for Mexico to establish itself as one of the world's leading trading partners ahead of Britain, South Korea and Spain. Yet, aggregate indicators of performance tend to mask the differences between rich and poor. The benefits of trade have not been distributed equally among the population. Lack of opportunities in rural areas and exclusion from the revenues of trade has further aggravated the poverty of peasant farmers. This raises the question: who wins from free trade? Poverty rates are on the rise and more and more *campesinos* – peasant farmers- are migrating out of their communities. Of course, the reasons behind Mexico's enduring poverty cannot be filtered out as to implicate trade alone. The reasons for the paradox of increasing poverty in a time of increasing overall plenty are complex and intersecting. 'Pro-market' national policies linked to trade liberalization have curtailed support for both consumers and producers of agricultural products. In addition, political considerations, a shrinking of entitlements, cuts in the provision of support for rural communities, and two large crises suffered by the economy, first the oil crisis and debt crisis of the early 1980s and then the peso crisis of the mid 1990s, have each played a role in these outcomes. We do not attribute increased rural poverty exclusively to membership of NAFTA, because NAFTA

is part of a wider constellation of policies and policy changes which affect the rural poor. It analytically very difficult to attribute a specific portion of this increased poverty to NAFTA in the light of these other considerations, especially in the absence of a counterfactual instance, and with the survival responses by the poor masking the real depth of the 'NAFTA effect'. More importantly, however, our analysis suggests that it makes more sense to see membership in NAFTA as moment in a wider policy process, in which the Mexican government has increasingly prioritized the needs of some of its citizens over others.

The impact of trade liberalization on subsistence farmers is important because the outcome of such policies in developing nations remains a controversial matter. Nonetheless, while the academic jury is, at best, undecided about the merits of trade liberalization⁸, and Mexican peasants have unequivocally signaled their dissent, as they did in their tens of thousands on 1 February 2003, it is a policy that continues to be pursued as a panacea for poverty and underdevelopment.

Methodology

The following analysis considers macro-economic, social and crop level indicators. The methodology examines these indicators through time in order to track the effects of Mexico's policy to open its market and liberalize trade. A brief history of Mexico's trade liberalization and agricultural policies is necessary to contextualize the analysis. Selected years prior to the economic opening in 1982 serve as the counterfactual for the analysis. Indicators include:

- **Macro-level:** Foreign Direct Investment (FDI), export volumes and values for agricultural products, agriculture's share in GDP, share of agriculture in total employment, GDP growth rates, GDP per capita, rates of growth in agricultural credit, food import dependency ratio, food import to total export ratio and the evolution of real wages.
- **Social:** Rural poverty rates, percentage of population living in rural areas, Gini index, literacy rates, inequality, migration, remittances and environmental quality.
- **Crop – Corn:** Production levels, changes in price for corn and corn food - tortilla, import quantity.

The analysis is limited by what impacts it can truly attribute to trade liberalization, because the neo-liberal model followed by the Mexican government includes a mix of policies, such as: tight fiscal and monetary policies, privatization, and the shrinking of the welfare state. In addition to economic and social policies, there are political considerations that may be driving the effects found in the analysis, as well as exogenous shocks. Many of them, such as the diminishing of government support for agriculture, are correlates of pursuing a trade liberalizing strategy. Furthermore, when confronted with economic constraints, peasant farmers employ a series of survival strategies in order to realize household needs. Since the analysis is not a scientific experiment we cannot select a control group that employs no strategies whatsoever and observe the impacts of liberalization on them. It is difficult, therefore, to delineate the impacts when other household strategies have been employed to moderate the effects. Some of these strategies include migration and ceasing to work on one's farm to sell their labor instead.

The first section of the analysis provides the reader with an overview of Mexico, its economy and conditions in rural areas. The subsequent sections provide a background to the analysis by presenting a brief history of trade liberalization in Mexican agriculture, followed by a discussion of trade agreements and a survey of agricultural policies past and present. Section IV then looks at the impacts of trade liberalization on agriculture by focusing on the corn sector and its producers. Section V compares the expected results of liberalization, with the realities as manifested in the Mexican context. Section VI explores alternative courses of action that can be taken by the government in order to ameliorate conditions for subsistence producers who have been excluded from participating in the benefits of trade.

I - Mexico at a Glance:

This section lays the foundation for the analysis by providing an overview of Mexico and some of its political, social and economic characteristics. It is a country of about 100 million people with an annual population growth rate of 1.7% in the aggregate and 0.63% for rural areas⁹. Life expectancy in 2000 was 73 years compared to 66 years in 1980. The illiteracy rate is currently about 8.3% for adults¹⁰ and the average years of schooling for those in the rural areas is 3 years compared to 7.1 years in urban areas¹¹.

Land

Mexico's climate varies from dry desert wasteland conditions in the North to tropical conditions in the Southeast, which affords it the possibility of engaging in diversified production. The country is mostly mountainous, which constrains the potential for farming; only 11.8% of land area is arable¹². The scarcity of high quality land creates disputes; those with political or economic power have tended to wield it in order to secure this resource. Historically, this has been manifest in the early Mexican distribution of land, which created the *ejido* sector. The majority of *ejidos* received poor quality land, while wealthy farmers with political ties to the Institutional Revolutionary Party (PRI) acquired and increased their holdings of the best quality land. The issue of land and land rights therefore, remains important in the collective memory of Mexicans and provides a backdrop for understanding much of the discontent with the current conditions for those living and working off of the land.

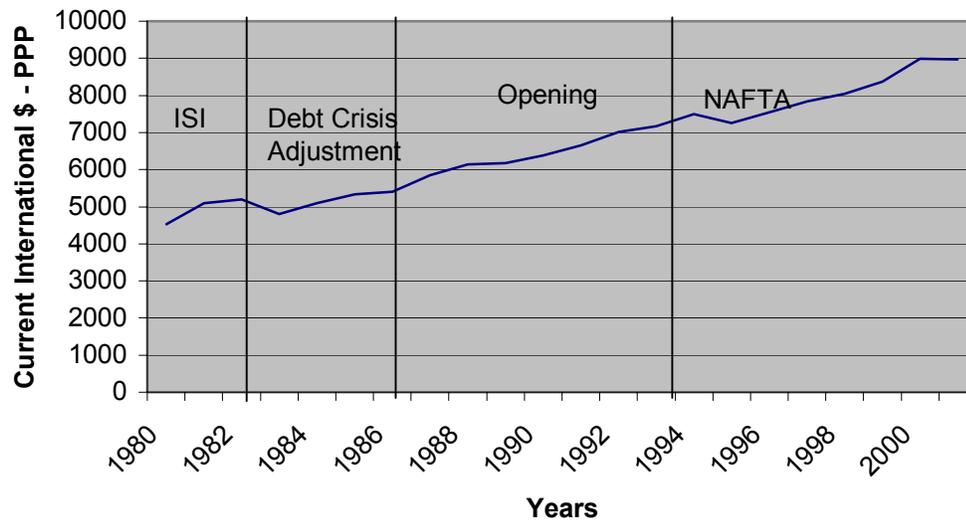
The known history of the present Mexican territory spans 20,000 years, 5,000 of which include the cultivation of corn and 2,000 of which include urban life¹³. In the 17th Century the Spanish colonizers set up *haciendas* – landed estates – as the major economic structure of the time. Such a system laid the foundation for the unequal distribution of land, which left generations of *campesinos* dissatisfied. The legacy of this unequal system of land distribution was felt deeply by Mexicans and expressed in the revolution of 1910. The principles of the revolution were primarily that of land redistribution and improvements for *campesinos*, but it was not until the presidency of Lazaro Cardenas (1934 –1940) that the redistribution of land took precedence for the government. Although each subsequent administration had its own way of managing the issue¹⁴, it has never been satisfactorily resolved. According to Sagarpa¹⁵, the Mexican agricultural ministry, of those in the economically active population in agriculture 6.6 million are workers without land.

Economy

Mexico has the world's ninth largest economy and is considered a middle-income country with a per capita GDP in purchasing power parity of about \$8,969 compared to \$4,525 in 1980. Graph 1 illustrates this steady growth of GDP per capita. Reasons for this spurt in growth are often attributed to Mexico's neo-liberal economic policies, which include deepened engagement in foreign trade. Of course, GDP is a crude indicator of

wellbeing, and PPP per capita indices have come under withering attack of late¹⁶. These serious criticisms notwithstanding, our case can be demonstrated using existing data.

GDP Per Capita - PPP



Graph 1: GDP per Capita PPP

Source: World Bank, World Development Indicators, 2003

Despite the steady increases in per capita GDP in the last 20 years, annual GDP growth rates have fluctuated in accordance with the policies and the economic particularities of the time. Although GDP per capita grew steadily throughout the 1980s it was considered the 'lost decade' because of the oil crisis and the resulting tripling of the public debt. In the 1990s growth was mostly positive with the exception of 1995, because of the peso crisis.

Annual GDP Growth	
Years	Rates
1970s	6.5%
1980s	1.3%
1990s	3.1%
2000	6.6%
2001	-0.3%

Table 1 Annual GDP Growth Rates

Sources: World Bank Group Mexico Profile, 2003

Integration into the global economy has been a double-edged sword for Mexico. The close economic ties with the United States were advantageous during the expansion of the US economy but, by the same token, the economic contraction felt after September 11th, 2001 in the northern neighbor have reverberated south of the border. These have led to negative growth rates in 2001. Prediction for growth rates in near future remain negative.

Agriculture and Trade

Predictably, the economic opening - characterized by decreases in trade barriers - led to increased trade volumes. Table 2 below captures the magnitude in the increase of agricultural trade for Mexico since 1981. Agricultural exports nearly doubled from 1991 to 2000, while food imports, which includes processed foods, more than tripled during that same time period.

Years	Agricultural exports in Millions of US\$	Food Imports Millions of US\$
1981	1,482	2,808
1991	2,373	5,834
2000	4,217	16,691
2001	3,903	19,752

Table 2: Agricultural Exports and Food Imports

Source: World Bank Group, Mexico Profile, 2002

The agricultural sector's decreasing share of total employment is a sign that labor has relocated to other sectors, and migrated. It is now being deployed in low-skill urban labor, rather than in the higher skill agricultural production sector. Efficiency gains through mechanization in the manufacturing sector have, to some extent, dampened demand for this kind of low-skill labor, and there is high urban under-employment.

Years	Share of agriculture in total employment
1960	65%
1980	36%
1999	22.1%
2002	17.5%

Table 3: Share of agriculture in total employment

Source: Statistical Abstract of Latin America, 2002

The average annual growth rates in the agricultural sector have been irregular; it averaged 1.7% in the 1990s, .6% in 2000 and 1.9 % in 2001¹⁷. Currently, 4.4% of the GDP can be attributed to agricultural production, down 4 percentage points from 1980. These fluctuations, however, do not necessarily indicate a contraction in the national agricultural sector. For one thing it indicates that there are other sectors in the economy that are outperforming agriculture for larger shares of the GDP, such as manufacturing.

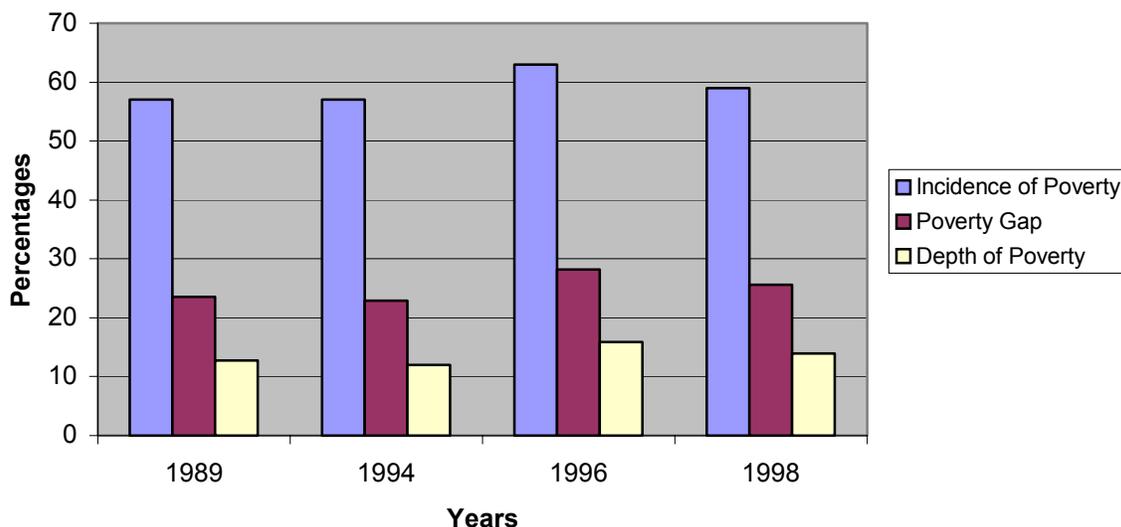
Fluctuations in the agricultural sector can be attributed to policies implemented by the Mexican government, which changed the country's industrialization strategy from import substitution industrialization (ISI) to export oriented industrialization (EOI) in 1982. This opening of the economy was accompanied by national policy revisions that did away with highly supported government programs and, instead, focused on encouraging competitiveness among farmers with the intent of increasing export led-growth. Mexican agricultural support programs contributed to about US\$ 9 billion in 2002 to producers¹⁸, US farmers, in comparison, receive twice that amount in subsidies and account for less than 3% of the labor force¹⁹. The Mexican government hoped that inefficient farmers

would reallocate production to horticultural crops and that market would be able to absorb its new producers. But Mexico already accounts for 60% of total horticultural imports to the US²⁰ and Mexico's additional share in that market is constrained by competition with other countries and US producers. In Mexico vegetable production accounts for only 15% of total agricultural production, employs just 18% of the agricultural labor force²¹ and accounts for only 8.6% of cultivated land²². The deepening of this sector as the solution for inefficient import competing producers remains an elusive goal.

Poverty and Inequality in Rural Areas

Rural areas are particularly vulnerable to poverty and therefore play a central role in addressing the issue. Looking at poverty and inequality in rural areas allows us to demystify some of the impacts of trade liberalization on the rural poor. At first glance, an increase in the per capita GDP would indicate decreases in poverty rates and perhaps improvements in the quality of life. But a deeper look at poverty rates indicates the contrary. Indicators of rural poverty show a larger incidence of poverty, poverty gap and depth of poverty in 1998 than in 1989²³. The most recent numbers provided by the Mexican Agricultural Ministry, SAGARPA state that as of 2001, 81.5% of people in rural areas were living in poverty. More specifically, for the economically active population in agriculture the incidence of poverty has increased from 54% in 1989 to 64% in 1998²⁴.

Rural Poverty Indicators



Graph 2: Rural Poverty Indicators

Source: Statistical Abstract of Latin America, 2002

For those living in the countryside agricultural production does not adequately provide for household needs. On average 44% of household incomes come from non-farm wages²⁵, and about 80% of families living in rural areas have at least one family member living outside of the community²⁶. These figures speak to the vulnerability of those living in rural areas and the various survival schemes they must employ in order to survive²⁷.

If trade liberalization has led to the steady increase of per capita GDP, then why are poverty rates increasing? We argue that increases in per capita GDP have been concentrated in the hands of a few and failed to ‘trickle down’ to the rural poor. The unequal distribution of gains from trade and exclusion of the poor from the market has further marginalized the most vulnerable segments of the population.

A recent World Bank paper found that greater openness to trade is negatively correlated with income growth amongst the poorest 40% of the population²⁸. The consequences of inequality cannot be ignored because of the potential reproductions for social and political stability. Aside from presenting a significant challenge to poverty itself, inequality threatens the economic gains made in other sectors of society. Sustained economic growth cannot be achieved without equality. The more unequal a society is, the more likely it is to suffer from political and social unrest, as different groups grow to be at odds with one another. In Mexico, the richest 10% of the population receives 42% of total national income, while the poorest 40% receives just over 11%²⁹. The Gini index ranking, a widely used measure of inequality, has also been increasing since the mid 1980s. Table 4 shows the results. (A Gini index of 100 is perfect inequality, an index of 0 represents perfect equality.)

Year	Gini index
1984	42.5
1989	46.9
1992	47.5
1994	47.7
1996	45.6
1998	47.6
2000	48.1

Table 4: Inequality in Mexico
Source: INEGI, 2001

A review of Mexico and some of its characteristics indicates that export sectors have benefited from trade liberalization. Yet growth rates are falling, poverty and inequality are on the rise, and land tenure remains a problem. In order to better understand the agricultural situation in Mexico, we now turn to a brief history of trade liberalization and agricultural policies.

II – A History of Trade Liberalization

A historical overview of Mexico’s liberalization and agricultural policies offers a critical context to the analysis. The turning point for the Mexican economy came in 1982 when the government decided to shift industrialization strategies. The opening of the economy and the signing of a series of trade agreements, the most important of which is NAFTA, followed. Table 5 provides a shorthand presentation of the most relevant events since the 1970s.

Brief History: 1970 - 2001

Year	Event	Description
1970 - 1982	<i>Import Substitution Industrialization (ISI)</i>	<ul style="list-style-type: none"> Protected national industry, including manufacturing and agriculture through regulations and subsidies The economic Crisis of 1982 and its aftermath seen as the terminal stages of ISI
1976 - 1982	<i>Oil Boom</i>	<ul style="list-style-type: none"> Mexico finds oil and begins to export petroleum at favorable international prices.
1981	<i>Oil Crisis</i>	<ul style="list-style-type: none"> Fall of international oil prices leads to increases in international debt, devaluation of the peso and recession
1982	<i>Debt Crisis De la Madrid assumes presidency</i>	Results in export oriented industrialization policies (EOI) Implementation of IMF structural adjustment plans.
1985-1995	<i>Adjustment and Recovery</i>	<ul style="list-style-type: none"> Austerity policies and economic opening
1986	<ul style="list-style-type: none"> <i>New Economic Model</i> <i>WTO agricultural negotiations begin</i> 	<ul style="list-style-type: none"> New monetary, fiscal, exchange rate and interest rate policies. Uruguay round (UR) negotiations conclude in 1994
1987	<ul style="list-style-type: none"> <i>Unilateral reduction of tariffs</i> <i>Mexico joins General Agreement on Tariffs and Trade (GATT)</i> 	<ul style="list-style-type: none"> Mexico goes beyond OECD's requirements and reduces tariffs to 20% UR -grants Mexico special treatment due to its developing country status, has until 2004 to implement UR commitments
1994	<ul style="list-style-type: none"> <i>North American Free Trade Agreement</i> <i>Mexico accepted as member of OECD</i> 	<ul style="list-style-type: none"> Defines conditions for market access and export subsidies. Import and export licenses are abolished and tariffication is used instead. Government promises to invest in agriculture.
Dec. 1994 – 1995	<i>Peso Crisis – devaluation</i>	<ul style="list-style-type: none"> Current account deficit unsustainable and capital flows reversed Halted NAFTA's promised investment in agriculture Increases in US imports from Mexico as Mexican goods became cheaper
2001	<i>Terrorist attacks in NY Technology stock bubble bursts</i>	<ul style="list-style-type: none"> Decreases in Mexican growth and investment diversion of industry

Table 5: A brief history of trade liberalization in Mexico

From Import Substitution to Export Oriented Industrialization:

Intervention in agriculture was a major component of the Mexican government's development policy from the mid 1930s to the beginning of the 1980s. Until 1982, Mexico followed an import substitution strategy to industrialization (ISI), which protected national industry and agriculture through import tariffs and quotas³⁰. For agriculture this meant: price supports to producers of staple crops, subsidies for agricultural inputs such as fertilizers and machinery, credit and insurance. The government also participated in the processing of grains, oils and powders (milk), with the object of providing cheap food to consumers. With the onset of the debt crisis and as a result of austerity measures imposed by the IMF and World Bank, Mexico abandoned this approach, urged instead to support an export oriented industrialization strategy (EOI).

One of the major differences between ISI and EOI is that under ISI government protection is targeted towards entire sectors of the economy, whereas in EOI the government "picks the winners" and chooses to subsidize competitive firms with the potential to become exporters. This shift in policy resulted in decreases in government support for agriculture. Trade liberalization or the reduction of tariffs and quotas, was a key element of the economic opening, but not its sole objective. The liberalization of the market was part of a mix of policies that emphasized particular economic and monetary practices. These range from fiscal discipline, price stability, balance of external accounts, decreases in state involvement, privatization of certain sectors of the economy, support for export led production, and sustained growth. Once implemented, these policies created a domino effect in the political and economic arena so as to secure the coherence of the neo-liberal economic model. For agriculture many of these changes spurred support for "the winners" - larger firms, rather than for smaller individual or ejido farmers. This corporatization of agricultural production paved the way for agribusiness. Today, the government continues to follow EOI; it has consolidated such policies by engaging in a series of trade agreements, which will be discussed in the following section.

International Trade Agreements:

To date, Mexico has signed more trade agreements than any other country in the world³¹. It is considered a hub market, through which other countries in the world can indirectly infiltrate the great North American market. Mexico's commitment to trade liberalization came with its membership into GATT in 1987. In 1994, Mexico joined the Organization for Economic Cooperation and Development (OECD) and that same year NAFTA was implemented. Mexico continues to sign trade agreements, most of them bilateral – with individual countries.

**Mexico's Free Trade Agreement (FTA's)
Signed since 1982 and being negotiated as February 2002³²**

<i>Signed as a Member Organization</i>	
➤ Uruguay Round of GATT starts	1986
➤ GATT - General Agreement on Tariffs and Trade	1987
➤ NAFTA (US – Mexico – Canada)	1994
➤ Group of Three (Mexico – Columbia – Venezuela)	1995
<i>Signed with Trade Blocks</i>	
➤ European Union (EU) 15 nations	2000
Latin America:	
➤ Bolivia	1995
➤ Chile	1992
➤ Costa Rica	1995
➤ Uruguay	2000
<i>Signed as Quasi-bilateral FTA</i>	
➤ Argentina	
<i>FTAs Being Negotiated with Trade Blocs</i>	
➤ FTAA (Free trade area of the Americas – 33 countries)	
➤ ACS (Associating of Caribbean States – 25 countries)	
➤ APEC (geo-political organization moving to FTA status – 21 countries)	
➤ MERCOSUR (Argentina, Brazil, Uruguay, Paraguay)	
<i>FTAs Being Negotiated with Bilateral Status</i>	
➤ Japan	
➤ Romania	
➤ Ecuador	
➤ Panama	
➤ Trinidad and Tobago	
<i>FTAs in Feasibility Analysis for Bilateral Negotiation</i>	
➤ Asia: China, Singapore and South Korea	
➤ Latin America: Brazil and Peru	

Table 6: Mexico's Free Trade Agreements and partners

Source: Statistical Abstract of Latin America, 2002

Trade with the United States is of key importance to Mexico; even before NAFTA was signed 75% of exports were going to the US and 69% of imports were coming from the US³³. NAFTA only contributed to a marginal change in tariff reduction. Today 85% of Mexican trade is concentrated in exchange with the United States. Despite the many other trade agreements Mexico is involved with, NAFTA holds the greatest policy shaping power. For the purpose of this analysis we will be looking at trade liberalization as a whole and not just the impact of NAFTA, although a brief discussion is provided below, with further details in Appendix A. It is extremely difficult to isolate the impacts of

different trade agreements as they reinforce one another and are complementary components in a wider policy framework. This should come as no surprise, and it is an important reminder to those who see the renegotiation of trade agreements as the sole solution to the troubles of poverty and injustice in the international system. Trade agreements, though important, are part of broader national and international policies that work against the poor.

North American Free Trade Agreement

The North American Free Trade Agreement is a distinct opportunity for free trade that includes two industrialized countries, the United States and Canada and a developing country, Mexico. The gaps between these players are not merely economic, although the Mexican economy is just one-twentieth the size of the US economy³⁴. There are also differences between their levels of infrastructure, technological capabilities, institutions and natural and human endowments³⁵.

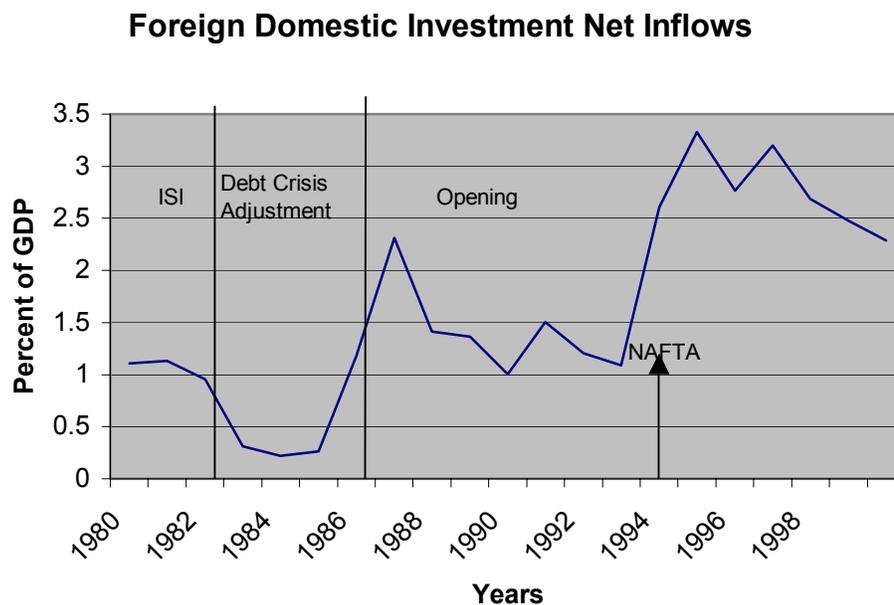
As with all of the free trade agreements, NAFTA aims, in principle, to capitalize on the comparative advantage of the three countries and establish trade regulations that allow for the free flow of goods in the region. For Mexico this comparative advantage has come in terms of cheap labor and warm climate. Theoretically, under perfect competition, unskilled manufacturing labor in Canada and the US would not be able to compete with low wage unskilled labor in Mexico, and inefficient farmers in Mexico would be unable to compete with their more productive northern neighbors. Unless they are able to make themselves more competitive, “inefficient” farmers will therefore, be the losers under such an agreement. The winners will be those endowed with comparative advantages that can capitalize on the opportunity and succeed in the international market. This, at least is the theory. It is a theory that presupposes a ‘level-playing field’. As we shall see, this is an assumption that had, and continues to have, little empirical support.

NAFTA includes provisions for the regulation of market access, with immediate and phased out elimination of tariffs over 10 years for most commodities, such as wheat, barley, rice, apples, potatoes, pork and selected produce, and 15 years for some special commodities, such as corn, beans, powdered milk and sugar, in the case of Mexico. NAFTA became the first trade agreement to use tariff rate quotas (TRQs) as a transition instrument to move towards free trade. The TRQs were applied to products considered sensitive during the negotiation rounds, such as corn. Agricultural products that are under in-quota imports are charged no tariffs.

NAFTA increased market access to Mexican competitive crops, mostly horticultural – fruits and vegetables. Mexico exported US\$3,903 billion in agricultural products in 2001 as compared to US\$1,482 billion in 1981 and US\$ 2,373 billion in 1991³⁶. But the truth is that NAFTA itself has done very little as far as opening agricultural markets in North America for Mexican producers. US tariffs with Mexico were already low before NAFTA; the agreement, therefore, solidified the ongoing process of trade liberalization in agriculture.

The major obvious benefit for Mexico, at least in terms of crude inflow indicators, has been an increase in foreign direct investment. In a climate of ‘trade not aid’, FDI flows were, at least for a period in the 1990s, seen as the alternative to declining aid budgets in

developed countries. Yet, in setting up this substitute for direct aid, concessions have been granted that make the Mexican economy systematically different to its pre-NAFTA incarnation. The investment provisions in NAFTA protect investors in unprecedented ways, allowing corporations to sue governments in exchange for lost earnings arising from non-national treatment. This is why, for many investors, the signing of NAFTA resulted in increased confidence in Mexico as an investment destination. From 1994 to 2000, Mexico's annual average capital inflow reached US\$11.7 billion, three times the annual amount received in the seven years prior to the agreement³⁷. But of that amount only .3 % of the investment has flown to production agriculture³⁸. Foreign direct investment has decreased however, since the economic contractions following the 2001 terrorist attacks. The volatility of FDI flows has recently been widely criticized precisely for the uncertainty and risk to which national economies are exposed through liberalized capital accounts. Graph 3 below illustrates the fluctuations in foreign direct investment since 1980.



Graph 3: Foreign Direct Investment inflow

Source: World Bank, World Development Indicators, 2002

It might be argued that, notwithstanding the exogenous problems of financial flow liberalization, the investment that has been made in Mexico has improved the agricultural sector. The majority of FDI in agriculture has, however, gone into secondary and tertiary agricultural markets. There has been both nominal and real term growth in food processing since the signing of the agreement (ERS, 1999). US foreign direct investment (FDI) in Mexico's food processing industry increased from \$2.3 to \$5 billion from 1993 to 1997. This \$5 billion represents one-quarter of the Mexican processed food industry³⁹. Large food processing firms like Birdseye, Green Giant, Campbell's Soup, Hunt, Arthur

Daniels Midland, Conagra and Cargill have significantly increased their operations in Mexico⁴⁰. Through NAFTA and other trade agreements Mexico has been successful at attracting large agribusiness into its territory. This has resulted in a consolidation within the food processing sector, and significant concentration of ownership within this sector. It is a phenomenon that has, combined with reduced state support for poor consumers, resulted in higher real prices for certain processed foods, as we see below.

Food imports have also increased since the opening of the economy and particularly as a result of NAFTA. Mexican grain imports mainly consist of corn, soy, wheat, sorghum and barley. In addition to these grains, Mexico imports other types of foodstuffs, including processed foods. In 2001 Mexico imported US\$ 19,752 billion worth of food as compared to US\$ 5,834 billion in 1991 and US\$2,808 billion in 1981⁴¹. Mexico now obtains 40% of its food from abroad. DeJanvry, Sadoulet and Davis (1997) conclude that NAFTA appears to have had more of an impact in helping US agricultural exports to Mexico than it has helped US imports from Mexico. Mexico's agro-deficit with the United States reached US\$4.1 billion in 2001⁴².

Trade volumes alone are not enough to ensure a country's ability to feed itself. Controversial concepts on food, such as, security, dependence and sovereignty, further complicate how we look at food and trade. Refer to Appendix B for a detailed discussion of these issues, including Mexico's ability to pay for imported food.

III - National Agricultural Policies:

In an effort to understand which agricultural and consumer supports have been curtailed by the government since the opening of the economy to free trade, we need to consider past and present agricultural policies. Table 7 below summarizes some of these policies and appendix C further explains them.

Agricultural Policies: 1930 – Present

Year	Event	Description
1930- 1980	<ul style="list-style-type: none"> • Government intervention in agriculture • <i>Ejido</i> system set up 	<ul style="list-style-type: none"> • State Interventions Included: Crop price support to staple producers, government participation in processing grains, subsidies to agricultural inputs, credit, insurance and land distribution programs
1965	<ul style="list-style-type: none"> • CONASUPO Created 	<ul style="list-style-type: none"> • State agency gave price support to producers and subsidized some consumer goods (tortilla and bread)
1970 – 1982	<ul style="list-style-type: none"> • The discovery of oil 	<ul style="list-style-type: none"> • State investment in agriculture from 1970-1982 financed by the petroleum boom
1988 – 1989	<ul style="list-style-type: none"> • Institutional reforms as government takes on new role 	<ul style="list-style-type: none"> • All state seed and fertilizer companies get privatized • State storage companies were privatized
1991	<ul style="list-style-type: none"> • ASERCA 	<ul style="list-style-type: none"> • Created to substitute the traditional direct government interventions for sorghum and wheat
1991 - 1999	<ul style="list-style-type: none"> • CONASUPO price interventions limited to beans and corn 	<ul style="list-style-type: none"> • Last leg of program
1992	<ul style="list-style-type: none"> • Reform of the Agrarian Law 	<ul style="list-style-type: none"> • Land distribution ends • <i>Ejido</i> reform, members can buy, sell or rent land
1994	<ul style="list-style-type: none"> • De- Coupled Income Support Program • PROCAMPO 	<ul style="list-style-type: none"> • De-coupled subsidies – direct payments per hectares to producers de-coupled from price • PROCAMPO – program of direct support for the countryside to last until 2009
1995	<ul style="list-style-type: none"> • <i>Alianza para el campo</i> 	<ul style="list-style-type: none"> • Federalized program designed to aid farmers with productive potential and crop substitution
2000	<ul style="list-style-type: none"> • End of CONASUPO 	<ul style="list-style-type: none"> • Elimination of that program's support

Table 7: Agricultural policy: 1930- present

Past Policies: In 1965, the state agricultural agency CONASUPO was created. Among its many functions was to provide: price supports for certain crops, agricultural inputs, marketing subsidies and import controls. The agency also purchased staple foods at artificially high prices and sold the final good (bread and tortillas) to consumers at artificially low consumer prices, with price differences subsidized by the government. CONASUPO provided retail shops to sell food at subsidized prices to the urban and rural poor and was also involved in the production of fertilizer, improved seeds, technology transfers and reduced water rates for irrigation. In guaranteeing farmers a buyer for their crops and a floor price, CONASUPO supported farmers through domestic price supports and was subsidizing poor households when selling processed food at cheaper than market prices, and with more stability. This, to some degree insulated domestic consumers and producers from price shocks and international competition at a large public budget cost.

Present Policies: The Mexican government's new priorities remove support from farmers in the transition to an open agricultural trade regime and restructure farm activities in accordance with the newly liberalized agricultural economy. Current policies include:

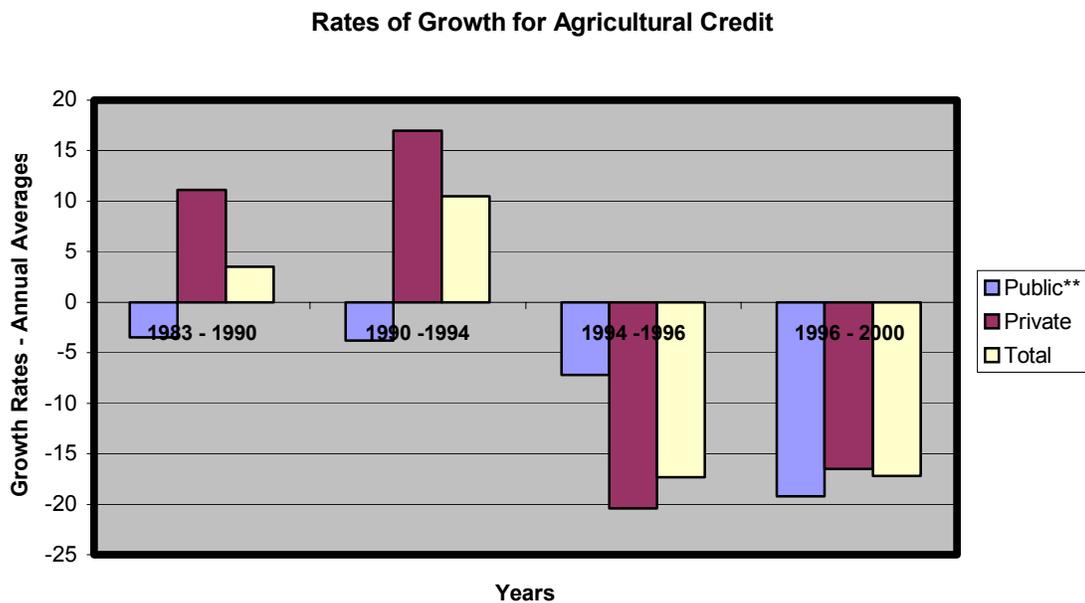
- **ASERCA:** Created in 1991 independently of CONASUPO. It was the foundation for reducing the level of state involvement in, and support of, agriculture. Its main function was marketing and it did not buy or store agricultural commodities, unlike CONASUPO. It manages direct income support programs like PROCAMPO.
- **PROCAMPO:** Created to mitigate some of the impacts from the dismantling of CONASUPO. The program provides payments to farmers based on acreage for nine basic crops⁴³; the subsidies are decoupled from output and are therefore believed to be less trade-distorting. Under this system, large farmers receive a greater level of support than small farmers, as they own more land. It was intended to last 15 years, until 2008 when full trade liberalization under NAFTA will be attained. The program's funding was reduced by 33.5% in real terms between 1994 and 1997⁴⁴.
- **Allianza para el Campo**⁴⁵: Created in 1995 consists of a series of programs intended to augment farming efficiency through crop substitution (from basic crops like grains to horticultural crops that can be exported) by providing grants for investments in production.
- **PROGRESA:** Provides welfare transfers for mothers to enroll children in school and access health services. Although this is not an explicitly agricultural program, it targets the families of poor farmers. In that sense it is a government program that contributes to the household income of agricultural communities.

Mexico's shift to a liberal trade regime influenced the dismantling of CONASUPO. Government intervention in markets is not considered consistent with free market policies because it is 'market distorting', and also because funding for these programs tends to dry up under the 'austerity' programs that accompany their adoption. The new policies implemented by the state attempted to supported to a lesser extent. The elimination of CONASUPO left farmers with few transition and adaptation mechanisms. Most importantly for the Mexican poor, the shrinking of state entitlements, and the

narrowing of eligibility criteria for state aid to the poorest mean that those who are merely surviving, but whose poverty isn't sufficiently deep, have seen their real incomes decline. This, combined with reduced subsidy for corn has been responsible for a severe increase in real food prices. Since food forms a proportionally higher share of net household expenditure for the poor (See Box 1 below), the effect of this policy has been to impoverish the poor.

Credit

Since the oil boom and as a result of adjustment policies and international trade liberalization, Mexico has witnessed a dramatic change in the economic orientation of its agricultural development policies. Marketing support programs ended, price floors for certain crops were phased out over a decade and eventually eliminated, tortilla subsidies were abolished, the ejido system was reformed⁴⁶ and agricultural credit decreased at an alarming rate, as seen in Graph 4.



Graph 4: Rates of growth for agricultural credit

Source: Banco de Mexico and Banrural sited in Yunez, Antonio “ Lessons From NAFTA: The case for Mexico’s Agricultural Sector”, 2002

The private sector increased agricultural credit in the early years of market oriented export policies but reduced interventions thereafter. *Banrural*, a rural development bank, attempted to compensate for the lack of credit provided by the private sector, and eventually went bankrupt in 2001. The lack of availability of financial support to small farmers cripples any attempt at improving production, as credit is critical for poor farmers’ production investments.

IV – Impact of Trade Liberalization on Agriculture

The Case of Corn

The most important single commodity in Mexican agriculture is corn. In this section, we look at changes in raw and processed corn prices, import quantities, production and the subsequent impacts on three categories of farmers. Using time series data on select indicators, we are able to see trends in the corn sector across time. Our main findings are:

- International and National decreases in corn prices
- Stable levels of Mexican corn production
- Increases in the prices of tortillas
- Tariff rate quotas not enforced and revenue foregone
- Heterogeneity of impact among farmers

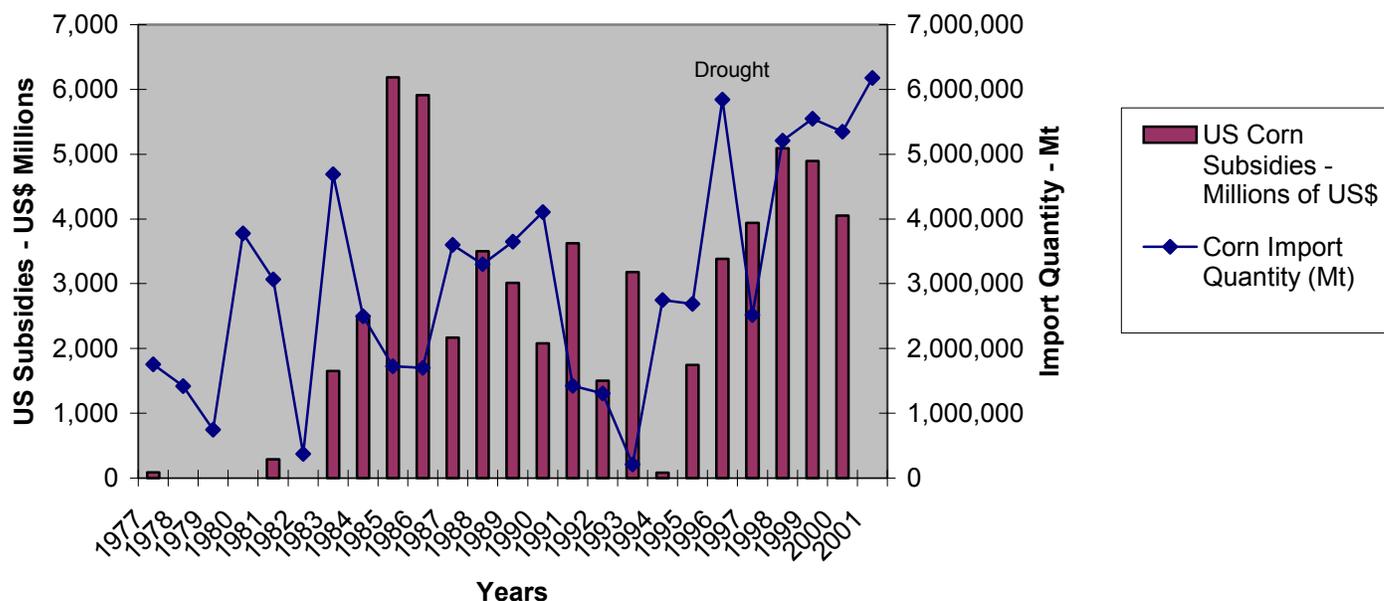
The importance of the corn market in Mexico is key; it accounts for 60% of cultivated land, employs 3 million farmers - 8% of Mexico's population and 40% of people working in agriculture and is the country's key staple food crop⁴⁷. The importance of corn and corn farmers in the greater Mexican landscape spans economic, environmental and social domains, since such a large number of people are directly involved in its production. There are a total of 18 million people⁴⁸ engaged in and dependent on corn production – 3 million farmers and their dependents⁴⁹. Corn production accounts for more than two-thirds of the gross value of Mexico's agricultural production, while horticultural crops account for only 6%⁵⁰.

Mexico is the birthplace of corn and cultivation began 5000 years ago; today there are over 41 landraces and thousands of corn varieties in Mexico. Alejandro Nadal of the Science and Technology Program of the Colegio de Mexico, notes that such genetic diversity forms a rich reservoir of genetic diversity that can help cope with adverse environmental conditions and can play a crucial role in meeting the challenges of world food demand⁵¹. Corn production and consumption are deeply intertwined in the nation's social and cultural fabric. As a result of trade liberalization, corn production in Mexico now competes with subsidized imports from the United States⁵² and the 3 million farmers in this sector are finding themselves squeezed out of their own markets.

Corn Prices Decrease

Changes in corn prices in Mexico and the United States are fundamentally related. Since Mexico began importing corn from the United States, Mexican producers found themselves competing with US prices, prices which are significantly lower than Mexican ones, because US corn producers are highly subsidized by the government. Corn prices are currently \$1.74 a bushel and the latest US department of agriculture figures show production costs at about \$2.66 a bushel, the difference being attributable to direct and indirect subsidy. Moreover, United States corn prices basically set the international price because the US is the largest producer and exporter of the crop⁵³.

Corn Import Quantities and US Subsidies



Graph 5: Corn imports and US Subsidies

Source: FAO Stats, 2003 and USDA, 2002

There are considerable differences between corn production in Mexico and in the United States. First, the US uses technology-intensive production and corn varieties than Mexico. The US is the largest producer of yellow corn, which is normally used for animal feed, while Mexico is the largest producer of white corn, preferred by Mexican consumers. Mexico's steep and mountainous terrain makes it difficult to introduce mechanized production as used in the wide-open fields of the US Mid-West. Second, Mexico averages 1.7 tons of corn per hectare while the United States averages 7 tons. To produce one ton of corn in Mexico 17.8 labor days are required while in the US only 1.2 hours are needed to produce that same amount⁵⁴. There is, however, great heterogeneity in Mexico's corn sector. In some modern and irrigated Mexican farms, yields are comparable to the United States, but the majority – 80% - of total area of corn cultivation

in Mexico is rain-fed and frequently difficult to cultivate because of steep slopes and poor soil. As illustrated in graph 5, low international prices have led to increased imports. The same graph illustrates the magnitude of subsidy provided by the US government for producers, without which import quantities would never be so high.

There are two clear spikes in Graph 5 worth commenting on. The first in 1983, was a direct result of the first Peso crisis. As part of the bailout package, the U.S. Department of Agriculture gave a \$1bn Commodity Credit Corporation concessional loan, in exchange for which Mexico agreed to purchase U.S. surplus corn⁵⁵. As Lustig notes, this facility had been used before.⁵⁶ This flags a link between the financial crises of the 1980s and the farm crises of the 1990s. Navarro suggests a similar process behind the second spike, between 1995-6 at the time of the second peso crisis, which was compounded by local environmental factors, such as drought.⁵⁷

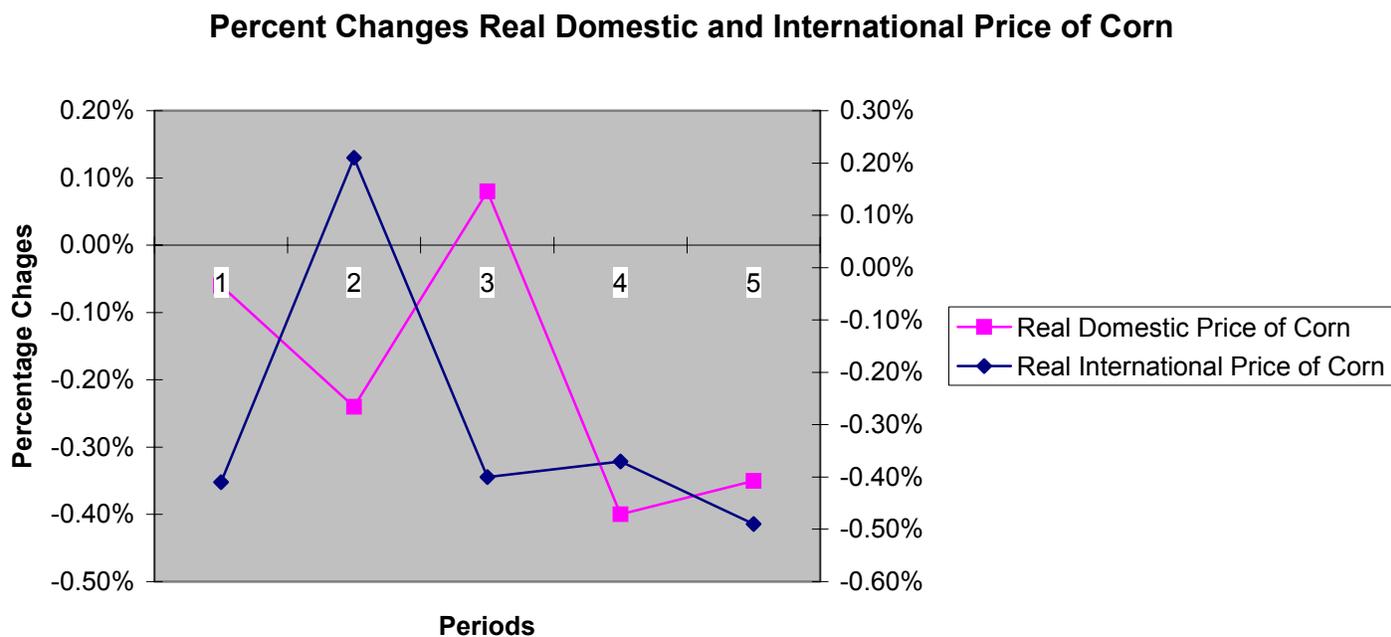
A clear examination of the change in corn price points us to consider social and political factors affecting corn growers in Mexico. Antonio Yunez has developed a stylized model that helps us to understand the pricing changes in the Mexican market. He decomposes the domestic price of corn as a function of the international price, the exchange rate and a policy residual⁵⁸. Table 8 presents corn price changes over the last 25 years and provides a breakdown of prices both domestically and internationally. The table is divided into time periods: the first period compares 1977-82 (characterized by import substitution policies), to 1983-1990 (indicates the beginning of policy reform and opening). The second period compares 1983-90 to 1991-1993 (marking the deepening of these reforms). The third period compares 1993-94 to 1995-1996 (covering the peso devaluation). The remaining two periods presented on table 8 compare 1995-1996 to 1997-2000 (covering the peso appreciation) and 1991-1993 (deepening of reforms) to 1994-2000 (the NAFTA years).

Years	Period	Real Domestic Price of Corn	Real International Price of Corn	RER
(77 - 82) - (83 - 90)	1	-0.06%	-0.41%	0.25%
(83 - 90) - (91 - 93)	2	-0.24%	0.21%	-0.20%
(93 - 94) - (95 - 96)	3	0.08%	-0.40%	0.39%
(95 - 96) - (97 - 00)	4	-0.40%	-0.37%	-0.33%
(91 - 93) - (94 - 00)	5	-0.35%	-0.49%	0.05%

Table 8: Real domestic and international prices of corn

Source: Yunez, Antonio. "Lessons from NAFTA: The Case of Mexico's Agricultural Sector" World Bank, December, 2002

Graph 6: Changes in real domestic and international prices of corn



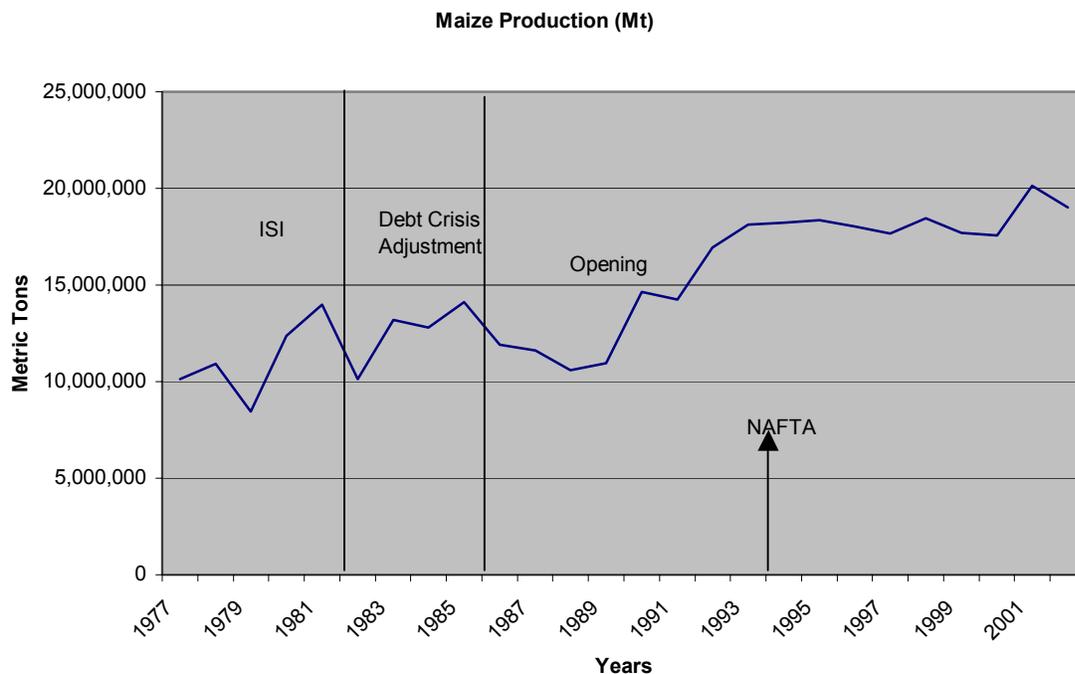
Source: Yunez, Antonio. "Lessons from NAFTA: The Case of Mexico's Agricultural Sector" World Bank, December, 2002

The first period (77-82) (83-90) shows a significant decrease in international prices; one would expect this to be reflected in national prices. However, at that time, CONASUPO still supported producers, and the impact was much smaller as a result. The greatest crash in the domestic price of corn came during the period (1995-6) (1997 –2000) arguably the time when policy changes resulting from NAFTA were felt. The real domestic price of corn followed international price during 1997-2000 with respect to 1995-96 suggesting that it was not until the end of the 1990s that price reforms for corn were truly implemented.

That we can see here is an interesting example of a transition to an open economy from the perspective of prices. Trade agreements work in tandem with other political priorities, such as a commitment to phase out producer support and the mothballing of CONASUPO, combining to affect end user prices. But this isn't the whole story. Economic theory suggests that when prices decrease production should also decrease. As the next section indicates that did not take place.

Corn Production Remains Stable:

When import prices decrease, buyers can purchase corn at lower prices than previously. In theory, producers should receive these price signals and cease to grow corn because it is no longer profitable. But as graph 7 shows, production has remained stable, even increasing slightly after NAFTA.



Graph 7: Changes in Maize Production over time
Source: FAO Stat, 2003

The stability of corn production despite lower prices is inconsistent with straightforward laws of supply and demand. Something else is going on. This paradox can be explained by a variety of factors:

- **Lack of Options:** Many producers do not have readily available options to switch to more competitive crops; this is because they lack assets like credit and technology or because they work in poor quality soil. They increase their production, in spite of the declines in price supports and corn prices, in order to maintain income levels. Such producers have few alternatives and hence place greater pressure on the only production factors available to them – land and labor.
- **Increased Yields and Expansion of Land Under Cultivation:** Production growth may be related to increased yields, which can be a result of increased pesticide and fertilizer use as well as, the expansion of land under cultivation. A study of corn production by Alejandro Nadal in Oaxaca shows that 25% of production growth is due to increased yields and, 65% was due to expansion of land under cultivation⁵⁹. Producers in Oaxaca are increasing output due to increased economic stress and with that increasing pressure on lesser quality lands and the environment.
- **Safe Crop:** Corn was once highly protected and many have identified it as the least risky crop for production. Risk averse farmers, especially those producing at subsistence levels, those least able to engage in risky behavior because they have so little to jeopardize, continue to identify corn as a safe crop.
- **Staple:** Since corn is a staple many subsistence farmers will continue to grow it despite decreases in price.
- **Tradition:** Corn has been cultivated in Mexico for generation. It is used in cultural rituals, ceremonies and religious services. The impact of tradition on the choice to produce corn is highly contested but may nonetheless be significant.
- **Price of Substitutes:** The decision to grow corn is not based on the prices of corn alone; it also depends on the prices of other crops and the conditions available to farmers to grow those other crops, such as, suitable land and inputs. Liberalization has also opened the market to world prices in other goods; under such conditions, it is unclear that farmers have any other crops to which they might profitably switch.

The reasons outlined above explain the seemingly illogical choice of farmers to keep producing corn despite lower prices. Farmers recognize the importance of price signals; those who could switch to more competitive crops would have done so had they the appropriate means.

Impact on Farmers

In this section we recognize the heterogeneity of farmers and segment them into groups to answer the question of how import competing producers are being impacted by trade liberalization. The answer to this question depends largely on the characteristics of

farmers, the resources available to them, and their ability to adjust to changes in prices and policies. These characteristics will determine the facility with which farmers can adapt to trade liberalization, they are: access to credit, irrigation, marketing channels, soil quality and land tenure, technology transfers, crop storage facilities and insurance

There is great heterogeneity among corn producers and that is one of the most important characteristics of the sector. Seventy-two percent of national corn producing units are organized into *ejidos*, these *ejidos* are responsible for 62% of corn production and are mostly small plots. Based on the 1991 agricultural census, 60% of production units in the *ejido* system were less than 5 hectares. The heterogeneity in the corn sector manifests not only in terms of assets owned by different farmers, but also by Mexico's natural land endowments. The states with the greatest concentration of corn producers are in the central and southern part of the country – Chiapas, Guerrero, Hidalgo, Oaxaca and Veracruz. It is no surprise that these states have the highest incidence of poverty and are also where the majority of subsistence producers are found operating in small plots of land, under rain-fed conditions and with low yields. There is a strong positive correlation between subsistence production and poverty⁶⁰.

The most competitive corn producers are found in the north western and north central states of Sonora and Sinaloa. These states are mostly arid and semi-arid and production is highly dependent on irrigation, mechanization, fertilizer and pesticide use. These were the largest recipients of state investment in agriculture in the 1940s and benefit the most from trade since they are closest to the United States.

By segmenting farmers into 3 discrete groups or profiles, the framework attempts to establish categories that will facilitate the projection of impacts of trade liberalization on corn producers. Note that these categorizations are meant to provide a general distinction among farmers for the purposes of projecting their behavior in light of trade liberalization.

- **'Large' Farmers:** In terms of import competing producers, this category is usually comprised of larger farmers with more assets than their counterparts. Competitive farmers generally have profit margins that enable them to sustain competition from abroad. They have access to markets, crop storage facilities, technology, irrigated lands, good soils, and well-established marketing channels and most own larger than average land plots. They benefit the most from economies of scale and are the beneficiaries of private credit. Levels of mechanization are high among these producers and they are therefore not the largest contributors to employment generation. As a result of the resources available to them, these farmers can shift production to horticulture and other crops for export if they desire. They are net-sellers and are the better off among the group.

The impact: As corn producers their yields are comparable to those in the US and they are internationally competitive. Although domestic prices have dropped they are able to maintain their profit margins and will choose to continue to grow corn as long as they can. Profit margins have decreased due to increases in the costs of inputs, such as fertilizers

and tractors⁶¹. Although falling corn prices hurt them, they have the capacity to shift production to capital-intensive fruits and vegetables for export.

- **Intermediate Farmers:** They have moderate profit margins and have some capacity to respond to changes in the market. They normally operate under less favorable conditions than their competitive counterparts with mostly rain-fed land although soil quality may be adequate. They produce for local and regional markets but also for household consumption. They are mostly net sellers but do buy some corn. They may or may not be able to shift to other crops although that depends largely on their access to technology and credit, which are significantly lesser than larger farmers, but not obsolete.

The impact: Output has remained more or less stable for these producers, but profits have been significantly reduced as a result of increased costs of production and decreased prices. Whether or not they will continue in the corn market depends largely on the assets available to them to switch production. These producers hire labor to work in cornfields and if they halt production this may have an adverse employment effect for the landless and the jornaleros – day laborers.

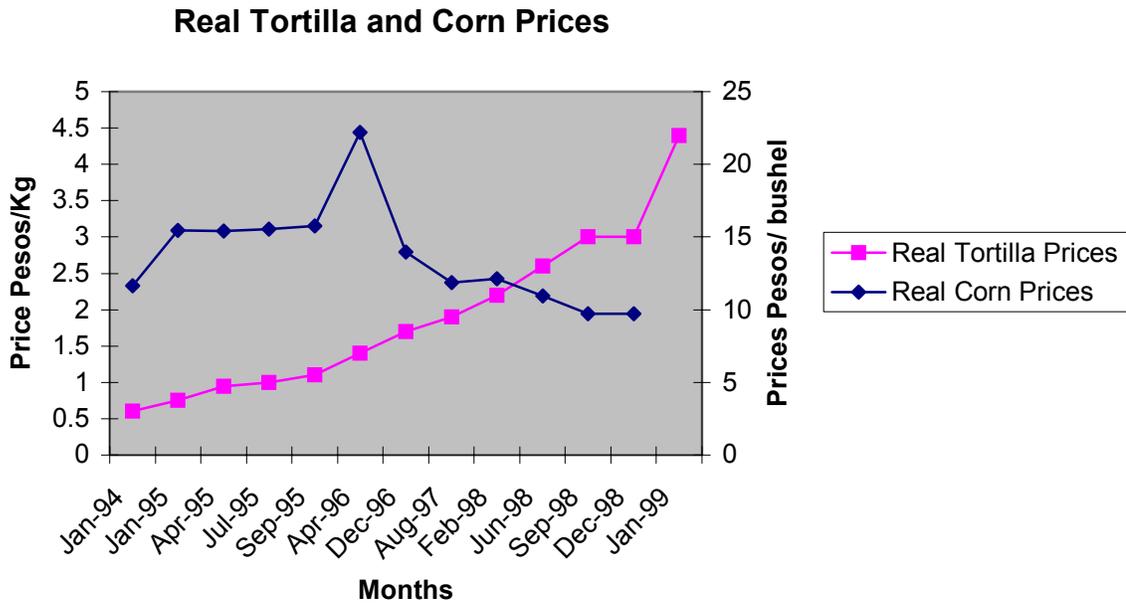
Subsistence Farmers⁶²: are mostly small farmers that own less than 5 hectares of land. They account for 45% of all corn growing units in Mexico⁶³ and production for household consumption represents 38% of total production⁶⁴. For the most part they operate under inferior conditions with poor quality rain-fed soil, slopping terrain, irregular rainfall, little if no access to technology, credit, storage facilities and marketing channels. Many of these farmers are *ejidarios*, and their yields are 16% and 26% lower than privately owned plots under rain-fed or irrigated land respectively. These producers are often forced to sell their yields right after harvests, when local prices are at the lowest because they lack the appropriate storage facilities. These are neither net-sellers nor buyers and depend on what they produce for household consumption. They do however, conduct petty sales of the corn they produce and their own labor to supplement household income needs. The 1994 *ejido* survey found that 41% of *ejidarios* were selling part of their production.

Subsistence farmers are the most risk averse among the three because they lack assets and face higher transaction costs in production. It is in this category that the poorer farmers are found. They are the worse off of the group because on their own they lack the capability of switching production to more profitable crops for export as well as being traditionally marginalized from explicit production support.

The Impact: These producers are strongly affected by monetary flows and changes. Yunez⁶⁵ argues that these producers are not as susceptible to changes in prices of corn because they are not net-sellers. They are likely to continue to grow corn despite changes in prices because they produce mostly for household needs. Such a view ignores the fact that not only do they conduct petty sales to supplement household liquidity needs, they are petty buyers and laborers, dependent on corn production on larger farms for their wages. Adverse employment effects for this group are likely if intermediate farmers cease to produce or chose to mechanize production.

Tortilla Price Increase

If one were looking for a success story in agricultural liberalization, one would in any case have been unlikely to find it in the small producer sector. It is precisely ‘inefficient’ producers who are targeted by market forces, and winnowed out of production. This process is, however, explicitly intended to benefit consumers, by providing lower prices for goods and services. And it is true, as we have seen, that the domestic price for corn has fallen. It has forced corn growers into penury. But perhaps there is silver lining for non-corn-growing consumers, in terms of lower prices. Even here, there are problems however. Despite the increases in corn import at lower prices, the prices of corn food - tortillas - did not decrease; in fact they have been increasing. The reasons for this are twofold: First, recall that CONASUPO was subsidizing tortilla prices for consumers and when that market was liberalized in 1996, manufacturers were able to transfer their increased costs to consumers. The elimination of corn purchasing subsidies both to producers and consumers was bound to increase prices. Second, compounding the first factor, the Mexican tortilla market is a monopoly as the two largest companies, GIMSA and MINSA account for 70% and 27% of the market respectively⁶⁶. The market for tortillas are not competitive and these companies operate like cartels using their market power to set higher prices. The graph below traces consumer prices for tortillas from 1994, when prices were still subsidized to 1999, well after liberalization. Imposed on the same graph are the real prices of corn in Pesos per bushel, which is how much Mexico is paying for imported corn.



Graph 8: Tortilla and Corn prices compared

Source: Nadal, 2000 and USDA, 2002

The data on graph 8 underestimates the impact of the tortilla price increases since it covers one of the zones for which the trade ministry has maintained some degree of price

control, namely Mexico City, its metropolitan area and surrounding municipalities. Governments often want to ensure cheaper food prices in cities as to keep the urban proletariat from interfering with political and economic transactions. For the rest of the country, including rural areas, the price increases were significantly higher⁶⁷.

In economic terms, prices could have increased due to the GIMSA and MINSA's degree of market power, but institutional and *political choices* to dismantle CONASUPO and remove the subsidies were at the heart of the price increases. This provides an insight into the real world processes of trade liberalization; liberalization implies not only a reduction in tariff barriers, but also a reduction of domestic support. This latter, in turn, was linked with a systematic revamping of the role of the state, including massive reductions in domestic entitlements for the poor. Thus, the increases in price were a result of the elimination of subsidies that kept tortilla prices low, combined with problems of market structure, and wider reduction in social entitlements for the poor. When the subsidies were removed the prices converged which led to the subsequent increase in tortilla prices.⁶⁸

Tariff Rate Quotas Not Enforced

The market is, of course, a political institution, and to some extent all economic transactions are political. But some are more openly political than others. In the process of integrating the Mexican economy into those of the U.S. and Canada, some explicit caveats were negotiated within the NAFTA framework, to protect corn growers. Indeed, the Mexican government could have used NAFTA regulations to protect the corn sector until 2008, giving farmers a longer time period to adjust. But they didn't.

Original NAFTA negotiations proposed a phase out period of 15 years of above quota tariff reductions with subsequent quota increases for corn imports, one of the sensitive crops of the negotiation rounds. During the first year Mexico's tariff-free import quota was set at 2.5 million metric tons of corn. This quota was to expand at a compounded rate of 3% a year starting in 1995. This mechanism was to continue until 2008, by which time the tariff-free import quota would have reached 3.6 million metric tons of corn. Since NAFTA implementation began, annual imports of corn into Mexico have always exceeded the allotted tariff free quota⁶⁹. Mexico could have collected revenues from these above quota imports. Yet all corn imports into Mexico since the signing of NAFTA have been excused from tariff payments with significant revenues forfeited.

Instead of phasing out the corn tariffs in 15-years as planned, the tariffs were phased out in 30 months. The planned 15-year transition period was compressed between January 1994 and August 1996 prices fell 48% forcing Mexican producers into a rapid adjustment. This accelerated process took place along with decreases in government support for farmers, further compounding the adverse effects on corn farmers. The decision to truncate the adjustment period did not give corn farmers much of a chance to adapt their production decisions, but proved to be a favorable move for large companies importing corn as animal feed. Reasons for why Mexico shortened the adjustment period for corn are related to the fact that Mexico experienced a drought in 1996 and had to increase imports at that time.

Fiscal revenues foregone due to the government's failure to implement the TRQ or tariff rate quotas for corn are estimated to be more than 2 billion dollars, illustrated in table 9. Reasons for the government's failure to impose the TRQ range from inefficient and disorganized control mechanism at the border to a perceived need to lower prices and reduce inflationary pressures. According to Yunez⁷⁰, the Zedillo government was concerned with securing cheap corn for processors, which reflects the balance of power between corn processors and producers. The administration also feared that if corn importers had to pay the tariffs that such prices would be shifted to consumers through higher tortilla prices. As described above tortilla prices rose anyway.

<i>Year</i>	Tariff Free Quota (1,000 tons)	Total Imports (1,000 Tons)	Volume over Quota (1,000 tons)	Price Per ton (US\$)	NAFTA ad valorem Tariff	Foregone Fiscal Revenue (U.S.\$)
1994	2,500	2,717	217	150	206%	\$67,053,000
1995	2,575	2,400	NA	160	197%	NA
1996	2,652	5,900	3,248	220	189%	\$1,350,518,400
1997	2,731	3,071	340	180	180%	\$110,160,000
1998	2,813	5,028	2,215	170	172%	\$647,845,241
Total Foregone Revenue – Related to Corn						\$2,175,576,641

Table 9: Foregone Fiscal Revenue from Corn Imports
Source: Final estimate SAGAR – quoted in Nadal, 2000

The analysis featured above illustrates the paradoxes of the corn sector. Increased imports at lower prices did not decrease national production or tortilla prices. In fact, the free markets and the reduction in coverage in state support for poor families, in the shift from CONASUPO to PROGRESA have left both the poorest consumers and producers worse off. Yet, trade liberalization has not only a direct effect on the volume of trade through the elimination of tariffs and quotas and their subsequent impacts on prices, but also indirect effects. Open borders allow the relative rates of economic growth to impact the country and causes externalities on many levels including economic, social and environmental.

Environment: Trade liberalization and consequent policies has put increased pressure on marginal lands to accommodate production. Many farmers have had to increase production because their profits have diminished. Erosion has also increased because of pressure on land and increases in animal grazing. Between 130 and 170 million hectares of land are currently under erosive condition in Mexico and there is a high loss of water of 70 – 76% during distribution, as a result of poor water management⁷¹. The pressures placed on the environment hinder the future of production as soil quality decreases and environmental endowments are eroded, and are attributable both to malpractice by large farmers, as well as to the strategies adopted by the poorest Mexicans struggling to survive.

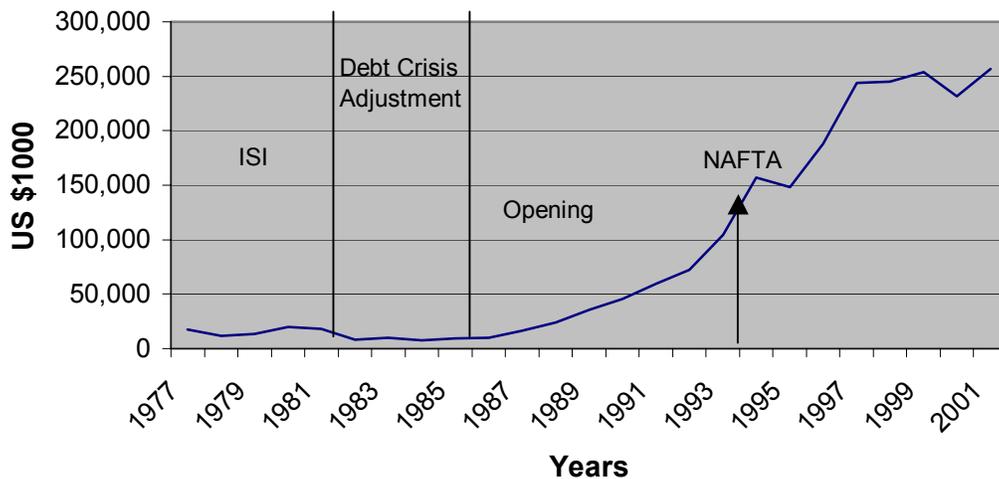
Years	Soil Erosion Million tons	Contaminated Water Million Metric Cubes
1988	403.3	16,682
1989	434.5	16,989
1990	467.5	17,248
1991	492.5	17,468
1992	525.6	17,760
1993	548.2	18,015
1994	573.3	18,139
1995	592	18,513
1996	616.2	18,889
1997	639.1	19,215
1998	663.6	19,705
1999	691.8	20,159

Table 10: Environmental Change in Mexico over time

Source: Villamar, Alejandro “Impactos Ambientales de la Liberalizacion Economica” Red Mexicana de Accion Frente al Libre Comercio and Oxfam

Increases in pesticide imports are another concern, as pesticides can have significant adverse effects for people and the environment. For many farmers pesticides are necessary for increases in yields, but their use must be regulated, not only to curb human and animal contamination, but also to ensure that the soil is not overly saturated with pesticides, which can eventually decrease fertility and productivity. Graph 10 also points to the fact that increases in pesticide imports may not be a sustainable production method, as changes in input prices can increase the vulnerability of producers, even those wealthy enough to afford these inputs in the first place.

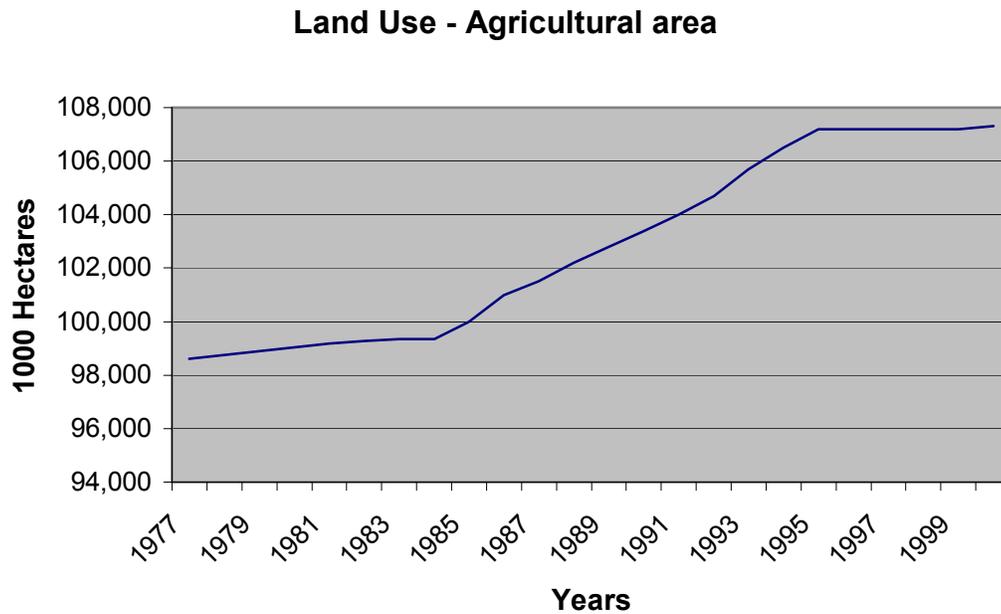
Pesticide Trade - Import Value



Graph 9: Increased pesticide imports

Source: FAO Stat, 2003

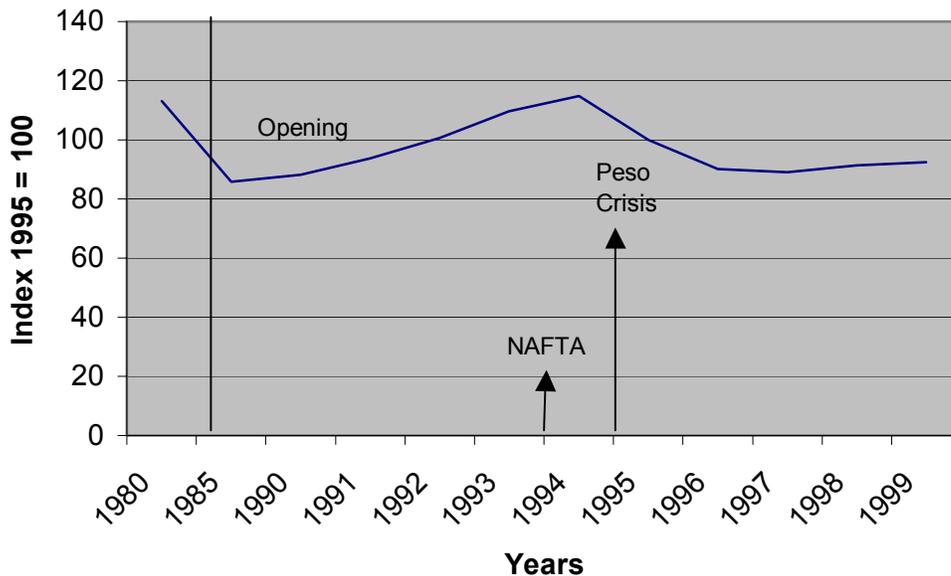
Also, overall land use has also been increasing despite heightened dependence on food for exports. According to Barbier⁷² this increase in land use is coming from infringements into marginal and protected lands.



Graph 10: Land used by agriculture
Source: FAO Stat, 2003

Employment: Market opening saw a slight increase in wages, even if the quality and conditions of employment at maquiladoras were deeply problematic. Since September 11th, 2001 however investment in Mexico has decreased significantly and the sector is further depressed by the move of investors to China where labor costs are even lower. Chinese wages are one-third of Mexican wages and Mexican wages are one-fifth of American wages⁷³. It is estimated that the Mexican economy would need to grow 5% per annum to provide the 1.2 million jobs required to meet the demands of the labor force. Growth has been around 2% in the past 10 years, falling short of meeting these demands⁷⁴. The evolution of real wages has been decreasing, as depicted in graph 12 below.

Evolution of Real Wages



Graph 11: Evolution of real wages

Source: Statistical Abstract of Latin America, 2002

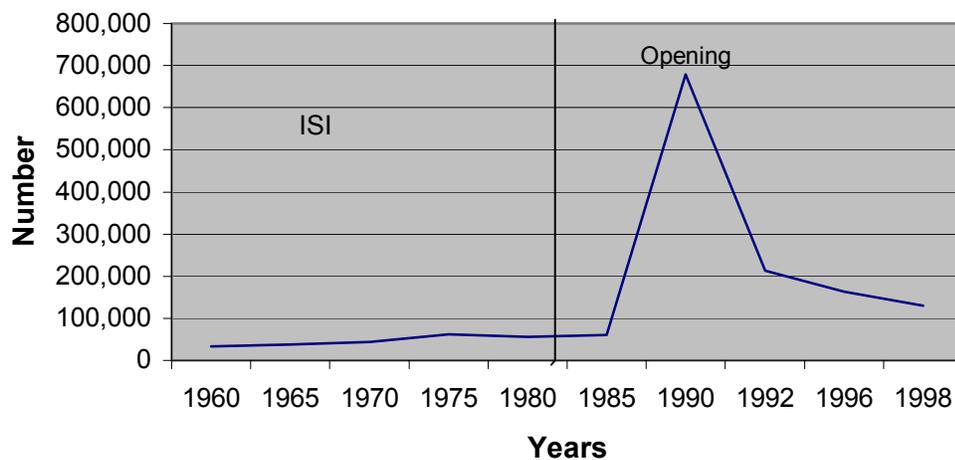
In the agricultural sector adverse employment effects will be felt by those farmers in the import competing sectors of the economy, mostly corn growers who account for a large majority of those small farmers with little opportunity to change production. DeJanvry et al⁷⁵ argue that these labor displacements in the corn sector have been exaggerated and that only 41% of households are net sellers of corn and hence would be hurt by price shocks and import policies⁷⁶. Perhaps such an impact on labor displacement has been exaggerated but the fact remains that households that grow corn often depend on it for petty sales and that can make all the difference to families living in the fringes of poverty. A study by Mexico’s center for Economic Research and Teaching found that since 1992, the proportion of workers employed in agriculture has shrunk by 10% and that rural wages are 30% lower than other sectors of the economy, for example construction⁷⁷. Some have argued that shifts to horticultural production will absorb some of the labor losses due to imports. But as scales increase in horticultural production, the possibilities for capital-intensive production also increases, thus minimizing the employment generation effect.

Migration: The connection between trade liberalization and migration cannot be ignored; after all, one of the main objectives of trade liberalization was to displace people from their inefficient livelihoods to more productive employment. With the lack of opportunities in rural areas, many people have had to migrate. A study focusing on corn producers by Salas (1997) shows that the regions with a predominance of small plots, poor soils and restricted scopes of production have the highest rates of migration⁷⁸. The graph below illustrates the increases in immigration rates from Mexico to the United

States. The peak from the mid 1980s to the early 1990s is largely a function of US changes in immigration policy.

Migration has significant adverse affects for rural communities, as it usually those at the peak of productive age who leave. Migration contributes to the deterioration of the social fabric, by splitting up families. Critical information is not being passed from older generations and traditional knowledge can be lost. There are also important loses in resource management capabilities as small farmers are the stewards of corn varieties, without them many varieties are expected to be lost⁷⁹. Migration is especially hard on the ejido sector, which depends on co-operative labor to keep production going.

Immigration to the United States from Mexico

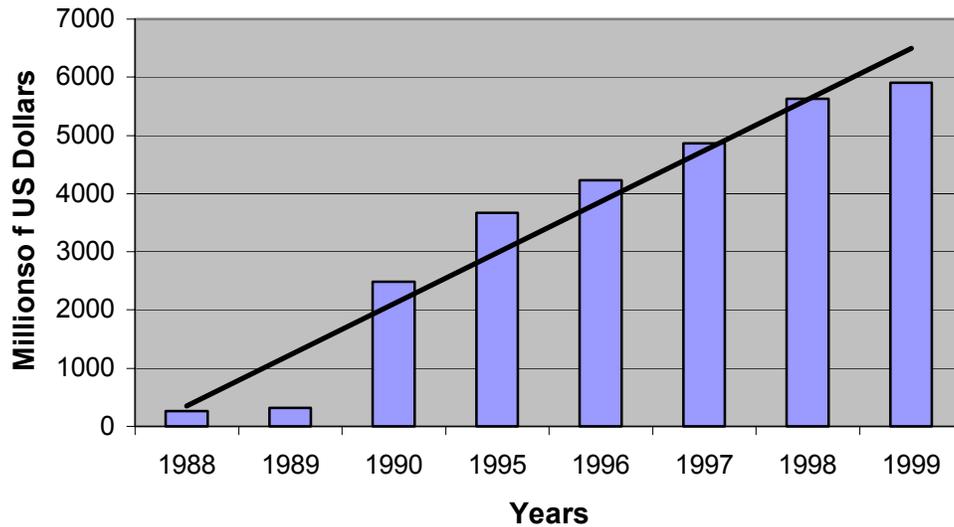


Graph 12: Immigration into the United States

Source: Statistical Abstract of Latin America, 2002

The goal of migrating out of economically stagnant rural areas is to be able to contribute remittances to supplement household income. One out of every five Mexican families depend on remittances, which average \$17 million a day⁸⁰. Graph 14 illustrates the increase in remittance for Mexico. Recent 2002 figures provided by Laura Carleson indicate that remittances are up to US\$9 billion.

Remittances for Mexico



Graph 13: Increases in remittances to Mexico

Source: UNCTAD,2000

Social Unrest: Loss of jobs and welfare reductions in the countryside have characterized the social unrest around the government's current agrarian policies. Another concern has been inequality, as many poor households do not profit from gains in trade. This exclusion leads to feelings of marginalization and increases hostility which in Mexico has manifested through social turmoil ranging from protest to hunger strikes to civil disobedience. This reached its zenith most recently with the "El Campo no Aguanta Mas" movement—literally *the countryside can't take it any more*. This is a conglomerate of peasant organizations and agricultural production interests. Their goal is to tackle the problems of the countryside and return dignity to small-scale agriculture. Central to their movement is the belief that trade liberalization has been responsible for much of the economic and social turmoil threatening the countryside. They call for the renegotiation of the agrarian chapter of NAFTA, emergency programs to help those who have been harmed by trade liberalization, a true rural financial reform that takes into consideration the needs of small farmers, percentages of the GDP to be designated for rural development and agricultural production, elimination of genetically modified seeds and other practices that compromise food quality, and indigenous rights. This movement has been involved in discussions with the Fox administration to find solutions for the problems of rural Mexicans, though recently the bloc has fragmented somewhat.⁸¹ Their strength lies in their organization, which includes many grass-roots efforts as well as business interests.

Box 1: Food and Markets

Some of the reasons behind why the market has failed to meet the expectations of free trade lie in the fact that in the real world, international markets do not operate behave as the economic models assume. In other words, the international market replete with trade distortions, externalities, and legacies of development and underdevelopment. This is compounded by other international factors - trade agreements such as NAFTA and GATT – Uruguay Round have been instrumental in institutionalizing an uneven playing field, especially in agriculture. Dumping, cartels and agribusiness' uneven market power have left all players operating in a market that is far from perfectly competitive. Appendix E provides a further glimpse as to the failures that restrain the market's expected operations. Furthermore, inherent imperfections in the food market highlight the complexities of food and trade.

The market may, for some goods, be an effective way of rationing scarce resources to those who are prepared to pay for them. Food is unsuited to the market, however. The market cannot effectively reflect the needs and demands of consumers that have no purchasing power to buy food, and there are systematic gaps between market signals and meeting a poor country's food needs. This is partly because the demand and supply of food have low elasticities. Yet they are not perfectly inelastic. Although we all need food to survive, those with higher incomes tend to substitute away from starches such as corn and towards more protein rich foods, such as meat. Demand for food is not as sensitive to prices as most other goods because food happens to be critical for survival, people will spend everything they have to avoid starvation and unlike other goods, consumption of food cannot be foregone altogether.

These income elasticities play out in important ways, both in the supply and demand for food. On the demand side, this matters a great deal for the poor in Mexico. A recent paper by Darrell Peel of the Department of Agricultural Economics of Oklahoma State University reveals that in 2000 the national average of food expenditure on cereals and vegetables in Mexico was 28.3% of total household expenditure. The overall average is very different from that of low-income groups, whose mean expenditure on the purchase of cereals and vegetables was 43.2% in that same year. Hence it is these groups who will be most severely impacted by increases in tortilla prices as a proportion of total household income. And that income is desperately low. Whereas, average national household food expenditure was 44.1 Pesos/day (\$4.66) the low-income average was 16.7 Pesos a day (\$1.77) in 2000.

The supply of food is also relatively inelastic because weather is unpredictable and food must be stored as harvests come only twice a year and people need to eat every day. Supply responses to food market changes are relatively slow due to land and technology constraints. The smaller the farmer, the more inelastic his supply of the crop. The small farmer has less control over the means of production than large farmers who can purchase land and storage facilities. This relatively inelastic nature of food markets slightly complicates trade operations. If the harvest for corn in the US fails, Mexico will not be able to forego imports even if prices are high, especially if they turn away from national production, because food is a necessary basic need and lack of it will result in political instability among other humanitarian concerns. Although Mexico can purchase corn from other countries its established trade agreements with the US can complicate the switch, particularly if political pressures are enforced.

V- Free Trade

The case of the corn market provides substantial evidence for recognizing the adverse effect of trade liberalization on subsistence import competing farmers. This section looks at the predicted impact of liberalization prior to engagement and compares it to the realities as they manifest in Mexico. What analysts predicted would happen to Mexico as a result of trade liberalization originates in free trade theory and although some of the predictions have materialized, many others have not. Appendix D elaborates on free trade theory while Table 10 outlines the predicted impacts and their ensuing actualization.

Prediction	VS	Reality
<ul style="list-style-type: none"> • Volume of trade increases as a result of tariff reductions. 		<ul style="list-style-type: none"> • Increased Exports: Mexico's overall exports increased 7 fold between 1981, the year before liberalization, and 2001⁸². • Increased Imports: Overall imports increased 6.7 times from 1981 to 2001⁸³.
<ul style="list-style-type: none"> • Import competing sectors forced to compete with foreign goods, which leads to a decrease in product price and eventually the reduction of domestic supply. 		<ul style="list-style-type: none"> • In spite of a sharp drop in domestic corn prices, 45%⁸⁴, and an increase in cheaper imports from the US, corn production has remained stable.
<ul style="list-style-type: none"> • Exportable crops benefit from the reduction of tariffs, and an increase in production of crops for export. 		<ul style="list-style-type: none"> • There was an increase in production of export crops. Since the onset of NAFTA, exports of fruits and vegetables have increased 57%⁸⁵.
<ul style="list-style-type: none"> • As a result of increased imports at cheaper prices, the price of food decreases. 		<ul style="list-style-type: none"> • Tortilla prices have increased 279% in real terms⁸⁶ despite lower corn prices. This is because the tortilla market is a monopoly.
<ul style="list-style-type: none"> • Decrease in government support and credit to farmers leads to increases in the private sector's involvement in the agricultural credit market. 		<ul style="list-style-type: none"> • Growth rates for agricultural credit has been negative for both the public and private sectors from 1994- 2000
<ul style="list-style-type: none"> • The process of structural change leads to an increase in rural – out migration to more promising jobs in manufacturing sectors as rural employment opportunities decreased. 		<p>Rural out-migration has been increasing since trade liberalization. People migrate in order to secure jobs and send remittances home. In 1998, 130,661 Mexicans were known to have migrated to the US, compared to 56,680 in 1980.</p>
<ul style="list-style-type: none"> • Inefficient import competing producers shifts production to exportable crops, like horticulturals. 		<ul style="list-style-type: none"> • Some shifts have occurred, but not at the level expected, due to market saturation and restrictions such as hygienic regulations and lack of assets and credit for investment.
<ul style="list-style-type: none"> • Trade Liberalization improves resource allocation and increase efficiency in agricultural production. 		<ul style="list-style-type: none"> • The shift to more efficient production depends on farmer's access to assets. Credit has been lacking and technology transfers promised by government initiatives focus more on larger producers than smaller ones. The government and private sector are more likely to invest in those that promise the greatest return, not the neediest. Other factors, such as the integrity of rural communities, ignored by this definition of efficiency
<ul style="list-style-type: none"> • Subsistence producers unaffected by changes in prices because they do not generate marketable surpluses 		<ul style="list-style-type: none"> • Subsistence corn producers are dependent on the market as petty sellers, buyers and laborers, and hence lower real

	income as a result
<ul style="list-style-type: none"> Improvement in welfare as the nation focuses production on competitive crops and eliminates inefficient production, which is expected to generate more income. 	<ul style="list-style-type: none"> Evolution of real wages decreasing and incidence of poverty in rural areas on the rise.

Table 11: Predicted and Real effects of Trade Liberalization in Mexico

Conclusions

The exact impact of trade liberalization on import competing producers cannot be generalized without the consideration of the heterogeneity among them. A few large farmers and, indeed, members of urban elites connected to key industries linked with the rise of transnational corporations, have done well out of liberalization. Yet their success masks, in aggregate, an appreciation of how poorly other Mexicans, including light industry, textiles and, most importantly for this paper, smaller subsistence farmers are doing. How deep their level of displacement depends largely on the producer's ability to adjust to resulting changes in policies and prices. Subsistence level producers are among the poorest segment of the population. The expectation that unaided they would be able to adapt and shift production to other crops is absurd. Efforts to help these producers adapt were poorly planned and proved to be insufficient. As the case of the corn sector demonstrates, farmers continue to grow corn despite decreases in prices and increases in imports from the US. This lack of congruence between pro-market expectations and reality was predicted in advance, and the hardship meted out on the most vulnerable populations in Mexico could have been avoided.

These groups have, threatened by the liberalization of agriculture under NAFTA, made their voices heard forcefully, through protest. Their demands reflect the disconnect between the centrally and undemocratically conceived vision of liberalization concocted in the 1980s with a reclamation of autonomy for the Mexican countryside demanded by social movements today. It is also a warning to other governments on the brink of adopting similar policies, both that the policies do not work, and that there is a high political cost in pursuing them. The route of democracy may seem superficially less convenient, but peasant movements around the world have, increasingly, found that if democracy is not offered in the formulation of agricultural policy, they will take it themselves.

Appendix A: A History of Trade Liberalization in Mexican Agriculture and Policy

TRADE AGREEMENTS:

In 1987, Mexico became a full member of the General Agreement on Tariffs and Trade (GATT). As a result of joining GATT the country began a rapid acceleration of opening up its economy. GATT allowed Mexico to manage its agricultural policy in accordance with national interests and granted the country special treatment as a developing nation by giving them more time to liberalize⁸⁷. But in 1997, Mexico went above and beyond GATT stipulations and unilaterally reduced tariffs at a greater rate, to 20%⁸⁸.

In 1994, Mexico joined the Organization for Economic Cooperation and Development-OECD. It currently has the sixth largest agricultural sector of the OECD countries⁸⁹. That same year Mexico was involved in the Uruguay Round negotiations of GATT, which laid the legal foundation for the WTO, as well as, the signing of the North American Free Trade Agreement. NAFTA coincides with the measures and procedures adopted in GATT in terms of safeguards and market access. The difference between the two is the degree and pace of liberalization. NAFTA was negotiated before the Uruguay Round was concluded. It requires that Mexico the U.S. and Canada accept the commitments resulting from a reduction in domestic support measures and export subsidies. While the GATT – Uruguay Round defined what were to be the upper limits of support measures and commercial protection. The two agreements complemented each other and did not present any contradictory commitments.

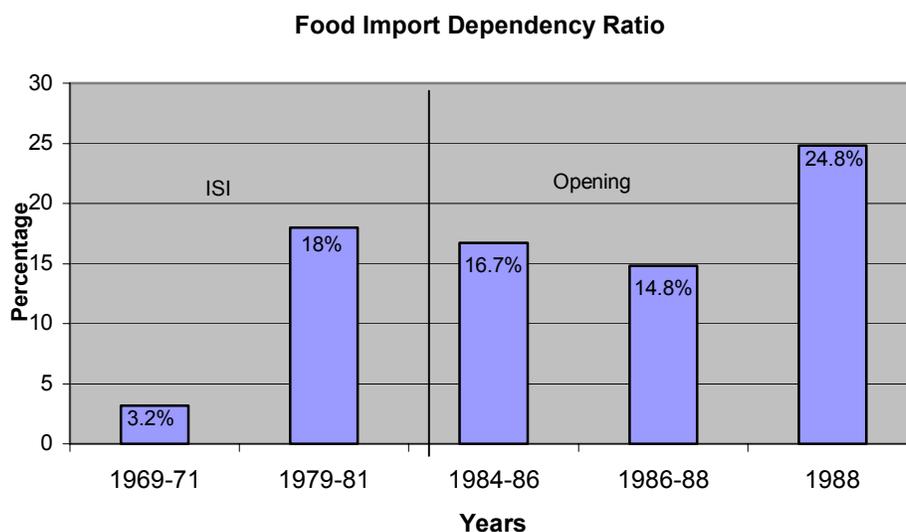
NAFTA

The winners with NAFTA have been, for the most part, horticultural crops such as peppers, asparagus, melons, and tomatoes. Mexican pepper exports rose by 45% between 1995 and 1999 and Mexico accounts for 76% of US pepper imports. Between 1996 and 2000, asparagus exports from Mexico doubled from US\$33 million to US\$ 67 million⁹⁰. Although, a study by Malaga, Williams and Fuller (2000) show that the 1994-1995 Peso devaluation, rather than NAFTA, was primarily responsible for sharp increases in US imports of Mexican vegetables observed in the first two years after the signing of NAFTA. Mexico supplies about 96% of US tomato imports and 80-90% of US cucumber, onion, bell peppers, and squash imports.

Appendix B: Food Security, Dependence and Sovereignty

Food policy choices are often extremely political and in the age of globalization, such policies have become more and more concerned with trade rather than with national production. Scholars of food policy have identified three important concepts that guide a nation's political choice of how to feed its people.

- **Food Security:** Congruent with concerns over the impact of trade liberalization on national producers is the notion of food security and a country's ability to feed its population. International organizations like the United Nations' Food and Agriculture Organization define food security as existent when all people, at all times have physical and economic access to sufficient, adequate and culturally acceptable food to meet their daily caloric needs. In a recent study by the International Food Policy Research Institute, Food security was measured using a series of indicators: calories per capita, protein per capita, production per capita, and exports/ imports or the ability to finance food imports. The same study categorized Mexico, as a trade stressed neutral country, that is, neither secure nor insecure. According to that as long as Mexico is able to fund its food imports through exports, food security for the nation is not a problem. The ratio of total exports to food imports is an indicator of the ability of different countries to finance food imports out of total export revenue. Mexico's total export to food import ratio is 16.3, indicating that it can finance its dependence on imported food⁹¹.
- **Food Dependence:** For many economists, trade can be an effective means to ensure food security. From figure 11 below we can see the increases in food import dependency ratio for Mexico from 1969 – 1988. Please note the data presented here by the UN Development Report depicts the numbers in blocks of years with the exception of 1988, which is presented in the data as its own year. Food import dependency ratio is defined as the ratio of food imports to the food available for internal distribution⁹². From the graph we can see that Mexico is becoming more and more dependent on food imports.



Graph 14: Food Import Dependency Ratio

Source: UNDP Human Development Report, 2002

There is some level of controversy around food dependence. A government facing food shortage can import food to achieve the appropriate level of security. But for some analysts, such as Sophia Murphy of the Institute for Agriculture Trade and Policy lasting dependence on imported food is problematic. It drains important international reserves, as imported food has to be purchased with foreign currency. Furthermore, concerns about the politically volatile position of dependent nations point to the importance of food independence or self-sufficiency. This term emerged internationally because of the precariousness of international trading systems and raises the question of autonomy. The volatility expressed through food dependence can easily be played out in the political arena, but it can also be problematic if the country one is dependent on for imports experiences agricultural shocks and is unable to deliver. Issues of politics and exchange rate can also affect this. Mexico has become increasingly dependent on imports to achieve food security.

- Food Sovereignty: International civil society organizations like Via Campesina, go further to say that concerns over food dependence and security are not enough and call for governments to ensure food sovereignty. Which they define as a country's right to define their agricultural and food policy without any dumping vis -à-vis developing countries⁹³.

These three concepts are intrinsically linked to food policy. They can guide governments on making policy choices. The Mexican government is choosing to attain food security through imports; it is thus highly dependent on trade to feed its population.

APPENDIX C: National Agricultural Policies:

In the 1940s the Mexican government began to invest in building rural infrastructure, it was a time for big projects around the world and following that trend Mexico built dams, irrigation works, roads, and electricity generating facilities. These investments facilitated the flow of investment and large-scale agriculture⁹⁴. Much of the improvements occurred in the north of the country, particularly Sinaloa and Sonora Investment in the agricultural development of the southern states was delayed and today the country's northern states are more advanced for commercial agricultural production for export than the southern states.

As the country began to open its doors to the international agricultural market, government policies shifted. The goal then became to decrease direct price support to farmers in order to reflect less price distorting actions. The emphasis was placed on helping inefficient farmers become more competitive. The old CONASUPO support system was defunct and instead the government chose to support farmers either through direct income transfers of funds that would allow them to shift production to other crops. The new policies, such as PROCAMPO and ALIANZA, however, are falling sort of their goal, because they are not reaching enough farmers.

Appendix D: Free Trade Theory

Behind the choice of shifting to an export oriented liberalization strategy lays the theory of free trade and perfect competition. In a liberalized world market countries with the greatest comparative advantage will find a market for their products. Countries that are better at producing something – whether because of their skills, climate, resource endowment, proximity to markets, capital reserves etc... - will be at an advantageous position relative to other countries because they can produce at lower costs. Countries that are less efficient at producing a particular good will shift production to more competitive endeavors. In the case of Mexico it has been argued that horticultural production is their comparative advantage, after all Mexico has a warmer climate and can easily supply its northern neighbors with fruits and vegetables that cannot be grown up north as cheaply. The Mexican government has subscribed to this practice by encouraging farmers who are inefficient at growing corn and other basic grains, to shift production to horticultural crops. The goal is to shift production in those sectors that are no longer profitable and can no longer compete with imported foods. The shift to exportable crops will generate the necessary foreign exchange to purchase food – including the basic grains previously produced – from abroad. The free trade model considers barriers such as tariffs and subsidies as an impediment to the free flow of goods. The theory calls for an elimination of tariffs and subsidies as well as any domestic support programs that are linked to production levels such as price floors and other price supports. Hence, Mexico's decision to dismantle CONASUPO and its move to provide decoupled subsidies through PROCAMPO.

At the heart of the free trade system lays a political choice. For many governments in the developing world cheap food to feed the urban masses is critical for political stability. Mexico is a perfect example of this. With the rise in urban migration the government has to find a solution to feed the people living in the cities cheaply in order to avoid social unrest too close to business and government centers. Increased trade in food and agriculture increases the supply of food to local markets, which depresses prices, and helps consumers meet their food security needs. In the long run, however, the lower prices will depress local production, which leads to a subsequent reduction in supply and make importing countries deepen their dependence on imported foods. For many economists dependence on trade is not a problem as long as there are enough foreign reserves to fund imports. Yet, one must not underestimate the political importance of such a position, which can increase the political volatility of importing states.

Appendix D: Market Imperfections

International markets seldom operate under perfectly competitive terms. In fact, it is almost expected that in the search for profit companies will want to cheat the market and try to establish greater power for themselves. In knowing this, governments have a responsibility to extend their capacities and regulate markets. The liberalization of trade has created room for large corporations to take advantages of the system in ways that are not available to smaller producers. On the supply side, oligopolistic behavior threatens free trade as it distorts price signals to the market and prevents equilibrium from setting in. Also, it must be noted that the market for food is quite different from the market for widgets and must be analyzed with these differences in mind. These reasoning are further discussed below:

- **US Subsidies and Dumping:** Dumping is the sale of agricultural products for export at less than cost of production prices in the local market. Under trade liberalization dumping should not exist because the theory aims to do away with production distorting subsidies. Yet dumping does occur because farmers in industrialized countries continue to receive generous subsidies from their governments. US farmers who are highly subsidized and have seen significant increases in government support, produce corn and other grains at incredibly low costs that they can then sell at low prices, compared to that of Mexican producers. US corn, for instance, is produced at roughly 40% of the cost of production in Mexico⁹⁵. US farmers oversupply international market that then depress world price.

The new Farm Bill in the US further expanded subsidies to agricultural production, including corn. In 1998- 2000, the average transfer to each agricultural producer in the United States was US\$20,803 while in Mexico it was US\$720.24⁹⁶. These massive increases to basic grains producers in the United States makes it increasingly difficult for Mexican farmers to remain competitive. Thus, dumping forces farmers out of their markets because national grain production will be substituted for cheaper grain imported from the United States. Although this has the potential to make consumers better off, through cheaper food prices, it severely harms producers of import competing crops. Yet, Sophia Murphy of the Institute for Agriculture and Trade Policy argues that the removal of government subsidies alone will not solve the problems of developing country producers chocked by international competition, in addition attention must be paid to the role and power of multinational agribusiness. But the fact remains that decreases in US subsidies would make the system more equitable and farmers and enhance the competitiveness of farmers that are currently considered otherwise.

- **International Agribusiness:** Transnational corporations are an important part of the international market for agriculture. For instance, 82% of world corn exports is concentrated in the hands of three companies, Cargill, Arthur Daniels Midland and Zen Nho⁹⁷. Such large companies play a fundamental role in how agricultural trade is conducted around the world. They face certain advantages that are out of reach to the average producer and much more so to the subsistence producers. They can benefit from economies of scale that would be imaginable even to competitive farmers. Their level of global presence gives them access to information that would otherwise be unobtainable. They have significantly different risk calculations than the average

farmer and also have access to an enormous amount of capital that leaves them in an advantageous position. These are oligopolies (few suppliers share a market to the exclusion of newcomers) and such imperfect competition requires government interventions to control profit levels and restore equilibrium. Economic power is broadly defined as the maximum potential profits a corporation can generate and is wielded in a number of ways to ensure the generation of maximum profits. Trade agreements need to pay closer attention to agribusiness and their share in markets as to make sure that they are not controlling prices as result of their advantageous position. As

- **Domestic Oligopolies - Cartels:** One of the expected effects of trade liberalization is cheaper food prices, after all if every country capitalizes on its comparative advantage and uses trade to fill in the gaps, they will be able to generate foreign exchange to purchase those goods not being produced nationally at lower prices. This has not been the case for the Mexican tortilla sector. Mostly because corn millers have been organizing themselves as cartels that then take advantage of their power in the market to set higher prices. The two main corn millers GIMSA and MINSA together, account for 97% of the market and therefore, have the considerable power to set profit maximizing prices.

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¹ According to the World Bank Groups exports were US\$ 21,078 billion in 1981 and US\$ 158,443 billion in 2001.

² World Bank Group, 2002. Imports were US\$ 24,955 billion in 1981 and US\$ 168,396 billion in 2001

³ Yunez, 2002.

⁴ Murphy, 2000.

⁵ De Ita, 1997, (b).

⁶ Accumulated economy-wide inflation rate was 173 %, which means that in real terms, the price of tortilla increased by 279%. See Nadal, 2000.

⁷ Smith, 2002.

⁸ See, for instance, Weisbrot and Baker 2002 available at http://www.cepr.net/relative_impact_of_trade_liberal.htm, UNDP 2003 Human Development Report, and Rodrick, D. (2001) The Global Governance of Trade as if Development Really Mattered.

⁹ Discrepancies in the growth rates can be attributed to increased migration in rural areas despite demographic transition rates and the fact that rural households have more children than their urban counterparts.

¹⁰ World Bank, 2001, (a).

¹¹ Sagarpa, 2001.

¹² World Guide, 1999-2000.

¹³ World Guide, 1999-2000.

¹⁴ Post-revolutionary land reform beneficiaries either received a plot of land individually or through ejidos – collectives – They reserved the right to use the land but could not sell it for individual profit. Early land reform served the purpose of stopping peasant rebellions, particularly among the indigenous community. Under president Cardenas (1934 – 1940) more land was redistributed to peasants than under any other post-revolutionary government. The years following this radical reform saw numerous counter-reforms and land invasions and repressions became common. In the early 1980s this situation reached a boiling point when about 20 people died a week from agrarian conflicts.

¹⁵ World Guide, 1999-2000.

¹⁶ Reddy and Pogge, 2003.

¹⁷ World Bank Group, 2002.

¹⁸ Cevalos, 2002.

¹⁹ Cevalos, 2002.

²⁰ Nadal, 2000.

²¹ Malaga, Williams and Fuller, 1998.

²² De Ita, 2003, (a)

²³ These are the p-alpha indicators used to measure different facets of poverty. The incidence of poverty refers to the number of people living below poverty (head count), while the poverty gap is the amount needed for those living in poverty to reach the poverty line and the depth of poverty indicator grants greater weight to those living farthest from the poverty line.

²⁴ Statistical Abstract of Latin America, 2002

²⁵ Sagarpa, 2001.

²⁶ Sagarpa, 2001.

²⁷ Examples of survival schemes, include: migration, hiring out family labor, foregoing purchases and expenses when possible etc...

²⁸ World Bank in Wise, Salazar and Carlsen, 2003.

²⁹ Wise, Salazar and Carlsen, 2003.

³⁰ Under the presidency of de la Madrid (1983-1988) the debt crisis hit Mexico and the government began a shift away from ISI and towards a more export oriented (EOI) industrialization. The Salinas administration (1989- 1994) continued these reforms, which included fiscal discipline and austerity, deregulation of many sectors of society, reduction of state agencies in agriculture, privatization and a substantial reduction of tariff barriers in international trade.

³¹ Some of the reasons behinds Mexico's eagerness to sign trade agreements stems from the fact that the practice is currently in vogue and is being encouraged by international trade institutions like the World Trade Organization. Politically, trade agreements legally bind participants. Since these agreements constraints the change of national laws it can be used as a way to manage national and international policies for the administration in power. Another important reason is that Mexico, as a hub market for the region, can take advantage of its free trade status with the United States and Canada to attract investors who aim to indirectly gain access to the other North American markets. To those in power, the immediate political benefits of signing trade agreements outweigh the costs.

³² Statistical Abstract of Latin America, 2002.

³³ De Ita, 2003, (a).

³⁴ United States Department Of Agriculture, 1996-2001.

³⁵ Unlike GATT, NAFTA does not afford Mexico any special privileges as a developing country.

³⁶ World Bank Group, 2002.

³⁷ Foundation for Economic Growth. "NAFTA at Eight", 2003.

³⁸ Carelson, 2003.

³⁹ Carpentier, 2001.

⁴⁰ Green Giant moved one of its food processing plants from Watsonville, CA to Mexico where cheaper wages and more lax food safety controls promises increased profits. Cargill de Mexico has invested US\$184 million in facilities in Mexico. Their profits increased from \$350 million in 1992 to \$597 million in 1999. Cargill controls about one-quarter of the grain trade, which begs the question of who indeed is winning with free trade. Other companies such as Arthur Daniels Midland saw profits increase threefold since they started investing in Mexico in 1993, from \$110 million in 1993 to \$301 million in 2000. Similarly, Conagra's profits grew 189% from US\$ 143 million in 1993 to \$413 million in 2000.

⁴¹ World Bank Group, 2002.

⁴² The Economist, November 30, 2002.

⁴³ Maize, wheat, beans, rice, sorghum, soybeans, safflower, cotton and barley

⁴⁴ De Ita, 2003, (a).

⁴⁵ Alliance for the Country Side???

⁴⁶ Article 27 of the Mexican constitution inspired by the events of the Mexican revolution of 1910 provided rural peasants access to communal lands or ejidos. NAFTA deemed the article illegal for free trade because it did not grant foreigners the same right as nationals in acquiring land. The article was modified to promote a market for land by allowing ejidarios to sell their land and encouraging land privatization.

⁴⁷ Nadal, 2000.

⁴⁸ The average Mexican family has 6 dependents so 3 million times 6 is 18 million

⁴⁹ Nadal, 2000.

⁵⁰ Nadal, 2000.

⁵¹ See Food First's *Anatomy of a Gene Spill* for the recent effects of genetic contamination in Mexico, at <http://www.foodfirst.org/pubs/backgrdrs/2002/sp02v8n2.html>

⁵² See *Giving Away the Farm*, at <http://www.foodfirst.org/pubs/backgrdrs/2002/s02v8n3.html>

⁵³ Murphy, 2001.

⁵⁴ Rosset, and Burbach, 1994 .

55 Goldzimmer, 2003

⁵⁶ Lustig, Nora. 1997

⁵⁷ Luis Navarro, personal communication and see also <http://www.eco.utexas.edu/~archive/chiapas95/1996.12/msg00397.html>

⁵⁸ $\Delta \ln Pit = \Delta \ln P^*it + \Delta \ln RER + \Delta \ln (1 + \theta it) + \Delta \ln (1 + T it)$

where:

Pit is the real domestic price of good I at time t (nominal domestic price divided by a domestic inflation index)

P* it is the real international price (nominal US price divided by a US inflation index)

RER is the real exchange rate

⁵⁹ Nadal, 2000.

⁶⁰ Nadal, 2000.

⁶¹ Nadal, 2000.

⁶² This definition is borrowed from Nadal, 2000.

⁶³ INEGI, 1994

⁶⁴ CONASUPO, 1993

⁶⁵ Yunez, 2002

⁶⁶ Nadal, 2000.

⁶⁷ Nadal, 2000.

⁶⁸ See Suárez 1995, Navarro 1996.

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- ⁶⁹ Nadal, 2000.
- ⁷⁰ Yunez, 2002.
- ⁷¹ Sagarpa, 2001.
- ⁷² Barbier, 2000
- ⁷³ Personal communication with Alain DeJanvry, April 5th 2003
- ⁷⁴ Nadal, 2003.
- ⁷⁵ DeJanvry et al, 1997
- ⁷⁶ DeJanvry, Sadoulet and Davis, 1995
- ⁷⁷ Cevalos, 2002.
- ⁷⁸ Salas in Nadal, 2000.
- ⁷⁹ Varieties have been kept in gene banks, but this is not enough to guarantee the survival of the diverse seeds.
- ⁸⁰ Wise, Salazar and Carlsen, 2003.
- ⁸¹ Matilde, 2003
- ⁸² According to the World Bank Groups exports were US\$ 21,078 billion in 1981 and US\$ 158,443 billion in 2001.
- ⁸³ World Bank Group, 2002. Imports were US\$ 24,955 billion in 1981 and US\$ 168,396 billion in 2001
- ⁸⁴ Nadal, 2000.
- ⁸⁵ Yunez, 2002.
- ⁸⁶ Accumulated economy wide inflation rate was 173%, which means that in real terms, deflating the price of totilla against the rest of the economy, means that the real price of tortilla increased by 279%. Nadal, Alejandro.
- ⁸⁷ The WTO Agreement on Agriculture makes special provisions for developing countries. It states that the outcome of negotiations should be effective in practice and should enable developing countries to meet their needs particularly as it pertains to food security and rural development.
- ⁸⁸ De Ita, 2003, (a)
- ⁸⁹ Carpentier, 2001.
- ⁹⁰ USDA, 1996-2001.
- ⁹¹ Diaz – Bonilla, et al, 2000.
- ⁹² Food Import dependency Ratio = food imports / food for internal consumption
where food for internal consumption is: the sum of food production + food imports – food exports.
- ⁹³ This concept includes prioritizing local agricultural production, land reform, the right of countries to protect their agricultural markets from low price imports and population participation about agricultural policy choices.
- ⁹⁴ Rosset and Burbach, 1994.
- ⁹⁵ Nadal, 2000.
- ⁹⁶ Sarmiento, 2003.
- ⁹⁷ Murphy, 2001.