A REVIEW OF RECENT CHANGES IN MEXICAN AGRICULTURAL POLICY:

IMPLICATIONS FOR SMALL SCALE BEAN PRODUCTION

by

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ABSTRACT

A Review of Recent Changes in Mexican Agricultural Policy:

The Case of Small Scale Bean Production

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Until the early 1980s, Mexican economic policy was characterized by import substitution industrialization. Agriculture's role was to provide a cheap and abundant food supply for the urban sector, and to generate foreign exchange through exports. While Mexico achieved food self-sufficiency by the early 1960s, conflicting policies succeeded in undermining basic grain production and exacerbating an existent dichotomy between traditional, rainfed production and commercial, irrigated operations. Austerity measures imposed during the 1980s resulting from the collapse of world oil prices further undermined small-scale production.

These effects are viewed in the context of the bean subsector, characterized by a bimodal system of production; while the majority of Mexican bean producers are small-scale farmers, most beans are produced on commercial, mechanized farms. Although bean production was affected by mounting inflation during the '70s and '80s, in which static producer prices overrode government subsidies, large scale winter
producers benefitted from two-part pricing, begun in the 1980s.

Under the Salinas administration, producer prices for beans have risen in recent years, and the Mexican government is embarking on a new rural development program. More importantly, the advent of the North American Free Trade Agreement spells profound changes for the bean subsector. During the 15 year interim period in which tariffs for beans will be phased out, the Mexican government must decide either to invest in increasing the bean sector's productivity, or merely ensure that Mexican consumers have a cheap supply of beans--regardless of whether they are imported or domestically produced.
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CHAPTER 1
INTRODUCTION

1.1 Introduction

In the past six years, Mexican economic policy has undergone a marked transformation, amending and at times discrediting policies of the past 75 years. Nowhere is this more clearly evident than its agricultural sector which currently faces the double impact of a Free Trade Agreement with the US and Canada, and the prospects of reforming the ejido system, an entrenched and seemingly inviolate institution since its genesis in 1915.

In order to better address these issues, this paper will review recent Mexican bean production and trade policies in order to examine the wider implications and conflicts surrounding Mexico's economic liberalization, including domestic land reform and prospects for a North American Free Trade Agreement (NAFTA). More broadly, the goal of this paper is to provide a review of Mexican agricultural policies from the 1970s to the 1980s, while acknowledging that the grounds for many of these policies are rooted in far earlier events. Such a review provides the context for understanding not only the impetus behind Mexico's recent move towards economic reform and trade liberalization, but also the
implications of such changes on the agricultural sector.

1.2 Background

Until the early 80s, Mexican economic policy was characterized by import substitution as a means to achieve food self-sufficiency in the countryside and to bolster infant industries in the cities. For reasons both of fierce nationalism and a reaction to shortages of imported goods during World War II, Mexico used all of the traditional tools of import substitution—tariffs, quotas and licenses for foreign imports—while simultaneously promoting the growth of domestic industries through subsidies.

The role of agriculture during the period of import substitution industrialization was not simply to provide a cheap and abundant food supply for the urban industrial sector, but also to generate foreign exchange through exports. In fact, agriculture did succeed in attaining food self-sufficiency by the early '60s, and in becoming Mexico's primary generator of foreign exchange until the late '70s (at which time, rising oil prices caused by the OPEC oil crises replaced agriculture by petroleum exports). However, Mexico's conflicting agricultural policies ultimately succeeded in undermining agricultural production while further exacerbating already existent problems in Mexico: the sharp contrast between the rich and poor; malnutrition; unemployment and migration.
However, during the last decade Mexico has abandoned many of the foundations of import substitution. With the fall in oil prices in 1982, austerity measures imposed by the de la Madrid administration were based on the understanding that Mexico was no longer able to afford to continue its past policy of subsidizing industry and agriculture--indeed, it could not even repay a massive foreign debt accumulated during the spending spree of the '70s. Thus, while Mexico tightened its belt internally, it increasingly perceived trade liberalization as one means to resuscitate its flagging economy. Correspondingly, the country trimmed its overvalued foreign exchange rate, thus making exports more competitive overseas and actively sought foreign investment at home. When Mexico joined GATT in 1986, it slashed its import tariffs to well below the required levels and drastically reduced other restrictions such as import licensing and quotas. While a decade ago Mexico had imposed tariffs of 100 percent for many goods, it entered the '90s with maximum tariff levels set at 20 percent.

Two recent events with the potential to profoundly affect Mexico's economic and political architecture--free

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1 This is with the brief exception of the early '80s, when oil revenues and foreign loans provided the means for Mexico to intensify its policy of import substitution. This was manifested in the agricultural sector with the adoption of SAM (Sistema Alimentario Mexicano), a policy intent on achieving food self-sufficiency by the mid-80s. A more in depth discussion of SAM will be provided in chapter 2.
trade and land reform—have their roots in the policies of the '80s, and can indeed be described as creations of Mexico's move towards economic liberalization. These events are the focus of the latter part of this paper.

If free trade, economic and land reform in Mexico promise a Pareto improvement (that is, a situation in which at least one party is made better off and no one is made worse off, with the understanding that compensation is possible but not obligatory) these changes will inevitably produce losers as well as winners and, regardless of whether compensation is possible, it will not be realized. Economic reforms in Mexico, with the potential to remove guaranteed producer prices and input subsidies, combined with the potential for cheaper US imports for Mexican staples of corn and beans, may leave small farmers in Mexico and those practicing rainfed agriculture with few opportunities for diversification.

Increasing per capita income in Mexico resulting from the Free Trade Agreement (and possibly, economic reforms) may also foster shifts in Mexican food consumption patterns away from the traditional staples of beans and corn (considered inferior goods) towards meat, pasta and bread. Currently, both these staples are considered inferior goods in Mexico and are primarily consumed by low income groups. By contrast, less than 13 percent of the diet of wealthier Mexicans depends on these commodities for protein (Angel and
However, the coupling of land reform and free trade also suggests a bright future for certain sectors of the Mexican and US economy. Future land sales by ejido farmers may create opportunities for U.S. agribusinesses to expand their operations in Mexico to include agricultural production as well as processing. Similarly, successful Mexican farmers may be able to expand their operations on previously held ejido land. As Mexico shrugs off its policy of import substitution, others, no longer faced with subsidized input and output prices for Mexican staples with the exception of corn and beans, will be able to diversify and expand their export and commercial production to areas such as fresh fruit and vegetables where Mexico possess a comparative advantage, while US farmers might benefit from exports of basic grains (such as dry beans) to Mexico.

1.3 Problem Statement

As the country's second most important crop in terms of area harvested, and ranking fourth place in production, beans have traditionally been subsidized with the intent of achieving production self-sufficiency (ERS, July 31, 1991). This goal has been reached with varying degrees of success; while beans were a surplus commodity in Mexico in the early '70s, by the end of the decade severe shortages caused by low yielding varieties and scarce rainfall forced the country to
import beans from the U.S. (Kelly, 1987).

Currently, the level of self sufficiency of production varies widely, fluctuating between 70-85 percent during the '80s; the deficit offset by bean imports, primarily from the United States (ERS, 1991). The impact of current policy changes on Mexico's bean production, consumption and trade is uncertain.

Mexican bean producers are loosely divided into three categories: 1) large scale irrigated producers in the Northwestern coast who benefit from government input and output subsidies and have an opportunity to diversify their production; 2) large scale rainfed producers in the arid highlands, whose geographical location prevents them from investing in irrigation and hence face few opportunities for agricultural diversification, and; 3) small farmers/ejidalatarios, generally practicing rainfed agriculture on less than three hectares of land who potentially face the most profound impacts from agricultural reform and a free trade agreement. However, as a means of emphasizing the dualistic nature of bean production in Mexico, the paper will primarily concentrate on two types of bean producers: large commercial operators in the north, using modern technology and inputs and small scale farmers in the central and southern regions practicing traditional rainfed farming.

The impact of NAFTA on the Mexican bean industry depends on assumptions made about the level and distribution of the
projected growth in income resulting from NAFTA, changes in
the price support system for basic staples, and the success
(or lack thereof) of land reform policies.

1.4 Objectives of the Paper

In order to assess the ramifications of current and
future policy changes on the Mexican bean sector it is
necessary to have a comprehensive description of the
country's bean industry, as well as a clear understanding of
the political and economic contexts that shape it.
Understanding the reasons behind recent economic and
agricultural reforms, particularly those relating to land
reform and the NAFTA agreement, are equally important.

Thus the objectives of this study are:

1) To review Mexican agricultural policy, including
current policies regarding economic liberalization and land
reform;

2) To provide a descriptive analysis of the Mexican
bean subsector, focussing on the structure and conduct of
production, consumption, and trade;

3) To identify the policy changes implied by a US-
Mexico Free Trade Agreement, particularly as they may affect
bean production, trade and marketing.
1.5 Relevance of the Study

Although tariff barriers and quotas on beans will be gradually phased out over a 15-year period, the US-Mexico Free Trade Agreement will have significant direct and indirect impacts on Mexican bean production in the immediate future. These impacts will also profoundly affect the US economy; for example, the FTA will most likely bring greater incentives for Mexican bean producers with irrigated perimeters to produce more export-oriented crops—often those directly competing with producers in California, Texas and Florida. Alternately, a reduction in bean production may also force the Mexican government to increase its imports, thus potentially benefiting bean producing states such as Michigan and North Dakota.

The possibility of traditional bean producers in Mexico being unable to compete with US imports combined with increased employment possibilities in Mexican cities or in the US as a result of a Free Trade Agreement may accelerate the already rapid pace of rural out-migration.

1.6 Methodology

The first two chapters of the paper generally give a brief outline of Mexico's foreign and domestic policy, looking particularly at its effects on agriculture. Specifically, these chapters will focus on the country's change from import substitution industrialization of the '70s
(the focus of chapter 2) to gradual economic liberalization coupled with austerity measures during the '80s (chapter 3).

Chapter 4 describes general characteristics of the Mexican bean sector and how macro level economic decisions of the past 20 years (described in chapters 2 and 3) have affected bean production and consumption in Mexico.

Chapter 5 examines Mexico's current foreign and domestic environment and describes two events that may profoundly change Mexico's economic construction--free trade and land reform. In chapter 6, beans are used as a proxy to describe potential impacts of these policy changes within a "situation/structure/performance" paradigm. The chapter will use some of conclusions drawn by various economists based on models of potential impacts of NAFTA and land reform on agriculture.

The final chapter presents a summary of the results, and makes suggestions for future research.
CHAPTER 2
MEXICAN AGRICULTURAL POLICY: 1970-1982

2.1 Introduction

Chapter 2 begins by describing the physical and socioeconomic characteristics of Mexican agriculture. However, the bulk of the chapter is devoted to looking at the role of agriculture during Mexico's phase of development via import substitution industrialization (ISI), dwelling particularly on the 1970s and early 1980s in order to examine the following problem: that in spite of Mexico's intent on achieving food self sufficiency, with corresponding growth in output and public sector investment in agriculture, by the end of the 1970s, Mexico found itself a net importer of grains it once used to export.

This paradox is due in large part to two separate but interrelated reasons. The first deals with Mexico's relationship vis a vis trade and development with the outside world. Contreras (1987) states that Mexico's policy of import substitution industrialization undermined agricultural development by overvaluing the currency (thus assuring cheap imports of needed inputs) and correspondingly, reduced agriculture's terms of trade through the resulting high price of domestic manufactured goods (Contreras, 1987, p. 112). As a means of understanding the protectionism that characterized
Mexican economic policies since the 1940s, a brief examination and analysis on the principles of import substitution is presented.

The second reason for the decline in Mexico's ability to achieve food self-sufficiency is because the country's agricultural policy favored commercial and export crop production at the expense of the great majority of farmers producing traditional crops using rainfed agriculture. Both these reasons will be described in chapter two.

Finally, the chapter will examine the brief period of agricultural reform during 1978-82 and, in particular, will describe the characteristics, effects and demise of SAM, a policy intended to reinvigorate the agricultural production of basic grains and increase the income generating capacities of the rural poor.

2.2 Characteristics of Mexican Agriculture

Mexico has seven agricultural regions: five of these are dominated by rainfed agriculture, primarily grow subsistence crops and have few opportunities for diversification. Only nine percent of the total area dedicated to agricultural production is of good quality; of this land, around 76 percent is devoted to rainfed agriculture (the number fluctuates on a yearly basis).

Forty five percent of the agricultural labor force is located in the relatively favorable climate and fertile land
of central Mexico. Constituting one quarter of Mexico's arable land, central Mexico has little irrigation and is distinguished by intense agricultural activity of small farmers who primarily grow corn and beans, the country's traditional staples, and more recently sorghum for animal production. The poverty of central Mexico has given the region another distinction—that of being a prominent supplier of migrant labor to the U.S. (Office of the Counselor for Agricultural Affairs, 1985; Angel and Rossin, 1991; Ballenger, 1984).

By contrast, large, irrigated farms growing a variety of cash crops, including grains, oilseeds, sugarcane, cotton and vegetables typify the landscape of northern Mexico. This region is the primary producer of crops for export and commercial production: northeast Mexico produces commercial livestock; the North Pacific Region, benefitting from heavy public investment in irrigated agriculture, is primarily responsible for Mexico's export crop production (Office of the Counselor for Agricultural Affairs, 1985, Bartra and Otera, 1987).

Only one quarter of the total land area in Mexico receives sufficient rain for spring and summer cropping during normal years; less than 5 percent of the land receives enough rain to produce winter crops. However, rainfed agriculture accounts for up to 50 percent of Mexico's agricultural exports. (Office of the Counselor for
Agricultural Affairs, 1985; Hall and Livas-Hernandez, 1990) Mexico's declining production over the years in these areas is not only due to adverse weather conditions or government policies; whether physical or man made, 80 percent of Mexican soil is subject to some degree of erosion and 40 percent is severely depleted. (Kelley et al., 1991).

In relation to land use, the predominant crops grown in Mexico are cereal crops, dry beans, sorghum, oil crops such as soybeans, coffee and sugar cane. Three quarters of the arable land devoted to basic grains production is cultivated by small farmers under rainfed conditions (Fernandez, 1987) In addition, due to increased consumer preference for meat, greater amounts of land have been turned over to cultivating feedgrains: it is estimated that about half of Mexican farm land is currently devoted to this purpose. (Adelman and Taylor, 1990).

However, fresh fruits and vegetables occupy a small but increasing share of the land as prosperous northern farmers who have the most potential for crop diversification, have shifted their agricultural production from maize and beans to more commercial crops, much of which is for export. The vast majority (70 percent) of vegetable crop production is located in the northern state of Sinaloa, which also accounts for 50 percent of the nation's exports of fresh vegetables—primarily tomatoes, chile peppers and cucumbers (Banamex, 11/90). Growth of these export crops stands in contrast to
the overall decline in Mexican agricultural production over the past three decades (Angel and Rossin, 1991; Lira and Commander, 1989; Ballenger, 1984; Baer, 1990; Sourcemex, 1991). Of the export crops, fruits, vegetables, flowers and ornamental plants generate 30 percent of the total value of Mexican agricultural production; industrial crops (coffee, cacao, sugar and tobacco) produce 10-15 percent, depending on the international price (Banamex, 5/92).

In 1981, 56 percent of the 2.6 million farmers covered in the 1970 census operated below subsistence levels; another 16 percent operated at subsistence levels, leaving only 28 percent able to generate revenue from agriculture. Subsistence/below subsistence level farmers work 22 percent of the land, according to 1981 figures: 48 percent of which is devoted to maize production and 33 percent is devoted to beans (Fernandez, 1987, pp. 302-304). Thus, these two crops compose over 90 percent of the total production acreage cultivated by peasant farmers in Mexico.

**Land Tenure and Distribution:**

Mexican law recognizes three types of land holdings: small, private land owners who can buy and sell land freely, ejidal lands and community land ownership. Currently 60 percent of all Mexican agricultural producers work on non-irrigated plots of land that are less than five hectares (Sourcemex, 12/4/91). However, in the past, laws limiting
private ownership have often been overcome through political connections and ingenuity—for example different parcels owned by different family members.\footnote{This changed in late 1991, when the Mexican legislature, responding to arguments by campesino groups and opposition political leaders, approved limits to private landholdings as a means of preventing further monopolization of private agricultural operations while it simultaneously approved privatization of ejido land, as will be discussed in chapter 5 (Sourcemex, 12/14/91).}

The ejidal system is a land tenure arrangement in which land is privately used and bequeathed to heirs (providing the soil is worked on a regular basis) but cannot be bought and sold. As of 1989, 54 percent of all land belonged to ejidos or other semi-collective farming units (Angel and Rossin, 1991). Land holdings under the ejido system are generally less than four hectares, primarily concentrated in rainfed areas and generally practice traditional rather than mechanized agriculture. Generally under-capitalized and primarily using dryland farming techniques, ejidos (which in 1970 numbered approximately 18,000) have been responsible for a large proportion of domestic supply of subsistence foods, particularly corn (around 60 percent of overall production) (Sourcemex, 12/4/91; Angel and Rossin, 1991). Ejidos also produce beans, sugarcane, sorghum and, more recently, wheat. (Sourcemex 12/4/91; Lira and Commander, 1989; Office of the Counselor for Agricultural Affairs, 1985; Bruce 1991; Bartra and Otero, 1987)
The ejido system was first established as an integral element of the 1915 agricultural reform program initiated as a result of the Mexican Revolution, which sought to change an entrenched pattern of land ownership. Officially, ejidos have been upheld as providing an alternative form of political and economic organization, a possibility that was only truly realized, according to Pare (1990), during the Cardenas administration in the 1930s. During this period, the government redistributed large tracts of land and increased credit availability. However, Sanderson's study of the Sonora region of Mexico during this period concludes that distributed land was often in the less fertile, rainfed regions of the country. Furthermore, no provisions were made to ensure that cultivators would have access to irrigation, and credit distribution was biased towards the highly organized, economically productive areas (Sanderson, 1981).

The prevailing view of the ejido system is that of a political tool used by the Mexican government to pacify a rural population, and to win loyalty in the countryside for the dominating party, the PRI: "The aim was to prevent a return to the big rural estates of the bad old days. Instead, the effect has been to turn many ejido farmers into clients of the PRI's rural bosses, the caciques, who swap access to state subsidies and favors for votes... until now PRI governments have been more concerned with rural voters' loyalty than with farm productivity." (The Economist,
11/16/91) Currently, the countryside has the highest percentage of registered voters participating in elections as a result of these manipulations.

While credit, irrigation and infrastructural development have been provided to larger farmers in northern Mexico, many campesino groups and opposition parties argue that the government has failed to adequately provide ejidos with producer subsidies, extension services or credit, thus in large part determining the ejidos' characteristically low productivity. Forty percent of ejidos are estimated to lack access to production and investment loans, and around one half of operating ejidos do not receive technical assistance (Sourcemex 12/15/91).

The success of periodic land distribution campaigns, note Batra and Otero (1987), was more political than economic, with little effect on developing peasant agriculture (Batra and Otero, 1987, p. 360). Correspondingly, production decisions are often made by credit institutions rather than the ejidos themselves and that these decisions are often based on political, rather than economic grounds. "For decades the government was unwilling or unable to provide adequate production, credit and technical assistance to ejido agriculture," notes Bruce, adding that these policies have resulted in "an obsolete or underdeveloped infrastructure an marketing system." (Bruce, 1991, p. 2).
2.3 Protectionism and Import Substitution

Industrialization

Like many Latin American countries, Mexico's economic policy has been based on import substitution—both in agriculture as well as in industry—as a basis for development, rather than adopting a strategy of comparative advantage for export promotion, specialization and trade (Morici, 1991; Banamex 1/92). In order to build its industrial base, the government has tried to close itself off to trade by raising steep tariff and non-tariff barriers against foreign imports. Correspondingly, industrial exports were promoted through measures such as preferential export financing, tax rebates and credits (Morici, 1991; Mielke, 1984). These measures were intended to hasten Mexico's economic development both by promoting domestic industries and by making the country less vulnerable to the vagaries of foreign economic and political policies.

While the wisdom of pursuing economic growth based on import substitution and protectionism is debatable, it is nevertheless necessary to examine the rationale behind pursuing such a development path.

Rationale Behind Protectionist Policies

While countries may differ in their relative factor endowments and marginal rates of substitution, they possess
one fundamental characteristic in common; given a conflict between trade and domestic priorities, note Jones and Thompson (1978), domestic priorities inevitably win out. This is the basic rational behind protectionist policies adopted in relation to international trade, and often the basis for an industrialization policy based on import substitution.

Bharat-Ram defines import substitution as "the ratio of the foreign exchange value of items deleted from the initial import list to the total foreign exchange value of a wholly imported product." (Bharat-Ram, 1982, p. 2) He notes that import substitution generally takes place in stages, with the substitution of domestically manufactured goods for foreign imports initially practiced in simpler industries before moving to the more complex (Ibid). Foreign imports are generally forbidden or discouraged from entering a country through tariffs or quantitative restrictions, thus stimulating domestic production and closing the gap between domestic supply and demand. In theory, such a practice is expected to realize the development of domestic "infant industries" by giving them protection against foreign competitors. Moreover, import substitution, by increasing a country's self-sufficiency would protect the economy against the oscillation of world market, while simultaneously contributing to countries' balance of payments by saving foreign exchange.
On the domestic front, protectionist policy serves a twin role of both supporting the growth of positively protected sectors and discouraging the growth of other sectors considered less desirable. In some ways, this might be an argument supporting import substitution industrialization at the expense of agricultural development; the presence of large amounts of labor compared with an assumed scarcity in land indicate a development policy based on industrial development—or so it seemed for many Latin American countries, including Mexico (Daniel Schykowsky, 1978, p. 218). Whether import substitution succeeds in increasing the growth of a particular industry depends on whether increases in capital stock are matched by output increases (Bharat-Ram, 1982).

According to Bharat-Ram, two characteristics have been empirically proved of import substitution: it is sensitive to the exchange rate—with devaluation, the import content of a product has been found to be significantly lower; and the amount of capital stock is positively correlated with the degree of import substitution (Bharat-Ram, 1982, p. 3).

While a definite correlation can be found between protectionist measures and the growth of protected sectors, many unforeseen consequences also occur when countries choose to adopt such policies. For one thing protection often results in a series of backward steps; once protectionist measures are adopted for finished processes goods, countries
may then concentrate on protecting intermediate goods and so on down to primary goods. Each step raises the cost of the final good. While Schykowsky argues this makes little difference on a domestic market, he notes that protecting each link in the production process succeeds in drastically reducing the competitiveness of a product on the world market. Thus many goods benefiting from government protection are primarily sold on the domestic market which for most developing countries is often quite small. This results in a loss of potential economies of scale, increased firm diversification and the monopolization of markets.

Countries practicing protectionist policies directed against foreign competitors may have an ambivalent stance towards transnational organizations (TNCs). One the one hand, they may encourage investment by TNCs in order to obtain foreign exchange or new technology (rather than choosing the more difficult task of developing it themselves). On the other, transnational organizations may be seen as a threat to domestic industrial development.

Generally, foreign investment via transnational organization might be expected enjoy higher degree of protection than domestic industries due their superior bargaining power (Waarts, 1978). Because transnational organizations may employ capital from a variety of countries, their effects on stimulating growth in the host country may be ambiguous. However, often the growth of transnational
organizations has served to strengthen arguments against protectionism and in defense of free trade (Schuh, 1990, p. 152).

**The Role of Agriculture in Import Substitution Industrialization**

While viewed as simply a means, rather than an end to the development process, agriculture played (and continues to play) a vital role in import-substitution industrialization for developing countries. In particular, notes Contreras, agriculture is expected to fulfill the following functions: 1) to provide sufficient domestic food to maintain stable or declining food prices; 2) to produce raw materials for industry; 3) to generate foreign currency through exports and thus finance imports of necessary goods and inputs; 4) to facilitate capital accumulation through the transfer of savings and; 5) to provide a market for the consumption of goods from other sectors in the domestic economy. (Contreras, 1987, p. 113) In particular, agriculture was seen as a means to fuel urban growth through government controlled consumer prices set at artificially low levels. Developing countries often adopted restrictive policies towards agriculture, exporting agricultural commodities only after domestic needs have been fulfilled.

Agricultural production has received a further blow of an overvalued exchange rate which is, notes Schuh, "probably
been the single most common policy distortion among
developing countries." (Schuh, 1990, p. 149) By making the
price of imports artificially low, an overvalued exchange
rate not only benefited urban consumers but also exporting
countries. By contrast rural producers found that not only
were their agricultural goods less competitive on the world
market, but they now had to compete with cheap foreign
imports at home. As such, an overvalued exchange rate served
as an implicit tax on exports and a subsidy for imports
(Krissoff & Ballenger, 1987, Jones and Thompson, 1978).

While the outcome of these economic practices vary by
country, several general trends can be traced. In the
agricultural sector, declining terms of trade led to a drop
in agricultural productivity and a subsequent rural to urban
migration (exacerbated by a steady rise in population
growth). Yet, the urban industrial sector was often unable
to absorb the growing labor force. This resulted in massive
unemployment and increased expenses for governments who
continued to subsidize prices for urban consumers.

Given these outcomes, why did many developing countries
overwhelmingly suppress their agricultural sector and adopt a
policy of import substitution? For one thing, import
substitution allows countries greater control over their
development by building up certain sectors and deemphasizing
others through subsidies, taxes and tariffs (Bharat-Ram,
1982). Another explanation is offered by Jones and Thompson,
who base the protectionist measures of LDCs on three premises: The first assumes a decline in terms of trade of primary products, concluding that benefits of promoting agricultural exports would inevitably be captured by developed countries. This situation, in which prices for primary commodities would inevitably deteriorate, is described in Prebisch's "secular decline hypothesis" of the 1950's which suggests that growth should be generated through import substitution of manufactured goods rather than through the limited expansion that the agricultural sector could offer (Mellor, 1990). Secondly, note Jones and Thompson, developing countries felt that any attempt at competition in the agricultural sector on a global scale would be overwhelmed by the technological superiority of developed countries such as the US. Finally, developing countries concluded that their exports would be limited by trade barriers established in developed ones (Jones and Thompson, 1978).

This may have been the case for Mexico in the country's quest for a self-sufficient economy.

2.4 Effects of ISI on Mexican Agricultural Development

"Since World War II, the (Mexican) economy essentially followed an industrial-urban development model and economic forces tended to move against the agricultural sector,"
writes Villa-Issa (Villa-Issa, 1990, p. 748). According to Contreras, Mexico's policy of import substitution industrialization, begun in the 1940s, was primarily a reaction to the lack of foreign manufacturing sources coupled with increased US demand for Mexican products during the war. Domestic manufacturing was encouraged by prohibiting or limiting imported goods for which domestic substitutes were available through the use of high tariffs, exchange rate manipulation and a variety of nontariff measures (USITC, 1991, Contreras, 1987).  

The economic effect of import substitution industrialization is that resources from other sectors are transferred to the industrial sector. Correspondingly, Mexico's agricultural development has primarily focused on internal demand, particularly in meeting the needs of a growing urban workforce. Land under cultivation expanded and the Mexican government subsidized inputs, provided credit and invested in massive irrigation schemes in order to insure that agriculture could generate resources for its own development as well as that of urban industries (Villa-Issa, 2

2 Although direct foreign investment was generally discouraged, Mexico made an exception to this rule with the establishment and growth of transnational maquiladora industries. The lax enforcement of standard and low wage rate (possibly combined with the high degree of literacy among the Mexican population) made Mexico an increasingly attractive place for foreign companies to set up business. A more in-depth discussion of foreign investment will take place in chapter 3.
1990).

Until the early 1980s, Mexico's agricultural policy has sought to achieve self-sufficiency particularly in the production of its staple food crops, consisting of beans, rice, corn and wheat and the urban workforce was subsidized through low government-regulated prices for these staples.

Moreover, although production increases were in part due to making credit and inputs available to small-scale producers, in general agricultural production policies were heavily biased against small farmer and rainfed agriculture. Rather, price supports, input subsidies, credit, and infrastructural development such as large-scale government-sponsored irrigation often favored large commercial farms as a means to generate the agricultural production necessary to foster import-substitution industrialization.

**Mexican Agricultural Policies: 1940s-1960s**

With an average annual growth rate of 8.2 percent, agriculture outpaced the overall growth of the Mexican economy between the 1940s-1960s and agricultural exports contributed half of Mexico's foreign exchange earnings (Ballenger, 1984; Spalding, 1985). Escalating production was achieved through increased use of fertilizer and tractors, expansion of cropland and significant increases of land under irrigation, primarily in northern Mexico. (Adelman and Taylor, 1990).
Although Barkin (1987) notes that Mexico achieved its goal of food self-sufficiency by the early 1960s, a conflicting economic policy succeeded in undermining the fundamental producers of subsistence crops—small farmers. According to Pare (1990) average annual growth rates were achieved through vast amounts of state support to the "agricultural bourgeoisie," and while the 1960s marked a period when significant amounts of land were redistributed, a large proportion of the land (over 90 percent) given to small farmers was non-arable (Bartra and Otera, 1987). Moreover, although based on self-sufficiency, agricultural production was not limited to producing basic grains; changing consumption patterns among middle and upper class urban consumers, along with the advent of the green revolution, concentrated resources on producing wheat, and sorghum and soybeans for livestock feed.

Partially as a result of their geographical location, farmers in northern regions were in a better position than their rainfed counterparts to substitute away from producing traditional staples such as maize and towards producing more lucrative crops such as sorghum and oilseeds (Barkin, 1987). (It should be noted, that many farmers in the central Mexican highlands live in topographical regions unsuited to installing irrigation systems.) Yet these farmers also profited from specific government policies. Larger, commercial farms and agro industries were the primary
beneficiaries for government supported irrigation projects, and research and technological advances (Adelman and Taylor, 1990; Barkin, 1987; Sanderson, 1981). This translated into government programs favoring some crops over others; for example, while the Green Revolution of the 1950s-'60s brought with it tremendous increases in wheat production, "no important advances were made in the technology of rainfed maize because the influential foreign agronomic community committed its resources to the development of hybrid seeds for irrigated conditions with heavy inputs of agrochemicals." (Barkin, 1987, p. 279).

Table 2.1 indicates the massive government investment in irrigated areas, accounting for 80 to 90 percent of total public sector spending on the agricultural sector between 1940-1980.

CONASUPO (Compania Nacional de Subsistencias Populares) also played a major role in accentuating the differences between the richer and poorer areas. As Mexico's second largest parastatal, CONASUPO controls price floors on agricultural goods, and provides granaries, warehouse facilities and rental outlets with government-controlled prices for basic consumer items (Sanderson, 1981). Yet, CONASUPO warehouses were largely located in more privileged producing and consuming regions. CONASUPO ceilings on producer prices for basic grains as a means of subsidizing the urban workforce succeeded in impoverishing rural
### Table 2.1

Percentage of Public Investment Devoted to Irrigation 1940-1980

<table>
<thead>
<tr>
<th>Years</th>
<th>Total Public Investment (Millions of Pesos)</th>
<th>% of Total Allotted to Ag. &amp; Cattle = B</th>
<th>% of B Allocated to Irrigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1940</td>
<td>290</td>
<td>15.5</td>
<td>80</td>
</tr>
<tr>
<td>1945</td>
<td>848</td>
<td>17.2</td>
<td>95</td>
</tr>
<tr>
<td>1950</td>
<td>2,672</td>
<td>19.3</td>
<td>72.1</td>
</tr>
<tr>
<td>1955</td>
<td>4,408</td>
<td>13.7</td>
<td>99.2</td>
</tr>
<tr>
<td>1960</td>
<td>8,376</td>
<td>8.0</td>
<td>85.5</td>
</tr>
<tr>
<td>1965</td>
<td>13,049</td>
<td>8.6</td>
<td>98.4</td>
</tr>
<tr>
<td>1970</td>
<td>30,250</td>
<td>13.4</td>
<td>92.5</td>
</tr>
<tr>
<td>1975</td>
<td>95,767</td>
<td>18.1</td>
<td>76</td>
</tr>
<tr>
<td>1980</td>
<td>424,108</td>
<td>16.6</td>
<td>59.2</td>
</tr>
</tbody>
</table>

Source: Adapted from Sanderson, P. 47, 1986.
producers. Between 1960-70, government guaranteed prices for corn and beans dropped (in real terms) 16.8 and 17.4 percent respectively (Adelman and Taylor, 1990). Rural producers, unable to meet their own subsistence needs, were forced to buy grain from provincial merchants—at prices substantially higher than the official levels. These policies, according to Barkin, also continued in the 1980s. (Barkin, 1987, p. 283).

Consequently, the expansionist path adopted by Mexico between 1940-70 "left many Mexicans marginal to the processes of accumulation and of integration into the modern sectors of the economy, and the well-worn promise of 'trickle-down' economics rang hollow to the impoverished campesino" (Sanderson, 1981, p. xii).

2.5 Mexican Agricultural Policies of the 1970s

During the 1970s, the shift from traditional to export crops was particularly marked during the Echeverria presidency (1970-76), as was the increasing role of CONASUPO as regulator of agricultural production. While the Echeverria regime sought a degree of ejido-oriented land reform by taking land away from those not using it and giving

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3 While small farmers and rural laborers are often consumers as well as producers in Mexico, food price subsidies were most effective in urban areas. By contrast, consumer food subsidies "have seldom benefited landless rural laborers and poor peasants who are usually not reached by the subsidized marketing system." (Buzaglo, 1982, p. 17)
it to landless peasants (Sanderson, 1981), and increased its share of spending devoted to agriculture, credit targeted ejidos and private operations that were producing cash and export crops. As a result, although the annual growth rate of Mexican agriculture averaged 3.2 percent between 1965-80, and public sector investment in agriculture grew from 10.6 percent during 1965-69 to 17.4 percent between 1975-80, Mexico's overall food self-sufficiency declined from 105 percent in 1970 to 89 percent by 1989 (World Bank, 1992; Sanderson, 1986, p. 39; Hall and Livas-Hernandez, 1990 Table G3, pp. 8-9).

Simultaneously, the overvaluation of the peso which allowed Mexican industries to import needed inputs at cheap prices, also contributed to undermining agricultural production, as is shown in Table 2.2. Until 1978, the overvalued peso created implicit subsidies for imported inputs while simultaneously discriminating against producers in the form of an export tax. Subsidies favored wheat (the staple of urban consumers) over maize, mechanized over non-mechanized agriculture and irrigated over non-irrigated production. Although US producer prices during this time period were generally lower than those in Mexico, this was offset by the negative effects created by peso overvaluation (Hall and Livas-Hernandez, 1990, Table P6, p. 139). It is clear from Table 2.2 that maize producers using few inputs and no machinery--characteristic of small farmer production
### Table 2.2

Impact of the Overvaluation of the Peso on the Mexican Wheat and Maize Markets  
(Pesos per ton of product)

<table>
<thead>
<tr>
<th>Year</th>
<th>Wheat Implicit Subsidy in Tradeable inputs</th>
<th>Wheat Implicit Tax</th>
<th>Wheat Rainfed Area Input Subsidy With Machinery</th>
<th>Wheat Rainfed Area Input Subsidy No Machinery</th>
<th>Wheat Irrigated Area Input Subsidy</th>
<th>Wheat Implicit Tax</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>37</td>
<td>276.6</td>
<td>36.52</td>
<td>22.84</td>
<td>35.33</td>
<td>238.18</td>
</tr>
<tr>
<td>1971</td>
<td>37.5</td>
<td>213.9</td>
<td>44.09</td>
<td>23.3</td>
<td>38.44</td>
<td>360.5</td>
</tr>
<tr>
<td>1972</td>
<td>41</td>
<td>215.7</td>
<td>43.26</td>
<td>28.65</td>
<td>38.53</td>
<td>243.75</td>
</tr>
<tr>
<td>1973</td>
<td>60.3</td>
<td>360.5</td>
<td>66.56</td>
<td>47.25</td>
<td>60.61</td>
<td>360.88</td>
</tr>
<tr>
<td>1974</td>
<td>166</td>
<td>738.5</td>
<td>203.77</td>
<td>162.54</td>
<td>172.53</td>
<td>589.72</td>
</tr>
<tr>
<td>1975</td>
<td>129.4</td>
<td>789.5</td>
<td>151.94</td>
<td>118.46</td>
<td>135.94</td>
<td>608</td>
</tr>
<tr>
<td>1976</td>
<td>85.5</td>
<td>610.7</td>
<td>97.63</td>
<td>60.19</td>
<td>92.07</td>
<td>436.5</td>
</tr>
<tr>
<td>1977</td>
<td>74.4</td>
<td>319.53</td>
<td>94.37</td>
<td>35.22</td>
<td>68.45</td>
<td>343.52</td>
</tr>
<tr>
<td>1978</td>
<td>129.02</td>
<td>669.1</td>
<td>145.87</td>
<td>77.88</td>
<td>138.85</td>
<td>606.34</td>
</tr>
<tr>
<td>1979</td>
<td>204.02</td>
<td>1,089.8</td>
<td>227.21</td>
<td>145.92</td>
<td>214.44</td>
<td>912.21</td>
</tr>
<tr>
<td>1980</td>
<td>372.3</td>
<td>1,729.8</td>
<td>379.65</td>
<td>277.41</td>
<td>402.54</td>
<td>1,529.96</td>
</tr>
<tr>
<td>1981</td>
<td>500.7</td>
<td>2,438.2</td>
<td>493.02</td>
<td>368.49</td>
<td>572.47</td>
<td>1,804.57</td>
</tr>
</tbody>
</table>

Source: Schuh, 1987, Table 4, p. 156.
in Mexico--were the most adversely affected by peso overvaluation in the 1970s.

Moreover, with a 13 percent average annual inflation rate between 1965-80, real prices for agricultural output gradually fell below world price levels for wheat, corn and beans after the beginning of the 1970s, transforming price guarantees to price ceilings for most agricultural producers (World Bank, 1990; Banamex, 4/92). Between 1972-82, real prices of beans decreased by 23.4 percent and those for corn decreased by 16.1 percent. While producers initially reacted by increasing production of staples in order to maintain profit, output gradually stagnated during the 19. In addition, inflation discouraged private investment in the agricultural sector and further reduced Mexico's capacity either to achieve self-sufficiency in agricultural production or its ability to use agriculture as the means of subsidizing development in other sectors (Bollinger, 1984; Raima, 1985; Calva, 1991).

Producers who were able to diversify (primarily larger irrigated farms), increasingly turned to export crops such as vegetables and oleaginous crops which, while still constituting a small (but increasing) amount of total acreage of agricultural production (again, primarily located in larger commercial farms in the north), made major contributions to foreign exchange earnings. In addition, farmers devoted an increasing share of land to fodder crops
such as barley, oats and sorghum, with the latter becoming the country's foremost cash crop during the 1970s. These crops directly challenged maize for production acreage, particularly during the mid-1970s, as can be seen in Table 2.3. This was particularly true of sorghum, which became the country's foremost cash crop during the 1970s and, according to Sanderson, "not only challenges maize and bean acreage, but threatens the viability of small scale agriculture in peasant Mexico." (Sanderson 1986, p. 228; Barkin, 1987, p. 281)

The failure of food production to keep pace with population growth, per capita income increases (in a country where food remains fairly income elastic) and adverse weather conditions forced the Mexican government to abandon its self-sufficient stance in food production (Spalding, 1985). Table 2.4 shows that Mexico was forced to import all of its basic grains during the 1970s. With the exception of rice, all four commodities had a positive net trade balance since 1965, indicating that exports exceeded imports during this period.

Many of these imports could have been avoided, according to Schuh: "Had Mexico not discriminated so severely against its own agriculture, its economic history...might have been very different. Its imports of wheat and corn very likely would have been significantly less, its exports significantly greater. In a very real sense, distortions kept Mexico from realizing whatever comparative advantage it might have had
Table 2.3

Relative Importance of Principal Crops as Percentage of Total Cultivated Area And Value 1970-79

<table>
<thead>
<tr>
<th>Crop</th>
<th>Cultivated Area</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>50.3</td>
<td>43.2</td>
</tr>
<tr>
<td>Beans</td>
<td>11.8</td>
<td>11.3</td>
</tr>
<tr>
<td>Fodder crops</td>
<td>8.4</td>
<td>11.6</td>
</tr>
</tbody>
</table>

Source: Adapted from Lira & Commander, 1989, Table 1, p. 774.

Table 2.4

Mexico's Net Volume of Grain Trade, 1970-79 (Thousands of Tons)

<table>
<thead>
<tr>
<th>Year</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>-732</td>
</tr>
<tr>
<td>1971</td>
<td>56</td>
</tr>
<tr>
<td>1972</td>
<td>238</td>
</tr>
<tr>
<td>1973</td>
<td>-1,136</td>
</tr>
<tr>
<td>1974</td>
<td>-1,318</td>
</tr>
<tr>
<td>1975</td>
<td>-2,625</td>
</tr>
<tr>
<td>1976</td>
<td>-955</td>
</tr>
<tr>
<td>1977</td>
<td>-1,727</td>
</tr>
<tr>
<td>1978</td>
<td>-1,465</td>
</tr>
<tr>
<td>1979</td>
<td>-827</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>14</td>
</tr>
<tr>
<td>1971</td>
<td>-127</td>
</tr>
<tr>
<td>1972</td>
<td>-656</td>
</tr>
<tr>
<td>1973</td>
<td>-745</td>
</tr>
<tr>
<td>1974</td>
<td>-1,073</td>
</tr>
<tr>
<td>1975</td>
<td>-54</td>
</tr>
<tr>
<td>1976</td>
<td>0</td>
</tr>
<tr>
<td>1977</td>
<td>-493</td>
</tr>
<tr>
<td>1978</td>
<td>-508</td>
</tr>
<tr>
<td>1979</td>
<td>-1,423</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>-16</td>
</tr>
<tr>
<td>1971</td>
<td>0</td>
</tr>
<tr>
<td>1972</td>
<td>0</td>
</tr>
<tr>
<td>1973</td>
<td>-35</td>
</tr>
<tr>
<td>1974</td>
<td>-71</td>
</tr>
<tr>
<td>1975</td>
<td>0</td>
</tr>
<tr>
<td>1976</td>
<td>0</td>
</tr>
<tr>
<td>1977</td>
<td>3</td>
</tr>
<tr>
<td>1978</td>
<td>54</td>
</tr>
<tr>
<td>1979</td>
<td>-20</td>
</tr>
</tbody>
</table>

Source: Austin and Hoadley, 1987, Table 2, p. 168
36

from agriculture." (Schuh, 1987, p. 156)

Consequently, during the 1970s the Mexican government became increasingly reliant on imports to make up the difference between supply and demand of basic staples; by 1980 imports accounted for 31 percent of domestic consumption of wheat, 30 percent for maize and 25 percent for beans (Raima, 1985; Bartra and Otera, 1987; Adelman and Taylor, 1990). Other deterrents to agricultural production during the Echeverría period--bottlenecks in official credit, corruption in the distribution of new seeds and fertilizers and lack of water for new land entering cultivation--didn't help matters (Sanderson, 1981).

To a certain extent, Mexico could afford to adopt its new position as net food importer. With the discovery and production of petroleum, and particularly with a steep increase in oil prices during the 1970s, oil revenues rose to take the place of agriculture as Mexico's top foreign exchange earner. Yet, oil revenue not only bolstered the Mexican economy and gave the government access to foreign credit, it also spurred a period of massive government spending during the 1970s and early 1980s, forcing the adoption of austerity measures during the 80s: "Like many countries flush with new oil wealth, Mexico used the money it borrowed to support an overvalued currency, maintain higher levels of consumption than it could afford, purchase foreign assets, and subsidize inefficient state enterprises. Oil
wealth emboldened statist bureaucrats to extend the reach of
government and adopt a more independent (hostile) posture
toward foreign investment, intellectual property rights and
trade." (Morici, 1991, p. 18)

For a brief period, this new source of revenue also
increased government spending in agriculture and (along with
a new administration) helped realize the establishment of SAM
(Sistema Alimentaria Mexicana).

2.6 The Mirage of Agricultural Reform: 1978–1982

Agricultural reform in the latter part of the 1970s–
early '80s was marked by the expansion and redistribution of
large tracts of land. However, Cardenas notes that 90
percent of the redistributed land comprised amounts too small
to make a real difference to the incomes of poor farmers. In
addition, by continuing to target investment to improving
irrigation and communication in northern regions,
"agricultural reform" succeeded in exacerbating, rather than
alleviating income imbalances in the rural sector, as
Cardenas notes when describing the results of agricultural
policies during the 1970s: "Agricultural development policy
deliberately enriched a small number of farmers, who
developed capital intensive agriculture by taking advantage
of important technological advances, irrigation, credit and
programs of guaranteed prices." (Cardenas, 1987, p. 119)

In 1980, primarily as a result of growing reliance on
food imports and the poor harvest of 1979, the Mexican government under Lopez de Portillo implemented a comprehensive food policy known as the Sistema Alimentario Mexicano—or SAM. SAM's goal was to regain Mexican food self sufficiency and its stated target was the small farmer cultivating in rainfed areas, who represented—at least in the eyes of SAM—Mexico's solution to the food crisis (Taylor, 1990; Ballenger, 1984). The assumption behind this policy was that increased production in rainfed areas would raise overall output allowing for the improvement of both quantity and quality of food available for consumption, thus increasing caloric and nutritional levels.

SAM attempted to achieve these goals through a variety of measures including providing subsidized inputs, expanding agricultural credit and crop insurance and increasing government guaranteed producer prices (Barchfield, 1984). In 1981, subsidized primarily by oil revenue, agricultural credit increased by 40 percent, crop insurance by 42 percent, seeds sold at below market price by 75 percent, discount fertilizer by 30 percent (Barkin, 1987 p. 286).

According to both Spalding and Adelman and Taylor, evidence indicates that SAM seemed to be achieving its stated degree of increasing agricultural production in poorer as well as richer areas of Mexico. Guaranteed prices under SAM primarily favored Mexican staples of corn, beans and wheat, which increased by 15, 20, and 10 percent respectively during
the first year of the program's implementation; by contrast, the rise in prices for safflower and sorghum—the crops favored by commercial producers in the 1970s—was less remarkable. However, while the price increases to staples seemed designed to benefit peasant producers, Barkin states that in general, many of the benefits from SAM went to large and medium sized farmers with the minority of credit and subsidies reaching dryland farmers (Barkin, 1987, p. 286).

With the fall in oil prices and the ensuing austerity measures imposed by the de la Madrid administration in 1983, SAM was cancelled. Yet Spalding states that the demise of SAM was not only due to Mexico's economic crisis, but also to the lack of political and economic support for its programs. This included both local level as well as bureaucratic resistance to the technological innovations the program offered. Nevertheless, says Barkin, despite its failings, "the SAM attempted to create some sort of balance between private interests and collective needs, increasing effective demand by providing marginal groups with their minimal nutritional needs and stimulating production to supply this demand." (Barkin, 1987, p. 290)

SAM was replaced with PRONAL (Programa Nacional de Alimentacion) a program intent stimulating dryland production. However, according to Barkin, PRONAL lacked the financial backing and the will to translate policies into deeds. Furthermore, PRONAL's main focus was to assure
adequate supplies of food to low-income segments of the population, which fundamentally differed from SAM's production-oriented approach.

Along with the demise of SAM, came the dismantling of import substitution industrialization, the source, according to Contreras of Mexico's economic problems during the 1970s; "the economic crisis of the 1970s was a structural one that reflected not only the exhaustion of the import-substitution model, but also the absence of an alternative strategy to perform the functions of economic vitalization that the former model no longer accomplished." (Contreras, 1987, p. 120)

The 1980s would see a new strategy to revitalize the economy, as Mexico began taking its first steps to economic and trade liberalization. These events will be described in chapter 3.

2.7 Conclusion

Chapter 2 describes Mexico's efforts to achieve economic development via import substitution industrialization. This is not a new or unique path for a developing country to follow, yet seldom has it yielded the kind of agricultural and industrial maturation intended; the process is inevitably costly and the results are often contradictory.

Because economic development in Mexico was focused on
the cities rather than the countryside, development policies eventually resulted in perpetuating income inequality within the rural sector and the gradual stagnation and decline in agricultural production. Both these events reached a peak during the 1970s.

In addition to low producers prices benefitting urban consumers, Mexico's policy of overvaluing its exchange rate during the 1970s in order to obtain needed inputs for industrialization at cheap prices also significantly undermined agricultural growth. Consequently—and ironically—rather than protecting Mexico from the volatility of world markets, import substitution industrialization, by undermining the agricultural sector, forced Mexico to import basic foodstuffs that it once was a net exporter. This is important to note, because these events set Mexico in a much weaker position to profit from the economic reforms of the 1980s—notably price and trade liberalization:

Declining producers prices also offset a number of unforeseen consequences, including large scale rural outmigration to urban areas and the US and increased malnutrition. These problems, a consequence of economic policies during both the 1970s and 1980s, as well as the measures and impact of economic liberalization during the 1980s will be discussed in chapter 3.
CHAPTER 3

MEXICAN AGRICULTURAL AND ECONOMIC POLICIES

(1982-1988)

3.1 Introduction

Mexican agricultural policy during the 1980s was marked by extremes: From adopting a highly interventionist policy during the early 1980s under SAM, the collapse of oil prices in 1982--Mexico's main source of foreign exchange revenue--and ensuing austerity measures forced the country's decision to embark on a path of economic liberalization. With this came the gradual disengagement of government intervention in both agricultural and industrial development.

Chapter 3 will discuss the austerity policies of the 1980s and their effects on Mexican agriculture. In conclusion, the chapter will dwell on the changes in migration and consumption patterns in Mexico: two specific results of policies during both the 1970s and 1980s. These problems are taken up again in chapter 6, which looks at the implications of a potential free trade agreement for the bean subsector in Mexico.
3.2 Changes in the Agricultural Sector During the 1980s

By the early 1980s, the Mexican government was heavily into debt that it could no longer service. Some of this was a legacy from the 1970s when, flush with oil revenues and newly acquired foreign loans, the government heavily subsidized agricultural inputs and consumer prices. When oil, which had become Mexico's main source of export revenue during the 1970s, suffered a steep price decline in 1982, the government was forced to adopt stiff austerity measures, marked in the agricultural sector with the abandonment of SAM and reduced government spending (in real terms), by over 55 percent between 1980-88 (USITC, April, 1992, February, 1991; Banamex 11/89).

Austerity measures were accompanied by agricultural reform, as the Mexican government sought to reduce imports and pay off foreign debts by increasing agricultural exports and production of basic grains. The agricultural sector became the leading replacement for lost oil revenues, and agricultural exports benefitted from Mexico's 1981 decision to adopt a floating exchange rate, and later to undervalue the peso. Reacting to the increased imports of staples during the 1970s (which peaked in 1982 as a result of a severe drought), Mexican agricultural policy during the 1980's aimed to increase production of basic commodities, particularly wheat in non-irrigated areas of northern Mexico,
by investing in irrigated perimeters and higher yielding seed.

Yet the major beneficiaries of government incentives were large commercial growers in northwestern Mexico. For example, the state of Sinaloa was earmarked to receive approximately 47 percent of public sector investment projects, primarily dedicated to improving irrigation and water supply (Banamex 11/89). In addition, many of these growers were increasingly producing crops such as tomatoes, melons and strawberries for export to the US rather than for home consumption (Resource Center Bulletin, Spring, 1991; Twomey & Helwege, 1991).

On the other hand, overall economic reform took the shape of price and trade liberalization, and a reduction of government intervention as a means to make domestic production more competitive both at home and overseas. Beginning with the de la Madrid administration in 1982, the government gradually reduced the number of import tariffs (replacing them with import permits), slashed tariff protection and allowed the peso to float. This was accelerated in 1986, under a program of "economic realism" under the IMF. In exchange for tariff reduction and the devaluation of the peso, part of Mexico's foreign debt was forgiven or financed at lower interest rates as part of an overall "debt for equity" program (Angel and Rossin, 1991). Mexican tariffs dropped from 100 percent in 1982 to a maximum
amount of 20 percent by 1987 for a few key commodities (Banamex, 2/91 and 1/92). In part, the reduction in tariffs was spurred by Mexico's decision to join GATT in 1986. Yet Mexico far surpassed the required 50 percent reduction the organization stipulated for its new members.

The reduced public sector role in agriculture during the 1980s has been felt on both the production and consumption side. The role of CONASUPO in purchasing domestic crops and imports shrank noticeably. So did state bank loans directed to agriculture, dropping by as much as 55 percent (Resource Center Bulletin, 1991; Villa Issa, 1990; Shane and Stallings, 1991). However, fixed prices for basic grains continued to exist. Combined with dramatic increases in input prices, this shifted basic grain production from irrigated to rainfed areas, which while less productive, demanded fewer investments. From 1966-1985, basic grain production in irrigated areas dropped from 52 to 43 percent, while production of more lucrative crops such as fruits and vegetables rose from 9.2 to 25.8 percent during the same time period (Banamex 11/89) These combined events created a situation where the agricultural sector, experiencing a zero growth rate, was unable to meet the basic food needs of a Mexico's expanding population (Calva, 1991).

Table 3.1 shows the real drop in guaranteed prices for selected commodities between 1981-89; barley, produced in Mexico for animal feed, is the only exception to this overall
### Table 3.1

Decline in Guaranteed Prices for Selected Commodities

1981-1989

(1978 Pesos)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Dec. 1981</th>
<th>August 1989</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn</td>
<td>3,428</td>
<td>2,055</td>
<td>-40.1</td>
</tr>
<tr>
<td>Beans</td>
<td>8,272</td>
<td>4,363</td>
<td>-47.9</td>
</tr>
<tr>
<td>Rice</td>
<td>3,401</td>
<td>2,102</td>
<td>-38.2</td>
</tr>
<tr>
<td>Safflower</td>
<td>4,082</td>
<td>2,777</td>
<td>-32.0</td>
</tr>
<tr>
<td>Soybeans</td>
<td>5,651</td>
<td>2,266</td>
<td>-60.0</td>
</tr>
<tr>
<td>Sesame</td>
<td>8,124</td>
<td>3,888</td>
<td>-52.1</td>
</tr>
<tr>
<td>Wheat</td>
<td>3,297</td>
<td>2,194</td>
<td>-33.4</td>
</tr>
<tr>
<td>Sorghum</td>
<td>2,057</td>
<td>1,358</td>
<td>-34.0</td>
</tr>
<tr>
<td>Barley</td>
<td>1,727</td>
<td>2,444</td>
<td>41.5</td>
</tr>
</tbody>
</table>

Source: Adapted from Banamex, 11/89, Table 2, p. 475
Lack of positive state intervention in agricultural production during the 1980s has been disputed in a 1989 ERS study by Mielke, who argues that government subsidies outweighed negative pricing policies. Calculating PSE's (producer subsidy equivalents), based on the value of producer price, fertilizer and credit subsidies, Mielke concludes that between 1982-87 producers faced positive subsidy equivalents for six of Mexico's seven major crops (the exception being beans), including staples such as wheat and corn. Mielke notes that this policy was coupled with a trade policy which tried to limit imports of corn, sorghum and soybeans via import quotas (Mielke, 1989).

Mielke concludes that recent government policies are largely based on equity, and thus lack the economic effectiveness of more growth-oriented policies: "National economic policies may take priority and may obscure specific agricultural programs. For example, government efforts to subsidize low-income producers for purposes of equity, promote the production of all crops, whether desired or not." (Mielke, 1989, p. 8) This conclusion is supported by the US

---

1 In the context of this discussion, examples of "positive state intervention" can be seen through government subsidies for agricultural inputs, favorable credit terms and high pre-season producer prices. These sorts of interventions may be analyzed in light of the fact that the vagaries of weather distinguish agriculture from other sectors in the economy, making "positive state interventions" important in keeping agricultural output fairly constant.
Embassy in Mexico, which notes that (as of 1985) government policies have favored rainfed over irrigated agriculture in order to reduce socio-economic differences as well as to take advantage of the potential for increased productivity in these areas (Office of the Counselor for Agricultural Affairs, 1985).

The results of these Mielke's study are presented in Table 3.2. The negative price supports present intermittently during the 1980s for most of the commodities are outweighed by fertilizer, credit subsidies and an adjustment of a now undervalued exchange rate. Mielke's table indicates that producer prices are greatest for corn. However beans, another crop of peasant producers, face negative PSE's, which Mielke presents as an unexplainable aberration in Mexico's overall policy favoring small-scale producers. It is also interesting to note that the highest credit subsidies are for sesame seed—an export crop. The fact that, as mentioned earlier, credit and fertilizer subsidies often targeted larger producers again brings into question Mielke's premise that these PSEs favored low-income

What Mielke has not indicated is that beginning in 1982, guarantee prices were given by cropping seasons, with spring/summer harvest prices being significantly higher than fall/winter harvests. Crops included in this two-price system included beans, corn, rice, wheat, sesame, safflower, soybeans, cottonseed and sorghum (Hall & Livas-Hernandez, Table P3, p. 136, 1990). Chapter 4 presents a fuller discussion of the effects of these pricing policies in the context of bean production.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fertilizer Subsidy</td>
<td>5.98</td>
<td>8.43</td>
<td>4.91</td>
<td>5.00</td>
<td>7.81</td>
<td>10.07</td>
<td>7.03</td>
</tr>
<tr>
<td>Credit Subsidy</td>
<td>5.95</td>
<td>10.21</td>
<td>6.12</td>
<td>6.98</td>
<td>3.95</td>
<td>4.13</td>
<td>6.22</td>
</tr>
<tr>
<td>Exchange Rate Adj.</td>
<td>26.19</td>
<td>29.55</td>
<td>5.21</td>
<td>5.49</td>
<td>30.36</td>
<td>31.65</td>
<td>21.41</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price Support</td>
<td>31.77</td>
<td>11.72</td>
<td>31.08</td>
<td>44.29</td>
<td>37.85</td>
<td>57.58</td>
<td>35.71</td>
</tr>
<tr>
<td>Fertilizer Subsidy</td>
<td>2.11</td>
<td>1.96</td>
<td>1.26</td>
<td>1.27</td>
<td>2.17</td>
<td>1.95</td>
<td>1.79</td>
</tr>
<tr>
<td>Credit Subsidy</td>
<td>24.42</td>
<td>9.65</td>
<td>7.17</td>
<td>8.26</td>
<td>5.50</td>
<td>4.73</td>
<td>9.95</td>
</tr>
<tr>
<td>Exchange Rate Adj.</td>
<td>13.05</td>
<td>18.00</td>
<td>3.41</td>
<td>3.27</td>
<td>16.14</td>
<td>10.98</td>
<td>10.81</td>
</tr>
<tr>
<td>Sorghum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price Support</td>
<td>1.62</td>
<td>-34.61</td>
<td>23.26</td>
<td>28.04</td>
<td>45.44</td>
<td>32.19</td>
<td>15.99</td>
</tr>
<tr>
<td>Fertilizer Subsidy</td>
<td>3.38</td>
<td>5.22</td>
<td>2.83</td>
<td>2.58</td>
<td>3.31</td>
<td>3.63</td>
<td>3.49</td>
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<tr>
<td>Credit Subsidy</td>
<td>9.76</td>
<td>15.23</td>
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<td>9.46</td>
<td>4.85</td>
<td>4.63</td>
<td>8.89</td>
</tr>
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<td>Exchange Rate Adj.</td>
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<td>28.67</td>
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<td>4.63</td>
<td>17.18</td>
<td>18.48</td>
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<tr>
<td>Dry Beans</td>
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<td></td>
</tr>
<tr>
<td>Price Support</td>
<td>-83.08</td>
<td>-106.82</td>
<td>-92.23</td>
<td>17.79</td>
<td>-26.80</td>
<td>-60.75</td>
<td>-58.65</td>
</tr>
<tr>
<td>Fertilizer Subsidy</td>
<td>3.51</td>
<td>3.03</td>
<td>2.05</td>
<td>.91</td>
<td>1.63</td>
<td>2.95</td>
<td>2.35</td>
</tr>
<tr>
<td>Credit Subsidy</td>
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<td>22.56</td>
<td>18.96</td>
<td>12.04</td>
<td>6.52</td>
<td>8.92</td>
<td>19.22</td>
</tr>
<tr>
<td>Exchange Rate Adj.</td>
<td>30.60</td>
<td>38.15</td>
<td>8.10</td>
<td>4.29</td>
<td>28.89</td>
<td>33.29</td>
<td>23.92</td>
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<tr>
<td>Sesameseed</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fertilizer Subsidy</td>
<td>5.88</td>
<td>3.44</td>
<td>3.12</td>
<td>3.12</td>
<td>7.99</td>
<td>3.59</td>
<td>4.64</td>
</tr>
<tr>
<td>Credit Subsidy</td>
<td>19.04</td>
<td>15.82</td>
<td>16.50</td>
<td>16.50</td>
<td>9.15</td>
<td>9.51</td>
<td>14.52</td>
</tr>
<tr>
<td>Exchange Rate Adj.</td>
<td>22.23</td>
<td>28.66</td>
<td>4.82</td>
<td>4.82</td>
<td>26.00</td>
<td>24.46</td>
<td>18.61</td>
</tr>
</tbody>
</table>

Source: Adapted from Mielke, 1989, Table 3.2, p. 10
farmers (Mielke, 1989, p. 5).

Finally, if PSEs did indeed favor small scale farmers, one might question why corn production fell during the 1980s while sorghum and rice production exhibited only slight increases? All are staple crops of peasant farmers. (The negative PSEs for beans, however unusual, present a far clearer picture of the overall decline in bean production.)

In addition, agriculture's share of the GDP in 1988 was only 9 percent, a 64 percent decrease from 1965 where it stood at 14 percent. By contrast, the share of GDP devoted to industry and manufacturing each rose by 30 percent during the same period (World Bank, 1990).

3.3 Impacts of Past and Present Policies

In spite of continued rhetoric to promote food self-sufficiency (or, state Guidea and Aguilar, at least food sovereignty), Mexico has a long way to go to substantially increase subsistence production. Overall there has been a decline in basic grain production from 71 percent in 1955 to 50 percent in 1990. Consumption in basic grains has also declined, particularly in the 1980s (Sourcemex, 9/4/91). In spite of the devaluation of the peso in 1982, agricultural imports have risen sharply during the 1980s, while exports have decreased slightly, due in part to reduced producer

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3 See table 3.3 for production changes in basic commodities during the '80s.
prices and subsidies (Norton, 1987). At the beginning of 1990, imports of basic staples contributed to 40 percent of domestic bean consumption, 25 percent of corn consumption and 30 percent of sugar consumption (Resource Center Bulletin, Spring, 1991). By contrast, exports of fruits and vegetables and livestock production for urban consumption has increased significantly.

Two of the most profound changes resulting from policies of the 1970s-'90s lie in the composition and rate of labor migration and the increased dichotomy of consumption patterns between Mexico's poorer and more affluent classes.

Labor: composition and changing pattern

The changing composition of agricultural production has significantly effected the agricultural labor force. While fruit and vegetable crops and sorghum, which are for export and commercial production, provide more employment than basic grains, they have reduced the number of those self-employed in agriculture, particularly in the commercially developed regions of northern Mexico: Sonora, Sinaloa, Nayarit and Baja California (Ballenger, 1984; Lira and Commander, 1989). Agricultural laborers have also increased through rural to rural migration, a recent phenomenon as small farmers, primarily those from ejidos, supplement their incomes by harvesting crops of larger commercial establishments which currently employ around 1.5 million workers (Lira and
Commander, 1989; LA Times 5/3/91)

Between 1965-80 the proportion of the labor force in agriculture dropped from 50 to 37 percent in part due to low grain prices and state concentration on urban industrialization. (Lira and Commander, 1989; Garcia-Barrios and Garcia-Barrios, 1990) The structural adjustment of the 1980s, by further lowering prices of basic grains and cutting input subsidies (prices for inputs have risen during the 1980s with inflation) and concentrating government assistance to export production, has forced the pace of migration, particularly for small farmers who find they can no longer afford to produce basic grains without government credit, technical assistance and price supports (Resource Center Bulletin, 1991).

On the one hand, this presents good news to those who stay behind and can benefit from increased land ("lent" by those who have left). Yet, labor shortages also reduce productivity for cropping patterns that are highly labor intensive. Productivity may also be reduced by the composition of the agricultural labor force: many of the migrants tend to be young males, thus farm labor is often carried out by older men, married women and children (Cornelius, 1992).

Mexican migrants often find that there is little employment in Mexico's cities; urban labor demand is generally concentrated on employing women (particularly in
the maquilladora industries) or skilled/semi-skilled workers. As a result, note Lira and Commander, "entry into these occupations is rarely an option for rural migrants to the town." (Lira and Commander, 1989, p. 774) Currently, Mexico's cities face growing numbers of urban unemployed or those employed in the informal sector, and the rate of migration to the US is the highest since the 1960s (World Bank, 1990; Wall St. Journal, 11/29/91).

Changes in Consumption Patterns

Mexico's staples--corn and beans--are largely considered inferior goods, consumed primarily by lower income rural Mexicans--bread is replacing corn and beans as a staple for urban consumers (Angel and Rossin, 1991). Government incentives to increase livestock and sorghum production have primarily been geared to satisfy the growing taste of middle and upper middle income groups for meat, an unaffordable luxury for over one-third of the Mexican population (Spalding, 1985; Adelman and Taylor, 1990) This policy, echoed by production patterns of transnational organizations, is conducted in the face of widespread malnutrition in Mexico, primarily residing among rural campesinos and agricultural workers and poorer segments of the urban population. Although 20 percent of total agricultural production in Mexico during the mid-1980s went to animal feed, consumption of meat, poultry, fish or dairy products in
the lowest 2 income deciles was only 10-17 percent; by contrast it composed 37-39 percent of total protein consumption for the upper two income deciles (Norton, 1987, p. 249).

Figure 3.1 indicates the stagnant or decreasing supply of beans, rice and corn—the traditional staples of the poor—during the 1980s. While not indicated on the graph, both production and imports of these commodities were affected.

In the 1980s and early 1990s, austerity measures combined with price liberalization, cut subsidies for basic staples. Together with wage repression, these policies dramatically increased poverty and malnutrition: the percentage of population in absolute poverty (defined as the number of households earning less than minimum wage) increased from 45 percent in 1977 to 51 percent by 1986 (Adelman and Taylor, 1990, p. 398; Calva, 1991; Shane and Stallings, 1991; Raima, 1985). The deepening malnutrition in Mexico between 1983-90 is evident in the following excerpt from a UNICEF report: "The infant population passed from a situation of moderate to severe malnutrition; the problem is worse in rural areas and among the marginal urban population, where infant mortality has reached the level of 'high risk' in terms of malnutrition and infant mortality." (Calva, 1991, p. 113)

(This problem continues to exist with the Salinas administration: in 1991, the purchasing power of the minimum
the lowest 2 income deciles was only 10-17 percent; by contrast it composed 37-39 percent of total protein consumption for the upper two income deciles (Norton, 1987, p. 249).

In the 1980s and early 1990s, austerity measures combined with price liberalization, cut subsidies for basic staples. Together with wage repression, these policies dramatically increased poverty and malnutrition: the percentage of population in absolute poverty (defined as the number of households earning less than minimum wage) increased from 45 percent in 1977 to 51 percent by 1986 (Adelman and Taylor, 1990, p. 398; Calva, 1991; Shane and Stallings, 1991; Raima, 1985). The deepening malnutrition in Mexico between 1983-90 is evident in the following excerpt from a UNICEF report: "The infant population passed from a situation of moderate to severe malnutrition; the problem is worse in rural areas and among the marginal urban population, where infant mortality has reached the level of 'high risk' in terms of malnutrition and infant mortality." (Calva, 1991, p. 113)

(This problem continues to exist with the Salinas administration: in 1991, the purchasing power of the minimum wage dropped 10 percent during the first 8 months while inflation raised the price for basic goods and services [Sourcemex, 11/16/91].) Consumption issues will again be raised in the subsequent chapter on bean production.)
well as those of the 1970s--within the specific context of the bean subsector.
CHAPTER 4
BEAN PRODUCTION IN MEXICO

4.1 Introduction

After briefly outlining salient characteristics of bean production in Mexico, the purpose of chapter 4 is to illustrate the micro-level impact of Mexican economic policies during 1970s-'80s (described in chapters 2 and 3) within the context of the bean subsector. In particular, the chapter will explore how the detrimental effects of producer pricing policies during this period (contrasted with favorable guaranteed consumer prices) thwarted Mexican attempts at achieving self-sufficiency in beans. This and other policies also served to widen the gap between traditional and modern producers.

In addition, the chapter will describe consumption patterns and the contribution of beans in improving the diet of the rural poor in Mexico. In spite of the recent deterioration in per capita bean consumption, production declines nevertheless forced Mexico to import beans during the 1970s and 1980s. Past and future trading patterns will also be addressed in chapter 4. Finally, recent bean production trends and policies under the Salinas administration will be described as a means of introducing
Particularly in recent years, high producer prices for winter beans has also diverted irrigated areas from profitable export production of fresh fruits and vegetables. Horticultural crops may become even more lucrative choice with the possible lifting of U.S. trade restrictions once NAFTA is implemented next year.

It is difficult to determine how the Mexican bean subsector will fare in a future free trade zone with the U.S. and Canada. While in the past, prices for Mexican beans have been lower than in the US, recent increases in the guaranteed producer price for beans have reversed this situation. In addition, the U.S. possesses a far more developed infrastructure (roads and trucks in particular) and fewer resource limitations than Mexico, particularly in terms of land and irrigation. These handicaps may be reduced by current land and agrarian reforms under the Salinas administration--the subject of chapter 5.

Privatization and foreign investment in Mexico--particularly in light of current land reforms--may also help increase the competitiveness of Mexican beans on the domestic market. Possible impacts of free trade and land reform on the bean sector will be discussed in chapter 6.
the future of Mexico's bean subsector in light of trade liberalization and privatization—the subject of chapters 5 and 6.

4.2 General Characteristics of the Bean Subsector

While maize is Mexico's principle staple crop and main source of rural employment, Mexico is second only to Brazil as the world's largest producer of dry beans (Lepiz, 1988). Ranked second in area harvested and fourth in production among field crops in Mexico, between 75-90 percent of Mexico's dry beans are grown under rainfed conditions in the southern and central part of the country (USDA, 1992). These regions—particularly the states of Zacatecas, Chihuahua and Durango, as well as the southern state of Puebla—are the principal producers of the fall bean harvest, the largest of Mexico's two annual harvests. By contrast, 30 percent of the spring harvest is located in the irrigated regions of the north, 70 percent in the state of Sinaloa (USDA/FAS, 1992).

Bean producers are primarily small-scale subsistence or below-subsistence level farmers cultivating plots averaging three to four hectares (Kelly, 1987; Levy and van Wijnbergen, 1992; Ballenger, 1984; Fernandez, 1987). These small-scale farmers often raise other traditional crops such as corn, which is usually intercropped with beans. Bean production is primarily for home consumption rather than for sale; income is often obtained through outside employment or sale of
livestock (also raised) (Lepiz, 1988; Norton, 1987; BNC, 1990). Land size is but one of an array of factors preventing peasant farmers from moving beyond subsistence level production: use of traditional tools rather than adoption of new technology remains the norm; peasant producers are often located in isolated regions, far away from markets and roads; and they receive little in the way of extension and credit services—much less education and health care (Lepiz, 1988).

The above portrayal of typical bean producers in Mexico typifies most peasant farmers in Mexico. Correspondingly, impacts of particular policies directed to the bean subsector might represent, in microcosm, larger impacts felt by much of Mexico's rural population during the 1970s and 1980s.

4.3 Bean Production Trends

If most bean producers are small scale farmers, that is not to say that peasant farmers are the primary producers of beans. Although production data by type of producers was not available, peasant production occupies only 33 percent of total acreage devoted to bean production, and a significant share of beans are produced under rainfed conditions by large mechanized farms in the central highlands (Fernandez, 1987). Furthermore, since the 1960s there has been a notable shift from rainfed bean production in the central and southern areas of Mexico to the predominantly large scale commercial—
and often irrigated--operations in the north. Some of the reasons for the decline in smallholder production include government encouragement of corn production, loss of needed family labor due to migration and a freeze in producers prices during the 1970s (Lepiz, 1988). More recently, high guaranteed producer prices have attracted commercial producers to shift to bean production (FAS, 1991 & 1992).

While native bean varieties are fairly well adapted to Mexico's unpredictable weather conditions, the discrepancy between irrigated and rainfed production is startling: bean yields under irrigation average around 1,390 lbs/ha while non-irrigated areas produce only 240 lbs/ha (Kelly, 1987). Moreover scarce capital and/or low land quality makes it difficult for many rainfed farmers to diversify their production. In the past, this has been coupled with low producer prices and limited opportunities for expanding acreage under production (due to a restricted supply of land). As a result, the sole recourse for most rainfed bean producers is to intensify their labor inputs if they are to increase their productivity (Bartra and Otero, 1987).

In contrast to the physical and economic isolation of small scale producers, commercial producers live near roads, generally enjoy fertile soils or irrigation and have access to credit, high technology inputs and extension services. As a result, commercial farmers in irrigated regions are able to switch to other crops should there be a fall in the producer
price for beans. This potential to diversify may lead to the production of crops which are less labor intensive.\footnote{Of Mexico’s principle crops, beans rank second only to corn in terms of the amount of labor days needed in the production process for both mechanized and non-mechanized agriculture (see Lira and Commander, 1989, Table 6, p. 780).}

Thus, a policy which aggressively favors production of crops for export (notably horticultural crops) and mechanized commercial production, at the cost of reduced bean production, might imply that significant amounts of the rural workforce would be displaced. Because of the low educational levels of rainfed bean producers and the current satiation of the urban employment market, it is uncertain that the displaced rural labor force will find employment elsewhere.

Currently, Lepiz (1988) notes that in spite of land freed up through rural-to-urban migration, and increases in consumer demand for beans, the limited amount of available arable land has pushed small farms beyond the level of economic productivity, given their current technology. Means of increasing productivity in the bean sector as a result of recent land and rural reforms will be issues discussed in chapter 6.

**Impact of Macroeconomic Policy on Bean Production**

Like much of the rest of Mexico’s agricultural sector, bean production experienced significant increases in output and harvested area during the period between 1930-60,
reflecting a wider policy to achieve food self sufficiency. While self-sufficiency in beans was more or less achieved during the decade between the mid-'60s to mid-'70s, until recently, the area devoted to bean production has declined since 1960, sharply contrasting with the rise in cereal production (Ballenger, 1984). Yield increases since 1960 were not able to satisfy the demand of Mexico's growing population which expanded at a rate of 3.1 percent annually between 1965-80 (World Bank, 1992).

However the gap between domestic supply and demand in the past 30 years is also due to government pricing policies, which remained at fairly constant levels for beans, particularly from the 1960s to the early 1970s; when factoring in a 13 percent average annual inflation, this means that the real prices for beans dropped considerably during this period--this was particularly evident when inflation rose to over 70 percent during the 1980s (World Bank, 1992).

Table 4.1 indicates the declining share of acreage and total production of beans compared with other basic grains (wheat, corn and sorghum) between 1970-80; in particular, both wheat and sorghum rose significantly over the 20-year period.

One explanation for the decline in bean production might be attributed to the high input subsidies for the other three grains during the 1980s (described in chapter 3). In
Table 4.1

Bean Production and Total Acreage as Share of Production of Selected Grains in Mexico (In 1,000 MT and 1,000 Ha)

<table>
<thead>
<tr>
<th>Year</th>
<th>Bean Prod.</th>
<th>Acres Hrvstd.</th>
<th>Grain Product.*</th>
<th>Grain Hrvst.*</th>
<th>Bean Prod. Share (%)</th>
<th>Bean Share Hrvst. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>528</td>
<td>1,326</td>
<td>6,997</td>
<td>7,190</td>
<td>7.5</td>
<td>18.4</td>
</tr>
<tr>
<td>1965</td>
<td>860</td>
<td>2,117</td>
<td>11,401</td>
<td>13,517</td>
<td>7.5</td>
<td>15.7</td>
</tr>
<tr>
<td>1970</td>
<td>925</td>
<td>1,747</td>
<td>15,228</td>
<td>11,044</td>
<td>6</td>
<td>15.8</td>
</tr>
<tr>
<td>1975</td>
<td>1,027</td>
<td>1,753</td>
<td>16,400</td>
<td>10,670</td>
<td>6.3</td>
<td>16.4</td>
</tr>
<tr>
<td>1980</td>
<td>935</td>
<td>1,551</td>
<td>20,783</td>
<td>10,584</td>
<td>4.5</td>
<td>14.7</td>
</tr>
<tr>
<td>1985</td>
<td>912</td>
<td>1,782</td>
<td>26,826</td>
<td>12,451</td>
<td>3.4</td>
<td>14.3</td>
</tr>
<tr>
<td>1988</td>
<td>857</td>
<td>1,947</td>
<td>21,083</td>
<td>11,165</td>
<td>4</td>
<td>17.4</td>
</tr>
</tbody>
</table>

*Selected grains include: wheat, beans, corn and sorghum.
addition, favorable government policies encouraging feedgrain production also caused a shift in agricultural production away from beans, particularly in the irrigated northern regions with more flexibility to diversify their production. By 1977, 20 percent of irrigated land was devoted to sorghum production compared with only 4.6 percent for beans and 7 percent for maize (Adelman and Taylor, 1990).

An example of how the implementation of SAM (Sistema Alimentario Mexicana) in 1980 attempted to increase Mexican basic grains production is reflected in SAM's policies vis-a-vis the bean subsector. Under the Lopez Portillo administration (1976-82), SAM provided stable price guarantees and stepped up the amount of bean cultivation under irrigation. Within the larger backdrop of regaining food self-sufficiency by 1985, government guaranteed prices for beans (in real terms) rose by 20 percent in 1980 and by 11.8 percent in 1981 and 1982 respectively (Ballenger, 1984). Correspondingly, between 1980-81, SAM realized significant increases in bean production, both in terms of total area devoted to production and in output (Figure 4.1). Bean production increased by 69 percent between 1979-80 and by 64 percent between 1980-81. However, much of this growth was realized in the irrigated areas of the north, where land is primarily by large, commercial operations. While small farmers benefited from increased prices between 1980-81, they were unable to profit from any of the technology, credit or
Source: FAO Production Yearbook: 1992

Figure 4.1

Bean Production and Area Harvested (1961-1990)

Area Harvested (000 ha)
information that might have allowed them to expand their production, which was generally targeted to the more successful farmers (Spalding, 1985).

Ultimately, SAM proved too expensive, and was discontinued after 1982. Although the area harvested stayed fairly constant for much of the 1980s, domestic bean production fell from a high of 1469 million tons in 1981 to a low of 586 million tons in 1989. Through PRONASE, the food policy instituted by the de la Madrid administration after SAM, the Mexican government has also made subsidies and credit available for farmers to purchase improved bean seeds, fertilizers and other inputs. However, only about half of the bean farmers in Mexico have been able to take advantage of these policies [Kelly, 1987].

Marketing and Price Policy

Marketing dry beans is almost completely controlled by CONASUPO, although informal markets are ubiquitous. Although CONASUPO sells both domestic and imported dry beans to packagers and consumers at subsidized prices, domestic consumer prices are inevitably higher than world prices due to producer price supports and import licensing measures (USDA, 1992). Consumer subsidies are primarily located in urban areas, although USDA (1992) notes that rural consumers benefit through direct bulk sales.

Since 1953, CONASUPO has also offered producer price
supports for dry beans, with higher guaranteed prices (up to 15 percent) for preferred varieties, notably black beans and pintos (USDA, 1992). However, while guaranteed producer prices for beans rose during the 1980s, they were no match for an annual inflation rate that averaged around 74 percent for much of the decade. Thus, in real terms, guaranteed prices for beans dropped by 48 percent between 1981-89, while at the same time production costs rose significantly (World Bank Report, 1992; Banamex 11/89). The highest prices (between 1980-82 under SAM, and again in 1985) failed to match producer prices of the mid-'70s; the 1988 price of 1,422 pesos/MT is 35 percent lower than the 1961 price of 2,188 pesos/MT (Hall and Livas-Hernandez, 1990).

As discussed in chapter 3, low price supports (ie negative real producer price) offered by the Mexican government for beans overrode any input subsidies, thus acting as a tax to bean production, which Mielke (1989) describes as an aberration to an overall Mexican policy that was supportive of small farmers during the 1980s. In addition, a closer examination finds that, as of 1982, Mexico instituted a two-price system for most crops benefiting from government guaranteed prices. In the case of beans, the significantly higher guaranteed prices for spring harvests are a means to induce northern farmers, able to grow beans during the winter months, to compensate for any annual shortfalls in supply.
Table 4.2 reveals the seasonal price discrepancy that begun in 1983; while real prices for fall production fell from 2209 pesos/MT in 1982 to 1,423 pesos/MT in 1989, spring harvest prices actually rose from 2209 pesos/MT to 2283 pesos/MT during the same period. Because (as noted earlier), 30 percent of spring harvest are produced by irrigated farms--indicative of larger, commercial operations--this suggests that pricing policies for beans during the 1980s may have discriminated against peasant producers. More likely, because most bean producers are largely subsistence level, the greatest impact of lower prices for fall harvests would have been largely felt by the larger rainfed producers. However, small scale farmers were also affected by the sharp rise in input prices during the 1980s.

Although beans are primarily produced under rainfed conditions and thus heavily reliant on the weather, poor rainfall is one reason that cannot be attributed to production declines during the 1980s (with the exception of three successive years of adverse weather conditions between 1989-91). According to Calva, this was apparently less evident to the Mexican government:

"The Mexican authorities have never attributed an agricultural recession to erroneous economic policy. Instead, they always blame the heavens; adverse climatic factors cause these crises, especially insufficient rains. Nevertheless, during the decade up to 1988, Mexico has not undergone a deep drought...It is clear that the fall of agricultural production, particularly marked in 1986, cannot be blamed on the heavens, but
Table 4.2

Seasonal Producer Prices for Beans, 1982-1988
(Pesos per Metric Ton)

<table>
<thead>
<tr>
<th>Year</th>
<th>Summer</th>
<th></th>
<th>Fall</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nominal</td>
<td>Real</td>
<td>Nominal</td>
<td>Real</td>
</tr>
<tr>
<td>1982</td>
<td>21,100</td>
<td>2,209</td>
<td>21,100</td>
<td>2209</td>
</tr>
<tr>
<td>1983</td>
<td>33,000</td>
<td>1,666</td>
<td>29,500</td>
<td>1,489</td>
</tr>
<tr>
<td>1984</td>
<td>52,800</td>
<td>1,565</td>
<td>30,000</td>
<td>1,185</td>
</tr>
<tr>
<td>1985</td>
<td>155,000</td>
<td>2,992</td>
<td>85,000</td>
<td>1,641</td>
</tr>
<tr>
<td>1986</td>
<td>217,000</td>
<td>2,236</td>
<td>187,000</td>
<td>1,932</td>
</tr>
<tr>
<td>1987</td>
<td>525,000</td>
<td>2,283</td>
<td>350,000</td>
<td>1,522</td>
</tr>
<tr>
<td>1988</td>
<td>---</td>
<td>---</td>
<td>680,000</td>
<td>1,423</td>
</tr>
</tbody>
</table>

Source: Adapted from Hall & Livas-Hernandez, 1990, Table P3, p. 136
rather responds to the economic-political relations on earth." (Calva, 1991, p. 104)

More recently, however, the bean sector has rebounded somewhat with the arrival of the Salinas administration in 1988. Bean productivity rose by around 41 percent annually between 1988-91—significantly higher than corn—although actual output was about half this amount (Sourcemex, 12/4/91).2 One explanation for this increase resides in government guaranteed producer's prices, which, while having fallen in real terms in the face of high inflation, are nevertheless higher than guaranteed prices for many other crops. (Current figures show that producer prices have remained constant at 2,100 pesos/kg during the 1991-92 growing season, suggesting at least a temporary cessation of the two-season pricing policy [Banamex, June 1992].)

As discussed earlier, high guaranteed prices for both beans and corn in the last two years have spurred production in these two crops. Because northern states are also the main producers of crops for export and commercial production, production increases in beans (due to higher guaranteed producer prices) may also have been achieved at the expense of producing commodities such as cotton, fresh fruits and vegetables—crops that Mexico may retain comparative advantage in foreign trade (Krissoff & Ballenger, 1987; USDA/FAS 1991, 1992).

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2 An exception is the poor bean harvest of 1990 due to bad weather, which resulted in substantial imports of beans (Resource Center Bulletin, Spring, 1991; Sourcemex, 2/20/91).
Table 4.3

Changes in Bean Consumption, 1961-1988

<table>
<thead>
<tr>
<th>Year</th>
<th>Guaranteed Price</th>
<th>Deflated*</th>
<th>Consumption** (kg/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1961</td>
<td>2,530</td>
<td>3,203</td>
<td>16</td>
</tr>
<tr>
<td>1965</td>
<td>2,490</td>
<td>2,862</td>
<td>18.2</td>
</tr>
<tr>
<td>1970</td>
<td>3,530</td>
<td>3,530</td>
<td>16.3</td>
</tr>
<tr>
<td>1975</td>
<td>7,740</td>
<td>4,635</td>
<td>14.5</td>
</tr>
<tr>
<td>1980</td>
<td>16,500</td>
<td>3,354</td>
<td>15.6</td>
</tr>
<tr>
<td>1986</td>
<td>105,580</td>
<td>2,038</td>
<td>15.9</td>
</tr>
<tr>
<td>1988</td>
<td>704,000</td>
<td>1,473</td>
<td>14.7</td>
</tr>
</tbody>
</table>

* WPI: 1970=100
** Note: Consumption figures are for two-year intervals

4.4 Bean Consumption Patterns

For many developing countries, dry beans are the food of the poor, and Mexico is no exception. Although constituting less than five percent of total daily caloric intake, beans still compose over 10 percent of the protein content in Mexican diets, and nearly all the protein consumed by low income Mexicans (BNCE, 1990; USDA, 1992; FAO Consumption Statistics, 1990).

The high protein content in beans—enhanced when complemented with cereals—is a vital contributor to increased weight gain and reducing the malnutrition which continues to exist in Mexico. On a weight basis, a 20/80 or 25/75 protein mix of beans and maize—the other staple in the diet of the rural poor in Mexico—has been found to provide the maximum protein value when consumed (Bressari et al.)

At the same time that Mexican producers were growing less and using fewer inputs, consumers also tightened their belts during the lean years of the 1980s. Table 4.3 shows that per capita bean consumption fell from 18.2 kg/year in 1965 to 14.7 kg/year by 1988—a 19 percent decline since 1965. Changing consumption patterns of urban and wealthier consumers increasingly turning to meat and bread may serve as one explanation for this trend. However, a stronger reason resides in the effects of austerity programs, which caused dramatic price increases for basic goods and a cut in food subsidies. Although Table 4.4 notes that guaranteed consumer prices for beans actually declined in real terms during the 1980s, so did consumer purchasing power, and could be one cause of the
deepening malnutrition described in chapter 3. Current per capita bean consumption hovers around 15 kg./year, with between 20-30 percent of bean production consumed on-farm (USDA, 1992).

4.5 Trade Patterns

Mexico retains most of its production of dry beans for domestic consumption (compared with the US where 40 percent of dry bean production is exported). In an effort to stimulate domestic bean production, Mexico maintained high tariff levels and other restrictions on bean imports until the mid 1980s. In spite of this, domestic agricultural policies of the 1970s and 1980s--high input prices, lack of credit, extension and adequate infrastructure (particularly for small scale, rainfed producers, as described in chapter 3)--coupled with the vulnerability of rainfed agriculture to climatic variations forced Mexico's increasing reliance on foreign imports to bridge the gap between dry bean supply and demand. Figure 4.2 shows that bean imports were almost non-existent during the 1960s. However, after 1971 the country has been importing varying amounts of beans on an annual basis, with peak imports during the early to mid-80s; during some years, reliance on imports amounted to 47 percent of Mexico's total supply of beans (FAO Production Statistics, 1992).

What is interesting to note is that Mexican imports were highest between 1980-82--the years of SAM, when production self-sufficiency was being promoted through high support prices. This is due in part to scant rainfall in the late 1970s, leading the
country to import 300,000 tons of beans, primarily black beans from Michigan in 1980-81 (Kelly, 1987). In addition (as noted in chapter 2), producer policies implemented under SAM had little chance to take effect.

The reduction or disappearance of many trade barriers on agricultural commodities due to Mexico's 1986 entry into GATT also increased Mexican bean imports. While in 1991, bean imports faced a 10 percent tariff, currently no tariffs exist for imports of almost all varieties of beans. However, stiff import permits remain in place, reducing foreign trade (Banamex 2/91; USDA/FAS 1992). In addition, increased domestic production, supported through relatively high guaranteed prices and favorable weather conditions of the early 1990s has allowed Mexico to step up its bean exports; in early February 1992, Mexico signed an agreement to export o/a 150,000 metric tons of dry beans to China (USDA/FAS, 1992).

In spite of relatively favorable pricing policies and the corresponding rise in bean production, domestic supply in recent years often lags behind demand, forcing the country to continue its bean imports. Most imports occur during the winter/early

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3 This special contract between Michigan farmers and Mexico may present a prototype of how American farmers may respond to Mexican consumer preferences for beans (pintos and blacks) if trade barriers for beans are lowered with NAFTA.

4 As of 1992, exceptions were red beans, facing a 10% import tariff, and processed or canned beans, with a 20% import tariff (USDA/FAS, 1992).
spring periods when Mexico typically faces a shortage in supply (USDA, 1992). Because the majority of dry bean production remains in rainfed areas, USDA's FAS (1992) predicts that Mexico's volatile weather conditions will continue to profoundly affect Mexican bean yields, forcing the country to continue importing beans from abroad during poor harvest years, such as that of 1990.

Information on the type of beans imported and principal exporting countries was unavailable. However, US bean exports to Mexico during the 1980s show that pinto beans were by far the greatest variety exported, with smaller amounts of kidney beans and black beans (Bean Market Summaries, 1980-91). In spite of regional consumer preference for specific bean varieties, the high proportion of pintos and black beans imported, matched by the higher producer prices, suggest that these two varieties are universally popular in Mexico.\(^5\) In the past Mexico has imported beans from the US, Chile and Argentina; future imports are expected to be primarily based on the price offered by exporting countries rather than quality (USDA/FAS 1992). This may be another factor to consider when examining the preferential trading relationship offered by a possible NAFTA.

4.6 Conclusion

The bimodal system that quite clearly describes Mexican bean production--on the one hand, large irrigated farms in the north

\(^5\) However, USDA (1992) notes that kidney beans are less preferred and are sold at lower producer prices.
and on the other, isolated small farms practicing rainfed agriculture in the southern and central regions—is key in assessing the impact of past and future government policies vis a vis bean production. While increased input prices and reduction in subsidies and guaranteed producer prices adversely affect all producers, the larger, commercial operations are more capable of bearing these financial blows. More importantly, they have the capacity to diversify their production mix to include other crops that are more commercially viable if bean production loses its financial attractiveness.

In addition, as has been mentioned in both this and the preceding chapters, government policies have generally favored the larger producers in the north when it comes to bestowing credit, irrigation and extension services. Higher spring producer prices for beans are primarily (if inadvertently) directed to northern commercial operations who produce beans during this season. These benefits succeed in increasing the gap between small and large scale producers. They also create a catalytic effect where corresponding improvements in production generate further wealth for northern farmers, making them more attractive to foreign investors and more competitive against foreign producers.

Although urban consumers benefit from increased productivity generated by irrigated farms, higher producer prices for winter production (where a significant share is located in the irrigated regions of northern Mexico) indicates that government subsidies for both consumers and winter producers may be unprofitable.
Chapter 5

Liberalization and Privatization in Mexico

5.1 Introduction

After examining Mexican agricultural policies of the 1970s and 1980s in chapters 2 and 3, chapter 5 provides the background and context for the imminent entry of Mexico into a free trade agreement with the US. As a means to establish the rationale behind current U.S.-Mexican trade discussions, the chapter begins by describing the theory and arguments behind trade liberalization. Next, the chapter will provide a description of Mexican economic environment under the current Salinas administration, focusing both on domestic and foreign policy issues as well as recent institutional reforms. Finally, the chapter will briefly examine the background of NAFTA (North American Free Trade Agreement) and outline some of the major issues and considerations surrounding the agreement. A general discussion of the potential effects of such an agreement, as well as implications for the bean subsector in Mexico, will be the focus of chapter 6.
5.2 Theory and Argument Behind Trade Liberalization

A move by a country towards trade liberalization or free trade implies—in theory—a move towards Pareto efficiency; "Free trade leads to a world distribution of consumption that cannot be altered in any way as to improve the welfare of all trading participants. In this sense, free trade is efficient." (Caves and Jones, 1973, p. 23).

Behind the argument for trade liberalization is the principle of comparative advantage, which is based on the idea that participating countries concentrate their production on industries in which they have a superior endowment in inputs (labor and raw materials) and/or technology, and that resources will inevitably move to these sectors. Trade liberalization also assumes stable markets; ie that markets, sooner or later will inevitably clear when the price is forced up or down due to excess or restrictive demand. Thus, apriori, economies of nations engaging in free trade are assumed to be characterized by constant returns to scale and perfect competition.

Free trade envisages a complete dismantling of all export barriers—often not the case in reality—so that individuals from participating countries would face the same commodity prices, such that the marginal rate of substitution of each individual consumer would be set equal to the commodity price ratio. It is because individuals from different countries possess different marginal rates of
substitution that mutual gains from trade are possible. Thus, gains from trade are achieved because of underlying differences among countries (Caves and Jones, 1973).

As discussed in chapter 2, using import tariffs to subsidize fledgling or "infant" industries or those unable to survive outside competition often encourages monopolistic behavior and inefficiency while incurring steep opportunity costs by moving factors into import competing markets. By contrast, establishing producers' subsidies presents a means to protect vulnerable industries while simultaneously pursuing trade liberalization. Along with other measures, such subsides may be equally supportive of domestic production without the loss in consumer welfare incurred by higher prices from domestic monopolies and import taxes.

Arguments Against Trade Liberalization and Free Trade

In practice, according to Schuh, comparative advantage rests on a fragile pedestal, easily suppressed and distorted by government policies which may nevertheless favor other sectors lacking this advantage (Schuh, 1990, p. 151). Moreover, Calva (1991) asserts that the theory of comparative advantage as a basis for trade liberalization and free trade contains three erroneous assumptions: the first is in assuming that a natural inconsistency exists between a policy promoting dynamic agricultural exports and one supporting food self-sufficiency. In the case of Mexico, Calva notes
that, "In fact, Mexico has sufficient natural and human resources, capital stock, and technological capacity to permit a prompt recovery of food self-sufficiency while also increasing its output of exportable agricultural products." (Calva, 1991, P. 116).

However, it is not always certain that economic growth will inevitably result from trade liberalization, particularly when there is a relatively low global demand elasticity for a country's exports. It is even more dubious that the effects of growth will be evenly distributed within a country, and thus free trade is inevitably a divisive issue, having both ardent supporters and enemies. Trade liberalization also increases a country's vulnerability to the economic changes occurring in other countries; increased or reduced demand from abroad directly impacts on domestic welfare, and internal market prices in trading countries are determined both by domestic and world prices (Jones and Thompson, 1978; Caves and Jones, 1973).

In relation to food production, the theory of comparative advantage can also be faulted in its apriori presumption that prices for basic foods are invariably lower in external markets; again, using the case of Mexico, Calva points to fluctuating prices, where at times the domestic producer price for basic grains is lower and at time higher than the world market price. Finally, Calva notes that the theory of competitive advantage tends to ignore the
multiplier effects of domestic production which create employment, increase income distribution, investment and overall demand.

Krugman (1987) notes that countries practicing comparative advantage--like those following import substitution industrialization--are forced to select certain industries, thus drawing resources away from others. This thus assumes that the is capable of seeing what is best for the entire economy, both in the present and in the future. This, states Krugman, is unlikely: "Governments do not necessarily act in the national interest, especially when making detailed micronicomic interventions. Instead, they are influenced by interest group pressures. The kinds of interventions that new trade theory suggests can raise national income will typically raise the welfare of small, fortunate groups by large amounts, while imposing costs on larger, more diffuse groups. The results, as with any microeconomic policy, can easily be that excessive or misguided intervention takes place because the beneficiaries have more knowledge and influence than the losers." (Krugman, 1987, p. 142)

Finally, the argument for free trade based on the principle of comparative advantage should be tempered with the understanding that countries have been allowed equal freedom and resources to develop their sectors of comparative advantage. In practice, note Gardea and Aguilar, this is
seldom the case. Gardea and Aguilar also note the following:

"the success or failure of recommendations flowing from considerations of comparative advantage...depends on the social structure and state of development of each country--for example, the value the society gives in its 'social welfare function'...to the objective of self-sufficiency, or relative self-sufficiency, or food sovereignty. The pursuit of such objectives is a clear sign that economic efficiency is not the only goal of national economic policy...it is not unreasonable to attach some weight to the purely political objective of not being over-dependent on other countries for something as basic to survival as food."
(Gardea and Aguilar, 1987, p. 141)

These two arguments are particularly applicable when discussing the trading relationship between Mexico and the US, two countries with vastly different resource endowments, economic, political and social histories--and, arguably, quite distinct economic and social objectives. These considerations will be key to chapter 6's discussion on the impacts of land reform and free trade on the bean subsector.

5.3 Domestic Environment Under the Salinas Administration

With the advent of the Salinas Administration in 1988, domestic policies have tried to address some of the factors which have contributed to undermining agricultural production during the 1970s and 1980s (described in chapters 2 and 3): reduced interest rates and public sector price hikes for oil, gas and electricity have lowered internal debt; inflation was reduced from 150 percent in the mid-80s to 19.7 percent by 1989, largely through price controls and promotion of imports
as a means to reduce prices (FAS, 1991; Sourcemex, 3/6/91). The economy grew by 3.9 percent in 1990, and is expected to reach over 6 percent by the late 1990s (FAS, 1991; Krissoff et al. 1992).

Simultaneously, the Salinas government is trying to shake off some of the detrimental effects of austerity measures in the 1980s with specific programs targeted to the poor. Under the Economic Stabilization and Growth Pact (PECE) of November 1990–December 1991, the government moved to establish milk and tortilla subsidies, increase the minimum wage by 18 percent and give tax breaks to lower income Mexicans (Sourcemex, 3/6/91).

Government pricing policies are also benefitting small scale agricultural producers. In February, 1991, the government announced the reinstatement of high guaranteed producer prices for basic commodities including beans, corn, rice and wheat in order to compensate farmers for the devaluation of the peso, and reduce the potentially detrimental effects of a Free Trade Agreement with the US (Sourcemex, 2/20/91, 3/6/91). While the fate of these price guarantees remains uncertain for many of these crops, the government is expected to continue high price guarantees for corn and beans throughout 1992 (USDA/FAS, 1992).

Salinas' agricultural policy is targeting rural

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1 However, in 1990, inflation increased to 30 percent as a result of some reduction in price controls.
development by increasing subsidies, credit and extension services. The 1991 budget for Mexico's 1990-94 Programa Nacional de Modernización del Campo (The National Agricultural Modernization Program), includes a 10.5 percent real increase in spending on rural development, and the 1992 budget has increased spending on the agricultural sector by 20 percent (Bruce, 1992; Sourcemex 11/20/91). Specific programs to be financed by public sector spending include expanding infrastructural development, extension services, crop subsidies and credit. Salinas has also promoted efforts to eliminate the inefficiency and corruption of agencies linked with agriculture as a more indirect means of increasing agricultural productivity.

At the same time, 1991 also marked a sharp reduction in indirect government subsidies of fertilizer, electricity, water and seed, primarily impacting commercial producers (Ibid). Many of them have reacted to the combined effect of reduced subsidies and high guaranteed prices for beans and corn by shifting back to basic grain production—in spite of recent government encouragement of horticultural production over basic grains (USDA/FAS 1991, 1992). Another fundamental change in the agricultural sector—government encouragement of collaborative ventures between the ejidos and private businesses—will be discussed later in the chapter in the context of the current institutional environment in Mexico.
Current agricultural reforms may indicate that the Salinas administration presents an abandonment of past policies towards small scale, subsistence production, which have been marked more by cosmetic than substantive changes. On the other hand, the 1991 FAS annual situational report on Mexico states that producers of traditional crops have found it increasingly difficult to access credit, indicating that rural development strategies have yet to make an effect.

5.4 Institutional Changes: Land Reform and Privatization

The Salinas administration has also introduced dramatic changes in the institutional structure of the economy, marked by a reduction in public sector intervention in agriculture. This is characterized in part by the lifting of many price supports, controls and subsidies as described earlier in the chapter. However, the current privatization of many state-owned operations promise to make reduced government intervention a permanent fixture in Mexican agriculture. In December of 1991, plans were introduced to divest of over 645 state-run agricultural companies, trusts, laboratories, development and livestock breeding facilities and quarantine centers (Sourcemex 12/18/91). CONASUPO's 1991 budget was cut drastically—along with its projected role in the commercialization of foodstuffs (Sourcemex, 12/5/90). Perhaps the most fundamental change has occurred with recent
ejido reforms—along with potential effects on private investment.

**Ejido Reforms and Private Investment**

With the purpose of increasing agricultural productivity through increased investment in the rural sector and (it is hoped) resulting economies of scale, the Mexican government has approved legislation in 1991 that allows ejido owners to acquiring property rights to buy or sell the land they tilled but never owned. Salinas hopes that privatizing ejidos will increase private investment through associations between ejidos and private firms (Bruce, SourceMex, 1991, The Economist, 11/16/91). In doing so, ejido reform may respond to one of the principal objectives of structural adjustment policies during both the de la Madrid and Salinas administrations—to increase competition through domestic and foreign investment in the economy (Shane and Stallings, 1991; USITC, April, 1990). Agriculture currently occupies a small but growing share of overall private investment, which Salinas hopes will double by 1994 (Villa-Issa, 1990 & Shane and Stallings, 1991).

Because almost a million hectares of land are operated by approximately 26,000 ejidos, the effects of privatization promise to be profound; "the drastic relaxation of restrictions on the rental, mortgaging or sale of ejido land, and the strong new incentives for commercial joint ventures
between holders of ejido land and private investors—both domestic and foreign—may have more far-reaching and enduring consequences than any of the other, path breaking reforms that have been introduced in Mexico since the late 1980s.”
(Cornelius, 1992, p. 2 & Sourcemex, 12/4/91)

According to Bruce (1992) some of the expected changes resulting from the possibility of privatizing ejido lands include increased mechanization and modernization. This may increase current migration patterns, as rural farm workers find themselves unemployed and smallholders, unable to afford or compete against these improvements (leading to possible economies of scale), may decide to sell their land and move to town. Because unemployment is already a problem for urban areas of Mexico, Bruce predicts a corresponding rise in the urban informal sector.

It is unclear whether relations established between private agribusiness and producers as a result of ejido reforms will succeed in improving the condition of small farmers. In the past, small plots farmed by poorer farmers with less access to necessary inputs for commercial crop production (water and fertilizer), have made them less attractive investments to the primarily U.S.-owned agribusinesses (Raima 1985)². This is particularly true of

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² Currently, 63 percent of foreign investment comes from the US, and includes US agribusinesses such as DelMonte, Bird's Eye and Green Giant [Shane and Stallings 1991]).
ejidos, as intensive linkage with the state has given them less flexibility to decide which crops to grow and less ability to establish relations with private firms and banks and gain the investment needed to modernize their agricultural operations. Moreover, lack of secure property rights and uncertainty over the possibility of future land distribution has acted as a further barrier to private investment in ejidos.

Where linkages between TNCs and peasant producers have occurred, basic grain production has been reduced, with potentially damaging results for poorer producers and consumers. In Sanderson's (1986) description of TNC investment in sorghum production, small scale farmers were transformed from producers to consumers of basic grains. Correspondingly, Cornelius (1992) sees the results of ejido reform as being directed towards the production of commercial crops for export rather than Mexican staples of corn and beans.

5.5 Foreign Economic Policy: Trade Liberalization

The Salinas administration has continued to reduce barriers to foreign trade, a policy initiated under the de la Madrid government and marked by Mexico's entry into GATT in 1986, as discussed in chapter three. This section addresses Mexican trade liberalization in the context of current negotiations on a Free Trade Agreement with the US and
After Canada, Mexico is America's leading foreign supplier of agricultural products and the third leading export market for the US. American agricultural exports to Mexico generally include feed grains, meat, live animals and dairy products while Mexico primarily supplies the US with coffee, fruits and vegetables and live animals (Krissoff et al., 1992).

Currently, substantial tariff and non-tariff barriers still remain between the two countries. Major US trade barriers facing Mexican exports include tariffs, quantitative restrictions, marketing orders and health and sanitary requirements. While US duties are perceived to be relatively low compared with those imposed by Mexico, US tariffs and quantitative restrictions for agricultural products are often subject to a high degree of seasonal variation. More subtle trade impediments— including inadequate infrastructure, bureaucratic red tape and lack of market knowledge— also hamper Mexico. (USTIC, October, 1990).

Table 5.1 indicates that as of 1991, Mexico continued to maintain substantial tariff and non-tariff barriers to foreign trade, including tariffs of between 10-15 percent for Mexican staples— corn, beans and wheat. However, it is equally evident that the US imposes high seasonal tariffs for fresh produce: notably melon, cucumbers, and mangoes and asparagus.
<table>
<thead>
<tr>
<th>Commodity</th>
<th>Tariff</th>
<th>Non-Tariff</th>
<th>%</th>
<th>Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexican Agricultural Import Barriers (1991)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Adaped from Banamex, 2/91, Table 2, p. 60

*February 1 to September 30*
Free Trade Negotiations

Since June, 1990, the US and Mexico have been in the process of discussions that seem likely to result in the establishment of a US-Mexico Free Trade Agreement. With Canada's entrance in 1991, these discussions were enlarged to a larger North American Free Trade Agreement (NAFTA) to create a "free trade area," which would reduce or eliminate trade barriers among partners to the agreement, but not necessarily among other trading countries (American Farm Bureau, Vol. II, 1991). NAFTA was completed in August 1992, although ratification by each of the countries' legislative bodies will probably not take place until the following year (As an agreement, rather than a treaty, NAFTA needs only to be approved by the majority in both houses of the US Congress).

General guidelines for a U.S.-Mexico Free Trade Agreement include:

- Full phased elimination of import tariffs;
- Reduction or elimination of nontariff barriers such as import quotas, licenses and technical barriers to trade;
- The establishment of binding protection of intellectual property rights;
- Fair and expeditious dispute settlement procedures, and;
Establishing a means to improve and expand the flow of goods, services and investment between the US and Mexico (USITC, 1991).

To date, the idea of a US-Mexico Free Trade Agreement is a fiercely contested issue with members of both countries on either side of the debate. Those supporting free trade argue that the US economy will benefit by expanded trade opportunities, lowered prices, increased competition and improved ability for US firms to exploit economies of scale. Others say that the benefits to Mexico are likely to be proportionally much greater than the US by the act of integrating with an economy 20 times larger than its own (USITC, 1991). In particular, Mexico is expected to benefit from increased US investment in the food processing and maquiladora industries, and through increased Mexican exports of fresh fruits and vegetables to the United States. The corresponding rise of available jobs in Mexico (estimated by the Institute of International Economics in Washington to increase by 600,000 by 1995) is expected to reduce poverty, increase the GDP and stifle the flow of illegal immigrants to the US (New York Times, 7/23/92).

Yet Free Trade opponents, such as Cuauhtemoc Cardenas, leader of Mexico's opposition PRD party (Partido de la Revolucion Democratica), do not see benefits from NAFTA being captured by Mexico; rather than contribute to the country's
development, Cardenas sees the agreement as facilitating Mexico's growing impoverishment. In an interview with the Multinational Monitor, he noted: "Mexico has nothing to gain (from a free trade agreement) because we have nothing to export--nothing that the transnationals are already producing in and exporting from Mexico. So Mexico will continue as it is: as a supplier of cheap labor, as a supplier of raw materials and a manufacturer of some low value-added products. Labor will become cheaper and cheaper...If present policies continue, our standard of living will continue to decline and unemployment will continue to increase."

(Multinational Monitor, Jan/Feb 1991, p. 25).

In the agricultural sector, Josling (1992) predicts that winners from NAFTA—depending on what commodities are incorporated in the agreement—might include US grain (especially corn) and livestock producers and Mexican fruit and vegetable producers, while Mexican grain farmers and fruit and vegetable growers located in Florida, Arizona and California stand to be adversely affected by the agreement. Mexican agricultural economist Jose Luis Calva feels that a Free Trade Agreement with the US and Canada would result in increasing Mexican food imports by up to 16.5 billion (Sourcemex 9/4/91). However another view, supported by Mielke, sees potential price increases due to liberalization could offset crop subsidies lost to Mexican farmers. Lower producers prices would also benefit consumers (Mielke, 1989).
Those opposed to a free trade agreement might point out that absolute gains would be far less significant than the adverse impacts resulting from such an agreement. For example, while US agriculture might be an overall winner from a Free Trade Agreement, the real effects of increased trade with Mexico would be negligible; although the second most important importing nation for US agricultural products, Mexico nevertheless imports a relatively small amount in absolute terms, falling well behind Canada, America's number one trading partner. Other critics assert that the US stands to lose from a Free Trade Agreement because such an agreement will invariably lower food quality and environmental standards to the lowest common denominator, rather than raising them to the generally higher levels existing in the US. From the Mexican standpoint, Kelley et al. (1991) maintain that the FTA could have adverse environmental effects as Mexican farmers adopt abusive farming practices to survive against import dumping.

Finally, while NAFTA may benefit a small group of commercial farmers, some policy analysts are concerned that many others will be left behind. Calva notes: "The implication for Mexico is really quite obvious: recognize that letting internal prices compete with the international prices of subsidized foodstuffs is equivalent to leaving Mexican agriculture unprotected without any consideration of the future of more than a million small farmers who produce
grains, nor of the macroeconomic implications that this entails." (Calva, 1991, p. 117).

Although NAFTA has yet to be ratified by Congress, the agreement includes long transition periods and gradual reductions in trade barriers for sensitive commodities, allowing farmers to gain time to switch to more competitive crops and/or find new sources of employment. Some of the potential implications of adopting different time frames for full agricultural trade liberalization—and some considerations for the bean subsector—will be discussed in chapter 6.

Conclusion

Chapter 5 presented some the arguments on both sides of trade liberalization—both from a theoretical point of view and from the specific context of current U.S.-Mexican Free Trade negotiations. This chapter also looked at the present economic environment in Mexico, marked by the encouragement of private (particularly foreign) investment, price liberalization and tariff reduction. Institutional reforms—particularly ejido reforms and the reduced role of the state—are at the heart of current economic changes in Mexico and may profoundly effect the future of Mexican small holders, particularly in light of NAFTA. These issues will be explored in the following chapter, both on a macro level and in the context of the Mexican bean industry.
CHAPTER 6
THE FUTURE OF MEXICO'S BEAN SUBSECTOR

6.1 Introduction

With the likely establishment of a North American free trade zone in 1993, some fundamental differences between the US and Mexico should be considered. To begin with, a free trade agreement between a developing and industrialized country, as is the case between the US and Mexico, is quite different than one between two countries on relatively similar development paths—namely the US and Canada.

Table 6.1 shows that Mexico is unquestionably the more dependent partner in bilateral trade with the US. With an economy one twentieth the size of the U.S., only 3-12 percent of total US exports go to Mexico, and Mexican products account for barely five percent of total US imports (Robinson et al., 1991; USDA, 4/91, American Farm Bureau Research Foundation, 1991). By contrast, between 80-90 percent of Mexico's trade is with the US (USDA, 1992). While classified as an "upper income country," by the World Bank, Mexican per capita GNP was slightly more than 10 percent of that of the US and Canada; Mexico's inflation rate soared during the 1980s to over 70 percent, compared with a more modest 3.7 percent and 4.8 percent rise for the US and Canada.
### Table 6.1

<table>
<thead>
<tr>
<th></th>
<th>United States</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GDP (bil. $US)</strong></td>
<td>1009.2</td>
<td>3960</td>
</tr>
<tr>
<td><strong>Per capita GDP ($US)</strong></td>
<td>2864.0</td>
<td>2043</td>
</tr>
<tr>
<td><strong>Real GDP growth rate %</strong></td>
<td>(0.3)</td>
<td>2075.0</td>
</tr>
<tr>
<td><strong>Total Exports (millions)</strong></td>
<td>43241</td>
<td>1403</td>
</tr>
<tr>
<td><strong>Total Imports</strong></td>
<td>42695</td>
<td>15570</td>
</tr>
<tr>
<td><strong>Agricultural Trade Balance</strong></td>
<td>1209</td>
<td>22108</td>
</tr>
<tr>
<td><strong>Agriculture as a share of Total</strong></td>
<td></td>
<td>22700</td>
</tr>
<tr>
<td>Exports</td>
<td>17.4</td>
<td>473</td>
</tr>
<tr>
<td>Imports</td>
<td>14.8</td>
<td>1335</td>
</tr>
<tr>
<td><strong>Agricultural Exports to US</strong></td>
<td>527</td>
<td>597</td>
</tr>
<tr>
<td><strong>Agricultural Imports from US</strong></td>
<td>157</td>
<td>881</td>
</tr>
<tr>
<td><strong>Ag. Exports to US as share of Total Ag. Exports</strong></td>
<td>75.8</td>
<td>851</td>
</tr>
<tr>
<td><strong>Ag. Imports from US as share of Total Ag. Imports</strong></td>
<td>70.7</td>
<td>90.0</td>
</tr>
</tbody>
</table>

Source: Adapted from USDA, 1991, Table 2, p. 10 & American Farm Bureau Research Foundation, 1991, Vol. 1, p. 73
respectively (World Bank, 1992).

Although US food quality and environmental restrictions are stiffer, the US also enjoys a well developed infrastructure that can be viewed as a hidden subsidy to American agricultural producers—particularly in light of its absence in many of Mexico's rainfed areas. And, as noted in chapter 5, the US still maintains high quotas on fruits and vegetables and retains duties which limit access to markets.\(^1\)

Moreover, while 13 percent of Mexico's labor force is engaged in agricultural activities and one third of the Mexican population lives in rural areas, only 1.4 percent of Americans are farmers, meaning that the proportional effects of free trade in agriculture will be far more profound in Mexico than the US. As a result, Mexico needs to consider to what extent it wants to open its markets both domestically and among its trading partners and, in particular, the pace it wants to adopt in market liberalization vis a vis agriculture.

Obviously, it is difficult to evaluate an agreement that has yet to be enacted—doubly so without knowing the content and regulations at its core. Thus this chapter will attempt only to surmise the impact of alternative development paths that Mexico can pursue within a free trade environment.

Chapter 6 will begin by looking at three models

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\(^1\) Seasonal tariffs for fresh produce are particularly volatile as was shown in Table 5.2
estimating the impact of NAFTA under different scenarios, and compare the model results with the content of the free trade agreement on agriculture as it now stands in August, 1992. The last part of the chapter will speculate on the policy alternatives presented by NAFTA and their implications for the bean subsector in Mexico.

6.2 Agriculture in a NAFTA: Selected Models

Several studies have been done modelling the effects of a Free Trade Agreement on the Mexican and U.S. economies. This paper will look at the results of three such studies which specifically address the potential impact of NAFTA on Mexican agriculture.²

Two of the studies address a shared concern of both Mexico and the U.S.—the impact of NAFTA on migration. On the one hand, potentially greater investment in Mexico as a result of free trade and low wages might create new jobs, significantly reducing the flow of migrants across the border. Mexico also hopes that wages will eventually rise, making them more competitive with the US and thus adding a further disincentive for Mexicans to migrate.

However, Cornelius (1992) feels that at least in the short term, migration—particularly from rural Mexico to the

²While important, the paper will give only cursory attention to NAFTA's effects on U.S. agriculture, and Canada's role will not be discussed.
US--will continue regardless of whether NAFTA is ratified. He describes an entrenched "culture of migration", marked by the pull of social networks, and continued labor demands in bordering states (California and Texas). These reasons, combined with the time lag before a free trade agreement pushes up Mexican salaries, still present strong inducements for Mexicans to continue moving across the border into the US.

Both Robinson et al. and Levy and van Wijnbergen model the impacts of NAFTA on Mexican migration using a variety of different scenarios. Both conclude that gradual trade liberalization combined with investment in the Mexican agricultural sector stands the best chance of reducing the adverse impacts of migration while also increasing rural welfare. Krissoff et al. look at changes in U.S. and Mexican producer and consumer welfare from a variety of trading combinations, and the overall net impact on national income.

**Robinson et al. model: Free Trade and Migration**

Robinson et al. (1991) use an 11-sector, computable general equilibrium (CGE) model to trace the influence of trade liberalization on Mexican labor migration and domestic agriculture in both countries. The study models six Mexican policies relating to subsidies, tariffs and quotas for agricultural products, food processing and consumption (tortilla subsidies) as well as the Export Enhancement
Program (EEP), which indirectly subsidizes select U.S. farm exports. The authors also model different trading scenarios, from an immediate and comprehensive Free Trade Agreement to gradual liberalization complemented by investment in Mexico's agricultural sector.

The study concludes that the first scenario—complete trade liberalization, combined with the removal of subsidies on Mexican agricultural and food industries—would accelerate the pace of migration to Mexican cities and the U.S. While their results show that free trade would increase Mexican horticultural exports, the corresponding increases in rural employment would fail to offset the effects of liberalizing the corn subsector, which the authors suggest will account for 60 percent of Mexican outmigration. Because such effects are detrimental to both the U.S. and Mexican economies, Robinson et al. advise that Mexican agricultural reforms be implemented during a lengthy transition period, which concurrently targets resources to the agricultural sector as one means to absorb a displaced rural labor force.

**Levy and van Wijnbergen: Liberalizing the Maize Subsector**

Some of these conclusions are similar to those in a study by Levy and Van Wijnbergen (1992), who modelled potential effects of NAFTA on the maize subsector, looking at a variety of Mexican households, from subsistence farmers and landless peasants to irrigated producers and urban
capitalists. Although trade liberalization indicates substantial efficiency gains and increased consumption in Mexico, results suggest that benefits are unevenly distributed.

Mexican maize farmers would not only suffer the fall in producer prices, but the cheaper price of rainfed land—dropping as much as 25 percent, according to their model—would depreciate their main source of collateral for obtaining credit, thus limiting chances to improve and diversify their operations. Production losses would cause farmers to seek employment elsewhere, thus flooding the rural and urban labor market. The results would cut wages in both sectors and intensify Mexican migration to the U.S. Levy and van Wijnbergen suggest that subsistence farmers who are currently hired out as part-time migrant laborers would be doubly hit by the lowered producer prices and wage reductions resulting from trade liberalization.

Some of the results of Levy and van Wijnbergen's model are shown in Table 6.2, which indicates the welfare and efficiency effects of various free trade scenarios. In particular, they note that the fourth scenario, where liberalization is accompanied by government investment in irrigation, increases the welfare of the poorer segments of the urban and rural population while simultaneously leading to efficiency gains. Alternately, they note that welfare losses to the wealthier segments of the Mexican population—
urban capitalists and irrigated farmers—would be relatively small.

Like Robinson et al., the authors support gradual trade liberalization accompanied by heavy public investment in irrigation to increase production levels and the value of rainfed land. Such investments, according to Levy and van Wijnbergen, would be more economical than the government's traditional policy of subsidizing both producers and consumers.

**Krissoff et al.: Comparison of U.S./Mexican Welfare Changes**

Again, the study by Krissoff et al. (1987) indicates that Mexican producers are likely to be hurt by trade liberalization while Mexican consumers stand to benefit. Producer losses are heaviest with unilateral Mexican trade liberalization—in which Mexico removes border protection for trade with all countries—than with a bilateral trading arrangement (PTA), in which trade liberalization only occurs between Mexico and the U.S. Two exceptions are Mexican horticulture and livestock producers, who experience significant gains from free trade.

As indicated in Table 6.3, this scenario is reversed in the U.S: American producer welfare increases and consumer welfare drops (due to slightly higher prices for grains and oilseeds) as a result of Mexican trade liberalization. Because the overwhelming majority of Mexico's trade is with
Table 6.2

Maize Liberalization:
Welfare and Efficiency Effects of Different Free Trade Scenarios

<table>
<thead>
<tr>
<th></th>
<th>1 year No Irrig.*</th>
<th>5 years: No Irrig.</th>
<th>1 year Irrigation No F&amp;V</th>
<th>5 years Irrigation No F&amp;V</th>
<th>5 years Irrigation F&amp;V</th>
<th>6 years Irr. early F &amp; V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsistence Farmer</td>
<td>.967</td>
<td>.971</td>
<td>1.007</td>
<td>1.011</td>
<td>1.013</td>
<td>1.015</td>
</tr>
<tr>
<td>Landless Rural Worker</td>
<td>.984</td>
<td>.985</td>
<td>.993</td>
<td>.995</td>
<td>1.000</td>
<td>1.001</td>
</tr>
<tr>
<td>Rain-Fed Farmer</td>
<td>.943</td>
<td>.949</td>
<td>.996</td>
<td>1.001</td>
<td>1.000</td>
<td>1.003</td>
</tr>
<tr>
<td>Irrigated Farmer</td>
<td>1.028</td>
<td>1.024</td>
<td>1.019</td>
<td>1.015</td>
<td>1.028</td>
<td>1.025</td>
</tr>
<tr>
<td>Urban Worker</td>
<td>.984</td>
<td>.986</td>
<td>.993</td>
<td>.995</td>
<td>1.000</td>
<td>1.001</td>
</tr>
<tr>
<td>Urban Capitalist</td>
<td>1.108</td>
<td>1.017</td>
<td>1.013</td>
<td>1.012</td>
<td>1.007</td>
<td>1.006</td>
</tr>
<tr>
<td>Efficiency Gains</td>
<td>42.44</td>
<td>40.08</td>
<td>51.96</td>
<td>49.57</td>
<td>44.81</td>
<td>43.18</td>
</tr>
<tr>
<td>Cumulated Fiscal Gain</td>
<td>23.17</td>
<td>21.94</td>
<td>18.04</td>
<td>16.76</td>
<td>13.64</td>
<td>12.50</td>
</tr>
</tbody>
</table>

*Government investments in irrigation
**Trade liberalization of horticultural products.

Source: Levy and van Wijnbergen, Table 1, p. 12, 1992
### Table 6.3

Impact on Agricultural Trade and Sectoral Welfare
Alternative NAFTA Scenarios (million dollars)

<table>
<thead>
<tr>
<th>Scenario</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>US agricultural exports to Mexico</td>
<td>423</td>
<td>389</td>
<td>394</td>
</tr>
<tr>
<td></td>
<td>482</td>
<td>435</td>
<td>438</td>
</tr>
<tr>
<td>Mexican agricultural exports to US</td>
<td>171</td>
<td>49</td>
<td>178</td>
</tr>
<tr>
<td></td>
<td>166</td>
<td>25</td>
<td>160</td>
</tr>
<tr>
<td>US agricultural imports</td>
<td>169</td>
<td>41</td>
<td>160</td>
</tr>
<tr>
<td>Mexican agricultural imports</td>
<td>443</td>
<td>465</td>
<td>469</td>
</tr>
<tr>
<td>US producer welfare</td>
<td>225</td>
<td>279</td>
<td>222</td>
</tr>
<tr>
<td>consumer welfare</td>
<td>-122</td>
<td>-232</td>
<td>-126</td>
</tr>
<tr>
<td>government cost</td>
<td>207</td>
<td>201</td>
<td>199</td>
</tr>
<tr>
<td>net</td>
<td>310</td>
<td>248</td>
<td>295</td>
</tr>
<tr>
<td>Mexican producer welfare</td>
<td>-438</td>
<td>-503</td>
<td>-457</td>
</tr>
<tr>
<td>consumer welfare</td>
<td>978</td>
<td>1068</td>
<td>1035</td>
</tr>
<tr>
<td>government cost</td>
<td>-440</td>
<td>-500</td>
<td>-462</td>
</tr>
<tr>
<td>net</td>
<td>100</td>
<td>65</td>
<td>116</td>
</tr>
</tbody>
</table>

Key: Scenario 1 = Preferential Trade Agreement (PTA)
Scenario 2 = Unilateral Mexican Trade Liberalization
Scenario 3 = PTA + Unilateral Mex. Trade Liberalization

Source: Krissoff, Neff & Sharples, 1992, p. 39-40
the US, the study notes that the effects of welfare changes resulting from a free trade agreement are proportionally far greater for Mexican citizens than for Americans. Scenario 3—a PTA between the US and Mexico combined with unilateral Mexican trade liberalization—is the best of the three alternatives for Mexico; while producer welfare exhibits significant losses, overall net gains to the Mexican government are highest under this trading relationship. By contrast, the US economy benefits most from simply a preferential relationship with Mexico (scenario 1).

While not specifically related to the bean subsector, the results from all three models provide a backdrop for various possibilities presented to Mexican agriculture as the country enters into a free trade agreement with the US.

6.3 NAFTA: Implications for Mexican Agriculture

Unlike some of the trading scenarios offered by the Levy & van Wijnbergen model, agricultural trade liberalization promises to be a lengthy process. With negotiations for NAFTA completed in August, 1992, current agreement on trade liberalization in agriculture specifies that duties in all three participating nations are to be phased out over a ten- to 15-year period. Once the agreement goes into effect (presumably in 1993), non-tariff barriers to agricultural trade will be immediately abolished in favor of tariffs or tariff-rate quotas which are to expand by three percent
annually, and eventually be phased out.\textsuperscript{3} The agreement considers that beans, like corn, are "highly sensitive products" for Mexico. As such, tariffs will be gradually reduced over 15 years, during which time Mexico may establish domestic support programs that are not "trade distorting."

Among the few crops still enjoying guaranteed prices, beans and corn remain strategically important to the Mexican economy. Whether policies over the next 15 years will champion the development of either crop, or merely ensure that they remain affordable staples for consumers, is a critical factor in deciding the fate of many small farmers in Mexico. Possible consequences of either decision are explored in the following section, looking specifically at the bean subsector.

\textbf{Scenario I: An Export Driven Agricultural Policy}

In the first scenario, Mexico would pursue the comparative advantage that it arguably possesses in two areas: labor and export crop production. If ejido reforms succeed in achieving their intent—that is, according to Cornelius, creating new investment and employment in non traditional agricultural products such as fresh fruits and

\textsuperscript{3} Known in official trading jargon as TRQ's, tariff rate quotas will allow the three trading partners tariff-free imports of "sensitive" agricultural commodities of up to a predetermined level beyond which tariffs will be applied. The quotas will be increased by 3 percent annually until they are phased out completely.
vegetables—a free trade agreement would facilitate increased Mexican exports by reducing seasonal tariffs imposed by the U.S. for horticultural products. Infrastructural improvements (particularly roads and irrigation) would be targeted to areas best suited to producing crops such as tomatoes, cucumbers and chile peppers which can be produced more cost effectively than the U.S. Simultaneously, Mexico would also invest in other improvements, such as cold storage facilities and trucks, to ensure competitiveness with the US in the export of fresh produce. In addition, land reform would enable Mexican farmers who can afford it to increase their landholdings (although still limited to 100 ha holdings under the present land reform legislation) thus taking advantage of possible economies of scale.

How would this affect bean farmers? In pursuing an export driven strategy during the next decade of trade liberalization, Mexico would be better off subsidizing the growth of horticultural crops rather than beans and corn, which can currently be imported at a cheaper price from the US. Such a decision would adversely affect small bean producers, many of whom also grow corn, by lowering the their profit margins.4 The impact would be intensified by the depressed value for rainfed land—a result shown in the Levy & van Wijnbergen model on trade liberalization. Because many

4 See chapter 4.
bean producers are also ejidatarios, new land reform laws would give them the possibility of selling their land (due to resulting losses in production) and joining the swelling ranks of urban migrants.

"From a pragmatic point of view, then, the solution for Mexico would be to face reality and devote no more than three million people to working the land in a technologically advanced and efficient manner and forget the rest," notes the LA Times (5/3/91). "But how pragmatic can you be after more than 50 years of revolutionary rhetoric about the sanctity of the campesino sector? What do you do with 20 million landless and jobless campesinos?"

An answer may come from developing a resource Mexico possesses in abundance—cheap labor. Comparative advantage in Mexican labor could be pursued by encouraging more foreign-owned agribusinesses and maquiladora industries to set up businesses in Mexico. Thus bean producers and other small-scale farmers may have the chance to work as laborers for rural or urban industries if farming is no longer a viable option.

However, an export-driven policy in industry and agriculture has a number of drawbacks. To begin with, it would end Mexico's stated goal of food self-sufficiency, making the country vulnerable to price changes in foreign markets—notably the US and Canada. In addition, new possibilities for foreign land ownership give agribusinesses
the chance to run their own operations rather than to engage in collaborative relationships with ejidos—contrary to the intent of the Mexican government. That development goals of transnationals and the Mexican government are often in conflict (as noted in chapter five) are confirmed by 1990-91 trade figures indicating that Mexico's food, beverage and tobacco industries—with high TNC representation—import the majority of their raw materials, rather than relying on domestic markets (Sourcemex, 8/7/91).

Concentrating economic development on the urban industrial sector may reduce unemployment in Mexico, and correspondingly the number of illegal immigrants to the US. However, urban industrial development raises a number of additional problems: For example, although the Krissoff model suggests that consumer welfare in Mexico may be increased through trade liberalization, the urban sector may still be unable to absorb the growing number of rural unemployed. Rural to urban migration, satiating the urban labor market may produce the results suggested by the other two models—increased unemployment and reduced wages. Shrinking incomes would thus have the effect of reducing consumer purchasing power, contrary to NAFTA's expected results.

Finally, although transnationals may reduce Mexican unemployment, many Americans are concerned that their relocation means the loss of blue-collar jobs in the U.S.
This raises the question of whether such a development strategy is in interests of either the U.S. or Mexico.

Scenario II: A Small Farmer Oriented Strategy

Mexico can also pursue another strategy—one based on increasing the productivity of rainfed agriculture as part of a larger policy of promoting food self-sufficiency in Mexico. That it favors the majority of Mexicans farmers who are low income producers is an important argument offered in its support.

As noted earlier, both the Robinson et al. and the Levy and van Wijnbergen models suggest a gradual approach to trade liberalization in agriculture coupled with investment in Mexico's agricultural subsector. According to a 1990 study by Adelman and Taylor, this investment would be best focused on small-farm production through targeting extension, credit and inputs as well as transferring a quarter of value added from other agricultural producers to this sector. Although all groups would gain from this policy, small farmers would be the primary beneficiaries.5

5Adelman and Taylor (1990) develop a food accounting matrix (FAM) which looks at three alternative policy strategies: 1) a unimodal strategy, which focuses on the growth of peasant agriculture, thus deemphasizing the bias towards commercial farming (an example of this was the implementation of SAM, financed by the oil boom of 1982); 2) a bimodal import-substitution model which, characteristic of Mexico's policies in the 1970s (described in chapter 2), favors urban industries through high wages and food subsidies and; 3) a wage repression strategy reflecting current austerity
Buzaglo (1982) agrees that Mexican agricultural development should focus on building up small scale agriculture, concluding that a shift in policy concentration from the modern to the peasant economy would generate more efficient and dynamic growth by using scarce resources more productively. Moreover, such a strategy would reduce the devastating effects of rural outmigration; According to Luiselli (1987), achieving food self-sufficiency through small-scale agriculture would generate 115,000 jobs annually, thus absorbing 73 percent of the yearly increase in the rural labor force. 6

6.4 Implications for Mexico's Bean Subsector

Fernandez (1987) notes that given the proper conditions, Mexico could potentially produce 20 million tons of maize and 1.3 million tons of beans annually on currently available land. While production levels vary annually, USDA's FAS reports that by contrast, 14,500 million tons of maize and one million tons of beans were produced in 1991.

measures under Salinas. Assuming a non-unitary expenditure elasticity—that is different consumption and savings rates in the Mexican economy, reflective of the gross income discrepancies among Mexican households—the model results suggested that the first policy—a unimodal development strategy—was the most successful in achieving growth with equity.

6 Specifically, Luiselli supports producing basic grains in areas now devoted to cattle ranching, keeping irrigated areas in the northwest solely for export crop production and, like Levy and van Wijnbergen, increasing irrigation.
In improving bean production in Mexico—thereby making it more competitive when trade barriers are dismantled 15 years hence—investment would be concentrated on developing rainfed areas, either by introducing irrigation where possible (as recommended by the Levy and van Wijnbergen model), or introducing new and/or improved varieties of drought resistant crops, thus freeing up irrigated areas in northern regions for export crop production (Barkin, 1987; Luiselli, 1987).

Because dry beans are primarily produced for domestic consumption, they may possess a strategic advantage over US competitors because their market is so close. Although Table 6.3 shows that past domestic producer prices for beans have generally been lower in Mexico than in the US, as noted in both chapters 3 and 4, bean producers have faced "negative producer subsidies" (Mielke, 1989), particularly during the 1980s—in other words, that bean growers have not been protected by heavy government subsidies in the face of the decline in real prices for beans. Although CONASUPO currently has established a high guaranteed price for beans, Mexican bean producers may soon be competing with lower US bean prices. This suggests a number of areas in which the government might intervene if Mexican bean producers are to be able to compete with their US counterparts once trade barriers are phased out.

The first is through government acknowledgment that
productivity increases are realized when farmers have access to credit at affordable prices and favorable price supports. As described in chapter 5, the 1992 reform program has increased the agricultural budget by 20 percent over the previous year, and, at least in rhetoric, is targeting once unavailable loans to small farmers (Banamex 11/20/91). Yet interest rates for loans remain prohibitively high despite decreases since 1991 (the average interest rates for loans to farmers producing basic grains were 29 percent and 20 percent in 1991 and 1992 respectively [USDA/FAS, 1992]). So too do fertilizer prices, which have risen dramatically since 1987. Yet fertilizer, like irrigation, remains an important means of increasing been production (Fernandez, 1987).

Land reforms are an integral part of this strategy, because private land ownership can give former ejidatarios the collateral they previously lacked. As noted in chapter 5, much of the current acreage (88 percent) managed under the current ejido system produces beans, along with corn and rice. By facilitating credit opportunities, and possible economies of scale, privatizing large expanses of land may increase Mexico's competitiveness in crops which the US and Canada currently possess a comparative advantage. In particular, if beans have a better chance of competing in a free trade agreement than corn (whose producer prices are well above those in the U.S.), ejido lands might concentrate their resources on the former; 1991 figures show that only 5
percent of total ejido acreage is devoted to beans, while a full 65 percent of the lands is used for corn production [Sourcemex, 11/20/91]).

Other areas where the government might intervene include research, extension, and infrastructural investment such as in roads and trucks to facilitate marketing. In particular, research concentrating on producing more drought-tolerant varieties of beans would improve productivity and reduce the high degree of volatility in bean output which is symptomatic of the continued influence of rainfall patterns on bean production. In addition, improved storage conditions and timely applications of herbicides and insecticides would reduce pre- and post-harvest losses that are estimated at up to 20 percent of total output (Fernandez, 1987). The issue of improved storage facilities is linked with land scarcity; if summer bean production can be increased in rainfed areas and stored without severe postharvest losses, irrigated areas in the northwest would be freed for horticultural crop production and export—and benefit from the elimination of seasonal tariffs in the US as a result of NAFTA.

6.5 Cooperation versus Competition

Free trade in the area of basic grains production, such as beans, inevitably creates direct competition between Mexican and US growers. The access of the latter to inputs, credit, extension, marketing and transport puts US producers
at an overwhelming advantage over peasant growers in Mexico—regardless of how cheaply Mexican bean growers can produce beans. This situation reflects the larger predicament of establishing free trade between unequal partners. Unlike the EC, where the entry of Portugal and Spain was accompanied by community-wide development programs, the free trade agreement between the U.S. and Mexico is based less on development of the latter than increasing growth for both (Morici, 1991).

Another means of realizing gains from free trade would be through cooperation, rather than competition. No laws exist limiting free trade to economic commodities, while prohibiting the trade of ideas and technology. While this is particularly applicable when considering free trade areas among countries in different stages of development, it ultimately serves in the interest of both developing and developed nations. Luiselli believes that rather than putting Mexican peasant farmers out of business, the US should encourage the Mexican development which, in his opinion, is intimately connected with achieving food self sufficiency: "The United States does not need to find its market for surplus grains in Mexico. It might more usefully look to Mexico as a consumer of technology or products that are truly necessary for fostering modernization and rural employment." (Luiselli, 1987, p. 358)

In adopting a small-farmer oriented strategy, many of the policies of SAM are recommended. Yet in 1982, these
policies, largely financed by oil revenues, proved to be too expensive to continue. Currently, Mexico's strategic disadvantage in certain areas of agricultural production can be alleviated by greater linkages with its future trading partners--while simultaneously providing the needed investment in the agricultural sector. One example is through "co-investment" between US and Mexican agribusinesses to build up Mexican food processing industries, thus increasing the value-added to Mexican agricultural products. These associations have been promoted as an integral part of the GOM's 1992 agricultural reform program (Sourcemex, 11/20/91) Such a step has already been taken between the Mexican mayonnaise company Herdez de Mexico and McCormic; currently canned goods produced in Mexico are being sold in the US, while Herdez is selling US mayonnaise to Mexican consumers (L.A. Times, 5/3/91). Another example is the 12-year agreement established between the Mexican firm Gamesa and ejidatarios and smallholders in 1990--the same year in which the American corporation, Pepsico acquired Gamesa. Under this agreement, capital, equipment and training are exchanged for land and labor and an even split of profits (The Wall Street Journal, 12/2/91). In the future, this sort of collaboration might be replicated for the Mexican bean subsector.

Research on shared problems such as soil and water conservation presents another area for US-Mexican
cooperation. Again, this may be extended to the bean subsector, where developing drought and insect tolerant beans benefits both Mexican and US farmers.

Ultimately, according to Schuh, both developed and developing countries share the burden of Third World development if it is to occur in the absence of protectionism. The consequential restructuring of both economies is, states Schuh, "burden sharing at its best, but it is painful for all concerned." (Schuh, 1990, p. 149)

6.6 Conclusion

At present, assessing the future of the bean subsector in Mexico as a result of NAFTA can only be mere speculation. Chapter 6 has used the conclusions of three models of NAFTA's impacts on Mexican agriculture under different scenarios, as well as the basic components the Free Trade Agreement (as of August, 1992) to engage in just that.

The three models presented (Robinson et al., Levy and van Wijnbergen and Krissoff et al.) are unanimous in their conclusion that in general, NAFTA will hurt Mexican farmers. Robinson et al. and Levy and van Wijnbergen note that small farmers will be especially affected, with a resulting increase in migration to urban areas and the US. In looking at the consequences of various trading arrangements between the US and Mexico, the basic conclusions of the model by Krissoff et al. suggest that Mexican consumers stand to gain
and producers to loose through trade liberalization, while
the opposite is true in the US. However, the net effect for
both economies is positive.

As NAFTA now stands, the Mexican government will be
allowed 15 years to phase out its tariffs and TRQs (Tariff
Rate Quotas) for beans, which are among the agricultural
products listed as "highly sensitive." The remainder of
chapter 6 discussed the effects on the bean subsector of
various policy options available to Mexico during this
transition period, looking specifically at two possible
scenarios: an export driven strategy targeting horticultural
crop production and importing basic grains, and a strategy
aimed to increase small farm production. The latter strategy
is the one that this paper recommends, to complement rather
than compete with Mexico's export crop production.

Similarly, the chapter looks at the gains achieved by
the US and Mexico from a trading agreement based on
cooperation rather than competition. These gains would not
only be beneficial to the bean subsector in Mexico, but to
the overall development of both countries.
CHAPTER 7

SUMMARY AND SUGGESTIONS FOR FUTURE RESEARCH

7.1 Summary

This paper traced the effects of Mexico's macroeconomic policies on small scale agriculture over the last two decades, looking specifically at the bean subsector. It also examined how policies of the 1970s-'80s may affect an events that may revolutionize Mexican agriculture during the '90s: free trade. Again, the bean subsector provided the context to analyze possible impacts of these two events on Mexican small scale agriculture.

Until the early 1980s, Mexico pursued a policy of import substitution industrialization (ISI) as a means to achieve self-sufficient development by establishing tariff and non tariff barriers against foreign trade, and channelling resources to protect and promote infant industries. Agriculture's role was not simply to provide food for the urban sector (not to mention foreign exchange), but to provide it at low cost. With expanded acreage and government infrastructural investment--notably in irrigation--coupled with the Green Revolution's impact on wheat production, Mexican agriculture managed to meet these demands through the 1960s.

However, the focus of chapter 2 is how events of the
seventies capped a gradual policy trend that undermined the agricultural sector, in part through low producer prices (which, dropped in real terms during the 1970s) and in part by failing to develop small scale agriculture, the primary production unit of Mexico's main staples, corn and beans. Rather than achieving self-sufficiency in food production--Mexico's enduring crusade--the 1970s found the country importing agricultural commodities that it had exported less than a decade earlier.

Chapter 2 also looks at the rationale behind import substitution industrialization in order to shed light on why countries wish to follow such a development path. In addition to protecting fledgling industries from outside competition, developing countries may feel themselves unable to compete against industrialized nations in the agricultural sector due to their perception of the latter's superior endowment of resources and technology. Following this reasoning, an inward-looking industrialization policy may be seen as the only viable development option to pursue. Other arguments both in favor and against ISI are also explored in chapter 2.

Burdened by debt, unemployment and a failing agricultural system, the country abandoned 40 years of import substitution industrialization and began its first steps at trade liberalization during the '80s. This is described in chapter 3, which looks at the gradual rise of Mexico's export
crop production complemented by the rapid reduction of trade barriers. Mexico's new stance towards foreign trade was rewarded by its entry into GATT in 1986—and the country responded by going well beyond meeting the required 50 percent tariffs; by the end of the '80s, the highest tariffs had fallen from 100 to 20 percent.

However, chapter 3 also looks at how austerity measures imposed by the de la Madrid administration to battle the effects of declining oil prices and a massive foreign debt (chiefly accumulated during the 1970s), further undermined small scale production through producer prices for basic grains that were unable to keep up with Mexico's spiralling inflation. In spite of past policies to assure low cost staples, policies of the 1980s also harmed Mexican consumers, evident in reduced consumption of basic grains, and increased incidences of malnutrition among the rural and urban poor.¹

Chapter 4 examines the effects of these policies on Mexico's bean subsector. The chapter begins by describing the characteristics of bean production in Mexico, the second most important crop in Mexico in terms of total acreage. Although most bean producers are small scale farmers who farm one third of the total acreage devoted to bean production, the majority of Mexico's beans are produced on either large,

¹ Although bean consumption stayed fairly static during the 1980s, it declined from a high of 18.2 kg/year in 1965 to 14.7 kg/year by 1988 (see Table 4.3).
rainfed farms or irrigated commercial operations in the north. Vulnerability to climatic variations may explain in part why farms producing beans under rainfed conditions lag behind their irrigated counterparts. However, the difficulty accessing credit, inputs which are often targeted to irrigated agriculture, loss of economies of scale and a two-season pricing system during the '80s which favored winter producers in irrigated regions also present potent reasons for a growing dichotomy between the modern and traditional bean producers.

If small scale farmers are unable to compete domestically, they are even less likely to survive foreign competition—the subject of chapter 5, which looks at Mexico's current movement to domestic privatization and trade liberalization vis a vis the outside world. In particular, the chapter describes two recent events that spell profound changes for the Mexico's economic and social structure: land reform and an impending North American Free Trade Agreement. Privatizing ejido lands—an entrenched system of land tenure established in the aftermath of the 1914 Mexican revolution—represents and abandonment of the state's role as regulator of agricultural life. Furthermore, it opens up the possibility that land may be in the hands of a few domestic or foreign owned operations. Again, the bean subsector is directly affected by these changes, as the majority of bean producers are also ejidatarios.
Bean producers will also find themselves facing foreign competition with the ratification of NAFTA, estimated to occur in 1993. With an agreement reached by the three future members of the world's largest trading block to date (the US, Canada and Mexico), bean farmers will eventually find themselves without the protective tariff and non tariff measures they enjoyed in the past. The general outline of NAFTA is described in chapter 5, and the potential impact of various policy scenarios is the subject of chapter 6.

While protection of domestic bean production--considered a "sensitive" commodity for Mexico--will be gradually phased out over a fifteen year period, the country must decide during this time what policies to enact either to encourage domestic bean production or find alternative employment options for rainfed producers. Chapter 6 first examines an export driven development policy, looking particularly at the detrimental effects of rural-urban migration. Conversely, the chapter uses the context of the bean subsector to examine how a strategy targeting small farm development might be implemented. While Mexico and the US have an unequal trading relationship, a free trade agreement need not be implemented in the spirit of competition; rather cooperation and mutual development is an equally viable option. It is in this light that developing Mexico's bean subsector, particularly by encouraging small farmers to move beyond subsistence level production, may be pursued.
7.2 Suggestions for Future Research

Sanderson writes that "beans have been one of the most ignored crops in the Mexican agricultural system...for a number of reasons--not the least of which is their rural constituency as a consumer item and the marginalization of their producers." (Sanderson, 1986, p. 218). Perhaps this also explains why there is such a dearth of information regarding bean production in Mexico, making it very difficult for this paper to discern trends and conduct a more rigorous subsector analysis.

Thus the first suggestion for future research on Mexican bean production would simply be to compile more comprehensive information on the subsector, preferably through an in-country survey of producers both in rainfed and irrigated regions. Key research issues might include a more detailed description of bean production (varieties grown, inputs etc...) as well as the effectiveness of current rural development programs in targeting credit and inputs to both traditional and commercial bean producers.

In addition, in-country research might also be conducted to better estimate the impact of land reform and a free trade agreement. Relevant issues might include examining recent migratory patterns of small scale producers and viable options in production and employment generation in the rural sector should bean (and corn) producers be unable to compete against foreign imports.
Because US farmers will become key players in the forthcoming free trade agreement, production in America's main bean growing states—North Dakota, Colorado and Michigan—might be examined to find out whether American farmers produce Mexico's more favored bean varieties (pintos and black beans), or alternately, whether they would be willing to do so. Because, as noted by FAS (1992), price will remain the principal guide in determining Mexican bean imports, it would be helpful to know whether NAFTA, through bilateral tariff reductions, will give US bean producers a strategic advantage over bean importers from other countries.

As noted in chapter 6, bean productivity can be enhanced in both countries through research on mutual problems such as drought and insect resistance, and better storage methods. An analysis on this subject, including areas for future collaborative research would also be helpful.

A final point to consider in analyzing the potential effects of economic liberalization on Mexico's bean sector is the yardstick by which to measure "success"; that is, determining whether the merits of free trade—or land reform—should or should not be judged simply on increased domestic growth without regard to distributional effects.
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