NAFTA and the Campesinos:

The Impact of NAFTA on Small-Scale Agricultural Producers in Mexico and the Prospects for Change

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CONTENTS

Chapter 4

Sweet Protectionism: State Policy and Employment in the Sugar Industries of the NAFTA Countries

Gerardo Otero and Cornelia Butler Flora*

IN THIS CHAPTER, we compare and contrast the intersection of international and State policies and their impact upon employment in the three NAFTA-member countries. We argue that prevailing trade policies have varied according to the relative power exercised by various groups in sugar production: cane or beet growers, industrial processors, workers, secondary industries that use sugar as the main raw material, and final consumers. Of course, each nation's perceived political and geopolitical interests have also played a key role. Primarily, sugar processors and the State's geopolitical and foreign policy interests have shaped U.S. policy. In Mexico, the populist legacy of the revolution (1910–1920) determined that the State would try to cater to a wider diversity of interests, including those of organized labor in sugar mills, organized peasant sugar cane producers, consumers, and processors. In Canada, by contrast, sugar policy has been shaped by a free-trade regime, and only occasionally have beet growers been offered some form of subsidy, but this policy ended in 1996. Thus, the main beneficiaries in Canada have been secondary industries (which use sugar as an input) and, to a lesser extent, consumers. We suggest ways to coordinate NAFTA-region sugar policies to maximize employment benefits.

Sugar is a particularly interesting example of the intersection of the conflicting demands of national policies and the superimposition of international policies. Its production in the Americas was initially driven by colonial powers seeking cheap inputs for capital accumulation, as inexpensive sugar keeps domestic food prices down. States must grapple with a diversity of domestic and foreign interests in the shaping of national policies on sugar production. In the United States, for example, the exemption of sugar from free trade has lasted longer than for any other agricultural product under NAFTA. By comparing the three NAFTA countries' responses to changing international rules for this privileged agricultural product, we can ascertain dimensions of power and labor impacts.

With respect to employment, one might imagine NAFTA negotiations evolving to enhance the complementarities of the three countries involved. Although Mexico employed close to half a million people in the sugar industry

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before the start of NAFTA, its sugar prices have been, at most, on a par with, but traditionally lower than, those in both the United States and Canada. Sugar-production employment in Canada was lower than 2,000 and in the United States it was below 18,000, and nearly all this employment was seasonal. Yet, employment seems to have been the factor lowest in the priorities of NAFTA negotiators. If there were any concern for employment, it was to "liberate" more workers from Mexico's countryside to make them available for employment in other sectors. Expanding the labor force in this manner would guarantee Mexico's "comparative advantage" of cheap wages to lure foreign investment. As one of the negotiators on the Mexican team told us, "We went in [to the negotiating table] as if we had marbles in our pockets, and some of them had to be traded for others." It seems like the sugar industry "marble" was one of those most susceptible to being sacrificed by the Mexican team. And many of the sugar workers and small farmers thus liberated migrated to the United States for the seasonal work in the sugar harvest. In fact, Mexico has been the world's champion in expelling workers from 2000 to 2005, when two million migrated north. China and India, with populations over ten times larger, expelled 1.95 million and 1.75 million respectively during the same period.

Before plunging into the core of our subject matter, the next section offers some background information on sugar production and trade regimes. We then provide a section on each country with a description of how its respective sugar industry has evolved since the 1960s. The focus of this account is the groups shaping policy and employment issues. The concluding section highlights the main similarities and differences in State policies (as well as their key beneficiaries) and addresses employment and labor issues. We also offer a macroeconomic analysis of exports and imports of sugar-related products in 1994, 2000, and 2005, as the main results of each nation's policies throughout the period. We suggest ways in which the three NAFTA countries could find better ways to coordinate their sugar policies in order to maximize the employment benefits of this industry. But of course, if the public interest is to be served, then maximizing good jobs in sugar production should not be achieved at the cost of highly inflated food processes or environmental damage.

Politics, Sugar Production, and Trade

In general, most agricultural interests in different countries have resisted the current worldwide movement toward neo-liberalism. In fact, agriculture has been a major obstacle to both the Uruguay Round of GATT (1987–93) and NAFTA. These agreements, with their emphasis upon open borders and dependence on market forces, are part of the neo-liberal onslaught that promotes capitalist globalization. NAFTA is an example of such a trend pushed by selected multinational interests (Orden 1994). Since significant aspects of the neo-liberal reform have taken hold in most Western countries, the traditional groups that enjoyed protection by sugar policies have begun to lose the battle. In the end, more agricultural groups in the United States supported NAFTA than opposed it, primarily because they saw it as favoring their short-term interests. As with many neo-liberal policies, free

trade is verbalized by authorities of developed countries and urged upon those of developing countries. Yet it is not implemented across the board within the developed countries, particularly in the United States, Japan, and the European Union, where the State is acting with increasing heavy-handedness to re-enforce existing vested interests in some sectors (*The Economist* 2002a; 2002b). In the case of sugar, NAFTA did not affect the highly protected U.S. sugar market for the initial seven years (until 2000), and then protection only gradually declined during the following eight (until 2008).

During the past four decades, sugar sold on the world market has had a residual character: a very small proportion of world sugar production actually enters the world market, as nation-states use control of sugar as an important lever for bilateral and internal relations (Gitli 1994). Most sugar produced worldwide is consumed domestically, often at government-controlled prices, and a large portion of world sugar trade is conducted under bilateral agreements and preferential terms—such as the European Community's Lomé Convention with ex-colonies in Africa, the Caribbean, and the Pacific (1975–2000) and the Cotonou Convention (2000–2020). Slight shifts in total world production or government policy can have a large impact on world prices, which, under the new international trade regimes, increasingly affect protected and supported domestic prices. Governments can block exports in times of scarcity and dump surpluses in times of excess production. Price variability, in turn, increases risk, particularly to producers who do not have mechanisms for smoothing out price variations.

Because sugar can be produced in both tropical climates (sugar cane) and temperate climates (sugar beets), developed and developing countries compete in international trade. Some differences in the nature of the production of sugar cane and beets, however, make each process distinctive. Sugar cane can be grown in monoculture continuously on the same ground, with constant addition of nutrients and pesticides to control the many pests that affect the cane plant. Sugar beets, on the other hand, must be rotated with other crops, as the nematodes that attack the roots are not susceptible to pesticides. Both these regimes of monoculture and chemical use have environmental implications. Both sugar cane and sugar beets quickly lose their sugar content after harvest. Thus, proximate and immediate processing (or cold storage, in the case of sugar beets) is critical to maintain value. Processing equipment is capital intensive, requiring coordinated value chains between growers and processors. Different mechanisms for coordinating those value chains, such as cooperatives, vertically integrated firms, contracts, and spot markets, are present in the three NAFTA countries.

Sugar processing requires enormous capital investments. Growers cannot process sugar individually, except at very inefficient levels (as in *trapiches*, which make *panela* in some developing countries such as Colombia). Thus, there is no market for either sugar beets or sugar cane unless there is a processor who, by the nature of the enterprise, is generally a corporate capitalist or a cooperative. Both sugar beets and sugar cane are relatively "heavy" crops vis-à-vis their value and must be processed prior to sale, even to wholesalers. Cane and beet growers both depend upon processors not simply to add value to their crop, but

to sell it at all. Thus, power in the sugar industry is centered in the hands of the extractors and processors. The amount of labor used in sugar processing varies enormously, depending upon the age of the plant. After cane is processed into raw sugar, it is further refined.

In all three North American countries a variety of policies have been applied to either provide a safety net to agricultural producers, industrial processors and/or industrial workers, or to provide basic food to urban populations at subsidized prices. These sets of policies are now under assault by increasing integration into the international free-trade regime and the application of neoliberal rules that are geared to maximize the free flow of capital, goods, and services.

NAFTA's Provisions on Sugar Trade

The tremendous resistance placed by the sugar lobby in the United States, before the vote in the U.S. Congress on November 17, 1993, resulted in a last-minute executive negotiation that substantially modified the original sugar agreement. Thus, the sugar provision is more overtly protective of U.S. interests than those of other agricultural products. Under the NAFTA negotiation, Mexico's U.S. import quota would increase from 7,250 to 25,000 tons during the first six years (1994–2000), and to 250,000 tons in years 7–14 (2001–08). Thereafter, all barriers to trade between the two countries will be eliminated, including the quota system for domestic and international purchase of sugar. In the original formulation, Mexico was to be able to export any surpluses of sugar to the United States, duty-free, as long as it was able to cover its domestic demand. Beginning in 2001, Mexico would have been able to export duty-free to the United States the full extent of its projected surplus for that year, under either of two conditions: " . . . if 1) Mexico has been a net surplus producer for any two consecutive marketing years (including years 1–6 of the agreement), or if 2) Mexico has been a net surplus producer during the previous year and is projected to be a net surplus producer that year" (Buzzanell and Lord 1993, 12). Mexico's exports to the United States would be purchased at the U.S. preferential price, if that price preference were still in place.

The "side agreement," however, contained a formula to calculate Mexico's surplus which links the measurement of Mexico's self-sufficiency in sugar to its use of high-fructose corn syrup: it stipulates that high-fructose corn syrup (HFCS) must be included on the *consumption side only*. With this formula, Mexican sugar production would have to exceed consumption of both sugar and HFCS if Mexico is to be considered a net surplus producer, even if part of the HFCS is produced within Mexico (USDA-Economic Research Service 2000, 48). In addition, the rules of origin were redefined to prevent Mexico from importing sugar cane—possibly from Cuba—refining it, and then exporting it to the United States. At the time of the agreement, HFCS was imported from the United States at a price competitive with Mexico's domestic sugar prices. This made it more difficult for Mexico to be considered a net surplus producer and thus eligible to export more to the United States at its protected prices. Mexico's access to the U.S. sugar market was as follows: 7,258 tons duty free until 2000, even if it was

not a net surplus producer; then, for the amount of its surplus as measured by the formula, up to 250,000 tons duty free from 2000 to 2007. The minimum duty-free access would remain at 7,258 through 2007, regardless of whether Mexico produced a surplus or not (USDA-Economic Research Service 2000, 48).

As of the 2008 complete border opening for sugar in NAFTA countries, Mexico stands to lose up to 1.4 tons of sugar used by the soft drinks industry, as it could replace most of its sugar with HFCS from the United States, produced with subsidized corn. Another irony that has resulted from this side agreement, signed only by the trade representatives of Mexico and the United States, is that the United States has ended up exporting more refined sugar to Mexico than the other way around. This result is due to a reciprocal allowance in NAFTA to export refined sugar to either country made from raw sugar produced in the other country. Because of the government's strategy to force the recently privatized mill owners to modernize, Mexico became largely self-sufficient in raw sugar. Nevertheless, Mexico imported 219,000 tons of refined sugar from the United States in 1991 and 97,000 tons in 1992. The figures dropped to 27,347 tons in 1996 and to 27,882 tons in 1997 (USDA-Economic Research Service 2000, 49).

With NAFTA, Mexico imposed import barriers similar to those of the United States. Yet prices of refined sugar in Mexico have been lower than those in the United States because of excess production and lower distribution and retailing costs. Up until 2000, Mexico maintained a high tariff rate of 48.586 cents per kilogram. Mexico was thus protected against world market sugar imports under NAFTA until year six. By Fiscal Year 2000, Mexico was required to have in place a tariff-rate quota (TRQ) system with rates applied to third countries at the same levels as those maintained by the United States. Thus Mexico, like the United States, is able to isolate its sugar industry from world market prices. In contrast, Canada's free-trade approach—Canada has usually had the lowest wholesale sugar prices in the region—has attracted several large confectionary processors from the United States to set up shop there. One example is Wrigley, the world's largest makers of chewing gum, which set up another plant in Canada in 2003. NAFTA instigated a declining high-tier tariff schedule for sugar imported from Mexico beginning in FY 2000. Instead of paying the former duty of just under 17 cents a pound, the raw sugar tariff is 12.09 cents a pound and the refined sugar tariff is 12.81 cents a pound. The raw sugar tariff drops about 1.5 cents each year, while the refined sugar tariff drops about 1.6 cents a year. Both rates will reach zero in FY 2008.

In January 1997, Mexico's National Chamber of Sugar and Alcohol Industries, the association of Mexico's sugar producers, charged that U.S. corn wet millers were exporting HFCS to Mexico at less than fair value. Mexico's trade ministry, SECOFI, initiated an anti-dumping investigation in February and imposed temporary (then permanent) tariffs on two (then three) grades of HFCS. In February 1998, the U.S. Corn Refiners' Association asked for a review of Mexico's anti-dumping actions under Chapter 19 of NAFTA. The U.S. Trade Representative (USTR) announced its intention on May 8, 1998, to invoke a WTO dispute proceeding to challenge Mexico's action. By January 27, 2000, the WTO

ruled in favor of the United States. The following year, the Mexican Congress issued a law to tax industrial users of HFCS instead of sugar, thus avoiding any direct tariff or subsidy that would contravene NAFTA or WTO rules. President Fox unilaterally withdrew this tax for a few months, but Congress sent the issue to be resolved by the National Supreme Court of Justice (SCJN). In July of 2002, the SCJN ruled in favor of Congress, specifying that President Fox had acted unconstitutionally. The U.S. Trade Office did not say whether it would attempt to contest the tax in a NAFTA or WTO court.

Under the Canada-United States Free Trade Agreement (FTA), which went into effect in 1989, cane sugar was not treated as a product of Canada, given its strict rules of origin. A small concession in the FTA was that food products that contained ten percent or less of sugar from cane (by dry weight) could enter the United States duty free. On October 1, 1997, a new sugar agreement between Canada and the United States went into effect (BeeNews 1998). This bilateral agreement, which can be unilaterally terminated on six-months' notice, guarantees Canada access to the United States market for a limited quantity of refined sugar (10,300 tons) and sugar-containing products (59,250 tons). Canada can also compete on the remaining portion of the refined-sugar global tariff-rate quota (TRQ) of about 7,500 tons (BeeNews 1998). Under the NAFTA rules of origin, products shipped under Canada's allocation of these TRQs must be manufactured from Canadian sugar beets (Flores 1998, 3).

The Sugar Barons and U.S. Policy

Sugar production in the United States increased to record levels at the turn of the century (USDA-Economic Research Service 2000) largely due to the continued support from government policy. As we will show, the main beneficiaries since the 1960s have been "friendly" foreign countries and the U.S. sugar processors and producers of high-fructose corn syrup (HFCS). The latter have the benefit of bountiful harvests of subsidized corn. The latitude of the United States allows it to produce sugar cane in southern states and Hawaii, and sugar beets in northwestern and north central states, and California. Raw-sugar production from sugar cane has steadily increased since U.S. sugar production allotments were removed. Sugar beets are grown in many parts of the United States, including the following states: California, Colorado, Idaho, Michigan, Minnesota, Montana, Nebraska, North Dakota, Oregon, Washington, and Wyoming. Nominal production may also occur in New Mexico, Ohio, and Texas (Coalition for Sugar Reform 1999a). Sugar beets were important in Kansas in the 1970s, but then rapidly declined.

Up until the Cuban revolution of 1959, sugar plantations in Cuba were major suppliers for U.S. sugar consumption. Some were Cuban-owned while many were owned by U.S.-based companies, particularly sugar refiners. Cuban-grown sugar was preferentially imported and priced in the U.S. market, and U.S. growers were limited in the amount of sugar they could grow. With the suspension of the Cuban sugar quota in 1960, sugar allotments were taken off U.S. sugar producers, and only reimposed on July 1, 1993, and removed again

in 1996 by the Federal Agriculture Improvement and Reform Act (Public Law 104–127), commonly referred to as "Freedom to Farm." Previous USDA authority from legislation to implement domestic sugar-marketing allotments was suspended by that legislation (Young and Wescott 2000). The highly protected price for U.S. sugar, as intended, expanded domestic sugar production between 1930 and 2000. That above-world-market price encouraged the production of corn sweeteners at the end of the 1970s. By the 1990s, HCFS had replaced sugar in a large number of products, soft drinks in particular, and outstripped sugar production by 1995 (Lord 1997).

U.S. imports of sugar were greatly reduced during the 1980s from 3 million metric tons to about 1.4 million metric tons by the late 1990s (USDA-Foreign Agricultural Service 2002). International production quotas were taken over by new or expanded domestic producers. The decline in sugar imports has hit heavily at countries which once counted on the United States as a preferentially priced market, particularly sugar-dependent countries in the Caribbean basin (Messina and Seale 1993, 177).

The major conflicts in the United States, where the State has provided a battleground through legislation and the courts, were between growers and sugar refiners. Tariffs on raw sugar imports have had very different impacts on sugar cane and sugar beet growers compared to sugar refiners. Refiners want to import raw sugar as cheaply as possible, while such imports provide competition for U.S. growers, who have thus resisted this practice.

The Sugar Trust, which dominated sugar production on the east coast of the United States at the turn of the twentieth century, focused on refining sugar and was dependent upon imports of raw sugar, particularly from Cuba and Puerto Rico (Eichner 1969). In contrast, sugar production on the West Coast of the United States was vertically integrated, including sugar cane production in Hawaii and sugar-beet production in the western states. State and federal antitrust legislation—and the attractive loopholes for eastern sugar interests—had the most impact on eastern sugar development, while the tariff was most important in the development of the western sugar industry (Roy 1995).

Tariffs are the traditional policy tool used by the U.S. government to protect sugar interests. Early exemptions from tariffs encouraged sugar production in U.S. protectorates such as Cuba, Puerto Rico, the Philippines, and Hawaii. In 1876, the United States signed a reciprocity agreement with the Kingdom of Hawaii, which permitted sugar to be imported duty free. The Spanish-American War (1898) added Cuba, the Philippines, and Puerto Rico—all sugar producers—to the American emporium. High tariffs imposed on sugar that did not come under unilateral quota agreements kept the cost of imported sugar well above the domestic price of around 26 cents per pound.

In the 1930s, sugar policy was primarily an income strategy for farmers as a part of general farm legislation. In the Cold War period of 1945 to 1989, tariffs were a tool of foreign policy, used to reward friendly countries by allowing them to export tariff-free, and thus enjoy the high prices received by domestic producers. Confectioners and other users of sugar consistently lobbied to have the

tariffs reduced, which would have lowered the costs of producing soft drinks, candy, and other consumer products containing sugar. Well-organized agricultural lobbies, particularly from the powerful southern states, systematically resisted those pressures.

The provisions of the Sugar Acts gave the United States great international power. Countries defined as U.S. allies have been able to gain sugar quotas and export to the United States at its protected internal-market price. Those countries that have displeased the U.S. government in any of its policies were stripped of their sugar quota, which was then given to nations that better supported U.S. foreign-policy objectives. Cuba, greatly favored under early sugar quotas, lost all access to the U.S. market with the revolution of 1959. The United States redistributed Cuba's quota to governments, often dictatorships, who would stand firm against communism. The threat of losing sugar-related jobs and markets, combined with physical force, served to keep such rulers as Trujillo (the Dominican Republic) and Marcos (the Philippines) in power in the 1960s and into the 1980s. Sugar import quotas were established on the basis of historic U.S. imports. Thus there are countries which are no longer self-sufficient in sugar, such as Taiwan, and that buy sugar on the world market to sell to the United States under their tariff-exempt price, thus earning up to five times their initial investment in sugar from other countries.

The Food Security Act of 1985 mandated a price-support program for domestically produced sugar cane and sugar beets at not less than 18 cents a pound, which is over three times the world market price. The Dole Amendment to the 1985 farm bill, however, stipulated that the sugar program must be conducted at no cost to the U.S. Treasury. Commodity Credit Corporation forfeiture for unsold sugar against which a government loan had been secured, was not permitted, as is the case with such commodities as corn, wheat, cotton, and others. The same blockage to the federal treasury is in place for tobacco. Only these two commodity crops have federally determined supply controls. With the 1996 farm bill, the President is empowered to regulate commodity imports of only sugar and tobacco when such imports interfere with sugar or tobacco price support or stabilization programs of the United States. The cost of high prices to sugar producers is thus shifted from the federal government to consumers. The 2002 Farm Bill maintained the price-support loan program (18 cents a pound for raw cane sugar and 22.9 cents a pound for refined sugar) and the tariff-rate quota import system. It reinstituted flexible marketing allotments to control supply. Strong import controls are in place.

Estimates of the annual cost to domestic consumers of the U.S. sugar program ranged from $1.0 billion to $2.7 billion in the early 1990s (Messina and Seale 1993, 173). A 1998 report in *Time* magazine put this cost to Americans at midpoint—at least $1.4 billion in the form of higher prices for candy, soda, and other sweets. A GAO (U.S. Congress General Accounting Office) study, moreover, has estimated that nearly half the subsidy goes to large producers like the Fanjuls (*Time* 1998, 81). Alfonso and José Fanjul are two of the largest Cuban-American sugar industrialists, called "Subsidy Barons" by *Time* magazine because they

receive State supports in the millions of dollars. According to a 2001 study by agricultural economists, if the sugar program were eliminated, with full passage of benefits to consumers, these would amount to $1.96 billion in 1998, with an additional benefit of $63 million to sugar cane refiners—who would have access to cheaper, imported raw cane (Beghin et al. 2001, 11). (All dollar figures in this chapter are given in U.S. dollars unless otherwise designated.)

The structure of the U.S. sugar industry was locked into place in July of 1993, when sugar marketing allotments were instituted. In that year, the United States reached the "trigger point", whereby its sugar needs were met by importing only 1.25 million tons of sugar. Domestic sugar production was capped and allocations given to current sugar processors based on historic patterns of production. (As mentioned, these domestic quotas were removed in 1996 however.) In 2002, with the reintroduction of sugar-market allotments, 45.65% are for raw cane sugar, and 54.35% for refined beat sugar.

The 1996 Farm Bill continued to support sugar prices through loans offered to sugar processors (not producers) and added the option of "non-recourse loans". Non-recourse loans allow the sugar processor to take the amount of the loan if market price does not reach the loan price, and forfeit the crop to the Commodity Credit Corporation (CCC). The CCC is a federally owned-and-operated corporation within the USDA, created to stabilize, support, and protect agricultural prices and farm income through loans, purchases, payments, and other operations. Unlike other non-recourse loans, which go directly to the producer (often the landowner), processors must pay a 1-cent fee on each pound of raw cane sugar and 1.07 cents on each pound of refined beet sugar forfeited to the CCC under the loan program. Those forfeiture penalties were removed in 2002. Thus, the non-recourse loan provides an important safety net to sugar processors against recent international trade agreements. Sugar processors, however, paid a marketing assessment, which is a fee per unit of domestic production sold in order to share the program costs with the government. That marketing assessment was increased by 25% in the 1996 Farm Bill, and was eliminated in the 2002 Farm Bill.

Field Labor in the United States

Both cane and beet sugar in the United States have been labor intensive, although there is increasing mechanization in the harvest and planting sugar cane, and in the thinning process of sugar beets. In a few parts of Louisiana and most of Florida, sugarcane is harvested by hand due to the fragile composition of the soil, which will not support large harvesting machinery, such as the combines used in Texas or the bulldozers and cranes used in Hawaii. Cane cutting is dirty, hot, and dangerous work. It is also relatively skilled work, as the ability to use a machete effectively takes time to develop. Almost all of the labor used to cut sugar cane is brought into the United States under special agreement with the Immigration and Naturalization Service, using specific laws passed for that purpose. Sugar growers have provided powerful pressure, in the face of Congressional investigation, to maintain an immigrant labor stream (Wilkinson 1989a). Generally, a contractor imports labor. Either the contractor or the plantation owner

must provide housing for the workers, who then must leave the country when their contract is complete or their work is terminated. Workers are charged for a bewildering number of goods and services provided by their contractors and employers, often reducing their paychecks to nearly nothing.

Initially Puerto Rico, then Jamaica, and finally Haiti provided the bulk of the cane cutters for the United States. It is almost impossible to get U.S. citizens—who have other options for employment or at least access to public assistance—to cut cane under current wage rates and working conditions. Furthermore, the relatively low cost of this imported labor keeps growers from investing in mechanization or even urging research into it (Hayami and Ruttan 1985). Exposés of their working conditions reveal the exploitative nature of these labor relations (Wilkinson 1989a; 1989b).

After the conditions under which cane workers lived were investigated in the 1990s—motivated in part by the high rate of AIDS in sugar-worker towns—cane harvests have been largely mechanized in Florida. This has resulted in fewer, better jobs. Local African-Americans now operate the heavy equipment used in the harvest.

An active labor movement involving sugar workers exists in Hawaii, where sugarcane may be harvested almost all year long, with a very high yield per acre. Although the workers in sugar are still often immigrants (for example, Philippine women are the employees of choice for cane planting), their salaries are higher than those of cane workers on the mainland. Thus, in response to the relatively high wages and favorable working conditions of labor in Hawaii, a radical mechanization has occurred, as cane is bulldozed, then lifted by cranes to be taken to the sugar mills in large tractor-drawn wagons. This procedure decreases the sugar content of the cane, but losses are apparently offset by decreased labor costs. The high initial costs of the machinery were underwritten by generous investment tax credits for agriculture in the 1970s, furthering the motivation to reduce field-labor inputs.

Sugar-Mill Labor in the United States

Investment tax credits during the 1980s greatly encouraged the substitution of capital for labor in U.S. sugar cane processing mills, which became extremely capital intensive. In the late 1980s, the Commerce Department estimated that it cost $76,000 to save one job in the sugar industry. The high price of U.S. sugar has allowed producers to mechanize their field and factory operations, and sharply reduce their labor needs.

Sugar Production and Populism in Mexico

From its independence to the 1980s, Mexico was self-sufficient in sugar production, with some exportable surpluses. In the 1980s, sugar mills failed to modernize their plants and Mexico became a net sugar importer (Buzzanell and Lord 1993, 2). From the late 1970s, the State launched a nationalization policy of failing sugar mills in order to save jobs. By 1980, 54 out of 64 mills in Mexico were owned and operated by the State. Official Mexican government policies tried to

satisfy a number of constituencies: sugar mill workers, whose union belongs to the *Partido Revolucionario Institucional* (Institutional Revolutionary Party, or PRI), which ruled political life at most levels from 1929 to 2000; sugar cane growers, whose two organizations also belong to the PRI; secondary industries for whom sugar is an important raw material (particularly the soft-drink and sweet-bread industries); and final sugar consumers, who have become accustomed to subsidized sugar prices.

With the onset of the debt crisis in Mexico in 1982, the State's financial ability to satisfy all these groups collapsed, as did its ability to efficiently operate the sugar mills. By the 1990s, sugar consumption increased both in absolute and per capita terms as a result of increased population growth, rising income levels, and attractive retail pricing. In the late 1990s, the growth of domestic consumption and production of sugar has been steady, and Mexico is once again capable of supplying its domestic market and having an exportable surplus. In the fiscal year 1997–98, Mexican consumption was 4,240,000 metric tons, and production in the same year set a record of 5,490,000 metric tons (Miranda and Ortiz 1999).

The key policy factor leading to the restructuring of production, in the fields and sugar factories, was the 1991 Sugar Decree (*Decreto Cañero*). New payment rules were set out in this decree, which led to increased milling efficiency and harvesting methods. It forced sugar mills to achieve a minimum level of efficiency in extracting sucrose (the technical name for sugar) from sugar cane by 1994. Sugar cane growers' payments are now based on cane sucrose content rather than simply on weight. Thus, quality both in the field and in the factory is compensated. If sugar mills were not able to extract the minimum sucrose content specified in the Sugar Decree, they would still have to pay cane growers according to sucrose content in their cane. In other words, the industrialist is responsible for extracting a reasonable amount of sugar from the cane, so as not to penalize growers for industrial inefficiency.

The growth in Mexican sugar production was, in part, fueled by a combination of increased sugar cane area harvested and recently instituted technological and producer-incentive measures, but the main factor for this growth has been the neo-liberal policies introduced in preparation for NAFTA. New technologies have increased the sugar recovery rates from 9.08% in 1992 to 10.77% by 1997. The effective milling season has been expanded from 130 to 175 days. This has led to a sharp competitive disadvantage for sugar mills which have not made the investments necessary to become more efficient. In the 1994 marketing year, Mexico produced only 3.8 million MTRV (metric tons, raw value) of sugar, while between 2000-2001 and 2004-2005 it averaged nearly 5.5 million MTRV (Haley and Ali 2007), including beginning stocks. By 2002–2003, the estimated production figure reached 6.238 million tons (USDA-Foreign Agricultural Service 2002, 13).

While U.S. policy has forced consumers to subsidize the sugar industry through high prices (the so-called "sugar tax"), the Mexican State has historically done the opposite. It has continuously subsidized consumption by maintaining artificially low sugar prices, at least in relation to production costs. As a result, sugar is very important in the Mexican diet. It is estimated that sugar

provides 17 percent of caloric intake for Mexicans (García Chavez 1992; Otero 1992).

Mexico maintains import policies that support domestic sugar prices and isolates its sugar industry from the world market. In 2000, the domestic sugar price in Mexico was about twice as high as the international free-market price. The Mexican government also enforces marketing quotas. After a domestic consumption level has been estimated, the Mexican government and the sugar industry agree on marketing quotas to be assigned to all individual sugar factories in the nation. Production above the amount allowed into the domestic market must be exported or held in stocks (USDA-Economic Research Service 2000).

The major shifts in ownership of sugar cane land and sugar processing between private and public ownership were triggered by direct government intervention (Singelmann and Otero 1995; Chollett 1995). In contrast to the previous ownership pattern of sugar mills, which was centered on individual capitalists and government management, during the 1990s, mills were owned by nine large corporate groups. Given the sugar overproduction they generated, though, 27 mills were so heavily indebted with cane growers and other creditors that the government once again nationalized them in September of 2001 (SourceMex 2001).

The sugar industry in modern Mexico has been highly regulated and designated of national interest by a series of decrees. Price controls for sugar have been the norm since 1940, but the most interventionist policies began in 1970 with the formation of a series of government agencies to regulate the industry. In 1983, *Azúcar, S.A.*, was founded as a State enterprise to set prices, control the marketing of sugar, and generally plan national sugar production (Singelmann 1993).

Part of the dilemma for the Mexican State stemmed from trying to be on good terms with a multiplicity of social actors with divergent interests who participate in the sugar industry. According to Peter Singelmann (1993), Mexican State policy has moved along three main polarities, depending on which social group carried the most weight: free market or protectionism in foreign trade, sink-or-swim *versus* subsidies with regard to domestic producers, and domestic free market or State regulation with regard to consumer prices.

By the mid-1980s, cane growers were facing very unfavorable terms of trade with respect to industrial products (García Chavez 1992). Increasing costs and declining relative crop prices were squeezing them. At the same time, industrial processing was managed by political criteria and suffered from much corruption. The large number of mills was causing a substantial drainage of public funds. Sugar imports increased, as production did not keep pace with increased consumption. Thus, in a time of massive foreign debt, unsustainable public deficits, and a stagnant economy, re-privatizing the sugar industry became unavoidable. It was already written into the 1986 International Monetary Fund accord for Mexico's structural adjustment (Singelmann 1993).

Under the pressures of NAFTA, the WTO, and growing neo-liberal economic-policy emphasis, the Mexican government defined a new position with respect to the polarities posited by Singelmann. State interventionism was to be

phased out of sugar policy. At least initially, the State chose free trade over protectionism in international trade, a sink or swim approach rather than subsidies with regard to domestic processors, and a free-market policy instead of regulation to determine domestic prices. A futures market, inaugurated on March 14, 1994, was established to provide a mechanism for risk management (or speculation). Azúcar, S.A. was dismantled in 1992, and private companies were allowed to buy and sell sugar on their own (including imports) between 1990–1992, leaving the industry without a regulated market or coordination of production and distribution.

Thus, the political context for the operation of NAFTA was one of withdrawal of the State from ownership of the means of sugar production. However, a government-controlled development bank for the sugar industry, *Financiera Nacional Azucarera SA* (FINASA) was estimated to hold over $1.3 billion of the Mexican sugar industry's debt by 1999. FINASA has provided extensive restructuring assistance to troubled sugar companies with high debt loads (Haley and Suárez 1999). After the expropriation of 27 mills in 2001, a new government management organization for these mills was formed, and its goal was to re-privatize the mills once their finances were back in shape. As well, a series of short- and long-term measures were planned to help the sugar industry. These included the granting of short-term loans to address the liquidity crisis of sugar mills, and the formation of an export cooperative, which would be 57% private and 43% government. This cooperative was the sole entity authorized to export approximately 650,000 million tons of sugar for the 2001–02 harvest (Flores 2002, 1). By the 2004–05 harvest, the new entity administering the remaining 23 nationalized sugar mills, *Fondo de Empresas Expropiadas del Sector Azucarero* (FEESA), managed a new sugar production record in 13 of the mills. The national harvest also broke the previous record established in 1997–98, with 5.65 million tons. The new record was attributed in large part to favorable rains (SAGARPA, 2005). In 2006, however, the Supreme Court reversed the expropriation and the government had not been able to recover its investment in the nationalized mills of 6,500 million pesos, or about $6 billion. According to Mexico City's newspaper, *Reforma*, this may have been the worst business investment of the Fox administration (*Reforma* 2006, 7F).

Field Labor in Mexico

Employment in the sugar industry was estimated at 420,085 workers in all the different aspects of cane production and processing as of 1998 (Lozano Gómez 1998, 9: see Table 1). Rather than decreasing, the number of sugar cane growers has actually increased in the past fifteen years, from about 130,000 in the mid-1980s (Otero 1991) to 143,763 in 1998 (Table 1). This phenomenon has to do with the fact that cane growers have access to Mexico's public health insurance, the *Instituto Mexicano del Seguro Social* (Mexican Institute for Social Insurance, or IMSS). Even though neo-liberal reforms have included the requirement that, in order to be eligible for IMSS membership, a cane grower must farm at least three

hectares, it is very common to find children of older growers who get married and inherit one or two hectares (sometimes even less than one hectare), and still become members of IMSS. Its authorities have never attempted to enforce the rules of eligibility, for they know that it would cause a major social upheaval among cane growers, one of the best organized groups of rural producers (Otero 1998).

Cane cutters are paid by the kilogram. They perform the hardest part of the labor process and command the lowest wages in the industry. Day laborers manage to make the equivalent of one to two minimum wages in a day's work, which can hardly sustain the worker himself, let alone his family (almost all cane cutters are male workers). In the past, much cane cutting was left to migrant workers from rural areas that were more depressed than the sugar regions. In recent years, however, there has been an increasing surplus population within sugar-growing towns available for cane cutting. The proportion of migrant cane cutters has been reduced from about 30% of all cane cutters in the early 1970s to less than 10% in the 1990s. With the exception of a few that work for large sugar cane growers, who are affiliated to the CTM, a PRI-affiliated union, cane cutters are not unionized (Paré, Juárez, and Salazar 1987).

Sugar Mill Workers in Mexico

In contrast to cane cutters, the approximately 35,000 unionized workers in the sugar mills were relatively well protected until the privatization that began in the late 1980s. This is one of nine industries in Mexico whose industrial relations have been regulated through industry-wide contracts. These contracts were meant to unify working conditions in the country and were held in great esteem between the 1930s and 1970s, when there was a clear alliance between the official workers' organizations and the State. Thus, all sugar mill workers have been affiliated with the CTM (Workers Confederation of Mexico), or the CROM (Regional Confederation of Mexican Workers), both affiliates of the formerly ruling PRI. After the 2001 nationalization of 27 mills, the government intended to review the industry-wide contract agreement with sugar-mill workers. By 2007, the industry-wide contract had continued to be ratified on an annual basis as a collective agreement for all workers in the sugar and alcohol industries, as published in Mexico's *Diario Oficial*, where all new federal legislation is published by the government, on March 12.

According to the Mexican Ministry of Labor, most sugar mills had an average of 1.5 non-unionized workers for each 5 unionized in 1992 (Becerril 1993). An extreme case was a mill in the state of Veracruz, which reported 477 unionized workers and 232 non-unionized workers (*empleados de confianza*, or white-collar workers)—a ratio of one non-unionized worker for every two union workers. As of 1992, unionized workers were 78% of the labor force and received only 39% of the wages paid by the mills. In contrast, the non-unionized workers (clerical and managerial) were only 22% of the labor force and received 61% of the wages paid (Becerril 1993, 15). During the Vicente Fox (2000–06) administration,

however, the industry's situation changed dramatically. With over 20 sugar mills directly managed by FEESA, the industry's operation was substantially streamlined, experiencing a sharp decline in employment to a mere 30 percent of what it was in 1998 (see Table 1 below).

Table 1
Employment in Mexico's Sugar Industry, 1998-2006

Activity	1998	2006
Cane Growers	143,763	77,575
Harvesters	81.076	n.a.
Day Laborers (cane cutters)	112,464	32,908
Transporters	29,444	6,504
Unionized Mill Workers	35,899	10,195
Non-Unionized Mill Workers	7,504	2,293
Retired Workers	9,935	n.a.
TOTAL	**420,085**	**129,476**
Economic Dependents	2,060,685	634,432
GRAND TOTAL	**2,480,770**	**763,908**

Source: for 1998: Lozano Gómez, Adriana. 1998. "Diez ingenios del país cerrarían por la fructosa." El Cañero Mexicano 3 (July): 9. For 2006: SAGARPA (2006) Sembrando soluciones. Año 1, núm. 28. Available at: http://www.sagarpa.gob.mx/cgcs/sembrando/2006/28-2006.pdf (accessed: 28/03/2008).

Sugar Production and Free Trade in Canada

The Canadian sugar industry offers a sharp contrast to the way sugar industries developed in both Mexico and the United States. In Canada, the sugar industry developed since the mid-nineteenth century under a basically free-trade regime, driven by the differential in transportation costs between importing refined sugar versus importing it raw and then refining it. The cost difference lies in the

fact that raw sugar can be imported in bulk, whereas importing refined sugar requires packaging and its transportation becomes more costly. From that time, State policy applied preferential rates to raw sugar, which further enabled the development of cane refining in Canada (Food Bureau 1999, 1). Law requires refinement of raw sugar—once imported—if it is to be sold in Canada.

The primarily free-trade regime in the sugar industry makes it exceptional also in the context of Canadian agricultural policy. In fact, State policy has involved a series of protective measures for agricultural producers. Policy mechanisms in Canada have been geared toward the stabilization of producer prices and incomes; the setting up of boards for marketing agricultural commodities; and the western grain-handling and transportation system which was subsidized by the federal government until recently. If the rule in Canadian agricultural policy has been protectionism of some kind (Skogstad 1987), then the sugar industry is actually an exception to this rule.

Initially the main locations for cane sugar refineries were ports, given the costs of transportation. Thus, several refineries were established in Vancouver, Quebec, and Ontario. Sugar from Canadian-grown beets became economically viable only in locations that were too distant from port cities with cane-sugar refineries. Beet refineries developed at some point in Alberta, Ontario, Quebec, and Manitoba. By 1999, however, only the Alberta plant remained in operation. The beet-sugar refineries had to face increasing cost competition from cane sugar, high-fructose corn syrup, and non-caloric sweeteners—although Canadian demand for sugar has remained virtually stagnant for three decades. In fact, total production of refined sugar was 1,154,310 tons in 1977 and remained at a very similar level twenty years later at 1,146,351 tons. During the 1990s, the most significant decline was experienced in beet-sugar refining. Sugar-beet acreage dropped from 56,733 in 1996 to 33,124 in 1997, after the closing of the Manitoba plant (Food Bureau 1999, 2). By 1999, however, the Taber, Alberta beet-sugar refinery had extended its operation, and acreage increased to 44,378 (Alberta Sugar Beet Growers Association 2000). Of Canadian sugar production for the domestic market, 18% is destined for the retail market for direct consumption and 82% goes to industrial users.

The Canadian industry has been facing continued competition from cheap U.S. high-fructose corn syrup, non-caloric sweeteners, and sugar imports, which are re-exported at a price much lower than that of the U.S. domestic price, as a result of a U.S. program established in 1983 (Coalition for Sugar Reform 1999b). Thus, the Canadian industry has always been under pressure to rationalize and consolidate. Employment has suffered in this process, having dropped from 2,803 jobs in 1976 to 1,540 jobs in 1996.

The consolidation process has resulted in the shake-up of several mills and companies. There were five companies operating seven plants across Canada in 1981, including two beet processors. By 1999, the number had been reduced to three companies operating only four raw-sugar refiners and one beet processor. As a result of rationalization, productivity—measured by value added per paid hour—increased by 20% between 1990 and 1997 (Food Bureau 1999, 3). Furthermore, the consolidation among several raw cane-sugar refiners, along with the modernization of the production process, account for the reduction of 77% of the labor force in the industry as a whole since 1988. Just in the period from 1990 to 1997, value-added per paid hour of labor increased by 20% (Food Bureau 1999, 3). Employment in both the cane-sugar and sugar-beet refining industries is declining due to increased capital investments and industry consolidation.

Most likely due to location and transportation-cost factors, Canada and the United States have been exporting sugar to each other over the past two decades at varying levels. Some prairie provinces produce beets for processing in U.S. plants. Yet, the value-added for Canadian sugar has remained stable at around 35% per year (Food Bureau 1999, 4).

Since confederation in the 19th century, the main goal of the Canadian government with respect to sugar has been to establish the conditions for self-sufficiency from domestic production, even if this involves the importation of raw sugar. According to University of Toronto political scientist Grace Skogstad (1987), the material basis for the conflict of interests that has shaped Canadian agricultural policy can be of two types: 1) conflicting interests between producers who want to export versus those who prefer to import—each will be interested in different types of tariff policies; and 2) those producing raw materials for another industry will be interested in commanding high prices for their goods, whereas the purchaser(s) will be interested in lower prices or in being able to import cheaper raw materials from abroad.

From this framework, the interests of raw-sugar processors have prevailed from the outset. Perhaps this accounts for the reason that sugar based on beets has always represented a small fraction of the total sugar supply in Canada. Beet growers and processors never had substantial State support to compete successfully with raw-sugar processors. During most of the past four decades, the share of beet sugar in Canada was around 10–15%. After NAFTA and the WTO, this share declined even further to about 8% by 1999, after one of the last two processing plants was closed down.

In the past, the Canadian government supported sugar-beet farming operations through direct payments to producers on a per-ton basis. Sugar beets, like many other agricultural products, have been part of a "tripartite price stabilization program" which shares the costs of subsidies equally among the federal government of Canada (25%), participating provincial governments (25%), and producers (50%) (Early and Westfall 1996). This cost-sharing among governments and producers' associations was a prevailing disposition of the Canadian sugar policy. New agricultural strategies put into place by the Conservative government in the late 1980s, however, resulted in phasing out such subsidies (Wilson 1990).

Considered in the context of overall Canadian agricultural production, sugar beets are a rather insignificant horticultural crop. Horticultural production makes up a mere 9.4% of Canadian agricultural production. But floriculture and vegetables take the lion's share of this percentage. They generated Cdn$800 million in 1996, whereas sugar beets accounted for only Cdn$40.6 million in the same year (Canadian Federation of Agriculture 1998, 8). Overall, sugar from

beets makes up a very small proportion of agricultural production in Canada. Therefore, the most important State policy regards the free-trade regime prevalent in the importation of raw sugar for its refinement in Canada.

The largely free-trade regime in sugar has resulted in high-quality and low-priced refined sugar, representing an advantage to both consumers and food processors. In cases where "dumping" or other unfair trade practices are suspected, Canadian sugar refiners have the recourse to refer them to the Canadian International Trade Tribunal (CITT). The CITT may recommend the imposition of protective tariffs. Anti-dumping and countervailing duties have been imposed since 1995 on a number of sugar suppliers, including some from the United States and the European Union (Food Bureau 1999).

The government does get involved in health and quality standards, crop insurance and credit, research and information distribution, stabilization programs, and other areas (Loyns 1978, 18), which affect primarily sugar-beet producers. Even if this crop is not specifically targeted, beet growers can apply for support through the stabilization programs. Tighter forms of protectionism, such as tariffs, duties, and so forth are missing. In times of crisis, when market prices go down, the government compensates growers for the deficiency. Such compensation has been measured by the average prices in the previous ten years, with the government making up the difference to 90% of such average at one point, and to 80% in the more recent neo-liberal past, starting in the late 1980s. Only in the period between 1984 and 1986 did Canada feel the need to revise its sugar policy (Earley and Westfall 1996, 51), and this was in the context of one of the worst farm crises in North America since the Great Depression (Wilson 1990).

In sum, Canadian free-trade policy in sugar has worked well in meeting the goal of supplying the domestic market with internal production, even while importing raw sugar. The main beneficiaries have been sugar refiners and industrial sugar processors, but consumers have also benefited from lower prices in sugar-content foods. Beet farmers have never constituted a very large group and were among the least favored farmer groups in Canadian policy, receiving support only during exceptional circumstances. Employment is very low, at approximately 1,500 workers.

Conclusions: State Policy, Sugar Trade, and Employment

This paper has explored in detail three contrasting forms of State intervention and employment issues with regard to the sugar industries in the United States, Mexico, and Canada. While processors have been the group with the greatest political influence in the United States, Mexican policy has favored employment in both the cane fields and the industrial mills, and has tried to keep sugar prices low for consumers. Canadian policy has focused primarily on providing the lowest possible prices to industrial processors, who use sugar as a raw material, and to consumers, even if sugar beet growers have occasionally enjoyed some government support at times of acute crisis. Such supports, however, ended in 1996. Employment has not been a concern for either the U.S. or Canadian policies, but it has been central in Mexican policies.

The Role of the State in the Sugar Industry

As can be seen from the above discussion, State policy in the sugar industry is much more significant in the United States and Mexico than in Canada. Nevertheless, the different actors in sugar production in the three countries have successfully influenced State policy to favor their interests, according to each of their abilities to exercise power. The 14-year transition period allowed in NAFTA for the sugar industry, for instance, is the longest grace period (along with corn, its competition as a sweetener) given to any commodity and an indicator of the power of the vested interests in these countries—in the United States in particular. The sugar commodity group in the United States unanimously opposed NAFTA ratification (Orden 1994). Table 2 sums up the various interests and state policies that have prevailed in the three NAFTA countries until 1994.

Table 2

	Retail	Wholesale		Retail	Wholesale
Brazil		15	Russia	33	22
Australia	35		*United States*	*43*	*27*
EU	60		Japan	73	48
Cuba	8		South Korea		36
Thailand	13	12	Canada	30	16
Guatemala		22	Iran	NA	NA
South Africa		22	Malaysia	18	17
Colombia		27	Algeria		
Mauritius			Indonesia		
Mexico	23	21	Egypt	21	18

Source: Analysis in this paper.

U.S. sugar production has benefited from high levels of protection. The 1981, 1985, 1990, 1996, and 2002 Farm Acts have guaranteed relatively high prices and encouraged sugar production. Without the sugar program, U.S. prices would move in tandem with the world price but about 1.5 cents higher because of shipping and handling charges between the Caribbean (world markets) and the U.S. ports (Barry et al. 1990, 19). These prices would make growers much more vulnerable to world-wide price swings and would reduce sugar production (particularly cane growing in Florida, where it is most costly).

While the United States has tried to conform to the World Trade Organization's guidelines to remove protectionism from agricultural products, sugar remained as the most protected of all U.S. crops. The primary policy tools available to USDA to assist sugar cane and sugar beet producers are contained in the Farm Security and Rural Investment Act of 2002 (2002 Farm Act). The U.S. sugar program provides for USDA to make loans available to processors of domestically grown sugar cane at a rate of 18 cents per pound and to processors of domestically

grown sugar beets at the rate of 22.9 cents per pound for refined sugar. The 2002 Farm Act allows processors to obtain loans for "in-process" sugar and syrups at 80 percent of the loan rate. The U.S. sugar program's effectiveness will be challenged in 2008 when all sweetener trade restrictions with Mexico are removed as part of the North American Free Trade Agreement. A provision in the House version of the 2008 Farm Bill would require the government to buy surplus sugar and sell it to ethanol producers for conversion into fuel alcohol.

Sugar producer groups managed to put in place important safeguards in NAFTA for sugar protection with a phase-out period of fourteen years. Only Mexican corn producers, who generally represent the weakest and most numerous farmers, share such protection. It is important to note that while corn growers in Mexico represent a very large and disadvantaged group of people, sugar growers in the United States represent a very small and privileged group of people.

Mexican sugar processors initially resisted the market liberalization introduced by the State, seeking continued subsidies. The neo-liberal regime countered by opening the borders to sugar imports in 1990–1992, bringing a shake-up and concentration in the sugar industry. Once industrialists saw the neo-liberal reform as inevitable, however, they generally supported NAFTA despite the crisis Mexico's sugar industry was undergoing in the early 1990s. Rodolfo Perdomo Bueno, then vice-president of the National Chamber of the Sugar and Alcohol Industry, stated that the industry would win out in NAFTA, and that Mexico's sugar industry was better off than that of the United States (Becerril 1993, 15). At the time, he did not know that HFCS would become a major competitor for Mexican sugar, and that the industry would be hit by an overproduction crisis at the turn of the century thanks to industrial restructuring and increased mill efficiency.

In fact, the main current challenge for Mexico's industry is its competition with HFCS— whether produced in the United States or in Mexico—which is

Table 3

Sugar Prices in the Leading Sugar-Trading Nations, 2000 (cents/pound)
NET EXPORTERS versus NET IMPORTERS

Interest Group	Canada	Mexico	United States
Consumers	Free trade	Subsidized prices	"Sugar tax"
Secondary Industries	Free trade	Subsidized prices	"Sugar tax"
Industrial Processors	Free trade	Subsidized prices	Subsidies
Cane/Beet Producers	Occasional subsidies	Subsidized prices/Tariffs	Tariffs, Subsidies
Mill Workers		Industry-wide Collective Contract	

Sources: USDA attaché reports, F.O. Licht, PROMAR International (reproduced in Coalition for Sugar Reform) Retrieved: 3 June, 2000; http://www.sugar-reform.org/sugpolic.htm.

based on subsidized corn. If corn subsidies were to decline in the United States, then HFCS might lose its competitive advantage against Mexican sugar. In this case, Mexican sugar would be the most competitively priced in North America. In fact, even with such competition, Mexico already has the best sugar prices for consumers of the three NAFTA countries; and they are among the most competitive world-wide (see Table 3). At 23 cents per pound, Mexico's prices are just above half of those in the United States (43 cents) and still well below those in Canada (30 cents). Canada, however, has the best prices for secondary industries at 16 cents per pound wholesale, compared to 27 cents in the United States and 21 cents in Mexico.

According to the Canadian Sugar Institute, which is a non-profit trade organization of sugar processors, Canada is the country with the lowest sugar tariff among the largest producers and consumers of sugar. As of 2000, a comparison of tariffs by equivalents in percentage puts Japan's tariff at close to 300%, Western Europe at 175%, the United States at 150%, Mexico at close to 100%, Brazil at about 40%, Australia at 25%, and Canada at less than 10% percent (Canadian Sugar Institute 2000). Sugar subsidies, on the other hand, continue to be prevalent in the wealthiest countries. The largest, once again, are Japan's at 55% of final price, the United States and the European Unions at 35%, Mexicos at 31%, and Australias at less than 5% (Canadian Sugar Institute 2000).

Sweets Exports and Imports in NAFTA Countries: 1994, 2000, and 2005

Comparing and contrasting the results of imports and exports of sugar-related products in NAFTA countries after this agreement took effect in 1994 is quite revealing. Data seem to indicate that economic actors in each country, particularly manufacturers of confectionary products, have been quite rational. They have moved their factories to those locations that have offered the best cost advantages to set up their export platforms. While the U.S. government continued to attempt to protect sugar processors, secondary industries simply looked elsewhere for better cost opportunities. This has resulted in declining confectionary exports for the United States, while both Canada and Mexico inverted their starting positions in 1994—from net importers of confectionary products, they have become vigorous exporters.

Let us start with a brief analysis of the overall trade change in relation to all sugar-related products—sugar beets, sugar cane, sugar confectionary, raw and refined sugar, as well as nectars. All these data come from the UN Food and Agriculture Organization (FAOSTAT) for the years 1994, 2000, and 2005. Our purpose is to assess the evolution of the sugar-trade situations for NAFTA countries. All three nations experienced dramatic changes, but with different contents and directions. Canada has always relied on the importation of raw sugar for the largest proportion of its raw and refined sugar, both for direct consumption and for secondary industries. Thus, the overall starting trade situation for sweeteners, including sugar confectionary, was at a deficit of almost $315 million. For the following years, however, Canada was able to substantially improve its trade situation, primarily on the basis of exporting new sugar-confectionary products: its sugar-related deficit declined to $164 million in 2000, and then further declined to just over $91 million by 2005.

For its part, Mexico also started the period with a deficit of almost $35 million in 1994, due primarily to its importation of sugar confectionary. By 2000, however, it had inverted its position to produce a surplus of just over $1 billion. This surplus was expanded to almost $1.6 billion by 2005. While Mexico was a net exporter of raw and refined sugar, as well as sugar confectionary during the entire period, its overall surplus in sweets was due to increased exports of sugar confectionary, which now account for about 40% of its sweets surplus. The rest of the surplus is accounted for by raw- and refined-sugar exports. Clearly then, some manufacturing jobs must have been created in sugar confectionary for this situation to have ensued. And yet, it is unlikely that they have compensated the sharp decline in direct employment in the sugar industry (as will be seen below).

For the United States, the sugar-related trade situation changed dramatically toward a greater deficit, due primarily to a worsening sugar-confectionary trade balance. While the United States exported a significant volume of refined sugar and sugar confectionary between 1994 and 2000, its imports were so much larger that its deficit worsened considerably. U.S. deficits in sugar-related products evolved as follows: they were almost $668 million in 1994, over $1 billion in 2000, and almost $1.6 billion in 2005. The largest part of this deficit is accounted for by sugar confectionary, whose proportion grew as follows: from almost 21% of the sweets deficit in 1994, to almost 49% in 2000, to nearly 56% in 2005. This evolution in the composition of the U.S. sugar-related trade deficit seems to confirm the interpretation proposed at the start of this section: economic actors, particularly heavy users of sugar in the secondary industries, have skirted the U.S. protectionist policies by moving some of their plants to Canada and/or Mexico. The specific ways in which these moves have affected employment in each nation is the topic of another study, but our suspicion is that, at least for Mexico, it has not compensated the heavy losses in the sugar industry itself.

Labor: The Employment Issue

Labor in the sugar industry has two distinct categories: field workers and industrial mill workers. Workers in these two sectors traditionally have had very different working conditions and compose different labor markets. While mechanization has reduced the number of both sets of workers, it has generally had greater impact on field workers. Field workers have historically been most disadvantaged and have been much more likely to be seasonal migrants in both Mexico and the United States. Sugar cane is not grown in Canada, so fieldwork is limited to sugar beet production. In the past, this required quite a bit of migrant labor, including Mexican migrant workers, particularly for "hand thinning". Beet production now uses chemical thinning, but some migrant labor is still used for harvesting. One of the main groups of migrant workers is Mennonites from Mexico, many of whom have dual citizenship. The Mennonite Central Committee of Alberta (MCCA) estimates that about 2,000 families have migrated from Mexico in the past decade (Fehr 2000).

The overall employment situation in Mexico, after NAFTA, has actually deteriorated. Mexico has become the largest exporter of labor power, surpassing Asia and the rest of the Latin American countries (Muñoz Ríos 2000).

Considering the direct employment generation in the sugar industries of the three NAFTA countries (about 17,000 jobs in the United States, about 1,500 in Canada, and well above 400,000 in Mexico), jointly modifying State policy to allow Mexico to be the main supplier of sugar would have tremendously positive employment effects for the NAFTA region as a whole. With the increased efficiency in Mexico's sugar industry, and without the subsidized competition from HFCS, Mexico could supply much of North America's sugar needs at adequate prices for most stakeholders, including Canadian direct consumers.

Canada could continue to supply its secondary industry from refining imported raw sugar, as long as its prices are lower than Mexico's. In the United States, the possible negative direct effects on sugar employment could be more than offset by the generation of additional jobs in secondary industries that use sugar as the main raw material, as they would have greater incentives to expand production from access to cheaper sugar. Similarly, more Mexican workers would have a greater incentive to stay in their own communities rather than having to migrate to Mexican cities or even further to *"El Norte"*.

It is obvious that State policies have displayed a tremendous ability to shape the sugar industry. The question is what social groups' interests should be addressed. We suggest that a large majority of people would be benefited if Mexico were to become a large supplier of sugar for the entire region.

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Chapter 5

Multinational Agribusiness and Small Corn Producers in Rural Mexico: New Alternatives for Agricultural Development

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In the 1990s, Mexico embraced a development path characterized by economic neo-liberalism, open markets, and free trade. The new economic policies have caused a deterioration of the social and economic conditions of the Mexican rural poor. In a search for new development alternatives, this research studies two examples of associations between agribusiness firms and small agricultural corn producers in Mexico. It is expected that the lessons learned from these successful development experiments could be replicated with other products or in other regions of the country or the developing world.

This chapter discusses the characteristics of corn production in Mexico in the context of NAFTA and the economic policies of the Mexican government. It will then turn to concepts which cover contract farming and the potential benefits for the parties participating in this type of association. Following this, the fifth section documents a contract-farming experience between corn producers and a wet-mill manufacturing business in Mexico. The characteristics of another case of association between producers and agribusiness are presented in the sixth section. Summary and concluding comments are reviewed at the end.

The Unique Situation of Corn Production and Markets in Mexico

Measured by the volume of surface planted, the value of its annual harvest, and the number of agricultural producers, corn is the single most important crop in Mexico. In 1990, the production of corn in the country accounted for 33% of the total value of agricultural products, which included a total of 222 goods, and the seven million hectares planted are equivalent to 30% of the arable land in the country.[1] Corn is indigenous to Mexico; it is the principal food staple, and it is heavily engrained in national culture. In retrospect, at least in the recent past,

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