AN ECONOMIC HISTORY OF THE UNITED STATES SUGAR PROGRAM

by

Tyler James Wiltgen

A thesis submitted in partial fulfillment
of the requirements for the degree

of

Master of Science

in

Applied Economics

MONTANA STATE UNIVERSITY
Bozeman, Montana

August 2007

APPROVAL

of a thesis submitted by

Tyler James Wiltgen

This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the Division of Graduate Education.

Chair

Vincent H. Smith

Approved for the Department of Agricultural Economics and Economics

Myles J. Watts

Approved for the Division of Graduate Education

Carl A. Fox

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ACKNOWLEDGEMENTS

I am greatly indebted to Dr. Vincent Smith, my thesis committee chairman, for his guidance throughout the development of this thesis; I appreciate all of his help and support. In addition, I would like to thank the other members of the committee, Dr. Randy Rucker and Dr. Gary Brester, for their thoughtful suggestions and direction.

A project of this magnitude would not be possible without the support of my grandparents, Marty and Virginia Swandal, who kept me grounded and sane throughout this process. My sister Karalee also deserves many thanks.

Most importantly, I would like to thank my parents, Art and Karie for giving me the encouragement and strength needed to achieve my goals. Their support means the world to me.

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ABSTRACT

The United States Sugar Program has utilized tariffs, import quotas, domestic processor marketing allotments, and a non-recourse loan program to raise U.S. sugar prices. The intent of the program has been to increase the incomes of U.S. sugar beet and sugarcane producers and processors. This thesis analyzes world and domestic sugar market conditions surrounding major changes in the sugar program. A theoretical model is developed in which sugar beet processors are depicted as monopsonist purchasers of sugar beets as inputs into sugar production. This model suggests that incentives exist for sugar beet producers to vertically integrate into processing activities. It also shows that vertical integration incentives are greater in the presence of a tariff equivalent than in the absence of a tariff equivalent. The model, along with a review of Congressional hearings, is used to explain the lobbying pressures surrounding passage of major sugar program changes. The study shows that resources expended on lobbying in favor of a sugar program increase when the world price is relatively low.

CHAPTER ONE

INTRODUCTION

The United States sugar program has been one of the most contentious agricultural commodity programs in the history of U.S. farm policy. The unique features of the domestic and international sugar markets, as well as the complexities of the sugar program itself, have contributed to recurring debates about sugar policy in the United States. U.S. sugar policy was initiated in 1789 when import tariffs were introduced to generate government revenue. Sugar tariff rates generally increased over time until the enactment of the first Sugar Act in 1934. The 1934 act established import quotas and introduced a processing tax to compensate domestic sugar producers for curtailments in domestic production.

The 1934 act, and its subsequent revisions, formed the basis for U.S. sugar policy through 1974, when a spike in world sugar prices appeared to diminish the need for a sugar program to support producers and processors, and the sugar program was allowed to expire. In 1977, subsequent to a sharp decrease in world sugar prices, a non-recourse loan program for sugar was introduced. Another run-up in world sugar prices in late 1979 and early 1980 led Congress to discontinue the loan rate program, but, in response to another decline in prices, the loan rate program was reintroduced in 1981. Tariffs on sugar imports were not sufficiently high to prevent forfeitures under the loan program following the price spike of 1981. The federal government's response, therefore, was to reestablish import quotas in 1982. The import quota system was reformed in 1990, following an unfavorable ruling from a General Agreement of Trade and Tariffs (GATT)

panel that resulted in the United States adopting a tariff rate quota (TRQ) system utilizing two levels of tariffs to limit imports. The provisions of the 2002 Farm Security and Rural Investment Act govern current sugar policy. The program's major policy instruments include the TRQ system, a non-recourse loan program, and a system of domestic marketing allotments that limit domestic production.

The U.S. sugar program essentially raises the domestic sugar price above the world price. The higher domestic price provides incentives for producers and processors to lobby for the maintenance and expansion of the sugar program. The world sugar market is volatile, with large swings in global production that translate into dramatic price swings. This fact has ramifications for the U.S. sugar program. When world prices are high, pressure from domestic sugar interests to secure a sugar program decreases. Correspondingly, periods of low world prices elicit strong responses from sugar interests to maintain and strengthen a domestic sugar program. This thesis provides an economic analysis and political economy review of the history of the U.S. sugar program. The analysis presented provides implications for the passage of farm legislation by examining the economic incentives of the various agents involved in lobbying for inclusion in sugar protection and the potential gains or losses they face in legislative change.

The United States is not the only country that vigorously protects its sugar industry. Worldwide, sugar is one of the most heavily subsidized and protected commodities, with Japan and the European Union having two of the most protective programs (Taylor 2001). Sugar can be derived from two sources: sugar beets and sugarcane. Beets are grown in temperate regions, while cane is grown in tropical areas. Therefore, sugar can

be produced almost everywhere in the world. As a result, industrialized countries protect domestic sugar producers and processors, while developing countries see sugar as a potentially successful export.

Weather also plays a major role in the world sugar market because much of the world's sugar is derived from tropically-produced cane, which is susceptible to major weather events, such as hurricanes. The result is periodic but unpredictable low levels of world production and high sugar prices that bring forth periods of substantial overproduction.

Weather and politics are the major contributing factors to the volatility of world sugar prices. Other factors, like entry into the sugar market by artificial sweeteners such as high fructose corn syrup, have added to the complexity of world and U.S. domestic sugar markets. These facts have been important in determining the environments in which U.S. domestic sugar policy has been debated and established. Chapter two of this thesis provides a brief history of world and domestic sugar production, consumption, and trade. Chapter three offers an overview of U.S. sugar policy history and chapter four provides a description of U.S. sugar program policy instruments.

Sugar beet processing requires large scale of equipment and the U.S. Department of Agriculture (USDA) occasionally applies marketing allotments to processors. These two factors create relatively high barriers to entry into beet processing. High barriers to entry are often a source of market power for firms in an industry, in this case sugar beet processors. On the demand side of the sweetener market, close substitutes are available for beet sugar; therefore it is difficult to consider beet processors as monopolists.

However, beet processors may operate as monopsonist purchasers in the markets in which they obtain their inputs. Three factors support this view. First, sugar beet processors operate within defined regions. Second, processors do not compete with one another for sugar beet inputs. Third, beets are difficult to store on the farm and are costly to transport. Thus, producers cannot store beets and wait for better prices as they can with other crops because sugar content declines rapidly over time.

Viewing beet processors as monopsonists has significant implications for sugar policy. In the absence of a sugar program, rents would accrue to processors who purchase fewer beets and produce less sugar than would be the case in the absence of monopsony power. The implementation of a sugar program, most specifically an import quota, may actually decrease the deadweight loss associated with the monopsonist processor purchasing decision when compared with free trade.

Monopsony power at the processor level creates incentives for producers to vertically integrate into processing activities. The sugar program magnifies these incentives and may provide the impetus for vertical integration. Chapter five examines the monopsony effects on the domestic sugar market and on trade. It describes the welfare effects of monopsony and sugar policy for producers, processors, foreign producers and domestic consumers. The model presented in chapter five serves as a framework for examining the political economy of the changes in U.S. sugar programs that have taken place since 1934. These changes are examined in chapters six and seven of this thesis.

To protect its sugar industry, the United States has used many different policy instruments since 1789. These include tariffs, import quotas, price support loans, and

processor marketing allotments. In addition, payment-in-kind programs (PIK) that allow farmers to destroy their crops in return for sugar forfeited to the Commodity Credit Corporation (CCC), and bilateral and multilateral trade agreements (such as the International Sugar Agreement) have been used to achieve the goals of U.S. sugar policy. This history, coupled with the political economy and hearings reviews of chapters six and seven, allows us to provide an analysis of the evolution of the U.S. sugar program and provide implications for future policy development and implementation.

This research is important because it thoroughly lays out the history of the U.S. sugar program and provides an analysis of the political economy factors surrounding the passage of various sugar program components. The monopsony processor model developed in chapter five lends a unique perspective to the development of sugar policy and offers a framework with which to analyze the effects of sugar policy on sugar beet producers, processors, and consumers. It also shows how processors, producers, and foreign importers can affect the policy formation process through lobbying for economic rents from the sugar program. These various features afford interesting policy implications to an already crowded sugar program debate.

CHAPTER TWO

WORLD AND DOMESTIC SUGAR PRODUCTION, CONSUMPTION, AND TRADE

World sugar prices have been volatile, largely due to production shortfalls and surpluses, and government policies worldwide. Sugar prices spiked in the late 1970s, but decreased from 1982 to 2007. World consumption and production increased consistently between 1960 and 2007. United States production expanded in response to protective government policies and increased mechanization after World War II. Sugar consumption in the United States increased steadily until the 1970s and 1980s when high sugar prices led food and beverage companies to use less costly high fructose corn syrup (HFCS). Imports of sugar into the United States declined because of major policy restrictions in 1981 and 1996. In addition, the increase in the use of HFCS has displaced the import share of the sugar market.

The U.S. import quota and loan rate programs for sugar have ensured that U.S. domestic sugar prices have been substantially higher than world sugar prices, except when world prices have been atypically high because of production shortfalls.[1] Domestic beet prices have been higher than domestic cane prices because of processing and production cost differences between the two sugar inputs. The number of beet refining facilities in the United States declined between 1950 and 2007 as low prices and increasing processing costs led to decreased profitability and bankruptcies for many processing firms. Agricultural producers of sugar beets have vertically integrated to protect their operations by forming cooperatives and purchasing facilities from

[1] For example, during the price spikes that occurred in 1974-75, the real average world sugar price was three cents higher than the real U.S. domestic price in 1974.

processing companies. The number of cane processors has also declined, but vertical integration has not taken place in that industry.

World Production and Consumption

Data on world sugar production, consumption, and prices are presented in figure 1. The data show that world sugar prices experience extreme peaks. High world prices lead farmers to increase production, which eventually outstrips consumption and creates stock accumulation, leading world prices to decrease. Domestic farmers then lobby for protection. This protection prevents a production contraction at times of low prices, contrary to what would happen in a market without intervention. Periods without price spikes occur until consumption rises and stocks are dissipated. Weather-related production shortfalls are the main cause of rising prices and governments are lobbied to increase production quotas and excess sugar is released on the market, causing the cycle to repeat.[2]

From 1972 to 1982, sugar prices averaged nearly 45 cents per pound in a decade that featured two major price peaks. The first peak occurred in the mid-1970s, partially in response to high worldwide inflation, commodity shortages, and high oil prices, but mainly because of a sugar production shortfall in 1973. Production increased rapidly, causing prices to return to pre-shortfall levels. The second peak occurred in 1980 due to

[2] Borrell and Duncan (1993) offer perhaps the clearest analysis of intervention's contribution to world sugar price volatility: "…the high degree of price volatility in the world market tends to help producers in many countries lobby for changes in policy that ultimately lead to increases in the supported output of their industries, even when prices are low. Paradoxically, such behavior exacerbates world market instability. Intervention is thus both a cause and an effect of instability in world prices. It is also a cause of sustained resource misallocation in the production of sugar and other sweeteners worldwide." (21).

production shortfalls in 1979 and 1980 of 6.4 million and 2.6 million short tons respectively. Prices from 1983 to 2003 averaged 13 cents per pound.

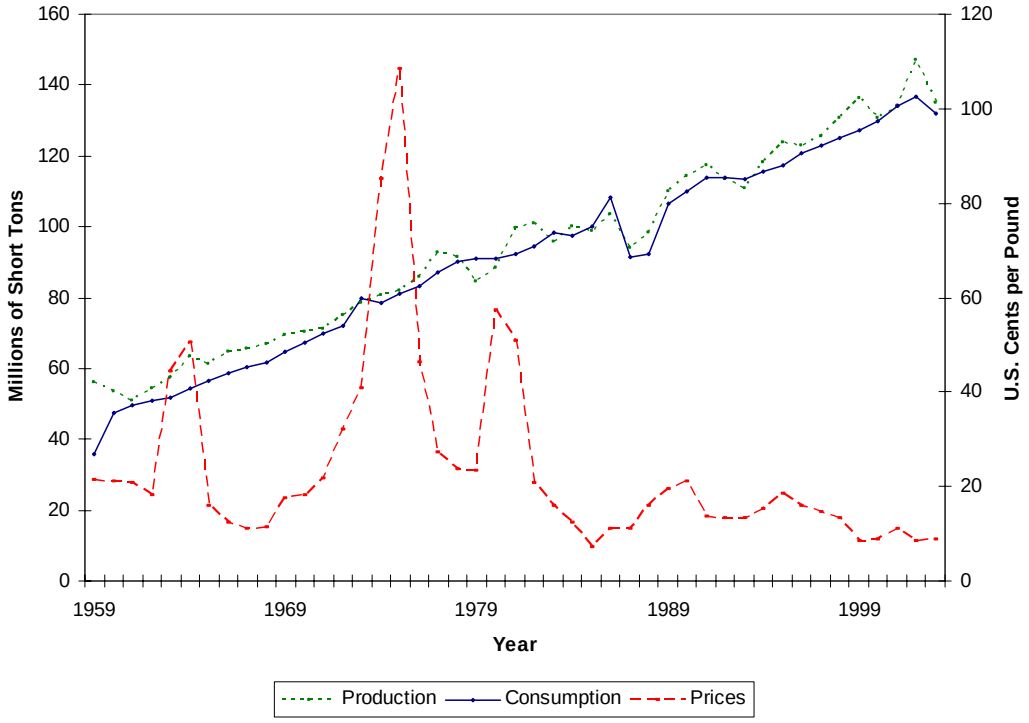

Figure 1. World sugar production, consumption and prices, 1959-2003 (prices in 2006 dollars). (Data from USDA FAS PS&D sources, 1959-2003).

Most of the world's sugarcane acreage is located in tropical regions that are susceptible to hurricanes or typhoons. Thus weather plays a major role in price volatility. Unfavorable weather conditions in a major sugar producing region can cause production shortfalls that lead to price increases. Another factor in sugar price volatility is the high cost of adjustment. Sugar cane land has few alternative uses and in many cane-producing regions, employment of displaced labor and capital can be difficult, which can lead to politically-motivated protection (Marks and Maskus 1993). Cane can be harvested for

many years after an initial planting; therefore expected production is set far in advance and cannot be easily increased or reduced in response to changing market conditions.

World production and consumption of sugar both steadily expanded between 1900 and 2007. Production increases can be attributed to improved production technologies and economies of scale that have decreased costs. Protection from price volatility, in the form of import controls and price supports, has also contributed to production increases. Increased consumption can be attributed to rising populations in sugar-producing countries and worldwide. Increasing incomes have also played a role in consumption increases.

United States Production, Consumption, and Trade

Sugar production has been on the rise in the United States since the industry's inception. Total sugar production peaked in 1999 at just over nine million short tons as seen in figure 2. Beet sugar production rose above five million tons for the first time in 2006. Production for both beet and cane expanded rapidly after World War II when mechanical harvest methods were adopted (Answers Corporation 2006).

The United States sugar policy instruments of price supports, import restrictions, and production controls have sheltered U.S. domestic producers from low world prices like those recorded between 1959 and 2003 (see figure 1). In times of high world prices, the government has removed production limits and acreage under sugar has increased. Price protection in times of low world prices prevented acreage reduction that would likely take place in the absence of such protection. These forces have contributed to a

fairly consistent rise in U.S. domestic production. Increased production of high fructose corn syrup (HFCS) in the last 30 years has tempered sugar production in the United States (Schmitz and Christian 1993). HFCS increased its market share from 5% to 44% of the sweetener market over the period 1975 to 1989, but market shares steadied in the 1990s. The particularly violent hurricane season of 2006 caused a sugar production shortfall due to lost cane sugar crops in Louisiana and along the Gulf Coast.

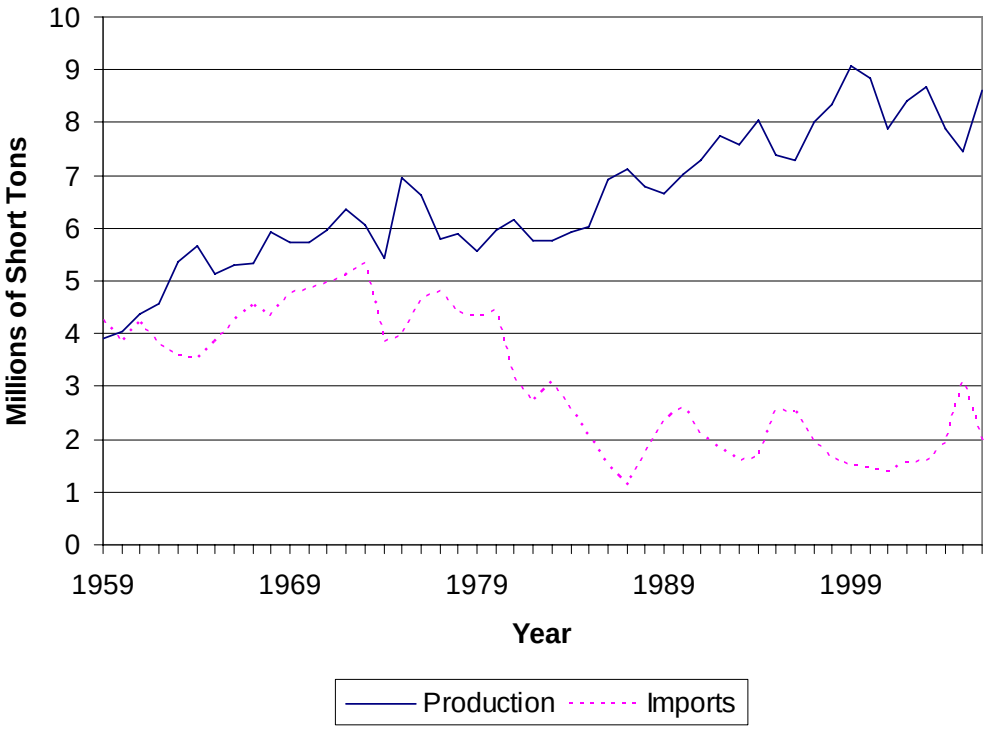

Figure 2. United States sugar production and imports, 1959-2006 (Data from USDA FAS PS&D sources, 1959-2006).

United States sugar imports have decreased since 1973. The largest drop came in 1982 when the United States reinstated import controls following price declines in 1980-1981. Imports reached their lowest levels in 1987 at just over one million short tons. The drop in imports can largely be explained by the rapid increase in HFCS production,

which began at the same time that imports began to decline, and replaced a large percentage of imported sugar's market share (Schmitz and Christian 1993). Instances of domestic production shortfalls due to weather or other circumstances corresponded to periods in which import quotas were relaxed and sugar imports increased. These occurred in 1977, 1980, 1983, 1990, 1995-6, and 2005. Conversely, periods of increased domestic production led to decreased imports, as in 1964, 1975, 1987, 1994, and from 1996 through 2005. Between 1996 and 2000, imports declined by almost 41% as domestic production increased by nearly 26% (Beghin 2007).

United States sugar consumption, shown in figure 3, peaked in 1973 at just over 10.7 million short tons. Consumption declined in the late 1970s and throughout the 1980s. High sugar prices led beverage makers to substitute away from sugar to HFCS. The beverage industry was a major consumer of sugar and the adoption of HFCS led to a large decrease in consumption. Increases in bakery, confection, and other food categories of sugar use contributed to increases in domestic consumption during the 1990s and early 2000s. Lower prices also stimulated the increase in sugar consumption over this period.

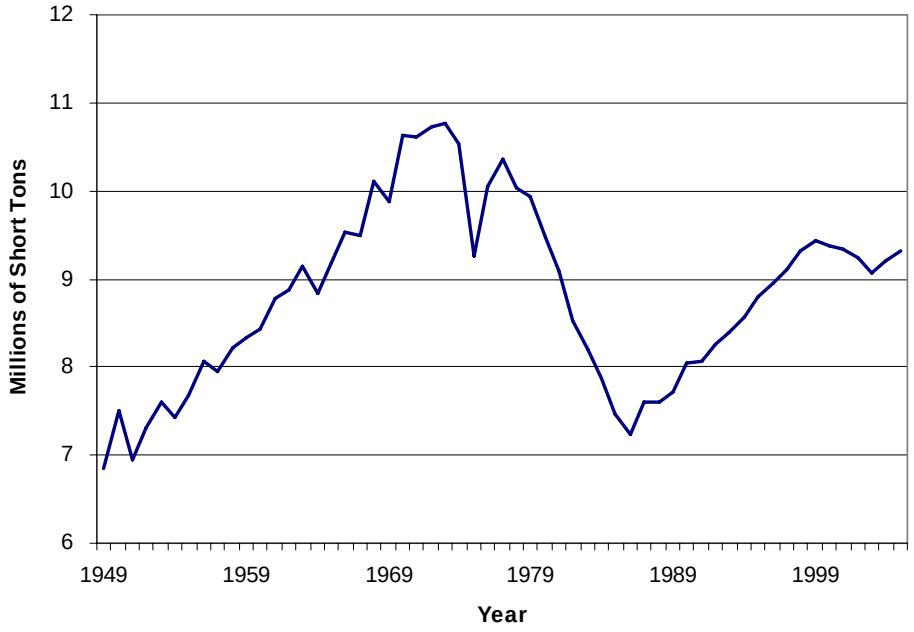

Figure 3. United States sugar consumption, 1949-2005. (Data from USDA ERS Sugar Statistical Bulletins, various issues).

The U.S. sugar program has resulted in domestic prices that have been substantially higher than world prices. As shown in figure 4, only when world prices have spiked because of shortfalls in world production have the two prices converged.[3]

Domestic and world sugar prices were similar at the end of World War II amidst worldwide production shortfalls and in 1964, again because of low global production. Worldwide energy crises, high inflation, and global commodity shortages occurred between 1970 and 1975. During this period, world production shortfalls led to high world sugar prices (Alvarez and Polopolus 2002). Sugar prices peaked in November 1974. By 1977, however, world sugar prices returned to long run levels as production and

[3] Note: Raw sugar and refined sugar prices are correlated with a correlation coefficient of 0.98. Complete annual data for raw sugar prices from 1929-2006 can be found in appendix A.

processing costs increased. World and U.S. domestic sugar prices also converged in 1980 and 1981 when prices spiked again because of low worldwide production. The price gap also narrowed in early 2006 due to shortfalls caused by a violent United States hurricane season in the fall of 2005.

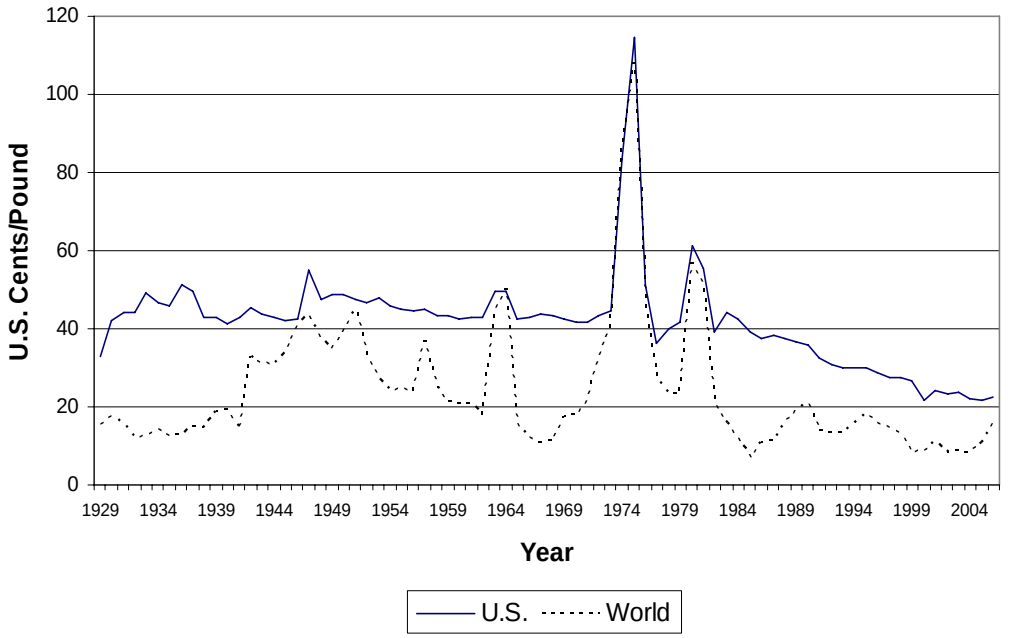

Figure 4. U.S. versus world raw sugar prices, 1929-2006 in 2006 dollars. (Data from USDA ERS Sugar Statistical Bulletins, 1961-2007.)

United States Sugar Beet and Cane Production

In the United States, sugarcane production is concentrated in Louisiana, Florida, Hawaii, and a small part of coastal Texas. Beet production takes place predominately in the Rocky Mountain States, California, Michigan and the Red River Valley of North Dakota and Minnesota. Cane production began in the early 1800s, and the first beet processing facility was built in 1838 (Answers Corporation 2006). Beet production

overtook domestic cane production in 1910 and has been larger in most periods since then, as shown in figure 5.

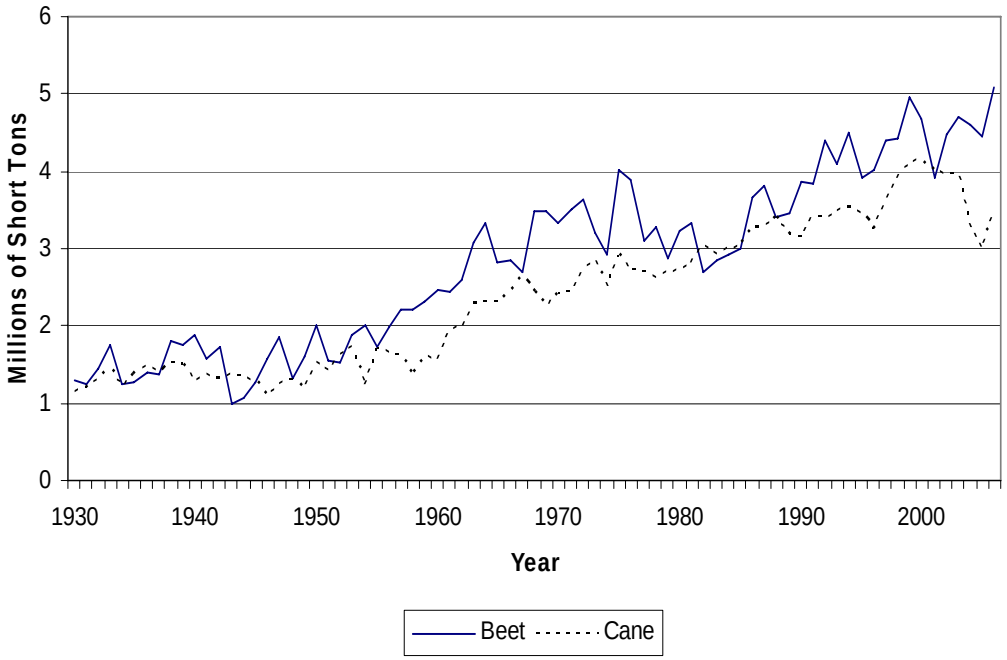

Figure 5. Beet versus cane sugar production, raw value, 1930-2006. (Data from USDA ERS Sugar Statistical Bulletins, various issues).

From 1930 to 2007, beet prices have been higher than sugar cane prices on a per ton of sugar basis. This may be because of the processing cost differences between the two commodities. Cane requires two stages of processing, whereas beets only require one stage. Production costs are significantly lower for cane than for beets, which may also account for price differences. Cane has to be replanted every five years whereas beets are replanted annually. Traditionally, cane producers do not own harvesting equipment and cane is harvested by the processor, minimizing harvest costs for producers. Therefore, cane producers have bid the price of raw cane down to a price below that of the beet

price. Prices for the two converge during times of sugar production shortfalls, as is evident in figure 6.

The estimated correlation coefficient between the two price series is 0.623. Over the last 70 years, the difference between the two prices has narrowed, the largest difference was $106.22 per ton (in real terms) in 1975 but over the last decade, prices have not differed by more than $15 per ton.

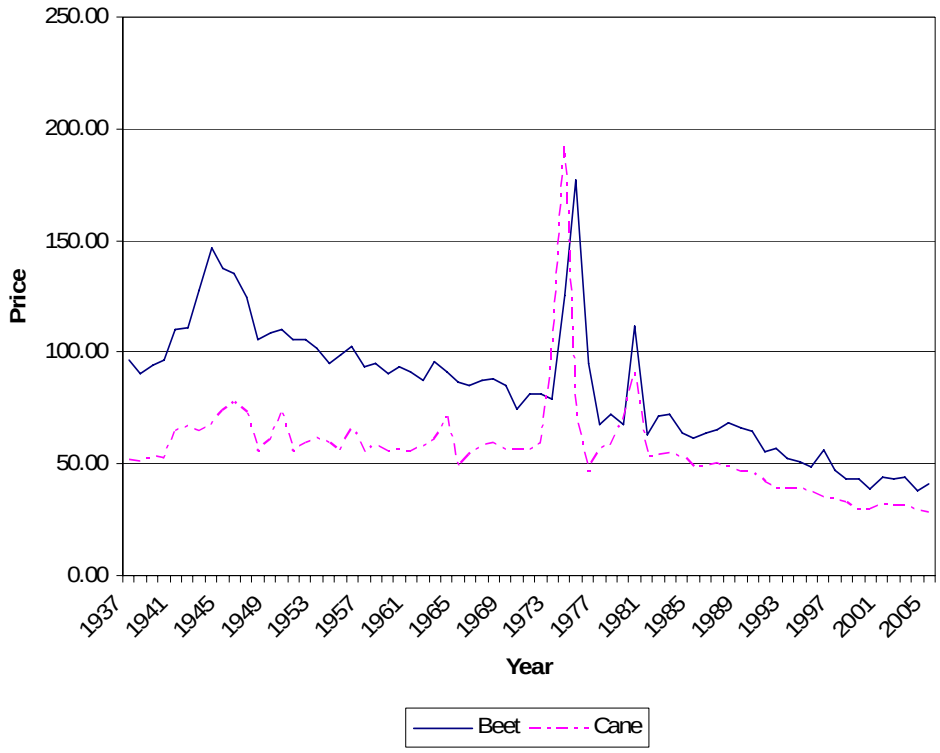

Figure 6. Beet versus cane prices 1937-2005 (Prices are 2005 U.S. Dollars per Short Ton),. (Data from USDA ERS Sugar Statistical Bulletins, various issues).

The number of refining facilities in the United States has decreased steadily over the past 50 years, as shown in figure 7. From 1970 through 2001, 15 beet processors closed 27 facilities and, in the 1990s, low prices led to decreased profitability and bankruptcy for

many sugar beet processing firms (Boland and Marsh 2006). Another contributor to plant closure was the drop in sugar consumption that resulted from the adoption of HFCS by the beverage industry. In response to these plant closures, producer-owned cooperatives purchased processing facilities, and by 2002, 95% of all processing facilities were vertically integrated by producer cooperatives. In 2007, 27 beet processing facilities were operating in the United States.

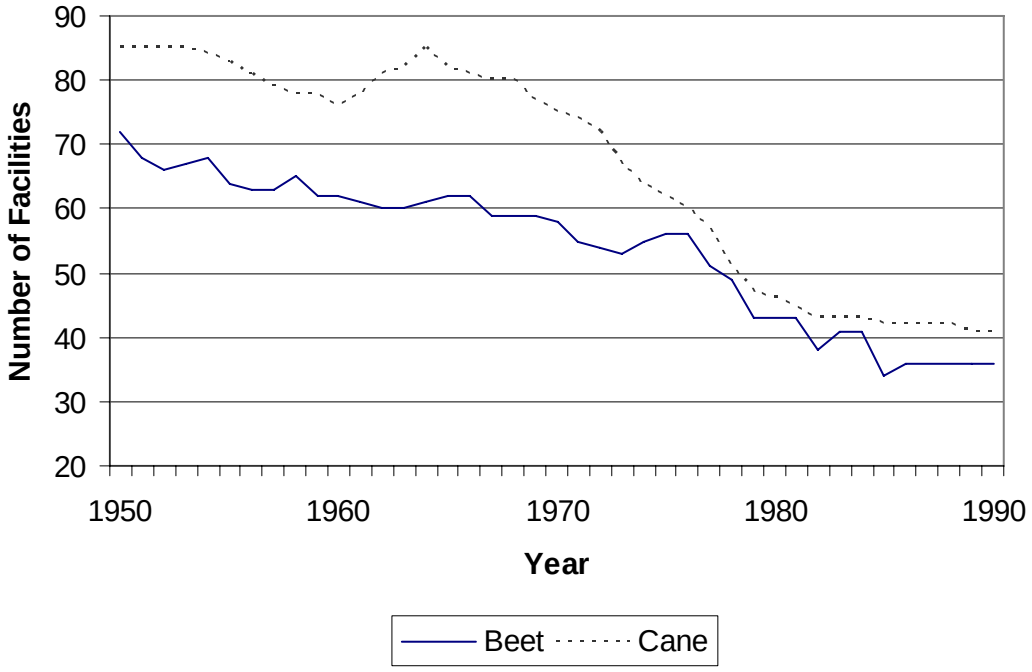

Figure 7. Beet versus cane manufacturing facility counts. (Data from USDA ERS Sugar Statistical Bulletins, various issues).

A similar trend in processing facilities is also evident in the cane industry, but vertical integration has not occurred there. This may be because larger profit margins are available to processors in the cane industry than in the beet industry because of

harvesting and processing issues. For example, cane can be harvested year around, reducing processing and storage costs.

CHAPTER 3

HISTORICAL OVERVIEW OF THE UNITED STATES SUGAR PROGRAM

United States sugar policy was initiated in 1789 when the government placed a tariff on sugar imports. The policy was instituted to generate revenue for the United States Treasury. It was not a protectionist venture, due to the fact that the United States did not produce sugar domestically at that time. Between 1789 and 1930, thirty different pieces of legislation related to sugar were passed by the Congress. In an effort to promote a domestic sugar processing industry and expand United States sugar production, for example, Congress introduced a higher tariff for refined sugar in 1842 (Alvarez and Polopolus 2002). Ballinger (1975) asserts that when the United States acquired the Louisiana Territory in 1803, the fledgling sugar industry there immediately benefited from tariff protection, hence spurring its development. From 1789 to 1889, tariffs served to produce government revenue, but were removed in 1889 (Schmitz and Christian 1993). The lack of a tariff led to increased low-priced imports which caused U.S. processors to demand a subsidy. The subsidy was replaced in 1894 with a tariff that was 40% higher than the 1890 tariff. Modern sugar policy was initiated in 1934 through the provisions of the Jones-Costigan Sugar Act. Rationales for the new programs were a supposed lack of international competition due to heavy international subsidization and cheaper labor outside the United States.

The 1934 Jones-Costigan Act created a sugar import quota system based on actual sugar imports between 1925 and 1933. Domestic prices had been relatively stable prior to the passage of the Jones-Costigan Act, and the USDA saw an opportunity to decrease

import tariffs and increase import quotas for Cuba and domestic island territories. To protect domestic producers from these changes, the Jones-Costigan Act established a processing tax equal to the difference between the current average farm price and sugar's "fair exchange value." The Secretary was granted the power to adjust the tax to prevent inventory buildup and depression of agricultural prices. Revenues from the tax were to be used as rental/benefit payments to farmers in return for reduced production acreage restrictions and surplus removal. Producers who experienced reduced returns because of the processor tax were compensated for acreage reductions. The 1934 Act also created domestic processor marketing allotments and gave the Secretary of Agriculture the power to estimate sugar consumption needs of the United States and alter these allotment levels to meet consumption needs. Processors were allotted a portion of the overall estimated U.S. sugar production. Each allotment could be filled by sugar beets or sugarcane produced in the processor's area. Alvarez and Polopolus (2002) assert that a major feature of the Jones-Costigan Act was its insistence on equitable division of sugar program returns between processors, growers, and farm workers. The processor tax was removed in 1936 after the Supreme Court declared it to be unconstitutional. Payment provisions were also removed.

Congress responded by passing the 1937 Sugar Act. The Act's provisions readjusted import quotas so that imports supplied 44.41% of sugar consumed in the United States, with most of the imports coming from Cuba and the Philippines. The remaining 55.59% was stipulated to come from domestic producers (and 41% of this portion was to come from domestic beet sugar). The 1937 Sugar Act created a disaster payment program for

producers with two types of payments: producers were paid for one-third of their normal yield for acreage that was abandoned because of natural disasters and for the difference between 80% of normal yields and their actual yields in cases of crop deficiency.[4] Finally, the 1937 Act created an excise tax on manufactured sugar, paid by sugar manufacturers. Congress also created an "import compensating tax" on importers of manufactured sugar and sugar-containing products at rates equal to those of the manufactured sugar tax. When the processing tax was removed in 1936, Congress allocated treasury funds for the compensation of producers whose acreage was reduced by the domestic processor allotments.

The 1948 Sugar Act did little to change sugar policy, adjusting import quota levels and making provisions for domestic allotments. It did, however, remove the manufacturer and importer taxes created in 1934. One year later, Congress passed the Agricultural Act of 1949. Although the 1949 Act did not affect sugar at the time, it became the basis for sugar policy between 1950 and 2007. The 1949 Act was amended in 1954 to include a provision that would have major implications for the sugar program in the future. The 1954 amendment stipulated that any price supports implemented at the processor level must be shared with producers so that producers would "receive maximum benefits from the price support or surplus removal operation" (*Amendment to the Agricultural Act of 1949* 1954, 901). The Sugar Act of 1948, extended multiple times, governed sugar policy until 1974.

[4] For example, if the farm produced 70 tons of beets per acre and 100 tons per acre was considered normal for the area, the farmer would be paid for an extra ten tons (100 X 80%= 80 tons – 70 tons= 10 tons).

As shown in figure 1, world prices soared in the early1970s and the long run gap between the domestic sugar price and the world price disappeared, rendering U.S. sugar policy ineffective. Import restrictions and producer payments were eliminated along with acreage allotments as production became unrestricted. However, when prices crashed in 1975, USDA implemented a price support program for sugar.[5] Under the program, processors received the difference between an objective price (set at 13.5 cents per pound) and the market price. In return, processors were required to pay producers a predetermined price for average quality beets and cane. Congress reintroduced sugar policy under the provisions of the 1977 Farm Bill. The 1977 Act amended the 1949 Agricultural Act to include sugar as a protected commodity. It gave the Secretary the power to support domestic sugar prices through a non-recourse loan program or through government purchases. Both the non-recourse loan program and the government purchase program were operated at the processor level. Non-recourse loans allowed processors to use sugar as collateral, and upon forfeiture, sugar was transferred to the Commodity Credit Corporation (CCC). To minimize forfeiture risk, a minimum market price was established through the use of import duties on imported sugar.

Sugar policy remained unchanged through 1979, but, in response to high world prices in 1980 and early 1981, the sugar price support program was discontinued. In 1981, however, sugar prices fell and the 1981 Agriculture and Food Act reestablished a sugar program. The loan rate program was reestablished and a market stabilization price (MSP) was instituted through import quotas and tariffs. The difference between the

[5] The price support program was established under authorities granted to the Secretary of Agriculture in the Agricultural Act of 1949.

higher MSP and the loan rate was intended to cover transportation, marketing, and loan interest rate costs. It also provided an incentive for processors to sell in the market instead of forfeiting sugar to the CCC.

The 1985 Food Security Act extended the sugar provisions of the 1981 Farm Bill, but placed special emphasis on operating the program at no-cost to the Treasury. The 1990 Farm Bill (Food, Agriculture, Conservation and Trade (FACT) Act) maintained the sugar provisions of the 1981 Act and limited imports to 1.25 million short tons. The import provision was intended to keep the domestic sugar price higher than the loan rate, which allowed for no-cost program operation. If imports ever fell below that level, a two-tiered tariff system (also known as a tariff rate quota system) would come into effect.[6] If the tariff system failed to keep the domestic sugar price above the loan rate, domestic marketing allotments could be implemented (Taylor 2001).

The Federal Agriculture Improvement and Reform (FAIR) Act of 1996 changed the structure of sugar loan price supports. If TRQ imports were above 1.5 million short tons, non-recourse loans were continued. If TRQ imports fell below 1.5 million short tons, the loans became recourse loans and processors were required to pay a penalty for forfeitures to the CCC. The 1.5 million short ton level for import quotas was established in negotiations over the General Agreement on Tariffs and Trade (GATT) in the GATT Uruguay Round. The FAIR Act also removed processor marketing allotments.

Current sugar policy is governed by the 2002 Farm Security and Rural Investment (FSRI) Act. The 2002 Farm Bill reauthorized the non-recourse loan program and placed

[6] Under the tariff rate quota (TRQ) system for sugar, some sugar is imported under a very low tariff rate. Once the "low tariff" quota has been filled, the tariff becomes prohibitively high and in effect creates an import quota.

emphasis on the "no-cost" (to the taxpayer) stipulation of the policy. Therefore, TRQs and marketing allotments were reinstated (Alvarez and Polopolus 2002).[7] The FSRI Act continued "payment-in-kind" (PIK) provisions that were created in the 1996 Farm Bill. PIK allows farmers to receive sugar held in the CCC inventory in return for reducing their sugar beet acreage. The FSRI Act also established the Sugar Storage Facility Loan Program, which provides financing for processors to upgrade domestic storage and handling facilities. The next Farm Bill is intended to be completed in 2007; current 2007 Farm Bill proposals seek to continue the sugar provisions in the 2002 FSRI Act.

[7] The recourse loan provision was previously removed in the Agricultural Appropriations Act of 2001.

CHAPTER FOUR

SUGAR POLICY INSTRUMENTS

Operating the United States sugar program has involved the use of many policy instruments with the stated objective of supporting domestic sugar prices and providing stable incomes to producers. Initial sugar policy initiatives utilized import controls and domestic production allotments. Other instruments include processor, excise and import taxes. In the 1977 farm bill, the United States government created a loan rate program for sugar. In 1991, import quotas were converted to tariff rate quotas (TRQ) under the guidelines of the Uruguay Round of GATT trade negotiations. Chapter four examines each policy instrument.

Import Controls

The Jones-Costigan Sugar Act of 1934 changed the United States sugar import policy from a tariff to a quota program. Prior to the Act's passage, U.S. sugar imports were subject to tariffs, which fluctuated during the early 1900s (Ballinger 1975). Between 1921 and 1933, the tariff on imported sugar doubled, but was not viewed as sufficiently high to protect a domestic sugar industry emerging from the Great Depression. Puerto Rico and Hawaii witnessed the largest increases in production, but beet sugar production lagged in other areas. Imports from Cuba were large, and, even at their low point in 1933, accounted for 25% of total consumption in the United States sugar market.

Figure 8 depicts an import quota in the domestic sugar market. In this model, we assume that the domestic industry is competitive and that the world price (P_W) is lower

than the domestic autarky price. Without an import quota, domestic producers would supply Q_1, domestic consumers would purchase Q_4, and $Q_4 - Q_1$ would be imported from other countries. Domestic producer surplus would equal area j and domestic consumer surplus would equal area q + r + k + l + m + n + o + p. Gains from trade would equal area r + m + n + o + p.

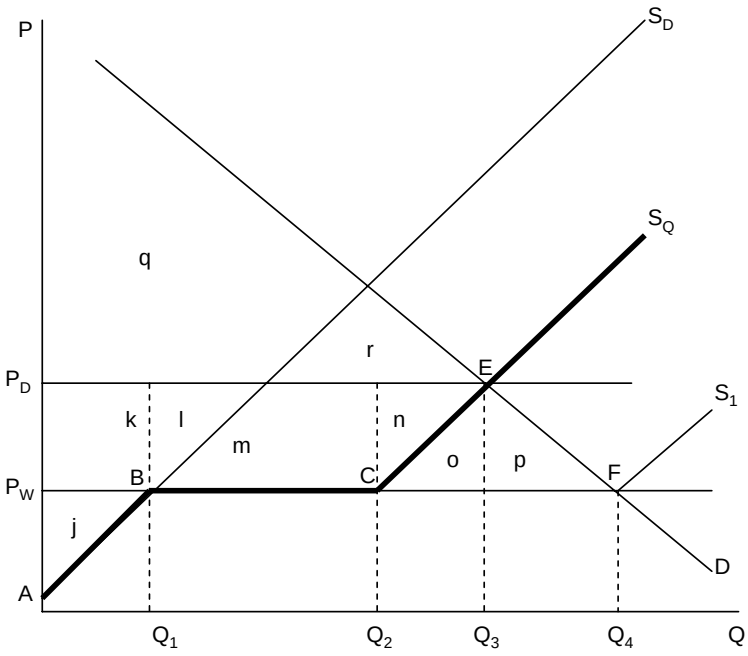

Figure 8. The welfare effects of an import quota.

An import quota equal to $Q_2 – Q_1$ (in this case equal to 50% of the original level of imports) would cause imports to decrease to $Q_2 - Q_1$, domestic production would increase to $Q_1 + (Q_3-Q_2)$, and the domestic equilibrium price would be P_D. The quota induced supply curve is represented by the segmented line $ABCES_Q$. The import quota increases domestic producer surplus to j + k + n and reduces domestic consumer surplus to area q + r, with area k + l being transferred to producers. Import quota holders gain area l + m,

leaving area o + p as the deadweight loss resulting from the import quota. Gains from trade are reduced to area r.

The main feature of the Jones-Costigan Act was the method used to determine sugar quotas. For 1934 and successive years, the Secretary of Agriculture was to estimate annual sugar consumption in the United States and allot portions of the consumption estimate to domestic and foreign production sources. Quotas were to be based on historical marketings of sugar, and set equal to the average for the most representative three year period from 1925 to 1933. The 1934 quota was just over three million short tons, but only 175,000 short tons were allotted to countries other than the Philippines and Cuba. These other countries were considered full duty countries because they had to pay a tariff almost twice that imposed on sugar imports from Cuba and the Phillipines (Ballinger 1975).

According to Ballinger (1975), the creation of a quota system allowed the U.S. sugar price to fluctuate independently of the world price, as long as quotas were effectively filled. As shown in figure 9, sugar import quotas increased from 1934 to 1974 as domestic sugar consumption increased. The Sugar Act of 1937 allotted 44% of total estimated U.S. consumption to foreign producers, but less than one percent of the total foreign import quota was assigned to countries other than Cuba and the Philippines.

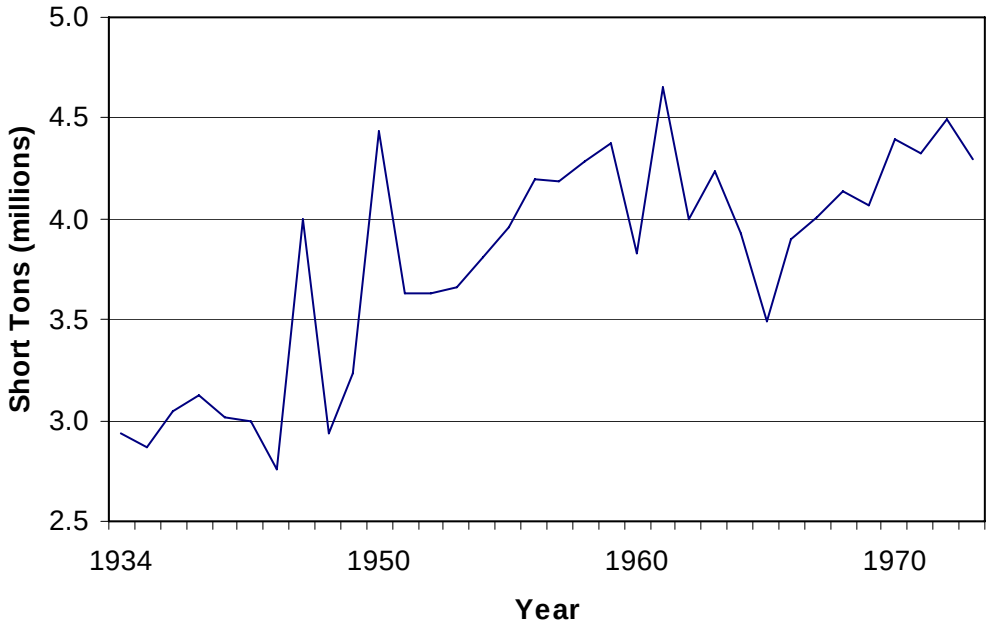

Figure 9. Total U.S. sugar import quotas,[8] 1934-1974. (Data from USDA Sugar Statistics Bulletins, various issues.)

World War II led to a suspension of import quotas as world production, consumption, and prices became unstable. During World War II, the U.S. government attempted to control the price of sugar by creating price ceilings and sugar rations.

After World War II, quotas and other sugar program provisions were implemented in 1948 under the provisions of the 1948 Sugar Act. Under these provisions, the Secretary was to estimate consumption taking into consideration the relationship between wholesale refined beet prices created through the program and the general cost of living in the United States using the Consumer Price Index (Ballinger 1975). This is the first time an objective price for sugar was used in a policy setting. However, prices failed to rise according to the formula, because the Secretary was "required to consider other

[8] From 1942 to 1947, no import quotas we implemented due to World War II and are omitted from figure 4.1.

factors in determining sugar consumption requirements" (Ballinger 1975, 52). The 1948 Sugar Act established outright quotas, rather than using percentages of consumption as in the 1937 act. Minimum quotas were established for domestic production and for the Philippines, with excess consumption allotted to Cuba (98.64%) and the rest of the world (1.36%). This arrangement proved beneficial to Cuba and other foreign countries as U.S. domestic consumption continued to grow while domestic quotas were fixed.

The 1951 amendments to the 1948 Sugar Act provisions increased the excess quota percentage for foreign countries other than Cuba to four percent and increased quotas for Puerto Rico and the Virgin Islands. In 1956, the 1948 Sugar Act was amended again, restoring domestic areas' participation in consumption increases. When the amendments took effect in 1957, foreign countries other than Cuba and the Philippines received four percent of the difference between the domestic quotas and 8.35 million short tons. Foreign countries also were allotted 15.41% of the excess of 8.35 million short tons.[9] United States sugar consumption increased steadily in the 1950s allowing foreign imports to increase to their highest levels since implementation of the 1934 Sugar Act.

The 1959 Castro Revolution in Cuba led to a Sugar Act amendment in 1960 that reduced the Cuban sugar quota to zero and distributed Cuba's quota between other foreign countries and the Philippines. The 1948 Sugar Act was amended in 1961, 1962, 1965, and 1971. The 1971 amendment stipulated that USDA set consumption requirements so that a predetermined objective price would be attained (Ballinger 1975). The objective price was to be established to maintain the ratio of the current sugar price

[9] If the consumption estimate was over the 8.35 million short ton bench mark, for example 9.35 mst, the Philippine quota was increased by 15.41% of the difference. In this case the Philippine quota would increase by 154,100 million short tons.

to the average of the parity and wholesale price indexes between September 1970 and August 1971.[10] If the domestic sugar price fell more than four percent below or four percent above the objective price, the Secretary was instructed to alter the consumption estimates to meet the objective price. The system was manageable through 1973, but by 1974 world prices had risen to a point that quotas became ineffective. In 1974, Congress did not pass legislation to renew the sugar program and the provisions 1948 Sugar Act and its amendments lapsed, ending a 41 year run of import quotas in the United States (Ballinger 1975). Later in 1974, the President established an aggregate import quota of 7 million short tons, but it was too high to be effective.

World prices spiked in 1975 and, although declining, continued to be high in 1976. Prices fell in 1976 largely because of a global production response to high world prices in 1975. In addition, a wet July 1976 in Europe led to a bumper beet crop and Brazil entered the sugar market after restricting imports for several months (USDA December 1976). On the demand side, high fructose corn syrup (HFCS) was beginning to make inroads as food and beverage manufacturers sought to replace sugar with a less expensive input. As prices dropped, the International Trade Commission opened hearings to determine whether or not imports were the source of "serious injury or threat thereof" (USDA, December 1976, 15) to the domestic industry and, in March 1977, recommended that imports be restricted. President Ford, anticipating this recommendation, increased the tariff on raw sugar from 0.625 cents to 1.875 cents per pound in September 1976.

[10] A parity price is the sugar price yielding the same purchasing power as it did over the time period 1910 to 1914 (Pasour and Rucker 2005). This time period was assigned as a measure of parity because it was a period in which agricultural commodity prices were at all-time highs.

When the 1977 Food and Agriculture Act took effect on November 8, 1977, a price support/ loan rate program was established (see "Price Support Loan" section). To reduce government expenditures on this new program, President Carter raised import fees to 2.7 cents per pound for raw sugar and 3.22 cents for refined sugar. The import fee, coupled with the import duty, served to control imports in the late 1970s. Both the fee and duty reached their peaks in early 1979, when the fee for raw sugar was 3.22 cents and the import duty was 2.8125 cents per pound.

As early as 1978, Congress debated legislation entitled "the Sugar Stabilization Act" (USDA May 1978, 17). The legislation was defeated in October 1979 as a small global sugar crop resulted in another world price spike. Import fees were decreased to zero and the import duty was dropped to its legal minimum of 0.625 cents per pound on raw sugar (USDA, February 1980). The world price spiked at 57.22 cents per pound in 1980 and by that point, the United States sugar industry was unprotected.

Late 1980 and 1981 brought decreasing world prices and talk of protection. On December 22, 1981, the 1981 Farm Bill was enacted and governed sugar policy through the 1985-86 crop year (USDA, February 1982). This legislation, like previous sugar programs, included a price support/ loan rate component, but to reduce the risk of sugar forfeitures to the Commodity Credit Corporation (CCC), the 1981 Act also established a market stabilization price (MSP).[11] To generate the MSP, import tariffs and fees were again used to raise domestic sugar prices. Following enactment of the 1981 Act, President Reagan raised the import fee for sugar to 2.14 cents per pound and the tariff to

[11] The MSP was calculated by adding a transportation cost factor, handling cost factor, GSP tariff reduction factor, an interest factor, and an incentive factor for processors to sell in the market to the loan rate.

its legal maximum of 2.18 cents per pound on raw sugar.[12] The import fee continued to be increased until May 1982, when it was determined that import fees and tariffs alone would not adequately protect the MSP (USDA, May 1982). On May 5, 1982, President Reagan established an emergency country-by-country import quota program. This was the first time that an import quota had been used since 1973.

On May 21, 1982, the import quota proved to be an effective tool as the domestic price rose above the MSP for the first time, leading to a more formal quota system (USDA, September 1982). Annual country-by-country quotas were created as percentages of the overall import quota. In order to export to the United States, foreign sellers were required to hold certificates of eligibility, which were distributed to individual countries. Countries that fell into the "other" category were allowed to import a prorated share or 16,500 short tons, whichever was greater. This was a change from the first-come, first-served method which governed initial quotas for small exporters. Table 1 shows raw sugar import quota levels, actual raw sugar imports, the balance of sugar quotas minus actual imports, the total number of individual countries that received quotas and the number of countries that filled their quotas.

[12] The President was granted the right to implement import fees under the Agricultural Adjustment Act of 1933. The ITC must investigate whether or not imports interfere with domestic programs before fees can be raised.

Table 1. Raw Sugar Import Quotas and Imports, 1982-2005.

Quota Period	Raw Quota	Raw Imports	Balance	Filled Quotas 1/	Total Quotas 2/
5/11/82-6/30/82	220,000	178,993	41,007	19	36
7/1/82-9/30/82	420,000	408,316	11,684	24	37
10/1/82-9/30/83	2,890,600	2,652,315	238,285	33	36
9/26/83-9/30/84	3,173,150	3,130,184	42,966	33	39
10/1/84-11/30/85	2,675,000	2,646,717	28,283	38	41
12/1/85-12/30/86	1,848,054	1,838,034	10,020	35	40
1/1/87-12/31/87	1,001,430	997,131	4,299	39	39
1/1/88-12/31/88	1,054,675	1,024,794	29,881	35	38
1/1/89-9/30/90	3,122,903	2,995,843	127,060	28	40
10/1/90-9/30/91	2,312,921	2,242,572	70,349	32	39
10/91-9/92	1,524,876	1,481,258	43,618	35	40
10/92-9/95	3,429,930	3,405,137	24,793	31	37
10/95-9/96	2,167,160	2,073,310	93,850	25	40
10/96-9/97	2,100,001	2,043,566	56,435	31	41
10/97-9/98	1,600,000	1,547,460	52,540	32	43
10/98-9/99	1,164,937	1,112,797	52,140	33	43
10/99-9/00	1,135,000	955,700	179,300	27	43
10/00-09/01	1,117,195	1,022,508	94,687	35	43
10/01-09/02	1,117,195	912,333	204,862	30	40
10/02-09/03	1,109,934	1,047,750	62,184	30	39
10/03-09/04	1,109,934	1,068,911	41,023	32	39
10/04-09/05	1,186,543	1,160,035	26,508	25	34

Source: USDA ERS Sugar and Sweetener Data Tables
Notes: 1/ Number of countries that effectively filled their quotas or imported over quota, 2/ Total number of individual countries granted quotas

The import quota sufficiently held the domestic price above the MSP and import fees were reduced (at some points to zero) as required by law. Tariffs were also lowered to their legal minimums. Quotas were originally to run from October 1 of one year to September 30 of the following year, which was considered the crop year. However, quota periods were changed to reflect the tightening of imports, as in 1983-1984 and 1989-1900. In 1992, a three year quota was set to cover the 1992 through 1995 crops.

The variance in quota periods makes it difficult to compare quotas for different years. Beginning with the 1996-1997 crop, the quota period became uniform and the foreign

import quota was reduced each year until the 2004-2005 crop year, when the quota was slightly increased. Since 1982, in each quota period the overall quota has not been filled. However, it is important to note that a majority of individual country quotas were filled in each period. Here we assume that a country is counted as effectively filling its quota if it is either within 600 short tons of filling the quota or over quota. Most countries reported as not filling their quota were either very close to the 600 short ton level or had virtually zero charges against their quota because of weather or political reasons.[13]

The 1985 Farm Bill did not significantly affect the quota program, but did further strengthen the President's ability to set and adjust import quotas (Sugar and Sweetener Outlook, March 1986). In 1987, the Uruguay Round of the General Agreement of Trade and Tariffs (GATT) negotiations was initiated, with agriculture as a major centerpiece of discussions. The United States proposed trade barrier and subsidy reductions for agriculture over a ten year period (USDA September 1987). On June 9, 1989, a GATT panel found that U.S. sugar import restrictions violated GATT rules and the Secretary of Agriculture announced that quota operations would continue until a task force could find solutions that would enable the sugar program to become compliant with GATT rules (USDA, September 1989). During GATT negotiations in 1990, the United States proposed that members replace quotas with tariffs that would be reduced over time. To show their willingness to comply with the GATT sugar decision, and that the U.S. government was serious about its GATT proposal, the United States converted its sugar import quota regime into a tariff rate quota system (TRQ) (USDA, September 1990).

[13] For example, in FY 2005, Madagascar received an import quota of 7,258 short tons but did not export any sugar to the U.S. In FY 2004, Guyana under-filled its quota by 802 short tons.

The TRQ system allowed some countries to export a fixed quantity of sugar to the United States under a low tariff (0.625 cents per pound). If these countries wished to export more than their quota, or countries without quotas wished to sell sugar to the United States, they faced a prohibitively high second tier tariff (16 cents). The TRQ system was implemented in the 1991 crop year and was found to meet GATT requirements by the GATT appellate panel.

The 1990, 1996, and 2002 Farm Bills did little to change the TRQ system. Perhaps the most important innovations in international sugar trade policies were the North American Free Trade Agreements (NAFTA) and other regional and bilateral free trade agreements (FTAs) developed in the 1990s and 2000s. NAFTA and its predecessor, the Canada-U.S. Trade Agreement (CUSTA), allow Canada and Mexico to export increased levels of refined sugar to the United States, which is much more heavily restricted than raw sugar.[14] The United States FTAs with Latin American and Caribbean nations have alarmed U.S. sugar producers and processors, but the impact of these FTAs on sugar imports has been very small.[15]

[14] From 2001 to 2007, Mexico was allowed to export up to 250,000 metric tons of sugar to the U.S. In 2008, the higher tariff on sugar from Mexico will be removed for both refined and raw sugar (USDA 2007).

[15] For example, under the Central America-Dominican Republic Free Trade Agreement (CAFTA-DR) sugar exports to the United States will increase from 1.2% of estimated annual U.S. sugar consumption in 2005 to 1.7% of estimated future consumption in 2020 (USTR 2005). CAFTA-DR essentially increased the TRQ available to these countries, but the overall TRQ remained roughly the same. The agreement contains a provision allowing the U.S. to "provide some form of alternative compensation to CAFTA-DR country exporters in place of imports of sugar" (USTR 2005,1).

Domestic Production Controls

Another feature of the United States Sugar Program is its use of production controls through domestic marketing allotments. Marketing allotments were also introduced in the 1934 Sugar Act. Allotments were announced by the Secretary of Agriculture as a percentage of estimated domestic consumption. From 1934 to 1974, marketing allotments followed a similar trend as import quotas as they were tied to estimated annual U.S. sugar consumption.

Figure 10 depicts a domestic sugar market in which both an import quota and a domestic marketing allotment program are in effect. In the absence of market intervention, domestic production would equal Q_1, domestic consumption would equal Q_3, and $Q_3 - Q_1$ would be imported at the world price, P_W. Area j represents producer surplus while area n + k + l + m + o + p represents consumer surplus. Areas m + p equal the gains from trade.

An import quota equal to the quantity Q_2 minus Q_1 is established and a marketing allotment (domestic production quota) limits domestic production to Q_1. This policy combination creates a supply curve equal to the segmented line $ABCS_Q$ and raises the domestic sugar price to P_D. Total sugar supply is limited to Q_2. Producer surplus increases to area j + k and consumer surplus decreases to area n. Foreign quota holders receive gains equal to area l + m. Area o + p are deadweight losses because the area is lost by consumers and not gained by any other agent.

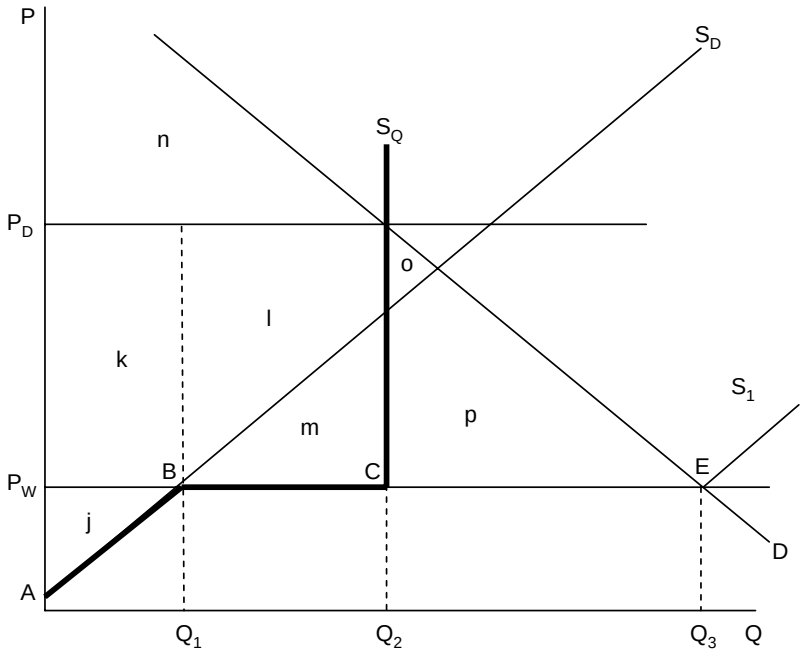

Figure 10. The welfare effects of a marketing allotment program.

In 1974, marketing allotments were suspended as world prices increased and farm legislation expired. Although import quotas were reintroduced in 1982, marketing allotments did not reappear until 1993. Allotments were again discontinued in the 1996 Farm Bill. The 2002 Farm Bill made marketing allotments a prominent component of sugar policy because of the emphasis placed on operating the sugar program and its loan components at no cost to the federal government. For a complete listing of domestic marketing allotments, see appendix B.

Price Support Loans

When world sugar prices declined in 1975, the Ford administration faced significant pressure to support beet and cane farmers. On May 5, 1977, President Carter created the

first direct price support program for sugar, instituting a maximum 2 cents per pound subsidy to be paid to processors whenever the domestic price of refined sugar fell below 13.5 cents per pound (USDA, May 1977). The following November, the 1977 Food and Agriculture Act was enacted, establishing a non-recourse loan program for processors. This instrument effectively creates a price floor for sugar as processors use refined sugar as collateral to receive loans at a pre-determined loan rate. If the domestic refined sugar price is lower than the loan rate, processors could forfeit their sugar to the CCC and keep loan revenues. If the market price is higher than the loan rate, processors pay back the loans and sell their sugar on the market. If processors choose to forfeit their sugar to the CCC, they must guarantee a minimum price per ton to producers. For cane, this price is set by the government. For beets, the price per ton due to producers was set by the government until 1995, when it was stipulated that loan revenue be split between processors and producers according to their normal contracts.

Figure 11 models a domestic sugar market in which the government operates a non-recourse loan rate program. Here we assume that an import quota establishes a domestic price above the world price P_W. For simplicity, we ignore the welfare effects of the quota. The government establishes a non-recourse loan rate at LR. If, as intended by policy, the import quota is able to keep the domestic price higher than the loan rate (such as is the case with P_D^1) processors will not use the loan program and will produce Q_3 domestically. Processor surplus would equal area a + b + c + d + f + g + h and area j would be a component of deadweight loss.

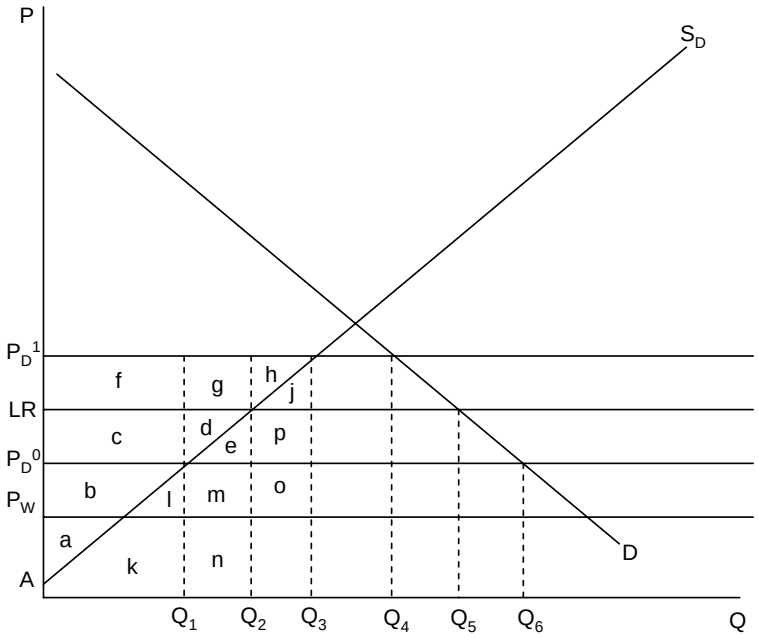

Figure 11. The welfare effects of a non-recourse loan rate program.

If the import quota cannot sufficiently hold the domestic price above the loan rate (as with P_D^0) processors will take out loans on Q_2 units of sugar. Processors will forfeit the sugar held by the CCC as collateral and keep their loans. Assuming that Q_1 can be sold in the market for P_D^0, government expenditures will equal area c + d + e + m + n. If the government sells $Q_2 - Q_1$ in the market, m + n will be gained in government revenue. To ensure P_D^0, however, the import quota will be reduced to $Q_6 - Q_2$. Areas c + d are transferred to processor surplus; therefore area e + m + l will contribute to the supply-related deadweight loss.

The non-recourse loan program has major implications for government expenditures whenever prices fall below the loan rate and the CCC has to make large purchases of defaulted sugar. Therefore, USDA relies heavily on the import and production control

policies to keep purchases to a minimum. The TRQ and marketing allotment policies usually ensure that the domestic sugar price exceeds the loan rate, limiting forfeitures.

When world prices spiked in 1980 and the sugar program was not renewed, USDA discontinued the price support loan program, citing the "volatility and unpredictability of sugar prices" (USDA February 1981) and the difficulties this volatility posed to the implementation of sugar policy. The 1981 Farm Bill reintroduced the loan program as the centerpiece of a new sugar policy. The program differed little from the 1977 version. For beets and cane processed between December 22, 1981 and March 31, 1982, a purchase program was established in which the government purchased sugar at 16.75 cents per pound for raw cane sugar and 19.7 cents per pound for beet sugar. The non-recourse loan program started with the 1982-1983 crop, beginning on October 1, 1982. Loans were available on October 1 of each year and were required to mature before September 30 of the following year. Sugar placed under loan during each crop year had to be processed between July 1 of the first calendar year and June 30 of the second calendar year.

The 1985 Farm Bill stipulated that the loan rate could be no lower than 18 cents per pound for raw cane sugar, and that any increase had to be reported to Congress (USDA, March 1986). The beet support price was required to share the same relationship to the cane price as returns to beet producers had relative to returns to cane producers. The other main sugar feature in the 1985 Farm Bill was the mandate that the program be operated at no cost to the government. This implied that import quotas be established that would guarantee that domestic prices would exceed the loan rate in the domestic

sugar market. In 1987, the Omnibus Budget Reconciliation Act mandated that outlays on the sugar program would be cut by 1.4% (USDA March 1988). This led to a reduction in loan proceeds received by processors, but did not affect the loan rate. The 1990, 1996, and 2002 Farm Bills continued the non-recourse loan program.

Loan rates for sugar, and producer supports based on these loan rates, are presented in table 2. The loan rate for raw cane sugar rose steadily each year until the 1985 Farm Bill set a minimum of 18 cents, after which the loan rate became stable. The sugar beet loan rate increased until 1996, when it plateaued at 22.9 cents per pound. Both beet and cane producer payment requirements have risen each year (except from 2001-02 to 2002-03 when the cane price decreased). In 1980 and 1983, the MSP was sufficiently high to ensure that no sugar was forfeited to the CCC.

Processors that forfeited on their loans were required to pay a minimum per-ton price to producers. In table 2, these prices are given in the column "Required Producer Supports." From 1977 to 2007, the extraction rate (the percentage of sugar recoverable from a ton of raw material) ranged from 13% to 15% for sugar beets and 11% to 12% for sugarcane. Using an extraction rate of 14% for beets and 11.5% for cane, the producer support prices in cents per pound for 1993/94 would be 7.76 cents for beets and 8.76 cents for cane.

Table 2. Statistics for the Sugar Non-recourse Loan Program.

	Processor Support Loan Rate		Required Producer Supports	
Crop Year	Raw Sugar	Beet Sugar	FL Cane	Beets
	cents per pound		*$ per ton*	
1977/78	13.50	15.57	18.37	22.84
1978/79	14.73	16.99	20.36	24.73
1979/80	13.00	15.15	17.92	22.46
1980/81	No Program		No Program	
1981/82	16.75	19.70	No Program	
1982/83	17.00	20.15	23.00	30.60
1983/84	17.50	20.86	23.48	31.45
1984/85	17.75	20.76	23.89	31.63
1985/86	18.00	21.06	24.02	31.81
1986/87	18.00	21.09	24.07	29.44
1987/88	18.00	21.16	24.68	30.57
1988/89	18.00	21.37	24.71	31.18
1989/90	18.00	21.54	25.02	31.36
1990/91	18.00	21.93	25.43	32.27
1991/92	18.00	22.85	25.25	34.67
1992/93	18.00	23.33	26.15	34.63
1993/94	18.00	23.62	26.23	36.05
1994/95	18.00	23.43	25.90	Specified in producer/ processor contracts
1995/96	18.00	22.90	25.75	
1996/97	18.00	22.90	25.75	
1997/98	18.00	22.90	25.75	
1999/00	18.00	22.90	25.75	
2000/01	18.00	22.90	25.75	
2001/02	18.00	22.90	25.75	
2002/03	18.00	22.90	25.00	
2003/04	18.00	22.90	26.18	
2004/05	18.00	22.90	26.83	
2005/06	18.00	22.90	27.94	
2006/07	18.00	22.90	27.63	

Source: USDA ERS Sugar and Sweeteners: Data Tables, USDA ERS Sugar Statistics and Related Data 1961, 1970, 1974.

Note: Starting in 1994/95, beet producer supports were specified in grower/processor contracts, not by USDA.

Other Sugar Program Policies

While sugar producers and processors enjoyed high prices in the mid-1970s, price decreases in 1976 caused them to lobby for protection. Internationally, perhaps the most significant agreement on sugar protection was the International Sugar Agreement (ISA). The intent of the ISA was to "create an artificial balance between supply and demand," and in the long run to "reduce price fluctuations…by assuring producers reasonable prices and by protecting consumers from the price run-ups of the type that occurred in 1974" (USDA, December 1974, 10). Under the ISA, an optimal price range was established for the world sugar price. ISA policy utilized a series of export quotas for exporting members and limits on imports from non-members by importing members. Another important feature of the ISA was its use of sugar stocks that were built up by exporting members and could be released in times of high prices. These stocks were financed by fees placed on imported ISA sugar. The ISA was enforced by the International Sugar Council, which consisted of equal representation for importing and exporting country-members.

The U.S. Senate ratified the ISA in November 1979, but did not fully participate until President Carter signed ISA implementation legislation in April 1980 (USDA, May 1980). This legislation tweaked the U.S. domestic sugar program to comply with ISA rules and largely amounted to a reconfiguration of import quotas. The ISA never took root however, mainly because of a large price spike that occurred in late 1979, followed by a subsequent decline in world sugar prices in 1981. The ISA's inability to prevent the decline in world prices undermined its credibility. In addition, the European Community

never ratified membership in the ISA, and its role in the world market made the ISA somewhat toothless. The bellwether for the end of the ISA was its "inflation" problem. Export quotas were formulated based on member-countries' basic export tonnages (BETs). A country was allowed to export a minimum of 85% of its annual BET. The BETs were renegotiated each year but were largely based on previous annual exports. In the early 1980s, market conditions called for restricting export quotas and each year the ISA set a global quota for exports (USDA February 1982). In 1982, 1983, and 1984, the global export quota was below the sum of 85% of each country's BET. This made the quota ineffective because the ISA could not reduce the global export quota below the 85% threshold. Negotiations over an extension of the ISA failed and the ISA expired on June 30, 1984 (USDA September 1984).

In August 2000, the USDA created a Payment-in-Kind (PIK) diversion program for sugar (USDA September 2000). The PIK was modeled on similar diversion programs for other agriculture commodities and was implemented under the no-cost mandate authorized in the 1985 Farm Bill. It allowed farmers to bid on sugar held in the CCC inventory in exchange for not harvesting some of their acreage. PIK program payments were capped at $20,000 per farmer. The PIK program for sugar was seen as a way for the CCC to cut costs and farmers to receive higher incomes while not contributing to overproduction problems.

CHAPTER FIVE

IMPACTS OF MONOPSONY ON THE UNITED STATES SUGAR INDUSTRY

Sugar beet processing is a highly concentrated sector in the sugar marketing chain. In 2002, the top four processors accounted for 84% of all U.S. sugar production. This degree of firm concentration suggests that beet processors may have some market power in input and final product markets. However, several close substitutes for beet sugar are available, including cane sugar, high fructose corn syrup, and alternative sweeteners. Thus, it is unlikely that sugar beet processors exert much, if any, monopoly or oligopoly market power in final product markets. This chapter presents a model in which sugar beet processors operate as monopsony buyers of beet inputs. The model is then used to analyze the political impacts of sugar beet policies on the economic welfare of sugar beet producers, processors, and consumers. The analysis provides a theoretical framework within which the political economy of the U.S. sugar policy is examined in chapters six and seven.

Sources of Monopsony Power

Monopsonies exist when an economic agent exerts control over the price it pays for an input (Eaton, Eaton, and Allen 2002). Several factors allow beet processors to influence the price they pay for beets. First, significant barriers to entry exist in beet processing due to the scale of equipment needed to process beets. Additionally, the USDA has periodically imposed marketing allotments that cap the activities of processors, effectively limiting the number of processors to those that have allotments. Secondly,

locational issues face producers. Beet processors operate regionally, and because beet sugar content declines over time after harvesting, it is costly for producers to transport their beets to processors outside their area. Beets are also quite bulky and expensive to transport in the first place. Finally, because of sugar loss over time, storing beets on the farm to wait for better prices is not an economically viable option for producers. In fact, beet crops are contracted with a processor before they are planted.

As monopsonies, sugar beet processors would maximize profits by equating the marginal resource cost of beets with the marginal revenue product derived from their use.[16] The result of monopsony market power is that beet inputs are purchased below the economically efficient level and too little sugar is produced from sugar beets. The United States sugar program relies on tariff rate quotas (TRQs) and nonrecourse loans to operate the program at "no net cost to the government." The program provides incentives for processors to expand their use of beets, but still at a level below the new competitive equilibrium.

A Monopsony Model of Sugar Beet Production

The United States sugar industry can be viewed as consisting of three types of economic agents. The first consists of beet and cane farmers. The second consists of beet and cane processors. Beets only undergo one stage of processing, converting beets into refined sugar. Cane undergoes two stages. In the first stage, cane is converted into raw sugar, in the second, the raw sugar is refined into white sugar. The third group of

[16] See Perry (1978) for a discussion of monopsony mechanics and monopsonies as motivation for vertical integration.

economic agents consists of all end-consumers of sugar. These include households, bakers, confectioners, and other users of sugar.

Figure 12 depicts the sugar industry in the United States. Panel (a) represents the domestic market for refined sugar, with supply and demand represented by S_{Dom} and D_{Dom}, respectively. Panel (b) shows the market for processing or middleman services. The supply curve for processing services (S_p) is assumed to be flat and the marginal cost of processing is fixed at MC_p. Panel (c) depicts the domestic market for raw sugar with supply (S_{Raw}), derived demand (D_{Raw}), and marginal resource cost of raw sugar for processing (MRC). In the model presented in figure 12, no imports (or exports) occur at any stage in the market.

The raw sugar market is presented in panel (c). S_{Raw} and D_{Raw} represent the supply curve and demand curve for raw sugar. Panel (a) represents that market for refined sugar where the raw sugar supply curve is vertically summed with S_P (in panel (b)) to derive the refined sugar supply curve, S_{Dom} and D_{Dom} represents domestic consumer demand for refined sugar. Demand in the raw sugar market is derived from demand in the refined sugar market. Under perfect competition in all levels of the marketing chain, the intersection of supply and demand in the refined sugar market determines the equilibrium quantity supplied and demanded in refined and raw sugar markets at Q_2 (for simplicity we assume one unit of refined sugar is produced from one unit of raw sugar).

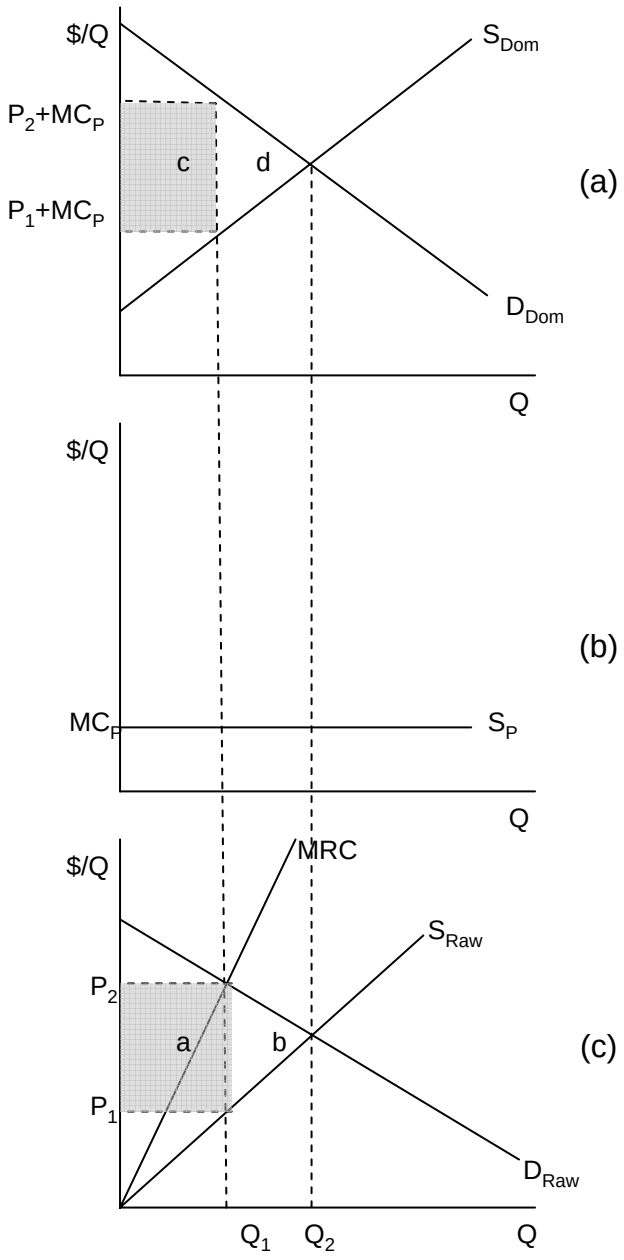

Figure 12. The three levels of the United States domestic sugar industry under sugar processor monopsony.

The introduction of monopsony market power at the processor or middleman level results in lower output levels. Monopsonist processors would purchase a raw sugar quantity of Q_1, based on the intersection of their marginal resource cost curve (MRC) and

the demand curve for raw sugar, D_{Raw}. Processors would purchase raw sugar at a price of P_1, determined by the intersection of Q_1 with S_{Raw}, and would sell refined sugar in the domestic market at a price of P_2 plus the marginal cost of processing (P_2+MC_P). This leads to economic rents for processors equal to area a in panel (c). Social losses equal to area b in the raw sugar market would occur due to the reduction in raw sugar use and refined sugar production. In the refined sugar market, the processor receives rents equal to area c. Note that these rents equal area a in panel (c), but do not accrue twice. The same is true for the social loss, area d, in the refined market. This area is equal to area b in panel (c). The fact that processor marginal costs are constant in panel (b) implies that the welfare effects of monopsony can be shown in either the refined sugar market or the raw sugar market. The assumption that marginal processing costs are constant allows us to ignore the refined sugar and processor markets in further analyses and focus on the market for raw sugar to discuss the welfare effects of policies.

Monopsony Effects Under Trade

International trade plays a major role in the domestic sugar industry. Thus we now consider the effects of monopsony processors on a domestic sugar industry when imports are involved. The world sugar price is below the autarky domestic equilibrium price and the country is a net importer of sugar. Figure 13 provides a graphical analysis of monopsony effects on the domestic raw sugar industry with trade.

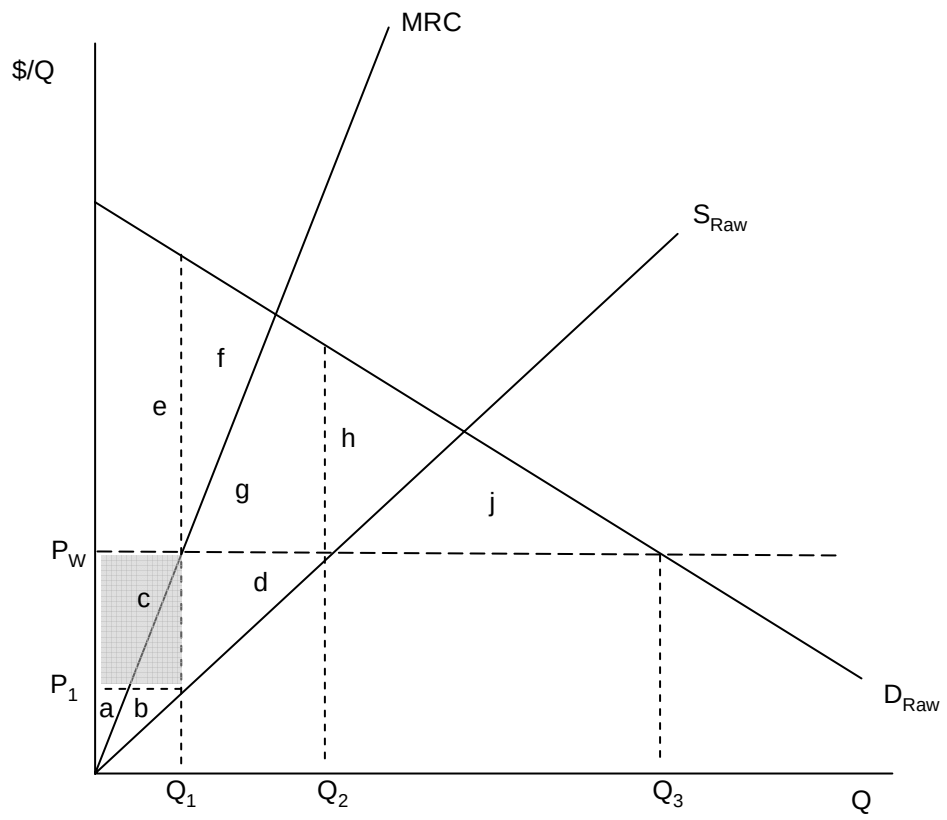

Figure 13. United States domestic sugar industry under sugar processor monopsony with trade.

In the absence of monopsony power, processors purchase Q_2 units of raw sugar from domestic producers, imports equal Q_3 minus Q_2, and the domestic price equals the world price, P_w. The producer surplus obtained by sugar beet farmers equals area a+ b+ c+ d and consumer surplus equals area e+ f+ g+ h+ j. Area j represents the economic gains from trade.

If sugar beet processors enjoy monopsony market power, then the processors' marginal resource cost curve, MRC, determines that processors would purchase Q_1 units of sugar beet input. Under trade, with a domestic monopsony, P_W equals MRC, and Q_1 will be purchased domestically at a price of P_1. Imports, however, increase to Q_3 - Q_1 by

the amount that domestic production decreases, $Q_2 - Q_1$. The producer surplus that accrues to sugar beet producers declines to area a + b, while consumer surplus remains unchanged as raw sugar is still being imported at the world price and the increase in imports allows for the reduction in domestic production. Processors accrue rents under this scheme equal to the shaded area c. These rents are attributed to the fact that costs to processors are P_1 plus their marginal cost, but they can sell refined sugar at P_W plus their marginal cost in the refined market. Domestic production falls below the efficient level of Q_2, creating a deadweight loss (area d) from the monopsony because Q_2 minus Q_1 units of raw sugar is imported at the world price (P_W) instead of being purchased from domestic producers whose marginal costs are lower than P_W.

Monopsony Effects on Market with Trade Barriers

The two major policy instruments of United States sugar policy are the non-recourse loan program and a tariff-rate quota (TRQ). The non-recourse loan program creates a price floor for domestically refined sugar. Processors use refined sugar as collateral to receive loans from the Commodity Credit Corporation (CCC). If the price of sugar in the domestic market exceeds the loan rate, processors sell their sugar in the market. If the market price is lower than the loan rate, processors can forfeit their sugar to the CCC and keep their loans. The TRQ program is an import control system that limits imports of sugar into the United States. Each country with a TRQ is allowed to export an amount equal to (or less than) their TRQ to the United States under a small tariff. Any sugar

exported to the United States in excess of a country's TRQ is subject to a prohibitively high tariff rate.

Figure 14 displays a graphical representation of monopsony effects on the domestic raw sugar market when the sugar program is in place. To simplify the discussion, a tariff equivalent is used to illustrate the effects of the TRQ and other policy instruments that have the cumulative effect of raising the domestic sugar price.

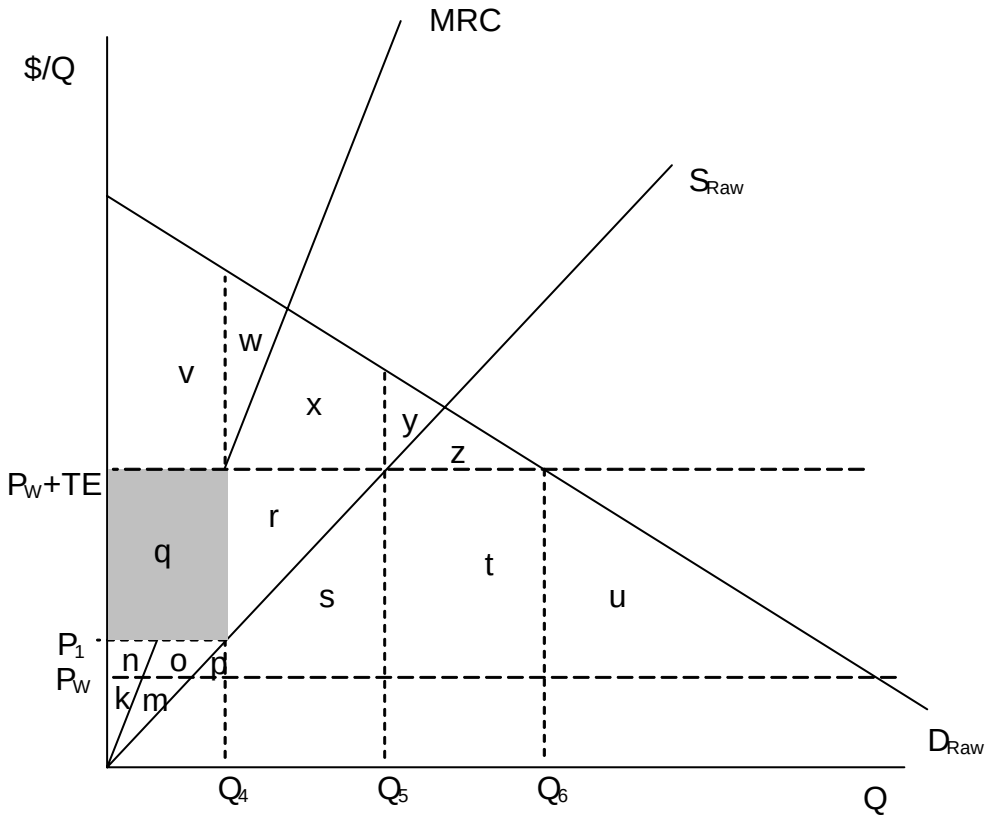

Figure 14. United States domestic sugar industry under sugar processor monopsony with tariff equivalent.

In this diagram, U.S. sugar policy takes the form of a tariff equivalent and raises the domestic price to P_W+TE, with an implied TRQ equal to Q_6 - Q_4. In the absence of monopsony power, domestic raw sugar production would expand to Q_5, and imports

would decrease to Q_6 - Q_5, leaving some of the TRQ unused. Consumer surplus would decrease from the entire area above P_W and under D_{Raw} to the sum of the areas v, w, x, y, and z. Gains from trade would be reduced to area z. Producer surplus accruing to sugar beet processors and producers increases from areas k + m to areas k+ m+ n+ o+ q+ r. Social losses accrue as a result of the tariff equivalent. Areas p and s represent losses due to over production in the domestic sector and area u represents lost consumer surplus due to the higher domestic price.

When monopsony power is introduced, the monopsony profit maximization decision of equating marginal resource cost with marginal revenue product (intersection of P_W+TE and MRC) determines that domestic production will decrease from Q_5 to Q_4. Imports rise to the quantity Q_6 - Q_4. Overall, consumer surplus is unchanged from the monopsony-free case. Producer surplus is reduced to the sum of the areas k, m, n, and o. It is worth noting however, that producer surplus is greater when supports are in place (areas k+ m+ n+ o from figure 14 are larger than areas a + b in figure 13) because areas n and o become rents to the producers from the sugar program. Under the tariff equivalent, a monopsony creates rents for processors equal to the shaded area q. Paradoxically, the increase in imports caused by the monopsony decreases the total social loss from the quota by area s. Areas s and r become gains to foreign quota-holders and area p remains as a deadweight loss due to domestic over production. Area u remains as a loss due to lost consumer purchases as a result of artificially high prices. It is worth noting that the deadweight loss shown in figure 13, area d, is eliminated because of the monopsony-tariff equivalent combination. However it is offset by the losses of areas p and u.

Monopsony as a Motivation for Vertical Integration

The rents created from a tariff equivalent and monopsony power in the processor level create significant incentives for vertical integration by beet producers. Not only is it in the best interests of producers to maintain their rents, but the rents that processors receive because of the program are appealing as well. Perry (1978) explained that internalizing a monopsony-created inefficiency provides motivation for producers to vertically integrate. Figure 15 shows the areas that are critical in determining whether or not it is in the best interest of producers to vertically integrate.

Under a world price with no tariff equivalent, Q_1 would be produced domestically and $Q_6 - Q_1$ would be imported at price P_w. Producers would receive P_1 for their output, producer surplus would be equal to area a + b and rents for processors would equal the shaded area c (caused by being able to sell sugar for $P_w + MC_p$ but only purchasing beets for P_1). Area d would be a domestic deadweight loss due to underproduction because of monopsony power and would be a gain to foreign quota holders.

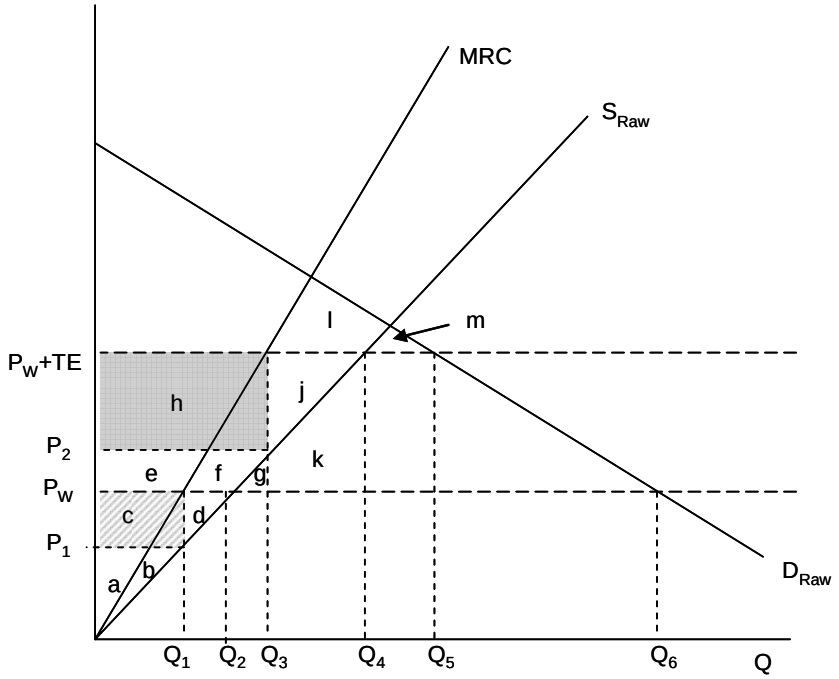

Figure 15. United States domestic sugar industry under sugar processor monopsony under a world price and a tariff equivalent.[17]

If the returns represented by area c + d are larger than the costs associated with acquiring the processor, producers will organize and vertically integrate into the processing market. To maximize its profits, the producer/processor would increase output to Q_2 to capture the entire area a + b + c + d as producer surplus. The price of sugar would not change, but imports would shrink to Q_6 minus Q_2. Area d would no longer be a domestic deadweight loss but rather a component of producer surplus.

Under a tariff equivalent, Q_3 would be produced and producers would receive P_2 while processors would receive P_w+TE+MC_p in the refined sugar market. This scheme produces rents for processors equal to the shaded area h. Producer surplus expands to

[17] Note that for monopsonists, a linear supply curve suggests that the MRC will have twice the slope as the supply curve. This fact is omitted in figure 15 to eliminate other complexities.

area a + b + c + d + e + f. Imports decrease to Q_5 - Q_3. Area g is a deadweight loss due to domestic overproduction and area j is a domestic reduction due to underproduction because of the monopsony, but is transferred to foreign quota holders.[18]

In the presence of a tariff equivalent or quota, if the gains associated with area h + j are greater than the cost of acquiring the processing operation, producers will vertically integrate. To maximize its profits, the producer/processor will increase output to Q_4, and producer surplus increases to area a + b + c + d + e + f + h + j, with area j representing the efficiency gain from internalizing the monopsony losses. Imports decrease to Q_5 minus Q_4, and the price to consumers is unchanged. It is important to note that while the monopsony loss (area j) is gained in the producer surplus, a larger deadweight loss (area g + k) is created because of overproduction in the domestic market.[19]

The relative sizes of areas d and j are important in this model because processors would need to be paid an amount equal to or greater than area c if the price is P_W (or area h if the price is P_W+TE) to sell their facilities. If the sugar price was P_W, "other" costs of acquisition (like licenses, costs of organizing, or similar costs) would have to be less than area d for producers to vertically integrate. At price P_W+TE, these "other" costs would have to be less than area j for producers to vertically integrate. It is more likely that area j will be greater than the "other" costs, and thus we are more likely to see vertical integration when an import quota is in effect.

[18] Note that other losses/gains exist, please refer to previous sections. Here our analysis is restricted to the producer/processor relationship.

[19] Area k is a loss to foreign quota holders with no offsetting gain and area g was a deadweight loss previously, therefore domestic deadweight loss is not affected by vertical integration. However, social deadweight loss, when the welfare of foreign producers is considered, is increased.

As discussed in chapter two, the number of beet processing facilities has decreased significantly over time, due to increasing costs. If a region is faced with the closure of its processing plant, producers will vertically integrate if the entire area a + b + c + d + e + f + h + j is greater than the cost of acquiring the processing facility. They will also consider the opportunity cost associated with not producing an alternative crop.

Conclusion

The above analysis indicates that monopsony power creates economic rents for processors/middlemen level in the domestic sugar industry. With these rents come deadweight losses that result from an inefficiently low level of domestic raw material production. Under a market scheme where trade exists, imports increase in the presence of monopsony power, and therefore the deadweight losses associated with the quota (or tariff equivalent) decrease. When a market support such as a tariff equivalent is introduced, monopsony may actually reduce social losses that accrue from the support (as shown in figure 14). In this case, rents accrue to both the producer and the middleman or processor.

The combination of monopsony power with a tariff equivalent creates an incentive for producers to vertically integrate by acquiring the processor. When vertical integration occurs, producer surplus increases, but the social deadweight loss also increases. The fact that over time many processors have gone out of business because of increasing costs or other factors plays a significant role as well. When producers are faced with the closure of their regional processor, the incentive to vertically integrate increases.

CHAPTER SIX

FOUNDATIONS OF MODERN SUGAR POLICY: THE JONES-COSTIGAN SUGAR ACT OF 1934

The 1934 Jones-Costigan Sugar Act was the first substantial piece of legislation designed to support the U.S. sugar industry. The Act's purpose was to establish sugar as a basic commodity covered under the protection of the Agricultural Adjustment Act of 1933. The main purpose of the Agricultural Adjustment Act was to reduce production of several major agricultural commodities such as wheat and corn, limiting supply and therefore increasing prices to farmers. Import restrictions were also major features of the act. In return for decreasing acreage under crop, farmers received benefit payments. The act created the Agricultural Adjustment Administration (AAA) to oversee payment of these benefits.

The Jones-Costigan Act was prompted by a letter to congress from President Franklin Roosevelt dated February 8, 1934. In his letter, Roosevelt stated his reasons for creating a sugar program to govern the domestic sugar industry and United States sugar trade (U.S. House Committee 1934a). Roosevelt outlined a domestic and import quota system meant to accomplish three main goals: keeping down the price of sugar to consumers, supporting domestic sugar producers, and halting the expansion of what he deemed a "necessarily expensive industry" (U.S. House Committee 1934a, 1). The President estimated that the domestic beet and cane sugar crop held a value of $60,000,000 annually, but cost consumers over $200,000,000 annually in protection. To combat the problem, Roosevelt's administration proposed to reduce the tariff on sugar imports and

create quotas for domestic and imported sugar. In an effort to compensate farmers for reduced production, they were to receive benefit payments that would be funded by a processing tax. "In order to make certain that American consumers shall not bear an increased price due to this tax, Congress should provide that the rate of the processing tax shall in no event exceed the amount by which the tariff on sugar is reduced below the present rate of import duty" (2).

Legislation was submitted to the House of Representatives by Marvin Jones of Texas, chairman of the House Agriculture Committee, and to the Senate by Edward Costigan of Colorado. Texas has significant cane production in its southern tip and sugar beets are produced in the northeastern corner of Colorado, so it would have been somewhat controversial for these men to propose the legislation because domestic beet and cane producers were generally opposed to production controls. The United States Department of Agriculture (USDA) was responsible for drafting the main features of the program and spoke to both houses of Congress in favor of the bill. Secretary Henry Wallace spoke to the Senate while Assistant Secretary Rexford Tugwell, AAA Administrator Chester Davis, economist Mordecai Ezekiel, and sugar and rice Section Chief J.S. Weaver spoke at House hearings on behalf of USDA (U.S. Senate Committee 1934; U.S. House Committee 1934b).

USDA officials consistently argued that the goals for the program were to stop the increase in sugar prices to the consumer and, at the same time, achieve a parity price for farmers and stabilize the market. Another program objective was to increase the purchasing power of Cubans, whose U.S. import quota would be increased. Members in

the House Agriculture Committee raised objections over how the program would actually help domestic producers if their acreage was restricted and sugar prices were not increased. Weaver responded that the processing tax and benefit payments would shelter producers from price volatility.[20] Weaver instilled a bit of fear in hearing participants when he alluded to the administration's desire to halt the expensive sugar industry.[21] Other USDA speakers sought to clarify Weaver's comments, including Secretary Wallace who testified that Weaver was tired after a late flight (U.S. Senate Committee 1934, 33). [22]

Sugar beet producers were perhaps the most vocal participants in the hearings. They tended to be well organized in their positions, aligned behind the president of the National Beet Growers Association, Charles Kearney, a farmer from Nebraska (U.S. House Committee 1934b). Beet farmers generally opposed the legislation because it would impose production limits on their crops, while the quota limit for Cuba was increased. Kearney estimated that the proposed domestic beet quota was 300,000 short tons lower than what was produced in 1933, but that Cuba's quota was about 343,000 short tons more than the United States consumed from Cuba in 1933. Kearney advocated making parity payments by direct appropriation and reimbursing the treasury from

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[20] Weaver stated: "The income of the beet growers as a whole probably will not be changed very much, except that they are protected from a decline in the tariff price…" to which Rep. Marshall asked why they should reduce the tariff if it would burden beet producers. Weaver replied, "Reduce it in the interest of consumers" (U.S. House Committee 1934b, 25).

[21] Weaver had an exchange with Reps. Hope and Cummings: Hope: "Well then, in other words the policy is to start eliminating the industry before it gets any bigger. Am I correct in that assumption?" Weaver: "Yes, if you mean limiting the industry, I think that is a reasonable statement." Cummings (a beet farmer): "Is it reasonable to say that the object of the bill then is to give us a shot in the arm and slide us out of business while we are partly unconscious?" Weaver: "Yes, if you consider that to be an objective of this bill, which is not the case…" (U.S. House Committee 1934b, 27-28).

[22] Wallace: "Brainy man (in reference to Weaver), but on that occasion he had been traveling all night on the airplane, and had been subjected to..." Sen. Vandenberg: "You mean he was still up in the air?" (U.S. Senate Committee 1934, 33).

processing tax funds, thereby making the payments a certainty. He also opposed production limits on the basis that while the commodities then under quota all supplied exportable surpluses, sugar did not.[23] Kearney also urged Congress not to remove tariff protection.

Kearney was the first person to advocate the sharing of benefits between farmers and manufacturers. Kearney used a quote from President Coolidge to illustrate his view: "The farmer is entitled to share along with the manufacturer direct benefits under our national policy of protecting domestic industry" (U.S. House Committee 1934b, 92). He also mentioned the necessity of the American beet farmer sharing in program proceeds when he proposed a series of amendments to the bill.[24] Among the amendments was a stipulation that USDA conduct a survey and announce probable domestic production and consumption levels for 12 months in advance. Another amendment directed USDA to assign the differences between the domestic production and consumption estimates to foreign suppliers. A third amendment required that $25 million be appropriated to pay parity benefits, rather than using processing tax proceeds directly. Finally, Kearney suggested an amendment designed to split proceeds from sugar production between growers and processors:

> In order to fully effectuate the declared purpose of the Agricultural Adjustment Act as set forth in its "Declaration of Policy", and to ensure the equitable division between sugar beet and sugarcane producers and/or growers and the processors of sugar beets and sugarcane all the proceeds which may be derived from the processing and marketing of such sugar beets and sugarcane, and all the byproducts thereof, the Secretary, upon request of any growers' association or of any processor of sugar beets or sugarcane, is hereby directed promptly to adjudicate any dispute as to any of the

[23] Kearney and others estimated that U.S. sugar producers supplied 25% of the U.S. sugar market (U.S. House committee 1934b).

[24] Kearney stated: "Give the American farmers their own fair share of the American market and a square deal in the division of the proceeds and he will help build the permanent prosperity we are all seeking" (U.S. House Committee 1934b, 109).

> terms under which sugar beets or sugarcane are grown or are to be grown and the sugar and byproducts are to be processed and/or marketed, and the decision of the Secretary shall be final. (U.S. House Committee 1934b, 110)

Sharing program benefits between producers and processors, as suggested by Kearney and later incorporated in the provisions of the 1934 Act, provides some evidence of incentives for vertical integration similar to the incentives investigated in the theoretical monopsony model presented in chapter five. All of the proposed sugar program initiatives were to be implemented at the processor level, making producers dependent on processors for receiving rents from the program. Through vertical integration, producers could remove inefficiencies associated with interactions with processors and optimize potential program benefits. The fact that the National Beet Growers Association introduced this stipulation shows that they were concerned that beet processors would not pass higher prices on to producers. As discussed in chapter seven, this concern appeared later, especially when vertical integration began to occur in the 1970s and 1980s.

Many producer-testifiers commented on the bill's potential effects on the producer-processor relationship. Lester Holmes of the California Beet Grower's Association testified that the stipulation that any processing tax must equal a corresponding tariff reduction and the requirement that the processing tax would not be paid by the consumer would cause processors to offer less for beets.[25] Representative Boileau of Wisconsin raised the possibility that processors could use distance to discriminate against farmers who grew beets further from a refinery if quotas were applied directly to processors as intended (U.S. House Committee 1934b). George Cobbley, a director for the National

[25] Holmes stated: "…the intention is not to pass the tax on to the consumer, but in violation of all precedents the tax is to be so set that the price to the consumer will not rise. The farmer must take less from the processor to keep business on the usual basis" (U.S. House Committee 1934b, 127).

Beet Growers Association and President of the Idaho Beet Growers Association, raised concerns over how processors would make decisions when contracting beet acreage. He mentioned that if quotas that cut production by 17% were implemented, processors might cut acreage back by more than 20% because of growing condition uncertainties and in hopes of avoiding overproduction penalties.[26] Cobbley feared that the program would work "unfairly and inequitably" (U.S. House Committee 1934b, 151) across sugar producing regions because of differences in processor-grower relationships. Unequivocally, farmers expressed their protectionist views that the sugar interests of Cuba and the island possessions of the United States should come after the rights of the domestic producers.

Domestic cane growers were not represented in large numbers, but generally backed the proposed sugar program.[27] The basis for quota levels was to be taken from average production over a three year time period between 1925 and 1933. Thus, cane producers argued for a three year period void of hurricanes, which tended to lower their production levels. Numa Montet, a Congressman from Louisiana, argued that any increases in demand for sugar should be reflected in increases in quota levels for domestic producers, rather than foreign interests (U.S. House Committee 1934b).

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[26] Cobbley: "Assuming that each company, the Utah-Idaho Sugar Co. and the Amalgamated Sugar Co., is faced with a 20% reduction, each will apply it, not to a particular factory but to the district its chain of factories serves. In applying the reduction it will do so on a basis of contracts before the beets are planted. The reduction, where and in the amount applied, will not be in the hands of the Agricultural Adjustment Administration, but in the hands of the companies owning these factories" (U.S. House Committee 1934b, 149).

[27] C.J. Bourg, vice president of the American Sugar Cane League stated, "We recognize that the present situation in the sugar market of the United States is such that something must be done by the federal government. We are convinced that there must be control of the production and distribution of sugar within the United States market" (U.S. House Committee 1934b, 169).

Refiners also agreed with the government's attempt to stabilize the sugar market, but thought the government should go further by limiting refined (direct consumption) sugar directly. Ellsworth Bunker spoke on the behalf of cane sugar refiners.[28] He asked the congressmen to limit refined sugar imports, which he argued was "absolutely vital to the continued existence of the domestic refining industry" (U.S. House Committee 1934b, 170), and maintain the tariff protection regime. In addition to his dire forecast for the refining industry if refined sugar imports were not limited, Bunker argued that American refiners' participation in Roosevelt's National Recovery Act had put them in a weak competitive position with foreign refiners who did not pay the same high labor costs. Bunker also argued that refiners in Cuba and America's island possessions duplicated refining capacity in the United States, and that all U.S. consumption sugar should be refined in the United States.[29] Bunker asked Congress to limit island possession refined sugar imports to 1933 levels, and to limit foreign imports to 15% of their overall sugar quota.

Puerto Rico, Hawaii, and the Philippines all seemed to favor increased protection of their sugar industries (U.S. House Committee 1934b, U.S. Senate Committee 1934). The three U.S. territories argued that they should be treated the same as continental sugar interests, because they "fell under the American flag." The islands were represented by producer groups in three instances and also by a processing company. The representatives were united in their opinion that the three years preceding the legislation

[28] Bunker was vice president of the National Sugar Refining Company.
[29] Bunker stated, "To permit the duplication of these facilities in the islands, merely to take advantage of the cheaper labor conditions on the islands, is therefore economically wasteful and unsound" (U.S. House Committee 1934b, 172).

should be used for quota determination, as they were years of high imports from these areas. Harry Hawes, who represented Philippine sugar producers, reminded the congressmen of the lengthy planting decisions that must be made by cane producers and urged them to adopt binding quotas that would minimize uncertainty.[30] Another common theme from island territory representatives' testimony was the desire for processing taxes collected on refined island sugar to be returned to the islands in the form of benefit payments.

Perhaps one of the most emotional speakers on this bill was a congressman from Colorado, Fred Cummings. Cummings sat on the House Agriculture Committee and grilled most USDA speakers because he was also a beet grower. He was accused of trying to sway beet producers toward opposing the sugar legislation.[31] Cummings gave testimony before the Senate Finance Committee, expressing his concerns over giving USDA the power control the sugar industry and told the senators that the 20 month contract-to-harvest period would not allow the quota system to help farmers (U.S. Senate Committee 1934).[32] If quotas were changed during the period in which the crops were under contract but not yet harvested, Cummings envisioned a disaster for beet producers

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[30] Hawes: 'We, therefore, respectfully suggest that the quota arrived at be definitely stated so that not only the planting of cane can be adjusted, to conform to this quota, but that our financing may be definitely arranged for. Any uncertainty about this, in our judgment, will be disastrous to our country and to our producers, and in addition we believe that it would be injurious to any sugar agreement entered into" (U.S. House Committee 1934b, 181).

[31] USDA Secretary Wallace made reference during his testimony to an unnamed propagandist: "I would not care to embarrass those interests by naming them—have, by skillful use of propaganda of one sort or another, misled the sugar farmers concerning the very real benefit they can obtain under this plan" (U.S. Senate Committee 1934, 15). Cummings later mentioned that he was likely the source of the Secretary's ire.

[32] Cummings: "This bill as now written makes Secretary Wallace the actual czar of the sugar business of the United States—not only of the United States but our continental possessions. It will make him, within his power, able to do as he sees fit with the quota; he can make or break the domestic producers or he can break the people that import sugar from many of those islands" (U.S. Senate Committee 1934, 128-129).

because processors would carry excess sugar over to the following year and decrease subsequent purchases from growers. Cummings also found fault with the program's ability to raise purchasing power in Cuba, "…just how much will a country purchase from us that can be made with an investment of $3 to $5 per capita?" (U.S. Senate 1934, 130).

The Jones-Costigan Sugar Act became law on May 9, 1934 and created an import quota system based on 1925-33 imports of sugar. It also created domestic processor quotas and gave USDA the authority to estimate sugar consumption needs of the United States and alter these quota levels to meet consumption needs. The 1934 Act also established a processing tax equal to the difference between the current average farm price and the "fair exchange value." The Secretary was granted the power to adjust the tax to prevent inventory accumulation and farm price depression. Revenues from the tax were to be used as rental/benefit payments to farmers in return for reducing production acreage and for inventory removal. Producers with reduced returns because of the processor tax or floor-stocks tax were allowed compensation for acreage reduction. The processor tax was removed in 1936 when the Supreme Court declared it unconstitutional. Payment provisions were also removed.

CHAPTER SEVEN

SUBSEQUENT SUGAR LEGISLATION: HEARINGS REVIEW

The Jones-Costigan Act was extended by the 1937 Sugar Act. Sugar policy was reexamined after World War II and Congress and the Truman administration enacted the 1948 Sugar Act. The act governed sugar policy until the program was discontinued amidst the price spikes of the mid-1970s (see chapter two, figure 4). The sugar program was reestablished under the provisions of the 1977 Farm Bill. Subsequent Farm Bills revisited and extended the provisions. Chapter seven examines the hearings surrounding the passage of major sugar legislation, including the 1948 Sugar Act, the 1977 Farm Bill, the 1981 Bill, and the 2002 FSRI Act.

The Sugar Act of 1948

Like most previous sugar legislation hearings, the 1948 Sugar Act hearings were short, spanning just a few days in June 1947. From the standpoint of the Department of Agriculture (USDA), the major purpose of the legislation was to adjust import quotas to benefit Cuba. The State Department encouraged the USDA to "recognize the wartime contribution of the Cubans when the new allotments were made" (U.S. House Committee 1947, 11). Under the 1948 provisions, domestic production allotments were fixed in quantity, rather than established as a percentage of consumption. Cuba also received a quantity-specific import quota. The 1948 act gave Cuba a larger quota of any USDA-estimated domestic sugar consumption estimate that was in excess of the domestic quota, in addition to an anticipated shortfall in the Philippine quota (thought to likely after

World War II). "In effect, Cuba becomes the common stockholder, taking all of the Philippine deficit and sharing…any domestic deficit that results," (U.S. House Committee 1947, 30) stated Frank Kemp, the chair of the American Sugar Beet Industry Policy Committee (ASBIPC).

One of the more interesting aspects of the 1948 Sugar Act was that it was largely drafted by industry representatives. Secretary Anderson testified that USDA's legislative proposal was deemed unfair by domestic sugar representatives. Thus Anderson "…asked them if they could make a proposal. After a considerable amount of study they came in with a proposal which we studied for quite a while in the Department and came up with the conviction, by and large, that it was an extremely fair proposal" (U.S. House Committee 1947, 13). Domestic producers and processors of cane and beets were jointly represented by Mr. Kemp, the only domestic witness.[33] As Krueger (1990) points out, after initially opposing a domestic quota system for sugar in 1934, the domestic sugar industry became aligned squarely behind the sugar program in 1937 and 1948.

Perhaps the biggest "losers" in the 1948 Sugar Act were producers in the territories of Hawaii, Puerto Rico, and the Virgin Islands, who in the transition to fixed quotas actually had their production quotas cut in terms of percentages relative to earlier quotas.[34] Pedro Nido, vice president of the Puerto Rico Farm Bureau, complained that until two hours

[33] Kemp stated, "You will understand the deep sense of responsibility which I feel, because at their request I appear as a single witness on the bill before you on behalf of all five of the great domestic sugar producing and refining groups: Sugarcane growers and processors of the mainland sugarcane states of Louisiana and Florida; the sugar beet growers and processors in the states of Michigan and Ohio to the Pacific coast; the Puerto Rican Sugar Producers Association; the Hawaiian Sugar Planters Association; and the United States Cane Sugar Refiners Association, comprising the majority of the refiners of cane sugar in the coastal cities from Massachusetts to Texas" (U.S. House Committee 1947, 28).

[34] Mr. Nido stated, "We feel that discrimination should be corrected in order that all domestic areas will be treated equally and that their original percentages be maintained in the distribution of quota" (U.S. House Committee 1947, 35).

before the hearings he had no knowledge of the bill, casting doubt over whether Mr. Kemp's group really represented all domestic sugar interests (U.S. House Committee 1947). The only sugar user that testified at the hearings was a lawyer for the American Baker's Association who sent a letter. He advocated extending the current legislation for one year while a study could be completed that would ensure that "the interests of consumers, producers, and refiners receive the consideration to which they are entitled" (U.S. House Committee 1947, 54).

Perhaps the most contentious issue in the hearings was the proposed modification of USDA's oversight of producer-processor and producer-worker relationships to an advisory role. Secretary Anderson stated that "If the bill should be enacted in its present form, the authority of the Department in matters relating to the contracts between producers and processors of sugar beets and sugarcane and contracts between laborers and producers …would be limited to the issuance of recommendations…"(U.S. House Committee 1947, 19). Mr. Nido objected to this provision, as did representatives of the International Longshoremen's and Warehousemen's Union, the United Steelworkers of America, and the Food, Tobacco, Agricultural, and Allied Workers Union. Mr. Nido opposed the reduction in oversight of producer-processor contracts and the union representatives opposed the reduction in producer-field worker contract oversight. As a result, these provisions were left out of the legislation and the Secretary was obliged to require processors to make fair payments to producers and pay fair wages to workers as a prerequisite for receiving conditional payments (Sugar Act of 1948, 1947). USDA was also authorized to investigate these relationships in implementing the program.

The 1948 Sugar Act was extended until 1974, when, in a year in which sugar prices spiked, a proposed extension was rejected by Congress. In 1956, domestic allotments were increased along with import quotas, and market shares of 55% for domestic producers and 45% for foreign producers were established (Kruger, 1990). Fidel Castro's rise to power in 1959 soured relations with Cuba and subsequently the Cuban sugar quota was cancelled. Economists used the opportunity to argue for a global sugar quota, but again domestic producers won out and country-by-country quotas were continued. As prices climbed in the 1970s, pressure from sugar groups to renew the Sugar Act decreased and consumer groups led the defeat of the bill.

Immediately, after World War II, world and U.S. sugar prices were very similar (with the U.S. price approximately two cents higher in 1946), but quickly diverged, leaving the world price 15 cents lower than the U.S. price in 1947. These price spreads created incentives for those interested in the re-establishment of a sugar program in the United States. Using the framework established in chapter five, figure 16 shows the domestic sugar market when the world price (P_w) is slightly below the domestic sugar price (P_D), which was the situation in 1946. Lobbying for a sugar program that would establish P_D would yield gains to processors equal to area h + f and processors would be willing to spend an amount equal to this area (minus area c) on lobbying efforts. Producers would gain area c + d under a sugar program and would be willing to spend an amount equal to that area on lobbying efforts. Area c would be a transfer from producers to processors, leaving area h + f + d as potential domestic supplier gains from a sugar program. Foreign

import quota holders would gain area j + k from a sugar program and would be willing to spend up to an amount equal to that area in lobbying to secure quotas.

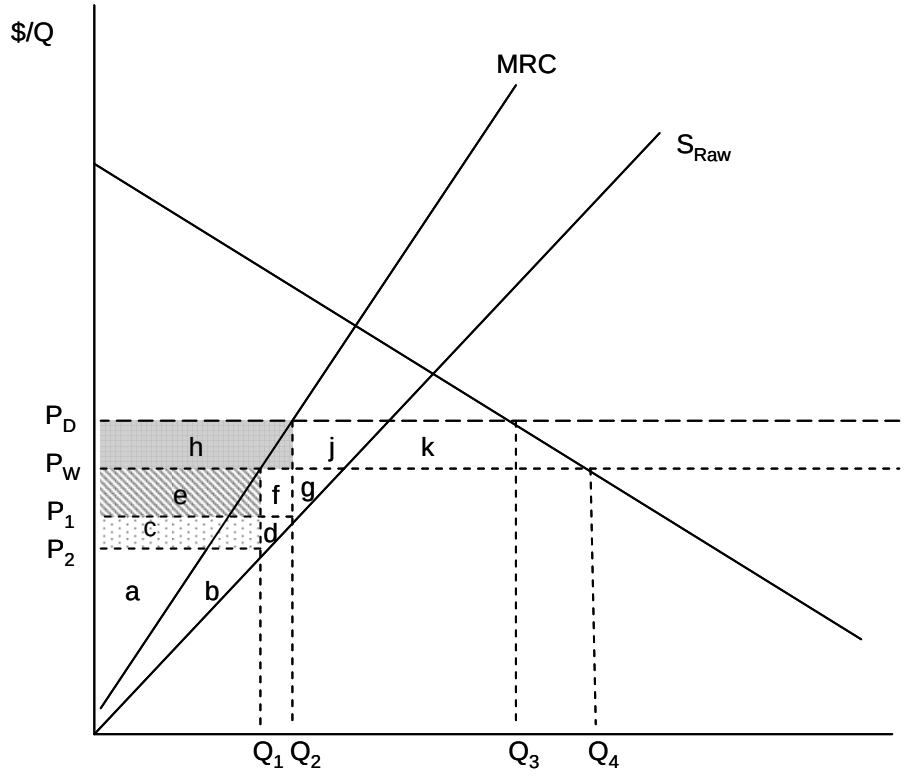

Figure 16. The United States sugar market under monopsony with a world sugar price close to the domestic price.[35]

The gains described above are much smaller than the gains available when the world price is much lower than the domestic price, such as in 1947 (the environment in which the 1948 Sugar Act was passed). Under the circumstances shown in figure 17, processors gain area r + s and transfer area m to producers. One would expect processors to be willing to spend an amount equal to area r + s (minus area m) each year in lobbying for a sugar program. Producers gain area m + o + p + q from a sugar program that can

[35] Note that for monopsonists, a linear supply curve suggests that the MRC will have twice the slope as the supply curve. This fact is omitted in figures in this chapter to eliminate other complexities.

establish a price equal to P_D. They would be willing to spend up to an amount equal to that area lobbying for a sugar program. Foreign sugar producers who received quotas also have much to potentially gain from a sugar program under these circumstances; they would be willing to spend up to an amount equal to area t + u in securing sugar quotas. Note that because each sugar program is in effect for multiple years, willingness to pay for lobbying activities should be adjusted to reflect the present value of future sugar programs as well. For example, the 2002 Farm Bill was in place for six years, so when agents lobbied for the program in 2002, their willingness to pay would equal the present value of six years worth of sugar protection.

When world sugar prices and U.S. prices diverge, as they did from 1946 to 1947, the incentives for producers and processors to lobby for a protective sugar program increase. When sugar legislation is due for renewal in a time period when the two prices are fairly close, as in figure 16, producers, processors, and foreign producers have less incentive to lobby for a program, and one would expect them to spend fewer resources in doing so. These different incentives may explain why a sugar program was not re-implemented until 1948, rather than immediately following World War II.

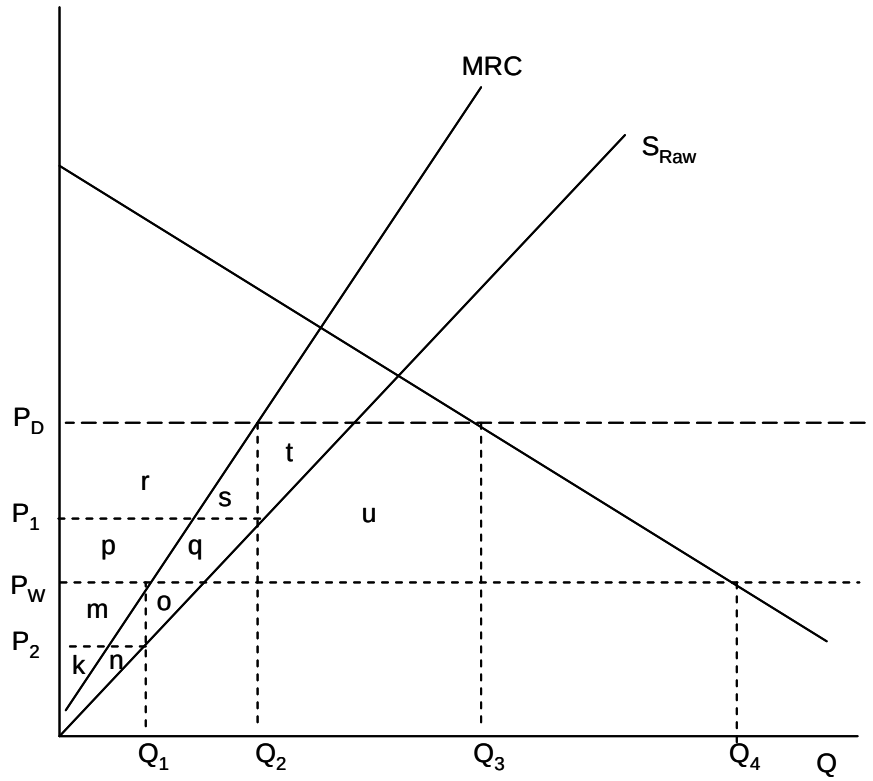

Figure 17. The United States sugar market under monopsony with a low world sugar price.

Sugar in the 1977 Farm Bill

When sugar prices declined from their all-time highs in 1976, pressure mounted to once again place sugar under protection. For the first time, sugar policy was lumped in with general agriculture policy under the 1977 Agricultural Act. The main feature of this legislation was a non-recourse loan program that allowed beet processors and cane processors to take out loans on their crops at predetermined prices. If the market price remained below the loan rate, processors could default, keep their loans, and the sugar used as collateral would accrue to the federal government. Effectively, the program created a floor for sugar prices.

In the hearings on the 1977 Act, sugar producers cited under-priced foreign imports as a threat to the domestic sugar industry (U.S. Senate Committee 1977). Farmers expressed their displeasure in the expansion of sugar production worldwide while American processing facilities and farms were being forced out of business.[36] In addition, increases in production costs were cited as a reason for restoring the sugar program. One farmer estimated that his costs had seen a "10% increase in 1977 across the board for all phases of agriculture" (U.S. Senate Committee 1977, 147). Most farmers advocated the use of an objective price that covered their cost of production. They also favored renewing import quotas as a method to achieve a higher price.[37] Almost as soon as the 1977 Farm Bill was enacted, however, the world price for sugar began to rise. Once again pressure from producers decreased, pressure from users and consumer groups increased, and for a second time, Congress decided not to extend sugar legislation.

In periods of high world sugar prices, such as those surrounding the defeat of sugar program extensions in 1974 and 1979, the pressure from domestic sugar lobbying groups to implement a sugar program becomes weaker as their potential benefits from the program decline. Using the modeling framework developed in chapter five, figure 18 depicts the domestic sugar market when the domestic price cannot effectively be held

[36] Orville Pratt, a beet farmer from Colorado, drew on the 1970s oil crisis in his testimony: "Do we want to see in the future some dependence on other countries for sugar and end up in the same shape with oil?" (U.S. Senate Committee 1977, 147).

[37] William Turrentine, an officer with the Ark-Valley Beet Growers Association, outlined a four part program that included a target price, import quota, tariffs, and regulation of futures markets which he viewed as "surreptitiously entering our markets and manipulating these markets to a sizable extent for their own benefit" (U.S. Senate Committee 1977, 354). In his tariff argument, he criticized the General System of Preferences (GSP), a program which reduced tariffs for developing countries, and one that Krueger (1990) argues undermined the government's ability to raise the domestic sugar price.

above the world price. When the world price (P_w) is above the domestic price (P_D), the total amount of sugar consumed decreases to Q_4. Processors have the incentive to expand output to Q_2 because their rents will increase from the area c + d + f to area f + g + j + k. Producer surplus increases from area a + b to area a + b + c + d + e. Domestic and world prices are the same, P_w, and therefore no deadweight loss exists, but area m + h is transferred from domestic producers/ processors to foreigners because of monopsony decisions made by domestic processors. Imports increase, by the amount $Q_3 - Q_2$, as a result of the monopsony. Also, in periods of high world prices, imports decline and the total import quota is likely to be left unfilled.

Rents to processors from the sugar program disappear when the world price is higher than the domestic price, eliminating processors' reliance on the sugar program, thereby reducing the incentives for processors to lobby for a program.[38] Foreign suppliers will also see the benefits of the program replaced by the benefits of a high world price and are likely to decrease resources expended on lobbying for larger import quotas.

[38] Whether or not rents are greater under the program or a high world sugar price would depend on the relative sizes of area c + d + f and area f + g + j + k.

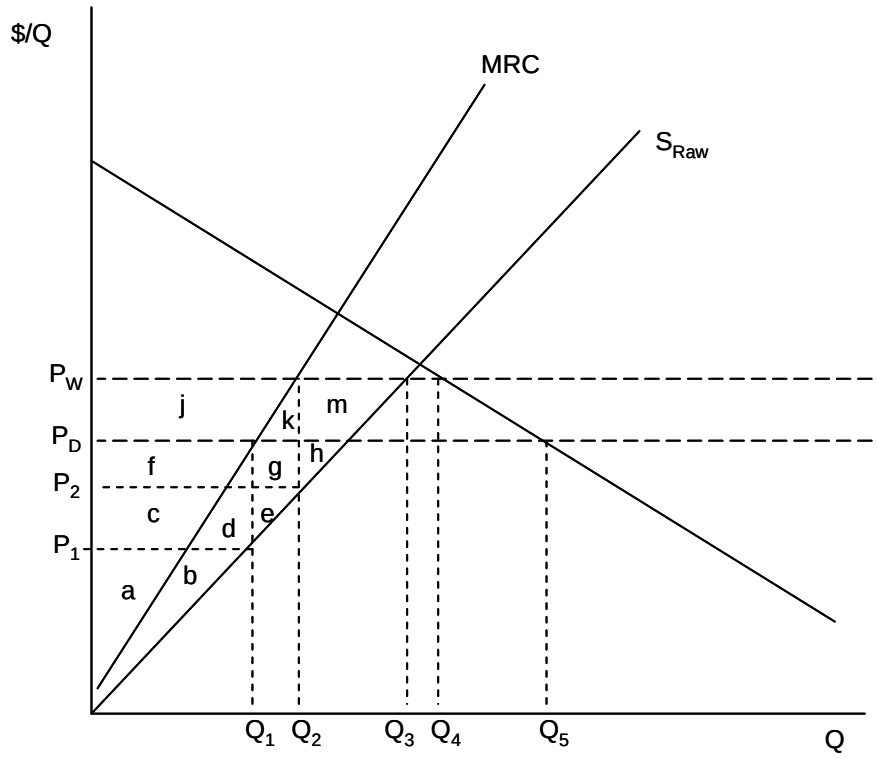

Figure 18. The United States sugar market under monopsony with a high world sugar price.

Sugar in the 1981 Farm Bill

The price spike of 1980 soon evaporated (see figure 4) and a sugar program was reinstated in the 1981 Farm Bill. The new sugar program consisted of a non-recourse loan program and a mandate to operate it, at no-net cost to the government, either through tariffs and/or import quotas. As usual, imports entering the country at prices below U.S. farmers' production cost were seen as the major threat to the domestic industry (U.S. House Committee 1981). Proponents of the 1981 sugar program, who just four years earlier, in 1977, had failed to secure an extension of the 1948 sugar program, claimed that sugar users and consumers did not view the program as a consumer bill. Arlan

Strangeland, a congressman from Minnesota, remarked, "It was the consumer activists who, in the end, defeated us. I think after we saw that those of us who were supporting a responsible piece of sugar legislation were prophets as far as being on the side of the consumer" (U.S. House Committee 1981, 41).

Proponents of the sugar program continued to insist that it benefited consumers because it allowed domestic producers to continue their operations, which provided stability in the industry. Daniel Akaka, a congressman from Hawaii, stated, "If our country was wholly dependent upon foreign suppliers, the price volatility we experienced in recent years would have been much more severe" (U.S. House Committee 1981, 40). Supporters also appealed to the sugar program as a method for protecting an important means of employment for sugar workers and allowing farmers to contribute to local farm economies.

The proposed sugar program faced significant opposition in the 1981 Farm Bill debates. In fact, a separate hearing was held to examine the effects of rising sugar costs on bakers (U.S. House Committee 1980). Proponents again used the hearings to lobby for the program as a consumer bill. Congressman Strangeland claimed that if a target price for sugar had been in place, then consumers would have saved $5 billion in 1980. Most bakers, confectioners and other sugar users who testified were somewhat vague in their positions, advocating both protection for sugar farmers and protection from high prices for themselves.[39] The most controversial witnesses were the representatives of the

[39] Richard Baker (actual name), a director of the Retail Bakers of America, polled his fellow directors for their opinions on sugar policy direction: "Some suggested allowing more imports, some suggested not relying so heavily on imports; a few thought the government should supervise the market more carefully and curb speculators while a few others thought the government should not intervene in the market at all.

Independent Bakers Association (IBA). IBA was opposed to a domestic sugar program that took the form of previous sugar legislation, but supported U.S. membership in the International Sugar Agreement because it featured components which protected producers from low prices, but also protected consumers against high prices. IBA also advocated a purchase program in which the government would buy sugar in times of low prices and sell it in times of high prices (U.S. House Committee 1980). Having been berated for not wanting to support the American farmer, an IBA representative responded, "You are asking us to come up and protect the farmer. Where was he when he was getting all those tremendous profits as a result of a doubling (of) the price of wheat?" (U.S. House Committee 1980, 26).

The U.S. Cane Refiners' Association was another vocal opponent of sugar legislation. Its representative, Nicholas Kominus, cited threats to the market from corn syrup, President Reagan's effort to remove government from industry, and the need for sugar imports to the operations of cane refiners as reasons for not passing a sugar program (U.S. House Committee 1981). Refiners were not allowed to receive CCC loans (cane processors received loans under the program). Thus, Kominus asserted, the program's inflation of domestic sugar prices would run cane refiners out of business. He also claimed that a loan program would act as an "umbrella" to corn producers because, while corn syrup could not be used as collateral for a CCC loan, corn producers benefited from high sugar prices. Mr. Kominus threw his support behind the ISA, because of its intention to protect the market from high sugar prices as well as low prices.

One baker called for letters to Congressmen to solve the problem; another felt voting for Ronald Reagan was the answer; and a third said he simply didn't know" (U.S. House Committee 1980, 9).

Supporters of the bill continued to assert that the program had no impact on the taxpayer but Congressman Bob Traxler, from Michigan, disagreed. Traxler claimed that, "The fact that the sugar loan program covering the 1977, 1978, and 1979 crops ended up with the government making a net profit of over $40 million on the sale of forfeited sugar, could make the program a popular one with the administration and the OMB (the Office of Management and Budget)" (U.S. House Committee 1981, 39). Producers adopted the position that they opposed direct payments to leverage other components of the bill.[40] The Sugar Users Group (SUG) claimed that the volatility of the sugar market was a world problem, not a domestic problem and therefore the ISA should be adopted in lieu of a domestic program. The SUG also encouraged the use of existing administrative authorities to support farmers rather than establishing new policy (U.S. House Commitee 1981).

Despite opposition from cane refiners and sugar users, the sugar program was included as part of the 1981 Farm Bill legislation, as well as in all subsequent farm bills. The 1985 Farm Bill placed special emphasis on operating the program at no cost to the government. However, as part of a push to remove regulation from agriculture, the 1996 FAIR Act removed USDA's authority to implement marketing allotments. As a result, the federal government's ability to support market prices through restrictions on domestic production was diminished and CCC forfeitures increased.

[40] John Heussner, of the American Sugar Beet Growers Association, stated, "Because of budget and other considerations, we do not ask for a program which would result in payments, purchases or significant government outlays. Rather, one which would provide nonrecourse loans to enable the industry to get over some short term rough spots in the market place" (U.S. House Commitee 1981, 87).

Sugar in the 2002 Farm Bill

The 2002 Farm Security and Rural Investment Act (FSRI) kept the major components of previous sugar legislation intact, but reestablished the USDA's marketing allotment authority, again in an attempt to control loan rate program costs. Supporters continued to point to unfair foreign competition as a reason for protection (U.S. Senate Committee 2000), claiming that overproduction caused by government interference in other countries led to worldwide overproduction and to a depressed world price. Refiners pushed for the reimplementation of marketing allotments, both as a gesture of concession, but also because they realized the import quota was less effective because of WTO commitments.[41] Producers pointed to NAFTA and Europe's failure to comply with its WTO commitments as reasons for protection. Farmers argued that they were among the lowest cost producers in the world, and that they welcomed free trade, but only if it were truly free (U.S. Senate Committee 2001). They also supported a payment-in-kind (PIK) program for sugar because it would "actually save the government money" (U.S. Senate Committee 2000, 2) by preventing outlays on CCC forfeitures. As in previous sugar policy debates, proponents continued to claim that the program actually protected consumers. References were made to the price spikes of the 1970s and 1980s and the fact that they occurred in the absence of any sugar program (U.S. Senate Committee 2000).

[41] Jack Lay, president of Refined Sugars, Incorporated, stated: "In 1996, producer prices in the U.S. were at stable levels. With marketing controls repealed, sugar growers planted more, confident that the import quota would be ratcheted down to maintain a constant domestic price support…Domestic production grew and the import quota was cut until it hit the WTO floor. Then prices collapsed for both raw and refined sugar" (U.S. Senate Committee 2000, 2).

Opponents to the program pointed out that U.S. sugar policy was interrupting free trade agreements and WTO negotiations. Art Jaeger, of the Consumer Federation of America, asserted that the program "complicates our negotiators' job of expanding market access and ending non-tariff trade barriers in the WTO for U.S. export commodities like beef, pork, corn, wheat, and soybeans" (U.S. Senate Committee 2001, 3). Environmental advocates also lined up to testify against the program, especially in support of Florida Everglades cleanup efforts that were being made more costly due to overproduction of cane in sensitive areas. The centerpiece for opposition to renewal of the program was the claim that the program imposed high costs to consumers and taxpayers. Jaeger claimed that the program was costing users $2 billion per year, and, in 2000, cost taxpayers $465 million (U.S. Senate Committee 2001). Sugar program supporters claimed that they were getting a bad rap from the claim of high prices by consumer groups and users, but that the low sugar prices were not being passed though to consumers, hence directing blame at food processors. Despite this opposition, FSRI passed, renewing the loan and import quota programs, and implementing the marketing allotment provision. The next farm bill should be passed in 2007 or 2008.

Conclusion

Global price conditions play a major role in the enactment of sugar program legislation. In periods of high world prices, as in 1974 and 1979, a sugar program is less likely to be enacted, which was evident in the fact that Congress did not pass sugar program legislation in those years. When world prices are low, as in 1948 and 1981,

significant benefits are available to domestic producers and processors that successfully lobby for a sugar program. Foreign producers also have incentives to lobby for larger sugar quotas in periods of low sugar prices. Pressure from these agents to enact a sugar program increases in periods of low world prices and decreases in periods of high world prices.

Conversely, opponents of the sugar program are more successful in defeating sugar program legislation when world prices are high and close to U.S. domestic prices. Therefore, their arguments are less likely to influence Congressmen when world prices are low. The opponents of the U.S. sugar program have included sugar users, opponents of government waste, environmental groups, and cane refiners. The main arguments have been that the program creates high costs for consumers, makes cane refining more expensive, and harms the environment.

CHAPTER EIGHT

CONCLUSION

Volatility of the world sugar market has led to protectionist policies being enacted worldwide. The United States is no exception and since 1934 has operated a domestic sugar program designed to support processors and producers. Paradoxically, sugar tariffs first appeared in 1789, but with the objective of providing the federal government of the time with revenues. They were not meant to protect the interests of sugar processors and producers. The 1934 Jones-Costigan Sugar Act, however, introduced a series of import quotas and marketing allotments designed to raise the domestic sugar price above the world price with the explicit goal of providing domestic sugar producers and processors with higher incomes. With the exception of two short periods in the late 1970s and early 1980s, the sugar program established in 1934 has been a fixture in American agriculture. In 1977 the program introduced nonrecourse loans and in 1981, the sugar program was included in the omnibus 1981 Farm Bill and has appeared in each subsequent omnibus farm bill, including the 1985, 1992, 1996, and 2002 Farm Bills.

The effect of the sugar program has been to raise the domestic price for sugar and, as shown in chapter two, the domestic price has generally been higher than the world price since the sugar program's inception in 1934, except in periods of world price spikes. The ability of the sugar program to maintain a higher price for U.S. producers and processors has produced some interesting incentives. When, as a result of the program, the domestic price is higher than the world price and domestic processors and producers face competition from lower cost foreign producers, large rents exist for these domestic

processors and producers from successful lobbying efforts targeted at maintaining the U.S. sugar program. In periods when the world price is close to or higher than the domestic price, as in the mid and late 1970s, the incentives for producers and processors to lobby for a sugar program become weaker because the rents available are smaller or even nonexistent. The historical record supports this proposition; the U.S. domestic sugar program "disappeared" in periods when world sugar prices spiked at the same time as U.S. farm legislation was due for renewal. This raises a question about whether or not the program was really ever absent or just left dormant.

Sugar beet processors may have some potential market power because of the significant barriers to entry that exist in the industry. These include high capital costs and occasional processor marketing allotments created by federal policy actions. However, on the demand side of the market for sweeteners, several close substitutes for beet sugar exist, such as cane sugar, high fructose corn syrup, and other artificial sweeteners, thus it seems implausible to characterize sugar beet processors as monopolists. Processors may be considered monopsonist purchasers of beet inputs for several reasons. Individual sugar beet farmers typically sell their beets to only one local processor because of high transportation costs. In addition, sugar beet producers cannot store beets on the farm while waiting for higher prices because sugar content declines rapidly in sugar beets over time.

A model of a domestic sugar industry in which a monopsonist beet processor operated was developed in chapter five of this thesis. The model showed that at a given world price, a monopsony processor would purchase fewer beets and produce less sugar than

would a competitive processing industry. Perhaps the most interesting prediction in this model is that the deadweight loss associated with the lower level of production that exists under monopsony in a free trade context would be reduced by the higher domestic price created by a tariff equivalent. In the absence of a sugar program, under free trade in which the world price is exogenous, a monopsony processor will reduce input usage and output to a level below the amount that would occur in a competitive processing industry. This causes imports to increase and deadweight losses to occur. When a tariff equivalent is introduced into the model, beet input usage and sugar production increase in response to a higher domestic price, eliminating the deadweight loss associated with levels of input that are too high and domestic production levels that are too low for economic efficiency under a free trade regime when the processor is a monopsonist. Because imports are greater than they would be in the absence of monopsony, the deadweight loss from the tariff equivalent is less than it would be in the absence of monopsony power. The resulting implication is that an import restriction may actually reduce the deadweight loss associated with monopsony processors.

The combination of a high domestic price created because of the sugar program and monopsony power at the processor level creates an incentive for producers to vertically integrate by acquiring the processing operation. This vertical integration increases producer surplus, and the processor-producer integration causes output to expand to a more efficient level. The analysis provided in chapter five shows that if the costs of acquiring the processing operation are smaller than the gains from expanding output and the processing rents, producers will vertically integrate. Chapters six and seven used the

framework established in chapter five to explain the incentives facing agents involved in lobbying for a domestic sugar program.

Policy Implications

This study has several relevant policy implications. Reviews of sugar program history and hearings suggest that sugar legislation is most likely to be defeated when world prices are close to or higher than the domestic sugar price. Only then are rents from the program small enough to reduce the lobbying efforts and rent seeking behavior of producers and processors. Only twice in the past 73 years of U.S. sugar policy has the U.S. sugar program been abandoned, in 1974 an extension was defeated amidst high world prices, and in 1979 when the program was again discontinued, possibly because of diminished lobbying efforts by domestic sugar interests as a result of a period of high world sugar prices. Over time, the sugar program's opponents have become increasingly organized and vocal. Two main groups, sugar users and opponents of distortionary government programs, have opposed recent sugar legislation, and would perhaps be more successful in their attempts to modify or cancel the program if a farm bill renewal year coincided with high world sugar prices.

The monopsony processor model presented in chapter five shows that the sugar program may actually reduce the deadweight losses associated with the monopsony input purchase decision. Conversely, monopsony processor input decisions decrease the deadweight loss from a tariff equivalent sugar program.

The sugar program may also provide incentives for producers to vertically integrate into processing activities. Monopsony power provides incentive for vertical integration, as shown in chapter five, but because of the processor rents created by import restriction, the incentive is much larger in the presence of a sugar program. This unintended consequence has largely been overlooked by program administrators and in previous works on this subject. All but two sugar beet processing operations are owned by producer cooperatives in the United States. Increasing global pressure to decrease protection for agricultural commodities will greatly affect the rents that are available to processors and producers from the sugar program. World Trade Organization negotiations and bilateral trade negotiations are making it increasingly difficult for the United States to operate the sugar program in its current form. Any decrease in the ability of the sugar program to keep the domestic price above the world price will decrease rents to sugar interests and change the incentives that producer-processors face.

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APPENDICES

APPENDIX A

UNITED STATES VERSUS WORLD RAW SUGAR PRICES

Appendix A. United States versus world raw sugar prices, 1929-2006[a]

Year	United States	World	Year	United States	World
1929	33.04	15.61	1968	43.17	11.28
1930	42.12	17.44	1969	42.31	17.59
1931	44.31	15.37	1970	41.64	18.06
1932	44.20	12.29	1971	41.64	21.68
1933	48.97	12.60	1972	43.24	32.04
1934	46.68	14.13	1973	44.44	40.68
1935	45.88	12.45	1974	83.38	85.09
1936	51.34	13.04	1975	114.69	108.30
1937	49.48	14.90	1976	51.28	46.13
1938	42.83	14.64	1977	36.31	27.32
1939	42.79	18.61	1978	40.17	23.46
1940	41.14	19.12	1979	41.62	23.22
1941	43.01	14.21	1980	61.29	57.22
1942	45.37	32.89	1981	55.27	50.67
1943	43.58	31.35	1982	39.35	20.78
1944	42.84	30.81	1983	44.08	15.94
1945	41.97	33.91	1984	42.37	12.23
1946	42.32	40.99	1985	39.14	7.04
1947	54.88	43.69	1986	37.63	10.96
1948	47.67	37.09	1987	38.47	11.16
1949	48.71	34.92	1988	37.66	15.88
1950	48.89	39.02	1989	36.56	19.36
1951	47.64	45.18	1990	35.92	21.09
1952	46.77	33.66	1991	32.41	13.70
1953	47.78	27.22	1992	30.73	13.25
1954	45.95	24.33	1993	29.98	13.36
1955	44.90	24.40	1994	30.00	15.30
1956	44.42	24.34	1995	30.11	18.33
1957	45.08	37.24	1996	28.91	15.94
1958	43.31	25.01	1997	27.64	14.66
1959	43.26	21.40	1998	27.33	13.35
1960	42.69	20.99	1999	26.70	8.53
1961	42.80	20.76	2000	21.54	8.81
1962	42.72	17.96	2001	23.98	11.16
1963	49.48	44.22	2002	23.14	8.49
1964	49.50	50.52	2003	23.84	8.77
1965	42.45	15.70	2004	21.92	8.37
1966	42.97	12.24	2005	21.62	10.80
1967	43.60	10.93	2006	22.62	15.78

Source: United States Sugar Statistics, 1929-2006.

Note: Raw sugar prices from 1980 to 2006 are correlated at 0.98.

[a] Prices are in 2006 dollars.

APPENDIX B

UNITED STATES SUGAR PROGRAM MARKETING ALLOTMENTS

Appendix B. United States Sugar Program Marketing Allotments

FY	Beet			Cane		
	Basic 1/	Production 2/	5/	Basic 3/	Production 4/	5/
	short tons, raw value					
1934	1,556,166	1,241,000	*	1,985,896	2,339,000	
1935	1,550,000	1,268,000	*	1,944,292	2,152,000	
1936	1,554,315	1,395,000		2,216,987	2,410,000	
1937	1,633,361	1,375,000		2,281,694	2,413,000	
1938	1,572,559	1,802,000		2,196,758	2,614,000	
1939	1,566,719	1,760,000	*	2,188,600	2,363,000	*
1940	1,549,898	1,894,000	*	2,165,102	2,338,000	*
1941	2,087,983	1,584,000	*	2,916,771	2,305,000	*
1942	none	1,725,000		none	2,485,000	
1943	none	998,000		none	2,433,000	
1944	none	1,056,000		none	2,045,000	
1945	none	1,280,000		none	2,266,000	
1946	none	1,569,000		none	2,026,000	
1947	none	1,867,000		none	2,348,000	
1948	1,800,000	1,312,000		2,468,000	2,429,000	
1949	1,800,000	1,608,000		2,468,000	2,768,000	
1950	1,800,000	2,015,000		2,468,000	2,831,000	
1951	1,800,000	1,541,000		2,468,000	2,659,000	
1952	1,800,000	1,519,000		2,468,000	3,009,000	
1953	1,800,000	1,873,000		2,644,000	2,925,000	*
1954	1,800,000	1,999,000	*	2,644,000	2,901,000	*
1955	1,800,000	1,730,000	*	2,644,000	2,888,000	*
1956	1,954,000	1,971,000	*	2,847,000	2,822,000	*
1957	1,948,000	2,213,000	*	2,840,000	2,622,000	*
1958	1,999,000	2,214,000	*	2,912,000	2,283,000	*
1959	2,043,000	2,303,000	*	2,978,000	2,688,000	
1960	2,267,000	2,475,000		3,304,000	2,591,000	
1961	2,177,773	2,431,000	*	3,173,727	3,073,000	
1962	2,795,769	2,595,000	*	3,209,231	2,990,000	
1963	2,990,127	3,086,000		3,274,873	3,288,000	
1964	2,698,590	3,332,000	*	3,177,242	3,326,000	*
1965	3,025,000	2,816,000	*	3,391,985	3,221,000	*
1966	3,025,000	2,853,000	*	3,455,227	3,334,000	*
1967	3,215,667	2,694,000		3,576,876	3,466,000	*
1968	3,311,000	3,490,000		3,550,704	3,086,000	*
1969	3,215,667	3,472,000	*	3,515,006	2,736,000	*
1970	3,597,000	3,322,000	*	3,608,486	2,874,000	*
1971	3,454,000	3,512,000		3,521,000	2,758,000	*
1972	3,692,000	3,632,000		3,716,238	3,033,000	*
1973	3,692,000	3,216,000		3,703,000	2,789,000	*
1974	none	2,916,000		none	2,793,000	
1975	none	4,019,000		none	3,237,000	
1976	none	3,895,000		none	3,036,000	

1977	none	3,108,000	none	2,951,000
1978	none	3,289,000	none	2,815,000
1979	none	2,879,000	none	2,894,000
1980	none	3,149,000	none	2,905,000
1981	none	3,234,000	none	2,987,000
1982	none	3,318,000	none	2,804,000
1983	none	2,692,000	none	3,263,000
1984	none	2,837,000	none	3,073,000
1985	none	2,915,000	none	3,025,000
1986	none	2,988,000	none	3,136,000
1987	none	3,653,000	none	3,506,000
1988	none	3,822,000	none	3,425,000
1989	none	3,396,000	none	3,408,000
1990	none	3,466,000	none	3,225,000
1991	none	3,854,000	none	3,124,000
1992	none	3,845,000	none	3,461,000
1993	4,164,400	4,392,000	3,618,800	3,446,000
1994	none	4,090,000	none	3,565,000
1995	4,352,000	4,493,000	3,537,000	3,434,000
1996	none	3,916,000	none	3,454,000
1997	none	4,013,000	none	3,191,000
1998	none	4,389,000	none	3,632,000
1999	none	4,423,000	none	3,951,000
2000	none	4,956,000	none	4,076,000
2001	none	4,680,000	none	4,089,272
2002	4,534,341	3,914,359	3,954,660	3,984,612
2003	4,483,875	4,462,000	3,766,124	3,963,595
2004	4,717,580	4,692,218	3,670,208	3,957,000
2005	4,674,100	4,610,773	3,805,900	3,265,215

Note and Sources:

1/ 1934-1969 source: *Sugar Statistics and Related Data*, December 1969, Table 41.
1969-1973 source: Sugar Statistics and Related Data, March 1973, Table 41. 1974-2005 source: Sugar and Sweetener Outlook, various issues.
2/ 1934 - 1980 source: *Sugar Statistics and Related Data*, March 1975. Table 4.
1981 - 2005 source: ERS Sugar and Sweetener Briefing Room Data Page, http://www.ers.usda.gov/Briefing/Sugar/data.htm. Table 16.
3/ 1934-1969 source: *Sugar Statistics and Related Data*, December 1969, Table 41.
1969-1973 source: Sugar Statistics and Related Data, March 1973, Table 41. 1974-2005 source: Sugar and Sweetener Outlook, various isues.
4/ 1934 - 1980 source: *Sugar Statistics and Related Data*, March 1975. Table 4.
1981 - 2005 source: ERS Sugar and Sweetener Briefing Room Data Page, http://www.ers.usda.gov/Briefing/Sugar/data.htm. Table 16.
5/ Starred years indicate years where quotas were in effect from 1934-1973 according to *Sugar Statistics and Related Data*, March 1975. Table 39.