The Origins and Development of the U.S. Sugar Program, 1934-1959

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Recent trade talks in the WTO indicate that the powerful US sugar lobby continues to be a roadblock to agricultural liberalization. It calls attention to a need for better understanding of the complex quota-based regulations that have governed the US sugar trade for so long. In 1934 the United States shifted its sugar protection policy from emphasizing the tariff to a comprehensive system of quotas. It was revised in 1937. After its suspension for much of World War II, a new Sugar Act was passed in 1948, and further revised in 1951 and 1956. It has been in almost continuous operation since 1934.

This paper examines the origins and development of the Sugar Program from 1934 to 1959. Why did the United States adopt sugar quotas? What were the rules set up to implement and govern the policy? How did they function? The sugar quota was adopted after the U.S. government determined that the long-standing policy using the tariff to protect the domestic industry was failing. A principal reason was that the tariff was not raising the price of sugar because, by diminishing the imports of Cuban sugar, it was causing severe decline in wages and costs on that island. In turn, Cuban sugar was being offered at ever lower prices. The quota program was conceived of as a way to avoid these effects, and Cuba was incorporated into the program not only to foster economic recovery and political stability on the island, but also as a practical necessity. Only Cuba could fill quota deficits in other areas whenever they might arise and in practically any quantity, but it also was a reservoir of sugar supply that the United States needed to maintain in case of a spike in demand, as occurred during wartime. Through our study of the rules and operation of the program, we show that Cuba played this vital role until its quota was eliminated in 1960.

A compelling question has been its capacity for survival. We show that the sugar program created substantial quota rents to support the incomes of producers, and provided a degree of price stability far beyond that in the world sugar market. As a consequence, participating producers supported the continuation of the program, and instead focused their lobbying activity on increasing their respective shares of the quota rents.

The paper proceeds as follows. In the following section we examine the crisis in the U.S. sugar market in the Great Depression, and the decision to implement a quota program. Next, we review the major pieces of legislation and explain the complex rules

for allocating quotas among suppliers. Then we explain how the program worked to stabilize prices and support incomes, and how Cuba, through providing its exceptionally elastic supply, was the linchpin of the successful operation of the program.

1.1 *The US Sugar Market and the Great Depression*

By the 1920s, the US sugar market was supplied by eight major supplier groups, divided into three broad classes of political identity, implying different constitutional rights. The targeted constituents of sugar protection policy were the mainland beet and cane sugar industries, which, as Figure 1 displays, averaged about 15 and 2 percent, respectively, of the sugar consumed in the 1920s in the US market. The second political identity included the sugar producers in the so-called insular possessions – the Territory of Hawaii, Puerto Rico and the Philippines.[1] Though these areas did not have voting representatives in Congress, they were granted duty-free status, as part of the territorial United States.

[Figure 1 about here.]

The third political identity was the duty-paying foreign suppliers. Among these, Cuba had a privileged position in the sugar market. The 1903 Cuban-US trade reciprocity treaty gave Cuba a 20 percent discount on the full sugar duty. Other foreign suppliers paid the full duty. The preferential tariff stimulated expansion so that by 1909 almost all foreign sugar entering the United States was from Cuba. But natural advantages and investment in new technology made Cuba one of the lowest-cost producers of sugar in the world. By the 1920s, it supplied about 25 percent of the world's exports. In 1929, Cuba's exports to the United States peaked at about 4.1 million short tons, but its sugar crop was 5.8 million short tons, and all but about 400,000 tons was exported.

The effects of the Great Depression on total consumption and the market shares of supplier groups can be seen in Figure 1. Sugar consumption in the United States reached a pre-World War II peak in 1929 at 7.59 million short tons. By 1933, it had fallen by 17 percent – 1.26 million tons less than in 1929. How was the decline shared between supplier groups? Despite the decline in consumption, all protected areas expanded their

production and sales during the Depression. The mainland beet sugar areas expanded by 25 percent; mainland cane, by 44 percent. Most striking, though, was the expansion of two of the insular possessions. Puerto Rico expanded by 56 percent, and the Philippines, which expanded by 76 percent. The Territory of Hawaii expanded by 12 percent (more slowly than the other insular possession because it was reaching the limits of available unused land suitable for sugarcane cultivation).[2]

The expansion of the domestic and insular-possession industries despite the decline in overall consumption was made possible by a spectacular fall in the sugar imports from Cuba. By 1933, Cuban exports of sugar had fallen by more than 2.5 million tons. In that year it exported only 47 percent of what it had exported in 1929.[3] Looking at earnings in the US market, the economic effects of the displacement was even more severe. Real export revenues from sales to the United States market (deflated by the US BLS wholesale price index) fell to a less than 30 percent of their 1929 level.

The sugar industry was so dominant in Cuba that the downward shock from fallen export revenues had serious reverberations in the national economy. From 1929 to 1932, out best estimate is that national income fell by about 30 percent, and roughly half of that decline was explained by the 70 percent fall in sugar export earnings (Zanetti 1989, Alienes Urosa 1950). Falling real wages and shortened seasonal employment caused expected real income to sugar workers in 1932 to fall to somewhere between $\frac{1}{3}$ and $\frac{1}{4}$ of 1929 incomes. A study by the Foreign Policy Association (1935) suggests that other wages fell almost as dramatically. The economic collapse threw the country into social and political crisis.

1.2 *The Sugar Tariff*

Contemporary cost studies concluded that the displacement of Cuba's share of the US sugar market was caused by the tariff, not competitive forces. The US Tariff Commission surveyed the costs of production of all major supplier areas to the US sugar market in 1923 and 1933, and it found in both studies that Cuban costs of production were substantially lower than any of the other major supplier areas to the US market (Tariff Commission, 1926, 1934). Other studies by leading international sugar experts

concurred. Cuba shared with Java the status of lowest-cost sugar producers in the world (Maxwell 1927, Prinsen Geerligs, et al., 1929).

Before the trade reforms of the Roosevelt administration, tariff policy was one of the primary issues dividing the major political parties. Republicans were protectionist and Democrats were relatively “free traders.” Tariff rates oscillated as both parties, when in the majority, used omnibus tariff legislation to move tariff rates in their preferred directions (Bailey, et al., 1977). The sugar tariff followed the general fluctuation in tariff rates. The Democrats lowered the duty on sugar in 1913 and scheduled sugar to be put on the free list in 1916. Sugar was under price controls in 1917-1919. (See Table 1.)

[Table 1 about here.]

The war interrupted European beet sugar production and cut off sugar supplies from Asia and the South Pacific. Sugar prices spiked until the United States and Great Britain collaborated to impose price controls (Ballinger 1978). The US federal government further undertook a campaign to expand its domestic beet sugar capacity, and it enlisted mill owners, refiners and merchants with sugar interests in Cuba to finance and expand sugar mill capacity there as well (Bernhardt 1949). John Dalton, who became the director of the Sugar Section of the AAA, explains that, during the war, “it was understood” that the elimination of the sugar tariff would not take place. In exchange for expansion during the war effort, beet sugar processors demanded assurances that their market would not be reduced after the war by the removal of the tariff (Dalton 1937, Bernhardt 1949, pp. 7-71). Promptly, after the war, instead of eliminating it, the Emergency Tariff Act of 1921 boosted the sugar tariff.

The main cause of the displacement of Cuba’s market share came afterward as the Republicans consecutively passed two protectionist tariff bills in 1922 and 1930. The Fordney-McCumber act of 1922 boosted the 1921 increase in the tariff on Cuban raw sugar, setting it significantly at 1.7648 cents per lb. – 75 percent higher than the prewar rate. Though the 1922 increase introduced the largest absolute increase, the increase to 2 cents on Cuban raw sugar, enacted with the Hawley-Smoot act of 1930, had a greater effect at the margin. Dye (2000) uses cost estimates from the Tariff Commission survey to show that despite the substantial increase in the tariff, most Cuban mills remained

competitive because of the large cost advantage they had over the majority of the US domestic industry. However, the increase in the duty to 2 cents pushed the great majority of Cuban mills below the breakeven threshold in 1930/31. (High fixed costs, however, determined that most mills remained active.) [4]

Even so, U.S. domestic sugar producers were clamoring for increased protection arguing that the tariff was not providing much support to the price of sugar. Indeed, as Figure 2 illustrates, the duty-paid price of sugar in New York reached all-time lows after the passage of the tariff. The price in early 1933 was about twenty percent lower than three years earlier. The price of sugar, like that of so many other commodities, had been falling since the mid 1920s (Kindleberger, 1973). As in the past, the domestic sugar industry called for increased protection as a response to falling prices. Less than one year after the passage of the tariff increase, in early 1931, the domestic sugar industry began to campaign for a further tariff increase, and the United States Tariff Commission began an investigation.[5] The conclusion of the Tariff Commission was that the tariff itself was failing as an instrument of protection.

The United States Tariff Commission identified three factors for why the tariff increase was not providing the anticipated relief to the domestic industry, and that sugar prices had continued to fall. First, it identified the Depression-related decrease in demand (USTC, 1934, p. 22). But the Tariff Commission downplayed the importance of the Depression, saying that the fall in demand was probably less than ten percent.

Second, the Tariff Commission noted that the sugar price was under enormous pressure because the capacity for producing sugar in the areas supplying sugar to the U.S. market vastly exceeded the quantity that would be demanded at prices remunerative for the mainland producers. The Tariff Commission concluded that even should the Depression-related fall in demand be reversed, there would still be excess capacity of at least 25%, and it was this excess capacity that was leading to cutthroat price competition causing the “chaotic” conditions in the sugar market. (USTC, op. cit., USTC memorandum April 6, 1933, also Dalton, pp. 52-67). Both Cuba and the insular possessions, which possessed large cost advantages over the mainland U.S. producers, had greatly increased their capacity for producing sugar in the 1920s. From 1922 to 1929, Cuban capacity expanded by 27 percent, Puerto Rican by more than 75 percent,

and Philippine by more than 100 percent.[6] In the insular possessions, investment in new technologies and the construction of large sugar factories was stimulated by the same tariff protection intended to help mainland producers. The large Cuban expansion in sugar-producing capacity was induced by the need to lower costs of production in order to maintain market share in the United States (Dye 1998, Santamaría 2001). Even in the face of a relatively high tariff, Cuban sugar producers could remain competitive in the U.S. market if they made technical improvements that increased optimal scales of production.

But it became impossible for all large-scale sugar mills in Cuba to operate at minimum efficient scales simultaneously after the Hawley-Smoot Tariff was enacted. The catastrophic decline in exports and the accompanying dramatic fall in wages signified a reduction in Cuban production costs. In 1932, the cost of producing sugar cane in Cuba was nearly half of what it had been in 1930, and the cost of raw sugar production was about fifteen percent less (more if the increased cost of depreciation is not counted). (USTC, p. 69). The falling costs of producing sugar in Cuba exerted downward pressure on the price of sugar. The Tariff Commission explicitly recognized the relationship between the U.S. sugar tariff, the costs of producing sugar in Cuba, and the price of sugar, and the Commission pointed to it as the critical reason that the tariff was unable to afford relief to the U.S. sugar industry.

The view of the Tariff Commission is neatly summarized in a letter from its chairman, Robert O'Brien to President Roosevelt on April 11, 1933. "The situation in Cuba...is such that the higher the American tariff may be the lower are the costs of producing sugar in Cuba...The result is that the price is gone down to a point which is disastrous both for American and for Cuban producers. It is evident that no increase of the American tariff can relieve the resulting situation in this country or in Cuba." An internal USTC memorandum dated April 6 was more blunt: "The tariff on sugar has not been effective either as a price protection to domestic producers, or as an encouragement to expansion in production, but has primarily served on the one hand to destroy the Cuban industry, and on the other hand to bring about continuous and very rapid expansion in Puerto Rico and the Philippines."

The recommendation that followed became the political genesis of the U.S. Sugar Program. The Tariff Commission took the position that an increase in the price was necessary to save both the domestic and Cuban sugar industries, and recommended to the President that "To raise the price it will be necessary to limit the supplies of sugar offered for sale in the United States...Such limitation should be imposed not only upon Cuba but likewise upon the Philippine Islands, and it might be extended, under the powers conferred upon the administration through the Farm Relief Act, to the production of sugar in Hawaii, in Puerto Rico, and, if necessary, in the continental United States.[7]

1.3. *From the Tariff to the Quota*

The Tariff Commission forwarded its conclusion that the tariff had failed and its recommendation for a quota system to President Roosevelt in the spring of 1933. Roosevelt called on industry representatives to negotiate a voluntary marketing agreement, under the recently passed Agricultural Adjustment Act. The AAA authorized the President to pursue two approaches to negotiate commodity-specific stabilization agreements. If a crop was designated a "basic commodity," the Agricultural Adjustment Administration negotiated contracts with farmers to restrict output, compensating them from the proceeds of a processing tax levied on the industry. For other commodities, the federal government could provide licenses to support the enforcement of "voluntary marketing agreements." Sugar was not initially a "basic commodity," so it fell in the second category.

In June and July 1933, representatives from each supplier-area met in Washington with the objective of negotiating a voluntary marketing agreement. Dalton states that negotiating the marketing agreement "was the fruit of continuous conferences in which great difficulty was met in reaching even tentative agreement." After several months, an agreement was proposed that called for a quota on sales to the U.S. market of 6.35 million tons, which was slightly above consumption in 1932.

The agreement reflected the interests of the domestic producers with the most bargaining power. The mainland beet and cane industries, as well as Puerto Rico, were assigned quotas for which sales that were actually *above* expected levels of production, and Hawaii's was at 97% of estimated production. The burden of restriction would be

borne by the Philippines and Cuba, who were given quotas approximately 75% of estimated sales in the U.S. market. As no surprise, when the voluntary agreement was put to a vote the only two areas in opposition were Cuba and the Philippines.[8]

Cuba had immense productive capacity relative to past consumption, and the assignment of only a 1.7 million ton quota to Cuba was viewed as disastrous by the Cubans and the U.S. State Department alike. The Chief of the State Department's Latin American Division called Cuba's quota a "residual quota, being what remained after the demands of all other sugar groups had been satisfied." The silver lining for Cuba was that the all segments of the domestic industry has signed a letter stating their support for a cut in the tariff on sugar should a quota system be adopted.[9] The domestic groups realized that with a lower tariff Cuba might earn more income even with a relatively low quota, because the price Cuba would receive would be so much higher (more below).

Cognizant of the economic and political crisis in Cuba, President Roosevelt insisted on a two million ton quota for Cuba. He also insisted on increases for the Philippines. But the revised plan did not reduce the quotas of other areas at all. In fact, the mainland beet group received an even larger quota. The total quota proposed approached seven million tons, and was well in excess of projected sales even at the existing low price.[10] The entire project was rejected by the Secretary of Agriculture, who objected because the principal beneficiaries of the plan would be processors rather than American farmers. The reason for this was that the stabilization agreement fixed marketing quotas, but not production quotas. Marketing controls without the restriction of production would increase the bargaining power of processors and subject sugar beet farmers to fierce competition over reduced demands.

The Secretary of Agriculture asked the chief of the newly formed Sugar Section of the AAA to formulate a plan for stabilizing the industry. The plan, put forward in December 1933, was to introduce legislation in order to make sugar a "basic commodity" and then negotiate and enforce production restriction with individual domestic and insular producers directly, compensating them through the levy of a processing tax. Along with this plan would be the assignment of supplier-area quotas.[11] The President issued a statement on February 8, 1934 presenting this plan. The President stated that the objectives of the quota program were "keeping down the price to consumers, providing

for the retention of beet and cane farming within our continental limits, and also to provide against further expansion of this necessarily expensive industry." He also expressed a hope that the quota program would "contribute to the economic rehabilitation of Cuba," and supported the negotiation of a new Reciprocity Treaty with that country to reduce the duty on Cuban sugar. The President also said that the program would "provide adequate quotas for the Philippines, Hawaii, Puerto Rico and the Virgin Islands."[12] He went so far as to suggest quotas for the supplier-areas, and included large increases for Cuba and the Philippines relative to the original marketing agreement: 1.944 million tons and 1.037 million tons, respectively. The President recommended a total overall quota of 6.452 million tons, slightly above the original tentative marketing agreement but well below the plan rejected by the Secretary of Agriculture. By so doing, he achieved the dual purposes of raising the Cuban and Philippine quotas while at the same time keeping the overall quota low by cutting the quotas for all of the remaining areas, including for the politically powerful mainland beet sugar producers.

2.1 *The Quota System under the Jones-Costigan Law*

The Jones-Costigan Sugar Act, passed in May, 1934, with some modifications, followed the recommendations of the President in his message of February 8, 1934. It amended the Agricultural Adjustment Act of 1933 to add sugar beets and sugar cane to a list of products, including wheat, corn, cotton, and tobacco, that were designated as "basic agricultural commodities," which made them available for the application of certain price stabilization measures provided under the law to be administered under the Agricultural Adjustment Administration (AAA), created for that purpose.

The Sugar Control Act of 1934, besides placing sugar under the AAA, provided a formula for determining the quantity restrictions on domestic production and import quotas on Cuban and other foreign sugar. The quotas were assigned on two levels: first, each of the major supplier groups – mainland beet, mainland cane, each insular possession, Cuba, and other foreign suppliers were assigned specific overall group quotas; then, separate arrangements were made within each domestic group, including crop curtailment contracts with individual growers of beet or cane and "marketing" (sales) quotas for each processor. The act gave the Secretary of Agriculture complete

discretion for setting the latter, but it restricted how the supplier groups' marketing and import quotas were determined. Mainland beet and cane areas were given fixed quotas of 1.55 and 0.26 million short tons. Also, the mainland was guaranteed 30 percent of any growth in total US consumption exceeding 6.452 million short tons. The remainder was to be apportioned between the insular possessions and foreigners on the basis of historical sales levels determined by the Secretary of Agriculture (Dalton 1937, Wolf 1958).

Since the overall demand estimate, given the target price, could be off, or supplier groups could fall short of their quotas, provisions were also made for adjustments and reassignment of deficits. Table 2 gives the initial and end-year quotas for each major supplier group for 1934-1941, as well as the amount they actually supplied to the market.

[Table 2 about here.]

Several observations about the 1934 quota assignments are noteworthy. Even though the quotas for the domestic producers were reduced, relative to the industry's proposal that had been rejected by the USDA, they were still nonbinding. At least, the fixed quota for mainland beet sugar would not be binding for the first few years ; it was set at 20 percent higher than the average annual sales for 1931-1933, and 13 percent above its historical peak in 1933. Though less generous, the mainland cane quota was also not intended to be restrictive. It exceeded its annual average sales for 1931-1933 by 12 percent. Though it did not exceed the bumper crop of 1933, it exceeded any previous crop level.

Further insight into the degree to which beet quotas were non-binding is seen in Table 3, which shows the differences between the actual sales and the different stages of quota assignments during 1934-1941, as well as the net deficit reallocation position of each supplier area. In order to interpret the table, one must understand how the Department of Agriculture reallocated deficits under program. If the USDA determined that a supplier area would fail to meet its quota, it would reallocate the difference between the forecast deliveries from that area and its quota at that time according to rules specified in the law. In the 1934 law, the reallocation was to be made pro rata to all non deficit supplier areas on the basis of their quotas. The net deficit reallocation position in Table 3 reflects only these distributions.

But once the USDA determined that an area was in deficit, it not only forfeited its right to any future reallocations of deficits, but also to any share of consumption increases. Thus, the deficits declared by the USDA understate the "true" deficit for supplier areas. Comparing actual deliveries of each supplier area to the quota that they were entitled to under the assumption of no deficits in any supplier area provides one measure of true surplus or deficit. We denote these comparisons as "formulaic" in Table 3. Table 3 shows formulaic comparisons for each supplier area on the basis of the initial and end-year consumption requirements. The table also compares actual deliveries to the actual end-year quotas.

The table reveals that the beet area was in deficit for each year 1934-1938, once accounting for the pro rata share (about 26 percent in 1934-36 and 24 percent thereafter) of market growth that should have gone to the area. The table shows further that mainland cane did grow, picking up part of the beet-sugar deficits; but Congress promptly expanded its quota by 70 percent in the 1937 revision of the sugar law. (See Table 2.) The implication is that, though the quotas were nominally fixed, the mainland could rely on Congress either to set non-binding restrictions or extend them to accommodate expansion in the long run.

[Table 3 about here.]

By contrast, the 1934 law expressly prohibited expansion beyond historical levels to the other groups. The letter of the law obscures some of the constraints. According to the letter, it gave much discretion to the Secretary of Agriculture to determine the "representative" historical levels for the other groups. It instructed that he could use historical sales from any three consecutive years between 1925 and 1933 inclusive. However, the director of the Sugar Section of the AAA described later that the discretion was illusory, since the Secretary also (i) had to limit aggregate sales to a level that would prevent a further price decline, and (ii) he was constrained by implicit expectations, held by members of Congress, about the distribution of quotas that were not written into the legislation. These involved promises made to constituents in order to obtain their support for the legislation (Dalton 1937). If the Secretary used his discretion in ways that violated these implicit constraints, Congress would be inclined to remove his powers. Secretary

Wallace chose the years 1931-1933 as "representative" for all except Hawaii, for which he used 1930-1932.[13] This decision had the effect of maximizing the quotas for Puerto Rico and the Philippines, setting Hawaii's at 4 percent below maximum, and minimizing Cuba's quota, within the constraints of the rules. So, in sum, the initial quotas in place were loosely modeled after average recent market shares, with the exception that the mainland beet and cane received quotas well above average recent market shares. The end result was a distribution in which the domestic sugar industry (including the insular possessions) were granted about 55 percent of the sugar market, and foreign countries – Cuba, the Philippines and the full-duty foreign countries, received the remainder.

The law maintained these domestic versus foreign proportions through its provision for future market growth. Above consumption of 6.452 million tons, 30 percent was allotted to the mainland areas to be divided pro rata and the remaining 70 percent was distributed pro rata among the other areas. On the basis of the quotas set by the Secretary of Agriculture, the shares were approximately as follows: Beet – 26 percent; mainland cane – 4; Hawaii – 13; Puerto Rico – 12; Philippines – 15; Cuba – 29; full-duty foreign countries – 1. According to this distribution plan, mainland and insular areas would have 55 percent of market growth over 6.452 million tons, and foreign countries (including the Philippines) 45 percent. But among the domestic areas, the mainland beet and cane industries would share disproportionately in market growth. The 6.452 million ton threshold was first mentioned by the President in his February 1934 message to Congress, in which he recommended it as the sum of all supplier-area quotas for 1934. The USDA had recommended the figure to him after a careful study of market conditions (Dalton, p. 119). The initial quota set in June 1934 after the act's passage was 6.476 million tons.

2.2 *The Sugar Act of 1937*

The Jones-Costigan Act was set to expire at the end of 1937, and early that year the President recommended a new law extending sugar quotas, calling the Jones-Costigan Act "useful and effective.[14] New legislation approved by Congress was signed into law September 1 of that year. The new law made important revisions to the formulas

determining the supplier-area quotas. In 1937, each supplier group was allotted a fixed share of the USDA's estimate of demand, given its price target. Except that domestic producers jointly were guaranteed a minimum of 3.715 million tons, and the Philippines was guaranteed the minimum of 0.865 million tons promised it in the Tydings-McDuffie (Philippine Independence) Act of 1934.[15] The beet area's fixed minimum was the same as under Jones-Costigan, but as mentioned, the mainland cane area's fixed quota was increased from 0.26 to 0.42 million tons.

Beyond 6.683 million tons, the consumption estimate for 1937 announced in December 1936, all areas would share pro rata in future market growth. This maintained both the domestic/foreign 55/45 split, as well as any change market share implied by the 1934 formulae as a result of the difference between the initial 1937 quota of 6.683 million and the 1934 baseline quota of 6.452 million tons that had occurred. Below 6.683 million tons, since, all domestic areas and the Philippines were guaranteed minimum fixed quotas, Cuba was bearing almost all of the downside market risk. There was still the possibility of an increased quota due to deficits in other supplier-areas. The original law had provided for a pro rata reallocation of deficits among all supplier areas, but the 1937 law introduced a formula that matched supplier areas. Cuba, the domestic and insular areas would share each other's deficits pro rata, while other foreign countries would have first claim on any deficit from the Philippines. In 1937, the deficit in the beet area was substantial and Cuba benefited, but in 1938 and the first half of 1939 there were no such large deficits. Further, unlike 1936 and 1937 when there were large upward revisions of consumption estimates, in 1938 and 1939 they were held within a relatively tight window of 6.755 to 6.862 million tons.

The rush to hoard sugar with the outbreak of World War II led the government to suspend the Sugar Act on September 11, 1939, but market conditions softened and quotas were re-imposed at the beginning of 1940. Table 4 shows that Cuba bore the brunt of the low consumption that year. Resurgence of high wartime demand for sugar caused 1941 to be a year that ended with the quotas only nominally in effect. The overall quota outstripped sales by nearly one million tons, and Hawaii and the Philippines had exceptionally large deficits. Shortly after the Japanese December 7 attack on Pearl Harbor, the United States and Cuba began negotiations for the U.S. bulk purchase of the

entire Cuban sugar crop for 1942. The President suspended quota operations from 1942-1947. During those years Cuba sold its sugar crop to the United States Government at a price significantly lower than that which domestic producers were paid (Bernhardt, 1949).

2.3 *Postwar Sugar Quota Regimes*

Quotas were re-imposed in 1948 under new legislation approved in August 1947, and the law was revised in 1951 and 1956. The post-war Sugar Act was similar to the 1934 and 1937 legislation in that it designated quotas for each supplier-area, and authorized marketing and acreage allotments for domestic and insular suppliers. But insofar as the quota allocation mechanism, it represented a major departure. In 1948, domestic areas and the Philippines received fixed quotas, but no share of market growth. Cuba and full-duty countries shared the residual beyond the sum of fixed quotas in the proportion of 98.64:1.36 percent. The formulae implied that given the consumption requirements of the time as determined by the Secretary of Agriculture (7.8 million tons in 1948), Cuba would have about 1/3 of the U.S. market, well above the 28.6 percent it would have had under the 1937 Act if the U.S. market were 7.8 million tons.

However, the overall domestic/foreign split of 55/45 was maintained in the formulaic distribution. The domestic supplier areas' fixed quotas were approximately what each would have received for the 7.8 million ton market under the 1937 quota. The increased Cuban share was almost entirely at the expense of the Philippines, whose fixed quota of 0.98 million tons was well below the 1.2 million it would have received according to the 1937 legislation. But as consumption increased in the United States, the Cuban market share would grow, and the domestic/foreign split would depart from the 55/45 proportions that had been in place in 1934. The dominant Cuban share in U.S. market growth led one State Department official to refer to Cuba as the "common stockholder" of the U.S. sugar market. Table 4 shows the initial and end-year quotas for the participating supplier groups from 1948-1959. The implications of the revision are clear – the variation of Cuba's quotas is much higher than that of other supplier areas, whose quotas could vary only with deficits and reallocations.

As with the original 1934 Act, the fixed quota for the politically influential beet area was not intended to be immediately binding. Its quota of 1.8 million tons was 400,000 tons greater than its 1942-1947 average, and 230,000 tons greater than its 1947 marketings. Table 5, the postwar counterpart to Table 3, shows the differences between the actual sales and formulaic calculations of quotas based on initial and end-year estimates of demand, as well as the net position from official deficit reallocations. The beet area failed to meet its quota during the life of the 1948 law. The table also that Hawaii and the Philippines failed to reach their quota by wide margins. The cumulative Philippine deficit from 1948-1951 was over 1.8 million tons.

Lawmakers anticipated the existence of large deficits from supplier areas, especially the Philippines and beet areas, and they designed the quota reallocation rules accordingly. Cuba and the domestic areas would continue to share any deficits with one another pro rata, but for consumption requirements fixed below 7 million tons, Cuba would receive all deficits from domestic areas. Further, rather than allocate the Philippine deficit to full-duty countries, as the 1937 law had, Cuba was now assigned 95% of it, and the full-duty countries only 5%.

Without question, the rules changes benefited Cuba's position relative to the 1937 legislation. The combination of a dominant share of market growth and a hefty claim to supplier-area deficits meant that for high levels of consumption, Cuba's market share would rise well above the 28.6% it would have gotten under the 1937 Act. But what of downside market risk? The final USDA consumption requirement for 1948 was 7.2 million tons, somewhat higher than consumption in the 1930s. But the new legislation provided Cuba with a guaranteed minimum market share of 28.6%, the same as Cuba's market share for consumption requirements above 6.683 million tons under the 1937 law. In order to maintain that market share, domestic areas fixed quotas would be reduced pro rata. But in practice that never happened because the very large Philippine deficit kept Cuba's market share over 40 percent in 1948 and 1949, and the USDA increased the Cuban quota rose along with consumption levels with the outbreak of the Korean War in 1950. The minimum guarantee was extremely important to Cuban policy-makers, not only to avoid a fall in sales in the event of a postwar recession, but because they wished

to establish a precedent to protect Cuba's market share in any future revision of the Sugar Act.

The 1951 revision introduced few changes, but they somewhat diluted the advantages Cuba gained in 1948. First, Puerto Rico received a quota increase from 910,000 to 1,080,000 tons. As Table 6 shows, Puerto Rico had been filling deficits from 1948-1950, and its ability to provide sugar exceeded its un-revised quota. Because Cuba's share was a residual, the Puerto Rican increase was largely at Cuba's expense. Further Cuba's residual share was reduced from 98.64 percent to 96 percent, which amounted to a loss of about 75,000 tons per year at the average consumption level from 1952-1955.

Cuba's guarantee of 28.6% was downgraded so that it only became effective for consumption requirements below 7.4 million tons, and was a fixed minimum of 2.116 million tons for consumption above that level. Barring any reallocation of deficits, this meant that Cuba's market share would be below 28.6% for consumption below about 7.75 million tons. In practice Cuba's market share was above 28.6% for each year from 1952-1955 because of relatively high consumption.

The 1956 revision of the Sugar Act was the most contentious of the postwar legislation before the Cuban Revolution. To see why, note the trends in Table 6. Whereas from 1948-1952 several supplier areas routinely missed their quotas, the situation tightened considerably from 1953 to 1955. In late 1953 and early 1954, both the mainland cane and beet areas began to clamor for a significant increase in their quotas, and in particular a return to some formula that guaranteed the regions not only fixed minimum quotas, but also a substantial share of future U.S. market growth. The 1956 revision maintained the same fixed minima for each supplier-area, but assigned 55% of all market growth above 8.35 million tons (the initial consumption requirement for 1956) to domestic and insular areas. This represented a major loss for Cuba vis a viz the existing legislation. Cuba's share of market growth above 8.35 million tons was fixed at 29.59 percent rather than the 96 percent in the prior legislation, with full-duty countries increasing their share from four to 15.41 percent. Both the 1951 and 1956 legislation granted Cuba 33.6 percent the market at 8.35 million tons. But rather than continuing to

increase market share, with the new law Cuba's market share would gradually decline so that it was 32.9 percent even at 10 million tons, a level first reached in 1960. This amounted to a loss in possible sales of over one million tons of sugar. But in a real sense, the 1956 marked a return to the 55-45 proportional share in market growth that existed in the program before World War II. Cuba's 29.59 percent share of market growth was greater than the 28.6 percent it had under the Sugar Act of 1937.

The 1956 revision also changed the rules for deficit reallocation. Cuba would only have a claim on deficits of domestic areas after all the domestic areas had an opportunity to fill one another's deficits. It maintained its 96 percent claim on Philippine deficits, but they were intermittent and relatively small after 1952. The trend after 1956 shows, however, that the mainland beet and cane areas were able to fill their newly expanded quotas. The main deficit areas were now Puerto Rico and Hawaii.

3.1 *Price Stabilization and Income Support*

Sugar legislation laid out the rules for establishing the quotas for each supplier-area, limiting the intense competition that the Tariff Commission had pointed to when it concluded that the tariff had failed as an instrument to protect the American sugar industry. As spelled out clearly in the statutes, the purpose of the sugar program was to "maintain and protect the welfare of the domestic sugar industry," while at the same time protecting the welfare of consumers. The sugar program, like the myriad other agricultural support programs of the time, had the dual goals of commodity price stabilization and income support.

One arm of income support was the rules for establishing quotas under the different sugar legislation, already discussed. Minimum quota provisions near or above historical production maxima acted as a form of insurance against a collapse in the volume of sales for domestic producers. Shares of market growth in the 1934, 1937 and 1956 legislation provided additional support and room for expansion.

The second arm of income support, which also served the price stabilization objective, was the provisions of the sugar program outlining the determination of the

overall quota – the consumption requirements. In the legislation the setting of consumption requirements was the responsibility of the Secretary of Agriculture. The Secretary's careful setting of consumption requirements and their routine adjustments to meet changes in demand achieved a remarkable degree of price stabilization while at the same time providing a market price that could sustain the high cost domestic industry.

Figure 3 illustrates how. Under the law, the Secretary of Agriculture fixes consumption requirements, denoted by Q_{US}, which is the sum of all supplier-area quotas, or equivalently, the maximum amount of sugar sold in the U.S. The formulae for distributing the consumption requirements among the different supplier areas ensure that $Q_{US} = \sum_i q_i$, where q_i signifies the quota for supplier area *i*, *i* = U.S. mainland beet, U.S. mainland cane, Hawaii, Puerto Rico, the Virgin Islands, the Philippines, Cuba and the full-duty countries[16] As long as the quotas are binding for each supplier-area, or that any supplier-area deficit can be filled by other supplier-areas, then the price of sugar in the American market will be the price that clears the market given the demand for sugar. In the diagram, demand – the quantity of sugar demanded at any given price – is depicted by the downward-sloping line D_{US}. The equilibrium price resulting from estimated consumption requirements Q_{US} and demand D_{US} is P_{US}. The world market price is shown below the U.S. price in Figure 3. The U.S. sugar program, when quotas were binding, had the effect of increasing the price in the U.S. above what the price of sugar was on the world market.

Figure 4 compares the price of sugar in New York, c.i.f., and the price of Cuban sugar, f.o.b. In effect, they represent the price paid in New York for Cuban (or other) sugar and the price received by Cuban producers, net of duties, handling shipping, and insurance. The latter is an indicator of the world price because Cuban producers sold in both the US and the world market. Prices received by Cuban producers would equilibrate by market arbitrage. That is, if the price in either market were higher, sales would be directed to that market until the price was brought down to equal the other. It is noteworthy that, after the quota program was implemented, the price of Cuban sugar for export to the United States diverged from the world price. It also exhibited a higher degree of stability. The variance of the log of the price of sugar in New York was less

than half that of the world price from June 1934 until August 1939, and twenty-one times less from January 1948 until December 1959, a period during which the world price spiked twice while the New York price remained relatively stable.

Another outcome, besides greater price stability, was that participating suppliers in the quota program received a quota "rent" from sales to the U.S. The quota rent is the additional value of selling in the closed U.S. market over and above the alternative of selling in the world market. The quota rent is the price premium for selling in the United States multiplied by the supplier-area quota. Figure 5 illustrates the quota rent for Cuba under the U.S. sugar program. In the diagram, the vertical line Q_{USC} is the sugar quota allotted to Cuba by the United States, corresponding with a quantity of sugar Y_1. The supply of Cuban sugar as a function of the price is given by S, and the world price is given by P_W.[17] All prices on the graph are net of transport costs, or equivalently, f.o.b. Cuba. The U.S. price is given by P_{US}, and the price of Cuban sugar for export to the U.S. is the U.S. price net of the duty on Cuban sugar, $P_{US} - T$. The lightly shaded area is the tariff revenue that the U.S. Treasury collected from Cuban sugar imports. The darkly-shaded rectangle is the quota rent that Cuba receives on sales to the U.S. The two rectangles together approximate the quota rent that a domestic supplier area would earn if it had an identical quota. Cuba's quota rent increased if any of the following occurred, holding all else equal: 1) It received a larger quota, 2) The tariff was reduced, 3) The consumption requirements were decreased, raising the U.S. price, or 4) The world price fell.[18]

Returning to Figure 4, we can now interpret the price premium and the likely evolution of quota rents over the period. The New York price is what domestic supplier areas received, net of any transport costs, which were typically less than 0.3 cents per pound. The price of Cuban sugar for export to the U.S. differs from the New York prices mainly because of the duty, which varied from a high of two cents per pound under the Hawley-Smoot Tariff to a low of 0.5 cents per pound in the 1950s. Due to the proximity of Cuba to the United States, transport costs were typically small. During the 1930s the price of Cuban sugar destined for the U.S. exceeded that for sugar exported elsewhere by between one and two cents per pound. In the postwar period, Cuba received a lower price for sugar exported to the U.S. during the months when the world price was spiking,

but for the rest of the 1950s the price premium for sales to the U.S. was at least two cents per pound. Throughout the life of the program, the price premium for domestic areas was higher by an amount equal to the tariff on Cuban sugar (and any difference in transport costs). There seems little doubt that the sugar program reduced price variability and provided a substantial quota premium for participating supplier-areas. How did the Secretary of Agriculture determine consumption requirements and adjust them throughout the year so as to achieve these two aims?

3.2 *USDA Quota Operations*

The sugar legislation empowered the Secretary of Agriculture to fix consumption requirements at the beginning of each calendar year, and to adjust them during the course of the year as necessary to meet the objectives of the statute. The guidance provided by the different legislation is summarized in Table 6. Three features of the provisions are worth noting. In the 1937 legislation and thereafter, the Secretary is required to begin by looking at the actual marketings of sugar in the preceding year ending October 31. Although he could depart from this basis because of other considerations (below), this introduced a bias against radical changes in consumption requirements from year to year. Unless there were substantial fluctuations in demand, the price was unlikely to vary greatly.

Second, each law required to Secretary to seek a balance between the interests of domestic producers and consumers, although the terms were usually rather vague. In 1934, a "just" price is required; in 1937 and afterward the price should not be "excessive." Only in the 1937 is an absolute minimum quota implied with the mandate that "in no event" should consumption requirements be fixed so that U.S. per capita consumption is lower than the 1935-1936 average. This was not included in the postwar legislation. Instead, the legislation provides a list of factors for the Secretary to consider, but does not designate any of them as having priority over others. In 1948 the law included in that list the relative price of sugar prior to the suspension of price controls, which was historically high, but the price of sugar did not attain that level. Ballinger

(1978, p. 53) explains that this occurred not because the Secretary ignored the statute, but because "he was required to consider other factors" as well.

The Sugar Section of the USDA, created in late 1933 to help design the administration proposal with regards to legislation, was a critical bureaucratic support for carrying out the program. In practice, the Secretary of Agriculture delegated to it much of the technical work in preparing the consumption requirement. After World War II, the Sugar Section customarily held hearings in November of each year at which each supplier area, as well as the cane sugar refiners and industrial consumers of sugar, would express their preference about the coming year's overall quota. The information that it acquired at such hearings was important in helping it fix and adjust consumption requirements so as to achieve the dual aims of price stabilization and income support.

Price stabilization could be achieved if there was a negative demand shock (economic downturn) reducing consumption requirements. The Secretary did this several times, as can be observed in Figure 4. The "double-dip" of the Depression in 1937-1938 led to a fall in sugar demand. The Secretary responded by fixing the initial consumption requirement in 1938 nearly 200,000 tons below the 1937 end-year level, and it was further reduced by 80,000 tons in June. With the end of wartime price controls in 1948, the market anticipated a break in the market, and the Secretary aggressively reduced the consumption requirements during the first half of that year from 7.8 million to 7 million tons. The allocation rules determined which areas would see their quotas reduced when consumption requirements were revised downward. If the consumption requirements were set at a level such that domestic areas or the Philippines had fixed quotas, the burden fell to those areas without fixed quotas – the residual suppliers. Under the 1934 act only the domestic beet and cane areas had fixed minimum quotas, but in 1937 all areas did with the exception of Cuba and the full-duty areas. Under that legislation, Cuba would bear about 2/3 of any reduction so long as consumption requirements were between 6.683 and 6.472 million tons, and nearly the entire burden below the 6.472 million tons level. Beyond the 6.683 million ton threshold, all areas would have their quotas reduced proportionately, but because some of the areas (namely, beet) did not have binding quotas to begin with, the proportionate burden-sharing was mostly pro forma. In practice, the residual supplier who absorbed this burden was Cuba.

In the postwar sugar program, Cuba's role as a shock absorber for the U.S. market was intensified. In the 1948 and 1951 acts, Cuba had a minimum guarantee, but it was set at level that meant that it would only impose a burden on domestic areas if consumption requirements were exceptionally low and there were no deficits. In 1948, the only year that consumption requirements approached the level that would have made Cuba's guarantee operational, there were substantial deficits. After 1953 there were few sizeable deficits, but consumption was much higher. So again, Cuba bore nearly all downward market risk. The 1956 act left Cuba's minimum guarantee provision unchanged, so that it would only become effective if consumption estimates fell by more than 700,000 tons from that year's initial level of 8.35 million tons. But in 1956 Cuba once again began to share market growth with other supplier areas above the 8.35 million ton threshold, so that as long as consumption remained above that level in subsequent years, and quotas were binding for other supplier areas, Cuba would only bear proportionate downward market risk.

The sugar law required the Secretary to administer the program not only to support domestic industry, but also to avoid "excessive" prices to American consumers. Upward price pressure could occur if there were negative supply shocks in a supplier area or if there was a positive demand shock. The legislation included provisions for the reallocation of quota deficits, and the quota formulae were flexible enough to account for market growth beyond the sum of any fixed quotas. But where would the needed supply come from? When making acreage allotments to individual farms in domestic areas under the Sugar Act, the Secretary considered an amount necessary for a "normal carryover." (U.S. House, 1962, p. 30) These stocks could be useful, and such stocks might be augmented if an area had a bumper crop. But what degree of confidence could one have that large deficits could be covered, such as the Philippine deficit in the immediate postwar years, or the periodic beet shortfalls?

Cuba played the role of shock absorber in order to prevent a spike in prices. In any of these years after 1934, Cuba had the cane availability and milling capacity to supply sugar far in excess of its quota to the United States.[19] Furthermore, the rents offered by the combination of the quantity restrictions and the reduction in the tariff gave Cuban producers the incentive to export the maximum allowed by its quota to the United

States. (Similar incentives existed for other foreign suppliers.) In the case of Cuba, the rights to sell in the US market, the non-US world market (controlled by the ISA), and their home market were issued in the form of "identity certificates" which were attached to each bag of sugar produced, indicating where it could be sold. The archival record confirms that Cuban sugar producers' possession of identity certificates for the US market were highly coveted pieces of property in the Cuban system of sugar controls. The evidence shows that Cuba stood ready to supply any deficits not filled by other supplier groups.[20]

Cuba's implicit willingness to absorb both anticipated and unanticipated deviations in demand and the domestic capacity to meet it turned out to be significant for the operation of the program. We illustrate how Cuba fulfilled this role in Figures 6 and 7. Figure 6 compares actual U.S. consumption to a log-linear trend of U.S. consumption for the years 1934-1941. In addition, it plots Cuba's share of the U.S. market for those years and the market share that it would have received given actual U.S. consumption and the assumption of no reallocation deficits. We refer to these market shares as "formulaic" because they are calculated by applying the legislative quota formulae for each supplier area to actual consumption. The difference between Cuba's actual share of the U.S. market to that mandated by the legislative quota formulae is due to supplier-area deficits and their reallocation. Under the 1937 statutes, we argue that the formulae placed downside market risk almost entirely on Cuba. Thus, when actual U.S. consumption is well below trend, formulaic Cuban market share should fall. This is plainly evident in the figure, particularly for 1940 when consumption was the lowest, but also in 1938. We also argue that when actual consumption was above trend, Cuba's market share would be higher than that called for under the strict application of the quota formulae, because it was the only supplier area capable of expanding sales and meeting supplier-area deficits. This is visible in the figure for 1936-1937 and 1941. In 1936 and 1937 the mainland beet area had deficits of over 200,000 tons each year, and much of them were reallocated to Cuba. In 1941, Cuba received nearly 450,000 tons of reallocated deficits from a number of supplier areas, notably the Philippines and Hawaii. 1939 is the only departure for the pattern because consumption was well above normal but the Cuban market share fell.

Figure 7 is the postwar counterpart to Figure 6. Under the 1948 and 1951 statutes, Cuba's formulaic market share rose and fell along with consumption requirements. The two series track each other very closely from 1948 through 1955. The largest variations occurred with the low consumption in 1948 and the very high 1950 quota after the outbreak of the Korean War. With the outbreak of the Korean War in 1950, the USDA increased consumption requirements from 7.5 million to 8.7 million tons. While actual deliveries fell far short of that level, Cuba expanded sales by more than 750,000 tons above its initial quota. No other area or combination of areas possessed that capacity for additional supply to the U.S. Note that in 1953, the first year that the 1951 sugar law was in effect, Cuban formulaic market share dips to reflect the cut in the Cuban quota to make room for the increased Puerto Rican fixed quota and the increased share of the full-duty countries. Still, the Cuban formulaic market share co-moves with U.S. consumption under the statute because Cuba maintains a large stake in market growth above 5.426 million tons, the sum of fixed quotas. From 1956-1959, however, the Cuban formulaic market share is mostly flat because it now fluctuates with consumption above 8.35 million tons at slightly less than a pro rata distribution.

Cuba's actual market share deviated significantly from its formulaic one from 1948-1952 because of the very large deficits in other supplier areas in the immediate aftermath of World War II, most notably the Philippines but also the mainland beet area and Hawaii (see also Table 5). More than three million tons were reallocated to Cuba from 1948-1952, and in no year was the amount less than 0.33 million tons. After 1952 the picture changes, and Cuba's actual market share was very close to formulaic market share for all of the other years except in 1958, a year of very large deficits in Puerto Rico and Hawaii that the mainland beet and cane groups were unable to fill entirely. The graph shows that Cuba played a vital role in stabilizing the U.S. sugar market after World War II, but that role diminished greatly after 1952.

Conclusion

U.S. government policy under the sugar program played the dominant role in the American sugar market. It determined the quantity of sugar sold in the United States, and thus the price. Through the allocation of quotas to supplier-areas, the reallocation of supplier-area deficits, and tariff policy, the government distributed quota rents to the different groups supplying sugar to the market. Although not the focus of this study, government contracts with farmers, benefit payments, and tax policy also fixed the distribution of income of income within domestic and insular supplier groups. The distribution among labor, farmers and mill owners, of the Cuban and Philippine rents earned from their U.S. sugar quota were determined by government policy in those countries, but they were also influenced by the United States.

The extensive government involvement in sugar originated in the sugar crisis of the late 1920s and early 1930s, and in the inability of tariff policy alone to safeguard the domestic sugar industry. The A.A.A. provided a framework on which a comprehensive system of quotas and support payments could be constructed to assist American farmers. But, as Krueger (1996) notes, the sugar program, like much other legislation soon took on "a life of its own," and domestic and foreign interest groups who had a stake in the program vigorously jockeyed for political advantage in Washington. The disagreements among them mainly centered on the distribution of quota rents, and came to a head when Congress was deliberating revisions of the law. Yet each of the producer groups continued to support the basic principles of the sugar program throughout the period 1934-1959, although they did so for different reasons.

The domestic sugar industry agreed with the basic conclusion of the Tariff Commission that the tariff had failed, supported the principle of quotas, and approved of the government's plan (Dalton, p. 114). Frank Kemp, the President of the Great Western Sugar Co., was the spokesman for an alliance of the domestic sugar industry, including Hawaii and Puerto Rico, supporting renewal and revision of the Sugar Act at hearings before the House of Representatives Committee on Agriculture in 1955. Kemp summed up the industry's support for the program, "Who benefits from that [the quota program]? Everybody that sells in this market benefits from it."[21] The program stabilized the price

of sugar in the U.S. and through the distribution of quota rents, increased incomes for domestic producers.

Industrial users of sugar in the United States, comprising 2/3 of the total U.S. sugar market, bore much of the burden of the quota program through the higher price they paid for sugar, but did recognize the value of price stability. They did not openly call for the repeal of the program in 1955, but urged its extension and a complete review of its effects, particularly on consumers. For that reason, they defended Cuba's participation in the U.S. market, noting Cuba's crucial role in World War II and its postwar role as shock absorber. The President of the Nehi Corp. stated, "The ability and willingness of Cuba to supply all deficits and to supply additional amounts when needed at reasonable prices has been primarily responsible for stabilizing the price of sugar in the United States."[22]

The analysis we provide precisely corroborates this "Nehi" interpretation of the operation of the sugar program. Cuba's willing cooperation with the U.S. government in its sugar program was crucial to the program's functioning. It is somewhat paradoxical that a foreign country would play such an important role in a domestic American farm support program, particularly because the policy restricted the imports of its sugar. But Cuba's participation is explained by the historical circumstances that led to the adoption of quotas. In the face of Cuba's economic crisis of the early 1930s, greatly aggravated by the Hawley-Smoot Tariff, the quota program and Cuba's quota under Jones-Costigan helped the island's economy recover. For even though the quota fixed the quantity of Cuban sugar exports to the United States at under one-half of its 1929 level, there were two distinct advantages. First, the price would be higher, especially after the tariff reduction. Second, the relevant alternative was not "free trade," but continued struggle against the existing tariff of two cents per pound. Forecasts were that Cuban exports could fall to one million tons or even lower in 1934 under this scenario, because there would be no check on insular sugars. As an executive of the largest American sugar company in Cuba stated, "Although Cuba, floored and ruined as she was by the Tariff Act of 1930, deeply appreciated being saved from extinction, she found it difficult to applaud, as just, a quota basis so obviously discriminatory."[23]

Cubans, while recognizing the advantages, were also cognizant of the fact that the program was created mainly to aid continental U.S. sugar producers, and that they had distinct disadvantages when it came to defending their share of the quota in Congress. When the Sugar Act of 1937 was approved, the Cuban newspaper *El Mundo* stated, "From the Cuban point of view there is no other interpretation: the law is the less of two evils...Between the total collapse of the quotas and the Sugar Law, there can be no hesitation in the choice."[24] The Cuban sugar industry was much more pleased with the 1948 Sugar Act, and fought hard, and unsuccessfully, to maintain its dominant share of U.S. market growth in 1955-56. The 1956 revision was greeted with protests from the Cuban government, sugar industry and the general public.[25] The resentment and resignation felt by many Cubans was not directed against the principle of the quota system, or even the right of the United States to protect its domestic sugar industry, but against the degree that Cuba was excluded from the U.S. market, despite its history of cooperation in times of war and peace. In that sense, at least, the state of Cuban-American sugar relations reflected and deepened rising anti-imperialist sentiment.

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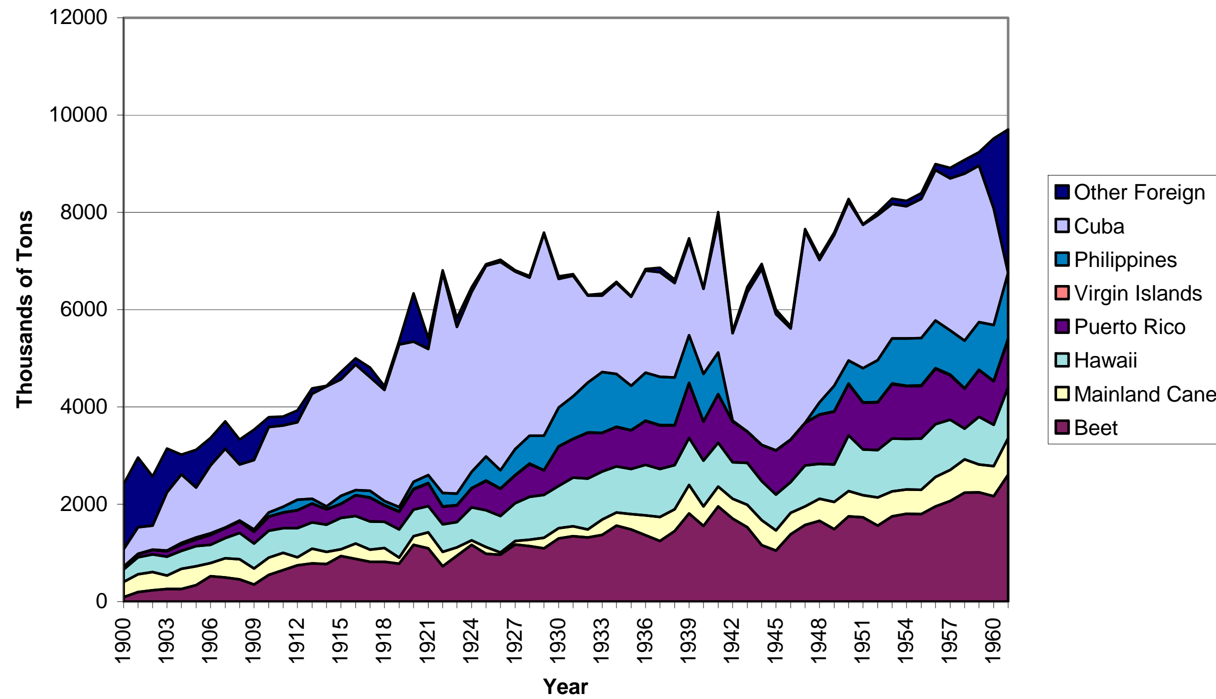
Figure 1
Sources of Supply to the US Sugar Market, 1900-1961



Source: U.S. House of Representatives. Committee on Agriculture. "History and Operations of the U.S. Sugar Program." Washington, GPO: 1962.

Table 1: US Sugar Tariff on Cuban Sugar, 1898-1959

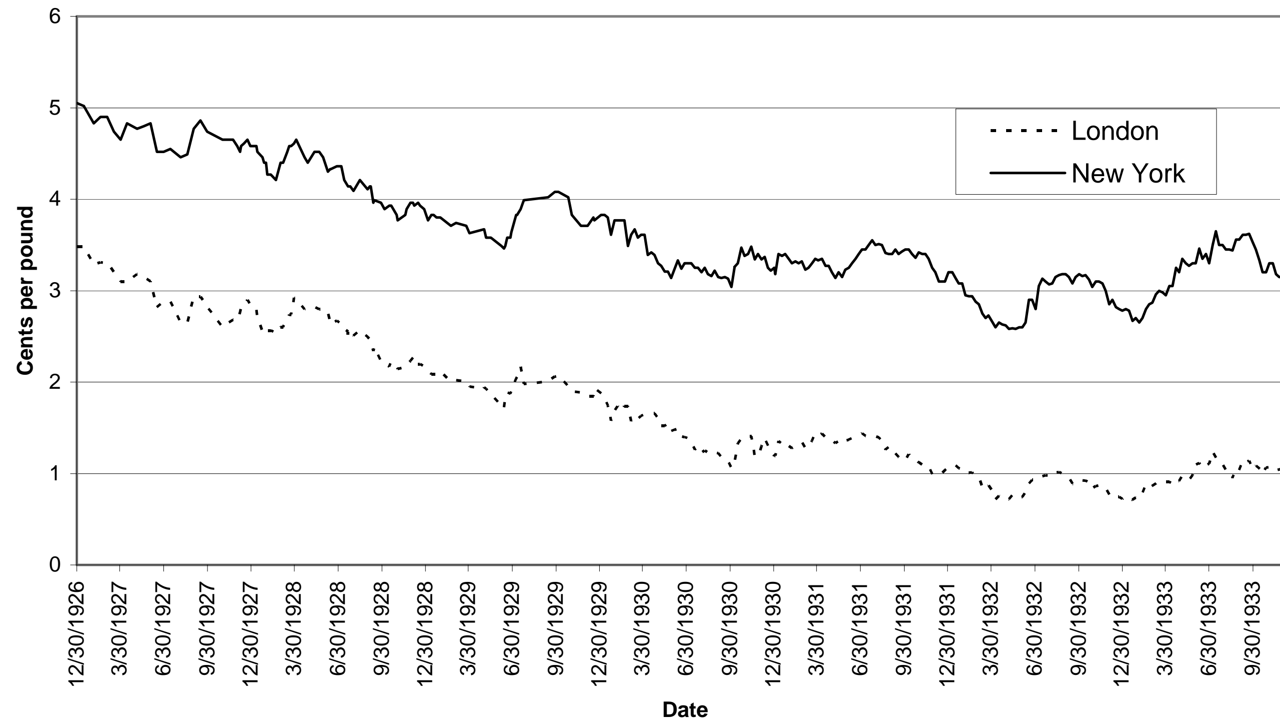
Year introduced	Tariff on Cuban raw sugar at 96° pol. (cents per lb.)	Ad valorem equivalent over period in effect (percent annual average)
1898	1.685	71.8
1903	1.348 [1]	51.3
1913	1.0048	20.3
1921	1.6	53.7
1922	1.7648	68.8
1930	2.0	167.1
1934	0.9 [2]	38.2
1942	0.75[3]	N.A.
1948	0.5	9.0

[1] From 1903, the tariff figures given incorporate the 20 percent discount Cuba received on the full sugar duty.

[2] The tariff was first reduced by Presidential proclamation to 1.5 cents per pound. The signing of a new Reciprocity Treaty later in the year reduced the duty to 0.9 cents per pound. The quantity restrictions were suspended between September and December of 1939 in response to hoarding at the breakout of hostilities in Europe. Under the reciprocity treaty of 1934, the tariff on Cuban raws of 0.9 cents per lb. rose to 1.5 cents per lb. if or when quotas were lifted.

[3]Cuba sold sugar to the United States under wartime purchase contracts from 1942-1947 at negotiated prices that were fixed f.o.b. Cuba.

Figure 2
Sugar Prices in New York and London, 1927-1933



Source: London prices are prices of Cuban sugar before duty. London prices are from: December 30 1926-September 29 1927: USNA, RG59, 837.61351/463, Attached memorandum to a letter from Secretary of Commerce, Herbert Hoover, to Secretary of State, unauthored; October 31 1927-December 17 1929: *Commercial and Financial Chronicle*; December 19 1929-October 30 1936: *Times* of London. New York prices include the duty and are from Willett and Gray's *Weekly Statistical Sugar Trade Journal*.

Table 2: Sugar Quotas under the Sugar Program, 1934-1941

Thousands of tons of 2000 pounds									
		1934	**1935**	**1936**	**1937**	**1938**	**1939**	**1940**	**1941**
US Mainland Beet Sugar									
	Initial quota	1556	1550	1550	1614	1591	1585	1560	1550
	Final adjusted quota	1556	1550	1342	1417	1584	1567	1550	2230
	Actual deliveries	1562	1478	1364	1245	1448	1809	1550	1952
US Mainland Cane Sugar									
	Initial quota	261	260	260	271	431	430	423	420
	Final adjusted quota	261	260	392	472	429	425	420	445
	Actual deliveries	268	319	409	491	449	587	406	411
Hawaii									
	Initial quota	917	895	941	977	963	959	944	938
	Final adjusted quota	916	926	1033	984	922	948	938	994
	Actual deliveries	948	927	1033	985	906	966	941	903
Puerto Rico									
	Initial quota	803	784	801	832	819	816	803	798
	Final adjusted quota	803	788	909	897	816	807	798	1011
	Actual deliveries	807	793	907	896	815	1126	798	993
Philippines									
	Initial quota	1015	991	998	1036	1057	1053	1036	1007
	Final adjusted quota	1015	899	1001	998	991	1041	982	983
	Actual deliveries	1088	917	985	991	981	980	981	855
Cuba									
	Initial quota	1902	1857	1853	1922	1963	1954	1924	1869
	Final adjusted quota	1902	1822	2103	2149	1954	1932	1749	2887
	Actual deliveries	1866	1830	2102	2155	1941	1930	1750	2700

Table 2, continued.

		1934	1935	1936	1937	1938	1939	1940	1941
Full-duty Foreign									
	Initial quota	17	17	26	27	27	27	27	26
	Final adjusted quota	17	25	29	115	81	27	24	440
	Actual deliveries	30	11	29	89	75	62	17	190
Total consumption									
	Initial USDA estimate	6476	6359	6434	6682	6862	6832	6725	6617
	Final USDA estimate	6475	6276	6813	7043	6781	6755	6471	9003
	Final (actual)	6574	6277	6833	6860	6619	7466	6443	8009

Source: *Willett and Gray's Weekly Statistical Trade Journal*.

Table 3. Differences of Actual deliveries from final and formulaic quotas, 1934-1941

Thousands of tons of 2000 lbs								
	1934	**1935**	**1936**	**1937**	**1938**	**1939**	**1940**	**1941**
US Mainland Beet Sugar								
Formulaic using initial consumption ests	-19	-72	-284	-369	-102	78	0	95
Final adjusted quota	6	-72	22	-172	-136	242	0	-278
Formulaic using final consumption levels	6	-72	-186	-388	-143	225	-10	402
Net reallocations	0	0	-208	-216	12	0	0	142
US Mainland Cane Sugar								
Formulaic using initial consumption ests	3	59	133	120	29	117	-14	-93
Final adjusted quota	7	59	17	19	20	162	-14	-34
Formulaic using final consumption levels	7	59	149	48	17	157	-17	-9
Net reallocations	0	0	23	30	3	0	0	-86
Hawaii								
Formulaic using initial consumption ests	0	31	49	8	-32	-82	3	-221
Final adjusted quota	32	1	0	1	-16	18	3	-91
Formulaic using final consumption levels	14	15	106	-4	-57	7	-3	-35
Net reallocations	0	0	37	-4	-30	0	0	-270
Puerto Rico								
Formulaic using initial consumption ests	-16	16	53	64	17	235	0	37
Final adjusted quota	4	5	-2	-1	-1	319	0	-18
Formulaic using final consumption levels	-4	1	102	55	-4	310	-5	195
Net reallocations	0	0	61	56	6	0	0	-99
Philippines								
Formulaic using initial consumption ests	63	-51	-79	-37	-27	-171	34	-379
Final adjusted quota	73	18	-16	-7	-10	-61	-1	-128
Formulaic using final consumption levels	78	-69	-17	-94	-76	-73	-55	-152
Net reallocations	0	0	-55	-87	-54	-59	0	-405
Cuba								
Formulaic using initial consumption ests	-36	33	127	233	71	-205	-7	409
Final adjusted quota	-36	8	-1	6	-13	-2	0	-187
Formulaic using final consumption levels	-8	0	242	141	-21	-24	-173	831
Net reallocations	0	0	142	134	14	0	0	448

Table 3, continued.

	1934	1935	1936	1937	1938	1939	1940	1941
Full-duty Foreign								
Formulaic using initial consumption ests	4	-14	2	62	49	32	-8	158
Final adjusted quota	13	-14	0	-26	-6	35	-7	-250
Formulaic using final consumption levels	4	-14	4	61	48	35	-10	164
Net reallocations			2	87	54	59	0	269

Source: Quotas: Willett and Gray's *Weekly Statistical Trade Journal*. Reallocations: USDA, Commodity Stabilization Service, Sugar Division, "Sugar Statistics and Data Compiled in the Administration of the Sugar Acts," Statistical Bulletin 214, July 1957, pp. 184-186.

Table 4: Sugar Quotas under the Sugar Program, 1948-1959

Thousands of short tons													
		1948	**1949**	**1950**	**1951**	**1952**	**1953**	**1954**	**1955**	**1956**	**1957**	**1958**	**1959**
US Mainland Beet Sugar													
	Initial quota	1848	1800	1800	1800	1800	1800	1800	1800	1800	1909	1909	1999
	Final adjusted quota	1688	1500	1899	1700	1560	1620	1803	1800	1955	2071	2292	2268
	Actual deliveries	1656	1487	1749	1730	1560	1749	1802	1797	1955	2066	2240	2241
US Mainland Cane Sugar													
	Initial quota	513	500	500	500	500	500	500	500	500	587	587	615
	Final adjusted quota	413	549	547	500	533	517	501	500	602	637	721	698
	Actual deliveries	456	557	522	457	579	513	501	500	601	636	680	578
Hawaii													
	Initial quota	900	1052	1052	1052	1052	1052	1052	1052	1052	1066	1066	1115
	Final adjusted quota	825	652	1151	962	972	1088	1043	1052	1091	1060	700	978
	Actual deliveries	714	769	1145	941	972	1087	1040	1052	1091	1037	630	977
Puerto Rico													
	Initial quota	934	910	910	910	910	1080	1080	1080	1080	1114	1114	1166
	Final adjusted quota	1024	1091	1061	956	983	1117	1082	1080	1141	920	815	970
	Actual deliveries	1013	1091	1053	959	983	1118	1082	1080	1135	912	823	958
Philippines													
	Initial quota	290	857	682	782	974	974	974	977	980	980	980	980
	Final adjusted quota	240	557	532	782	774	874	974	977	980	930	980	980
	Actual deliveries	252	525	474	706	860	932	974	977	982	906	980	980
Cuba													
	Initial quota	3239	2092	2504	2903	2425	2287	2479	2668	2809	2942	2942	3060
	Final adjusted quota	2940	3093	3431	2947	3025	2759	2723	2860	3090	3127	3438	3215
	Actual deliveries	2927	3103	3264	2946	2980	2760	2718	2862	3089	3127	3438	3215

Table 4, continued.

		1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959
Full-duty Foreign													
	Initial quota	69	33	46	47	33	95	103	111	117	186	186	248
	Final adjusted quota	64	52	69	46	46	111	113	119	129	215	279	279
	Actual deliveries	62	52	61	13	51	111	113	118	126	217	279	279
Total consumption													
	Initial USDA estimate	7800	7250	7500	8000	7700	7800	8000	8200	8350	8800	8800	9200
	Final USDA estimate	7200	7500	8700	7900	7900	8100	8250	8400	9000	8975	9231	9400
	Final (actual)	7084	7588	8279	7758	7991	8282	8240	8396	8992	8916	9076	9240

Source: *Willett and Gray's Weekly Statistical Trade Journal*.

Table 5: Differences of Actual deliveries from final and formulaic quotas, 1948-1959

Thousands of tons of 2000 lbs	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959
US Mainland Beet Sugar												
Formulaic using initial consumption ests	-144	-313	-51	-70	-240	-51	2	-3	155	139	313	200
Final adjusted quota	-32	-13	-150	30	0	129	-1	-3	0	-5	-52	-27
Formulaic using final consumption levels	-144	-313	-51	-70	-240	-51	2	-3	155	266	440	441
Net reallocations	-112	-300	99	-100	-240	-180	3	0	1	122	294	224
US Mainland Cane Sugar												
Formulaic using initial consumption ests	-44	57	22	-43	79	13	1	0	101	16	60	-149
Final adjusted quota	43	8	-25	-43	46	-4	0	0	-1	-1	-41	-120
Formulaic using final consumption levels	-44	57	22	-43	79	13	1	0	101	136	180	78
Net reallocations	-87	49	47	0	33	17	1	0	0	38	106	69
Hawaii												
Formulaic using initial consumption ests	-338	-283	93	-111	-80	35	-12	0	39	-15	-422	-75
Final adjusted quota	-111	117	-6	-21	0	-1	-3	0	0	-23	-70	-1
Formulaic using final consumption levels	-338	-283	93	-111	-80	35	-12	0	39	-15	-422	-75
Net reallocations	-134	-400	99	-90	-80	36	-9	0	1	-27	-415	-162
Puerto Rico												
Formulaic using initial consumption ests	103	181	143	49	-97	38	2	0	55	-168	-257	-122
Final adjusted quota	-11	0	-8	3	0	1	0	0	-6	-8	8	-12
Formulaic using final consumption levels	103	181	143	49	-97	38	2	0	55	-168	-257	-122
Net reallocations	21	181	151	46	73	37	2	0	1	-217	-351	-223
Philippines												
Formulaic using initial consumption ests	-728	-455	-506	-274	-120	-48	-6	-3	2	-76	-2	
Final adjusted quota	12	-32	-58	-76	86	58	0	0	2	-24	0	0
Formulaic using final consumption levels	-728	-455	-506	-274	-120	-48	-6	-3	2	-74	0	0
Net reallocations	-742	-425	-450	-200	-200	-100	0	0	0	-50	0	0
Cuba												
Formulaic using initial consumption ests	410	1128	1043	231	795	479	245	197	280	187	498	156
Final adjusted quota	-13	10	-167	-1	-45	1	-5	2	-1	0	0	0
Formulaic using final consumption levels	1116	795	274	470	516	16	15	9	-336	-225	-68	-448
Net reallocations	1017	874	428	333	403	185	5	0	0	133	377	96

Table 5, continued.

	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959
Full-duty Foreign												
Formulaic using initial consumption ests	27	25	30	-24	-40	16	10	7	9	31	93	31
Final adjusted quota	-2	0	-8	-33	5	0	0	-1	-3	2	0	0
Formulaic using final consumption levels	37	20	20	-21	-52	-3	0	-1	-17	77	133	126
Net reallocations	37	21	23	10	10	4	0	0	0	2	0	0

Source: Quotas: Willett and Gray's *Weekly Statistical Trade Journal*. Reallocations: For 1948-1956: USDA, Commodity Stabilization Service, Sugar Division, "Sugar Statistics and Data Compiled in the Administration of the Sugar Acts," Statistical Bulletin 214, July 1957, pp. 184-186; For 1957-1959: USDA, Agricultural Stabilization and Conservation Service, Sugar Division, "Sugar Statistics and Related Data Compiled in the Administration of the Sugar Acts," Statistical Bulletin 293, September 1961, p. 162.

Figure 3. Determination of the price in the US sugar market using the USDA estimate of total sugar consumption requirements

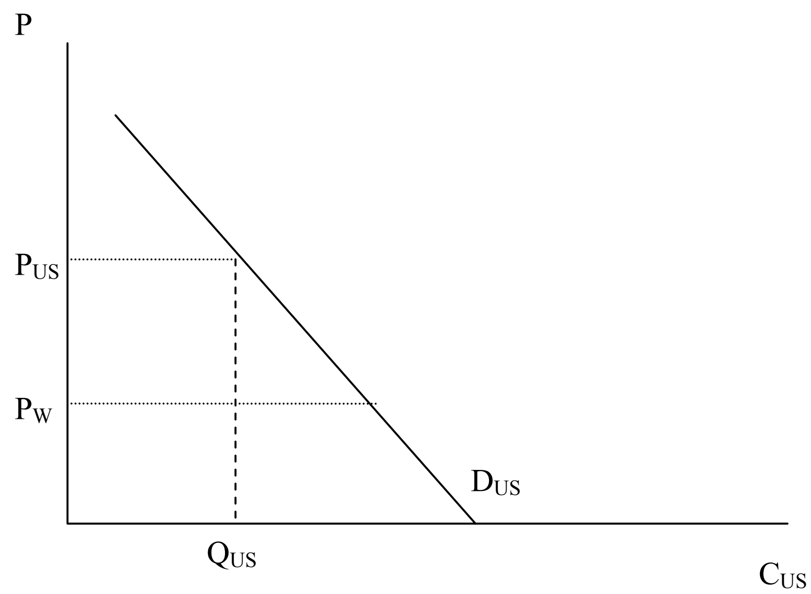
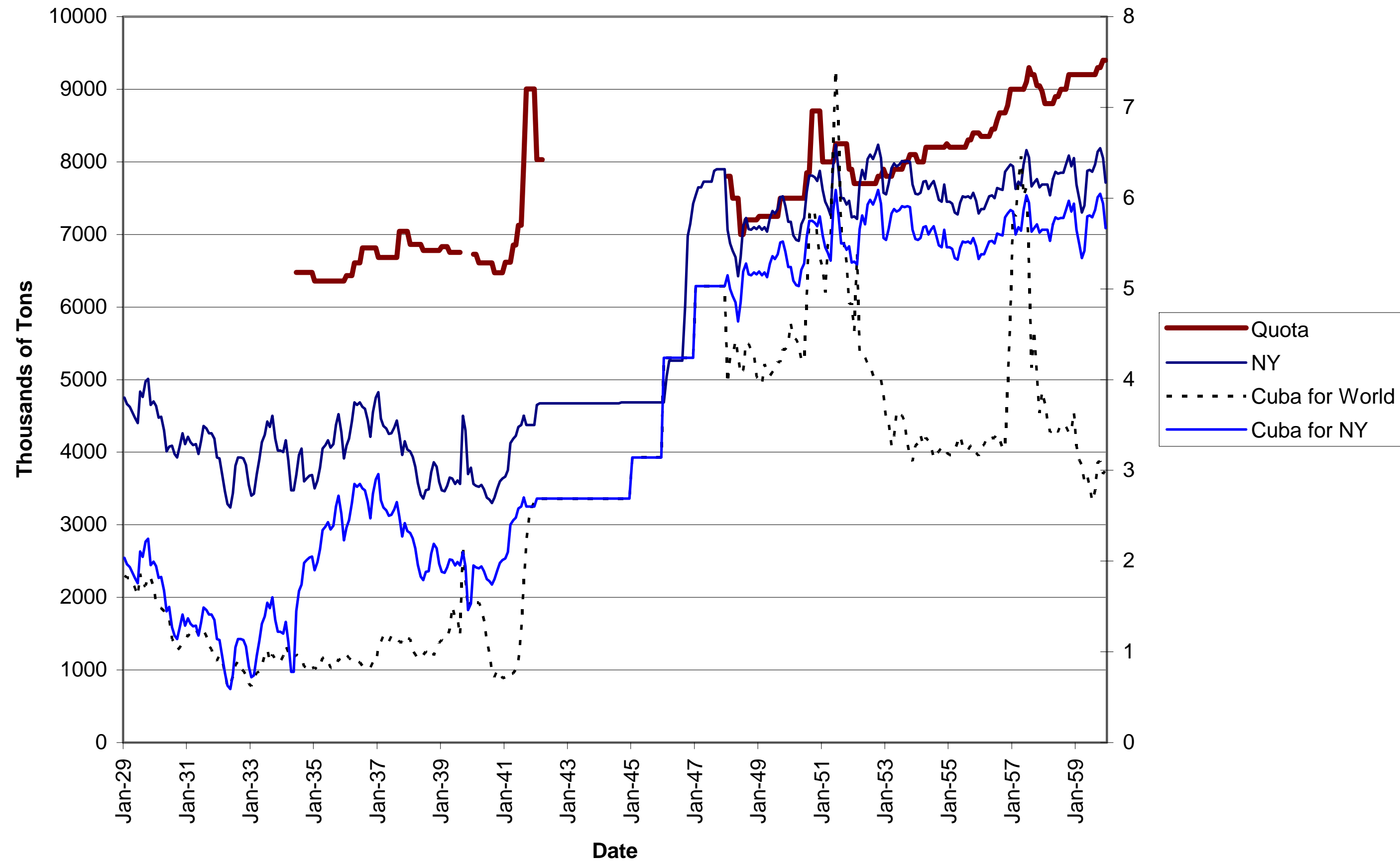


Figure 4
The Sugar Program and Sugar Prices



Source: Quotas: Willett and Gray's *Weekly Statistical Trade Journal*. Prices: USDA Agricultural Stabilization and Conservation Service, Sugar Statistics and Related Data, Statistical Bulletin 293, Feb. 1970, pp. 144-45.

Figure 5. Determination of the price differential and the appropriability of the quota rent

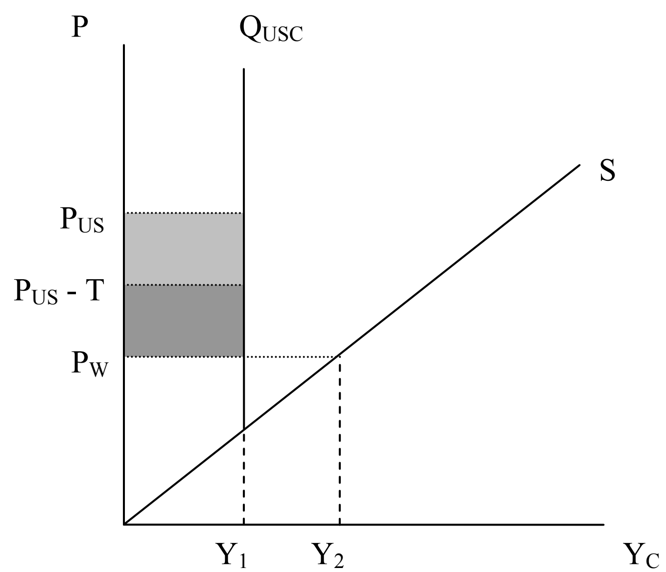


Table 6.

Legislation	Legislative Guidance for Consumption Requirements
1934	Determine using available USDA statistics, with the goal of raising the price of sugar to reestablish the relative purchasing power that farmers had in 1909-1914, while having "due regard to the welfare of domestic consumers and to a just relation between the prices received by domestic producers and the prices paid by domestic consumers."
1937	Determine using as a basis the quantity of refined sugar distributed during the year ending Oct. 31, 1937, and each succeeding year, making allowances so that quotas "shall not result in excessive prices to consumers, so that the average prices are not greater than that necessary to "maintain the domestic sugar industry as a whole," and "in no event" will U.S. per capita consumption be lower than that of the average 1935-1936.
1948 & 1951	Determine using as a basis the quantity of refined sugar distributed during the year ending Oct. 31, 1947, and each succeeding year, making allowances so prices "will not be excessive to consumers" and "which will fairly and equitably maintain and protect the welfare of the domestic sugar industry." Factors to consider include consumption, inventory, population, demand, the level and trend of consumer purchasing power, and the price of sugar relative to other goods in the U.S. in 1947 prior to the termination of price controls.
1956	Same as in 1948/1951 except that the relative price of sugar in 1947-1949 rather than in 1947 prior to the termination of price controls.

Sources: Libecap, p. 190, Public Law No. 213 of May 9, 1934 (Jones-Costigan); Public Law 414 of September 1, 1937; Public Law 388 of August 8, 1947; Public Law 140 of September 1, 1951; Public Law 545 of May 29, 1956.

Figure 6
Cuba and U.S. Sugar Quotas, 1934-1941

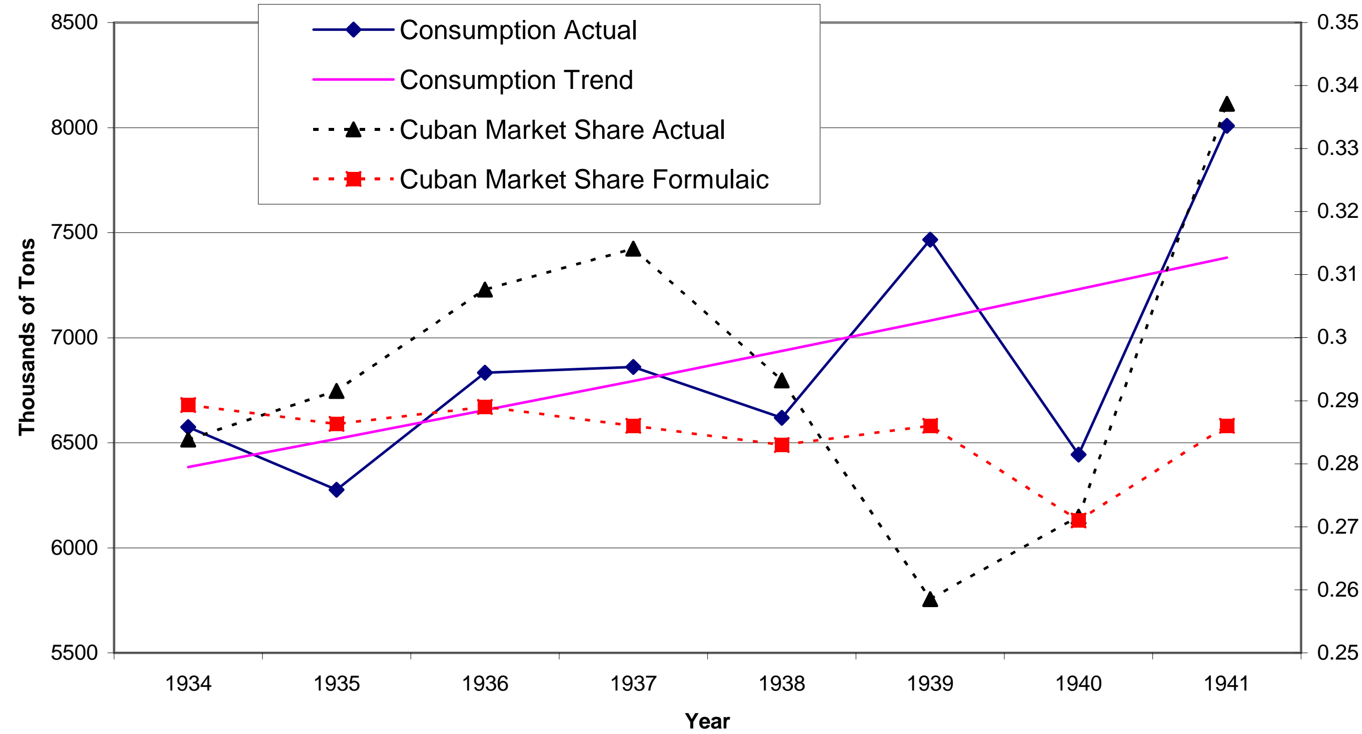
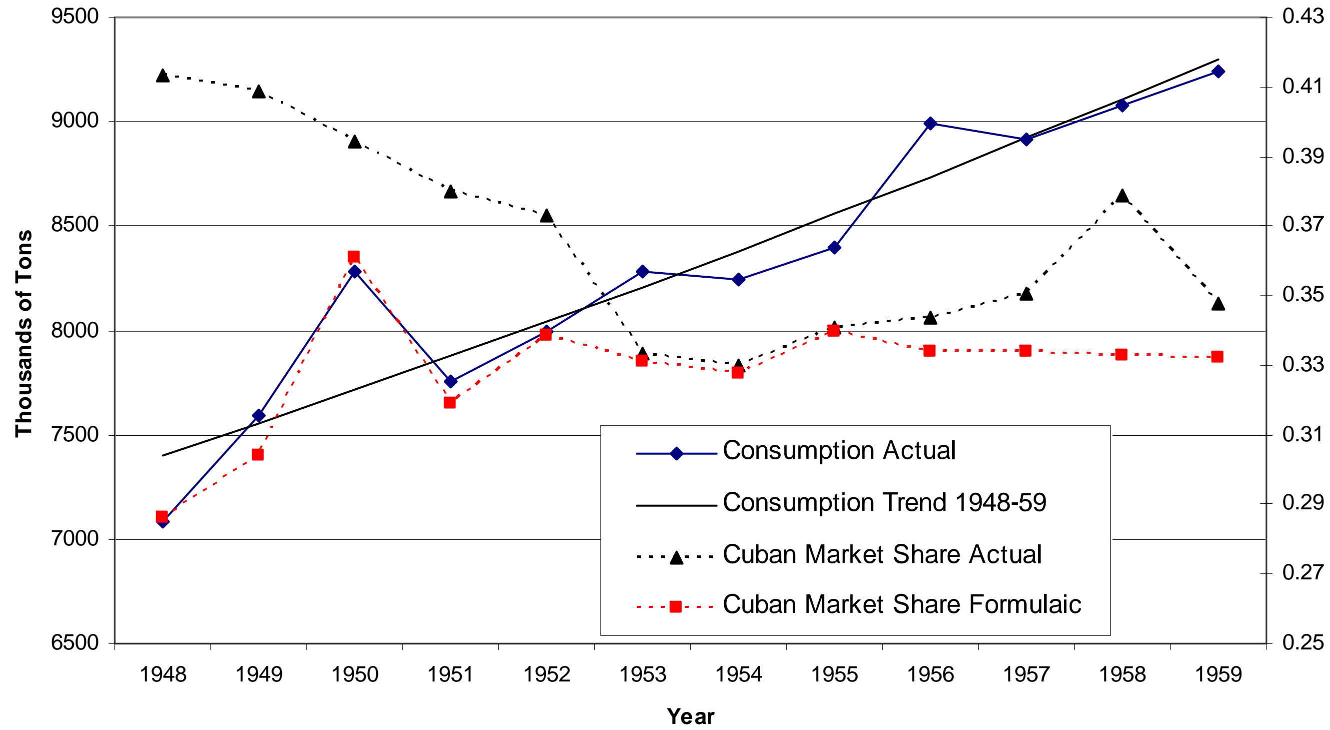


Figure 7
Cuba and U.S. Sugar Quotas, 1948-59



Endnotes

[1] The Philippine Independence Act of March 24, 1934 promised the Philippines political independence within ten years. The Philippines became independent July 4, 1946. The Philippine Trade Act of July 2, 1946, granted promised the Philippines a sugar quota of 980 thousand tons, and no import duty until 1954, after which the duty would be gradually increased until it reached the full duty. Before the duty increase could come into effect, the U.S. Congress suspended it pending the outcome of trade negotiations. In 1955, a bilateral agreement revised the Trade Act, maintaining the same Philippine sugar quota, but making a gradually increasing portion of it subject to a gradually increasing duty until the entire quota would be subject to the full duty in 1974.

[2] Looking more closely, among the mainland and insular-possession supplier areas, only Louisiana had suffered a significant decline in its market, but it saw a remarkable recovery in 1933. This was explained by two factors. First, Louisiana sugarcane had been infected by mosaic disease, which had severely reduced its yields until the stock was replaced with mosaic resistant cane varieties imported from Java. Those investments were being completed in the early 1930s. Then a hurricane hit Louisiana in 1932 and wiped out much of its cane for that year. The recovery in 1933 was an extraordinary bumper crop (Dalton 1937).

[3] Eighty percent or more of Cuba's exports consisted of sugar, and more than half of it was exported to the United States. Its ability to substitute out of the U.S. sugar market was limited by widespread protection of sugar worldwide. A further constraint was instituted in 1931, when Cuba became a signatory (and leading advocate) of the International Sugar Agreement (ISA) of 1931, a private cartel, that had implemented export quotas to try to stabilize the price of sugar on the depressed world market (Dye and Sicotte, 2006). The Cuban government had already instituted sugar controls for its own producers, and regulated the volume of sales going to the US, non-US, and home markets At the time the sugar law of 1934 was being deliberated, a one-ton expected reduction in Cuban exports to the United States would have to be answered with a one-ton reduction in sugar production.

[4] Contrary to what many have presumed, the tariff increase was not a reaction to the stock market crash or subsequent events associated with the Great Depression. Though the law went into effect in June of 1930, the sugar tariff had been virtually decided by the fall of 1929, before crash in October 1929. Furthermore, studies of the political economy of Hawley-Smoot show conclusively that the tariff law would have passed even if the Depression had not occurred. Dye and Sicotte (2001), Irwin and Kroszner, Eichengreen, Pastor.

[5] USTC letters.

[6] Figures are from Cuba, Sec. de Agricultura, *Memoria Azucarera*, Willett and Gray's *Weekly Statistical Sugar Trade Journal* and Farr's *Manual of Sugar Companies*.

[7] The Tariff Commission had also considered a sliding scale of sugar duties depending on the price of sugar, or a countervailing duty against Cuban dumping. The Commission rejected these alternatives because they were subject to the same shortcomings as the tariff – they could not prevent a flood of sugar from Puerto Rico and the Philippines, and they would tend to further depress factor prices in Cuba. USTC Memo, April 6, 1933.

[8] Foreign Policy Reports, September 27, 1933, p. 169. Estimates of production were taken from Willett and Gray's Weekly Statistical Trade Journal, the leading trade periodical. See Dalton, p. 80, for slightly different estimates. Memorandum by Lawrence Duggan, July 19, 1933, "The Sugar Conference in Washington." USNA RG59, 811.6135/22. Letter from John Lee Coulter to Charles Brand, Coadministrator of the AAA, July 21, 1933, USNA RG59 811.6135/23. From the Cuban perspective, see the memoranda of their delegation in ANC ICEA Legajo 1498 No. 2, f. "Washington Conference 1933," and the correspondence between Aurelio Portuondo, a member of the Cuban delegation, and Manuel Rionda, in BB RG2 Ser10c Box 98 f. "Sugar 1933 – Chadbourne Committee – Correspondence with Aurelio Portuondo." Other foreign countries were given only a 17,000 ton quota in 1934, about 1/4 of one percent of the U.S. market, despite petitions from their governments for more generous consideration. See, for example, the letter from Peruvian Ambassador de Freyre to Secretary of State Cordell Hull, August 20, 1933. USNA RG 59, 811.6135/33, and Memorandum of Conversation between U.S. State Department Economic Advisor Beaulac and John Lee Coulter, August 23, 1933, USNA RG59 811.6135/39.

[9] USNA RG59 811.6135/77. Memorandum by Lawrence Duggan dated September 27, 1933, "Observations on the Sugar Marketing Agreement."

[10] New York Times, September 26, 1933.

[11] Memorandum of conversation with A.J.S. Weaver, Chief Sugar Section, Dr. Joshua Bernhardt, USDA, Herbert Feis, Economic Advisor of the State Department, and Lawrence Duggan Chief Latin American Division of the State Department, December 16, 1933. USNA RG59, 811.6135/91.
[12] The President's message to Congress is reprinted in the *New York Times*, February 9, 1934, p. 12.
[13] This reduced Hawaii's quota by about 4 percent relative to what it would have received if the Secretary had used the same years as the others for its standard.
[14] The President's message to Congress is reprinted in *the New York Times*, March 2, 1937, pp. 29, 38.
[15] The Philippine Independence Act called for minimum imports of 50,000 long tons of refined sugar and 800,000 long tons of raw sugar. The text of the law was downloaded July 30, 2006, from http://www.chanrobles.com/tydingsmcduffieact.htm.
[16] Note that within each supplier area, the quota is further sub-divided to individual production and/or marketing units. For domestic areas, the further sub-division was under the purview of the U.S.D.A. Foreign countries established their own mechanisms for distributing their quota for the U.S. market.
[17] Note that because the Cuba's quota, Q_{USC}, is binding and the world price is sufficiently high in the diagram, Cuba will export an amount ($Y_2 - Y_1$) to the world market in addition to meeting it U.S. quota.
[18] Of course, the all else equal or "ceteris paribus" assumption would almost surely not hold. First, because the U.S. is such a large market for sugar, its consumption requirements affected the world price. Second, the size of the Cuban quota in the U.S., Q_{USC}, affected the world price because Cuba was such an important player in the world sugar market. Similarly, large increases in world demand resulting in a much higher world price could render the U.S. quota system non-binding.
[19] Statistical evidence that confirms this inference is in Cuba, Sec. de Agricultura, Comercio y Trabajo, *Memoria de la zafra*, annual.
[20] Archivo Nacional de Cuba, Fondo ICEA.
[21] Testimony of Frank Kemp, Executive Committee Chairman, Sugar Beet Industry Policy Committee and President of Great Western Sugar Co., Hearings of the Committee on Agriculture (1955), p. 181.
[22] Testimony of Wilbur Glenn, President of the Nehi Corp., Hearings of the Committee on Agriculture (1955), p. 487.
[23] Statement of Laurence Crosby, President of Cuban Atlantic Sugar Co., and Chairman of the United States Cuban Sugar Council, in Hearing of the Committee on Agriculture (1955), p. 418. See also letter from H. Freeman Matthews (U.S. Embassy Havana) to Secretary of State, February 12, 1934, USNA RG59, 811.6135/112; Memorandum "Sugar: Estimated Advantages of the Sugar Plan to Cuba," Department of State Office of the Economic Advisor, May 1933, USNA RG59 811.6135/142; International Sugar Council Document C.D. 253/V, June 1933. BB RG2 Ser10c Box98 f. "Sugar 1933 – Chadbourne Committee – Correspondence with Aurelio Portuondo." The latter states bluntly, "It is not an exaggeration that Cuba will be commercially exterminated unless this situation is corrected." Memorandum of the Cuban Delegation to John Lee Coulter, July 3, 1933, states that a quota plan is "the only remedy for the Cuban situation." BB RG2 Ser10c Box98 f. "Sugar 1933 – Chadbourne Committee – Correspondence with Aurelio Portuondo."
[24] *El Mundo*, September 3, 1937, in letter from Coert du Bois, American Consul General, to the Secretary of State, September 18, 1937. USNA RG59, 811.6135/390.
[25] *Cuba Económica y Financiera*, June 1956, p. 43; Diplomatic note from the Cuban Ambassador in Washington to the U.S. Secretary of State, June 8, 1956; USNA RG59 811.235-6-856.