

CUBA'S SUGAR INDUSTRY IN THE 1990s: POTENTIAL EXPORTS TO THE U.S. AND WORLD MARKETS

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THE CUBAN SUGAR INDUSTRY

Economic Importance

There is an extensive literature on the Cuban sugar industry in the island and abroad. The reason is obvious: sugarcane has been, and continues to be, the dominant crop in Cuba's economy, and sugar the main source of foreign exchange. Data published by the Cuban government portray the sugar industry as the source of employment for almost 400,000 persons who, with their families, make up perhaps one-sixth of the Cuban population. It also accounts for about one-third of the total means of production used in Cuban industry. Sugar represents 80% of the value of Cuban exports and the industry as a whole contributes 10% to Cuba's Global Social Product (Feuer, 1987, p. 69, from Comité Estatal de Estadísticas).

The Production, Processing, and Marketing Sectors

The production sector has been expanding in the last three decades. In the early 1960s, area harvested fluctuated around one million hectares and maximum total production reached 50 million metric tons of sugarcane. Today, production of sugarcane takes place on approximately 1.35 million hectares yielding about 53 metric tons of cane for a total production of over 70 million metric tons. Although state farms account for about 83% of the area harvested, their yields are slightly lower than those of private farms. The trend toward mechanization started in the 1960s has continued. Almost all loading has been done with machines since 1970 and mechanical harvesting increased from 25% in 1975 to 45% in 1980 and to 67% in the 1988-89 season.

The processing sector of the sugar industry, despite an stable number of industrial facilities, has also experienced dramatic changes during the last 30 years. When the revolution took power on January 1959, the sugar industry consisted of 161 raw sugar factories, 16 refineries, over 20 distilleries producing alcohol and some press board and paper factories using bagasse as raw material (David, 1983, p. 100). The entire sugar industry was expropriated in 1959-60. Today, all sugar mills and sugar refineries are owned by the State and managed by the Ministry of the Sugar Industry (MINAZ). There are 156 raw sugar mills throughout the 14 provinces and 16 refineries in nine provinces.

Cane milled per day has increased from around 489,000 metric tons in the 1960s (somewhat below the figures in the 1950s), to 529,000 metric tons in the 1970s, and to around 619,000 metric tons in the 1980s. The effective milling season, however, has lengthened by more than three weeks.

Statistics on raw sugar production, industrial yield (recovery rate), and polarization illustrate the industry's performance in the last four decades (Table 1).

Table 1. Selected statistics for the Cuban sugar industry, by decade, 1950s-1980s.

Decade	Production million metric tons	Recovery rate Percent	Polarization Degrees
1950s	5.63	12.85	97.20
1960s	5.52	12.10	97.65
1970s	6.24	11.30	97.70
1980s	7.65	10.81	98.22

Source: Calculated from Comité Estatal de Estadísticas (various issues).

The average data per decade show a slight decline in total sugar production from the 1950s to the 1960s and an increase thereafter. The average recovery rate has decreased since the 1950s. Polarization, however, has been increasing in the last three decades.

Despite heavy capital investments made to renovate and modernize some industrial facilities, "the industry is still characterized by a significant number of small, inefficient operations. About two-thirds of the mills have a daily grinding capacity of 4,000 tons or less and over 85 percent were built prior to 1913" (Buzzanell and Alonso, 1989, p. 22).

Sugar marketing is also under the control of the State. The domestic rationed quotas are distributed through the Ministry of Internal Trade (MINCIN), while CUBAZUCAR is the agency in charge of negotiating and marketing foreign sales.

U.S. - Cuba Sugar Relations Until 1960

Prior to the revolution of 1959, the United States and Cuba had been major trading partners and sugar was Cuba's most important export to the United States. Until 1960, Cuba provided over one-third of the total U.S. sugar requirements, playing the role of an "ever-normal granary" for U.S. sugar needs. One aspect of the preferential treatment it received in return is contained in the Sugar Act of 1948, which allocated to Cuba an import quota equivalent to 98.64% of the difference between U.S. consumption requirements and the sum of the fixed tonnage quotas for the domestic areas and the Philippines, with the remaining 1.36% going to other foreign countries. This arrangement allocated substantially all of the increases in U.S. consumption requirements to Cuba. The 1951 amendment to the Sugar Act set Cuba's share at 96%. The 1956 amendment enabled domestic producers to participate in the growth of the U.S. market; i.e., any growth in U.S. consumption beyond 8.35 million short tons was shared 55% by domestic areas and 45% by foreign areas. The July 1960 amendment provided for presidential actions under which sugar import quotas from Cuba were suspended. Explicit in the legislation was the intention of restoring Cuba's quota at the time of its return to the free world. The Cuban sugar quota was allocated to domestic areas and foreign countries (Bates, 1968, p. 522).

The 1962 and 1965 amendments to the Sugar Act reallocated the Cuban sugar quota (Table 2). The 1965 amendment distributed the 50 percent Cuban share of the U.S. sugar requirements (remaining over the allocations to domestic sources, the Philippines, and other exceptions) on a pro-rata basis to other quota-holding countries. Not included in that quota, however, was Cuba's share arising from consumption requirements in excess of 10 million short tons, which would be prorated among members of the Organization of American States (Bates, 1968, p. 524).

Past and Emerging Trading Patterns of Cuban Sugar

Cuban exports of sugar to the United States amounted to 2.94 million tons in 1959. Until July 1960, when the Cuban quota was suspended, Cuba had exported 1.95 million tons of sugar to the United States. In July 1960, the Soviet Union rapidly announced its readiness to purchase the former U.S. Cuban sugar quota. Cuba, who had sold over 50% of its sugar exports to United States for many years, redirected its sugar exports to the Soviet Union, China, and Eastern European countries (Table 3). In 1959, only 5.5% of the 4.95 million tons exported went to the U.S.S.R., while the remaining 94.5% was exported to other countries, including the United States. Those figures changed dramatically in 1960 when Cuba sent 28.1% of its sugar exports to the U.S.S.R., 8.5% to China, 4.1% to Eastern Europe, and 59.3% to other countries. By 1965, the U.S.S.R. was purchasing 46.2% of Cuban sugar exports while other countries (not including China and Eastern Europe, with 7.5% and 12.7%, respectively) imported only 33.6% of the total.

That allocation, with some minor shifts, remained essentially unchanged until the late 1980s. The collapse of socialism in the countries of Eastern Europe, and the economic and social reforms that led to the demise of the Soviet Union at the end of 1991, initiated a new phase in the direction of Cuban sugar

exports.

THE FUTURE OF CUBAN SUGAR EXPORTS

Forecasting the future direction of Cuban sugar exports is not an easy task. Politics played the major role in the redirection of Cuban sugar trade that took place in the early 1960s (Alvarez, 1978), and continued to do so afterwards. However, it is possible to describe potential scenarios for the 1990s by looking at the current status of the Cuban sugar industry, the new trend of Cuban sugar exports developing since the late 1980s, and the legal and political environment of U.S.-Cuba future relations.

Status of the Cuban Sugar Industry Until the 1990-91 Crop

Before analyzing Cuba's sugar producing and exporting capabilities in the 1990s, one has to go beyond the summary provided at the beginning of this paper. Indicators of the industry from the last four decades provide the basis for a more thorough description (Table 4).

During the 1950s, Cuba milled an average of 43.9 million metric tons of sugarcane (not all the production was milled) at a rate of 507,000 metric tons per day to produce 5.63 million metric tons of sugar with a recovery rate of 12.85% and 97.2° polarization in 86.8 days. The precise role of sugar in the pre-revolutionary economy, according to Thomas (1971, p. 1152) is elusive. The sugar sector accounted for 28-29% of the national income figures during the period 1949-58, declining to about 25% in 1957-58 (Pérez-López, 1989, p. 1631). The national income figures, however, do not show the extent to which the whole economy depended on exports; and exports did depend on sugar. In the 40 years before Batista's overthrow in January 1959, sugar accounted for 82% of Cuban exports (Thomas, 1971, p. 1152). That figure did not change during the 1959-88 period (Pérez-López, 1989; 1991a, p. 32).

At the outset of the 1959 revolution, the Cuban leadership blamed the sugar industry as the major determinant of underdevelopment in the island. As the result of this campaign, the adequate care of sugarcane fields was abandoned and some fields were turned over to other agricultural production. The data in Table 4 reflect the consequences of that policy. In the 1960s, excluding the 1969-70 season, the average of all indicators dropped: sugarcane production fell to 42.31 million metric tons, cane milled per day decreased to 483,000 million metric tons, and sugar production averaged 5.19 million metric tons. The 1969-70 sugar season was a turning point in Cuban sugar policy. After 10 years of neglect, Castro himself declared that sugar was the backbone of the economy and challenged his people to produce 10 million tons of sugar. Although a record crop of 8.54 million metric tons was produced, the harvest lasted 217 days (143 days of actual grinding), robbed sugarcane from upcoming crops, and inflicted staggering costs to the rest of the economy.

Data from the 1970s and 1980s reflect the increased attention given to the sugar industry after the failure of the 1970 campaign. Average sugarcane production increased to 55.27 and 70.24 million metric tons in the 1970s and 1980s, respectively; milling rates increased to 530,000 in the 1970s and to 639,000 metric tons per day in the 1980s; and sugar production increased to 6.24 and 7.65 million metric tons in the 1970s and 1980s, respectively. Different trends are observed for recovery rate (decreasing) and polarization (increasing) in both decades. The average length of the season has also increased in both decades, to 103.7 days in the 1970s and to 110.2 days in the 1980s.

Before analyzing the new trends of Cuban sugar exports, it is important to evaluate the ability of the Cuban sugar industry to maintain production at the levels achieved during the 1980s. Recall that the Cuban sugar industry is characterized by the lack of modern facilities and equipment which places some constraints at the processing level. Because hard currency shortages make it almost impossible to import parts, equipment, and additional oil, the total daily grinding capacity of 656,500 tons of the 1988-89 season will hardly be surpassed in the short-run. In the best possible scenario, Cuba could produce again the 8.12 million metric tons of sugar shown for the 1988-89 season. To maintain that level of output, the 75 million tons of sugarcane would have to show a recovery of 10.89% (average of the 1980s) with a mill efficiency of 85%. In the production sector, lack of hard currency to purchase fertilizer, oil and other

inputs is impacting the industry's ability to maintain production at previous levels. Furthermore, the need to conduct business at world market prices has brought severe difficulties to Cuba. With respect to those difficulties, and referring to the 1990-91 Cuban sugar output, one publication stated:

It is surprising that this has not already been reflected in production but assuredly as conditions deteriorate further as they must unless from some unlikely source there is a substantial injection of hard currency, it will become increasingly difficult for Cuba to maintain the current or recent level of output (Licht, July 1991, p. 342).

The 1991-92 Sugar Crop

Conditions did, in fact, deteriorate during the 1991-92 sugar campaign. Castro himself stated that, because of fertilizer shortages from the U.S.S.R., a large amount of the sugarcane for the 1991-92 season did not receive any fertilizer (El Nuevo Herald, Nov. 26, 1991, p. 3A). The 1991-92 harvest, normally underway by mid-November, did not start until mid-January amidst speculations about how much the current crop could drop below the 1990-91 output of 7.6 million metric tons.

No other official news concerning the 1991-92 crop was available until January 26, 1992. In an interview in the weekly **Juventud Rebelde**, Politburo member Carlos Lage acknowledged that it would be impossible to "even get close" to the 7.5 million metric tons they had hoped for. He also stated that, in addition to the late start and lack of adequate fertilization, the "material difficulties" from which the current crop would continue to suffer included: (a) poor maintenance and repairs of machinery during the off-season due to shortages of spare parts; (b) breakdown in the sugar transportation system; and (c) lack of fuel for field and mill operations.

Sugar traders and statisticians began lowering their projections about the volume of the 1991-92 Cuban crop. Despite the total blackout on news from the island, there seemed to be a consensus that even a 6.5 million metric tons might turn out to be substantially high and 5.0 million, although rather improbable, could no longer be dismissed out of hand (Sociedad Económica, 1992a, p. 1; Hagelberg, 1992; Rivero, 1992). The progressive downward adjustments continued in early April when the United States Department of Agriculture lowered its December forecast of 7.3 million metric tons to 6.0 million in its March release.

Also in April, two new pieces of information came out of Cuba. The first was given by Castro in his speech to the VI Congress of the League of Communist Youth on April 4. Breaking an unusual ten-weeks silence, Castro used the term "tense" to describe the current harvest, reiterated its delay, and blamed it on lack of fuel, fertilizer and spare parts. The second was contained in an interview to Juan Varela Pérez, **Granma's** sugar correspondent, in **Radio Progreso** on April 14. He stated that the tense harvest was already suffering from unusual early heavy rains and that most of the standing canes were located in the key provinces of Ciego de Avila, Camagüey and Las Tunas, which had always performed well in previous seasons. These provinces, according to official 1988-89 figures, by volume of cane, were respectively the first, third and fifth largest producers of the 14-cane producing provinces in the country, accounting for 33% of total cane volume.

The official recognition that the harvest was not in full swing at the beginning of the month in which it was supposed to end revealed a state of affairs worse than anticipated. It appeared that a further downward adjustment in Cuba's total sugar output was in order. La Sociedad Económica (1992b) did that for the following reasons: (a) the time lost was longer than just the eight weeks from mid-November to mid-January reported before; (b) extending the harvest into the rainy months of May through July would exacerbate transportation difficulties; milling operations would consequently be affected by the sporadic flow of cane, and sugar yields would be reduced due to the deterioration of harvested, pre-milled cane; and (c) an extended harvest into the rainy season is also very energy expensive. Although meeting this cost was possible in the recent past, present fuel shortages would work against the feasibility of an extended harvest in the current season.

The new projection by Sociedad Económica on April 20 was stated in the following way:

La Sociedad Económica estimates a final 1991/92 sugar crop of between 5 mmt and 5.55 mmt. By comparison, reported total output from 1989/90 and 1990/91 were 8.1 and 7.6 mmt, respectively. However, some members of La Sociedad Económica "Sugar Section" believe that even a final 1991/92 crop of 5 mmt is optimistic, and the possibility that Cuba will over-report its final crop cannot be ruled out (1992b, p. 2).

More information became available in early May. The first was made public at the end of an international conference of sugar specialists, to celebrate CUBAZUCAR's 30th anniversary and a meeting of GEPLACEA, held in Havana on May 5-7. When Juan Herrera Machado, Cuban Minister of the Sugar Industry, was asked at a press conference about the final output of the present Cuban sugar crop, he responded "we don't even know that yet". When pressed further he stated that, by placing it at between 5.5 and 7 million tons, he "wouldn't be in contradiction with any of the great estimators, those who compute, those who forecast" (El Nuevo Herald, May 9, 1992, p. 3A). The second news was provided by Sergei Barykin, president of PRODINTORG, when he announced in Havana that, as of June 1st., Russia would not need any more Cuban sugar for the remainder of 1992, and, consequently, would not ship any more oil to the island (El Nuevo Herald, May 8, 1992, pp. 1A, 4A). In addition to disruptions in the marketing of the current crop, that decision has important implications for the feasibility of this extended harvest. More drastic cuts in oil supplies will force the Cuban government to either use oil assigned to other purposes or minimize its efforts on sugarcane harvesting and processing during the final months of the 1991-92 sugar campaign.

The earthquakes felt in the eastern provinces during the month of June added more problems to the final phase of an already tense harvest. Although the official news contained no details of the damages to the sugar industry, it is not hard to believe that the industry suffered further disruptions on harvesting, loading, hauling and even milling operations as the result of damages to cane fields, roads, railroads, and mill equipment.

To complicate things further, heavy rains fell throughout the island during June 23-27. The harvest was temporarily suspended in the few eastern provinces that had not finished it. Politburo member Pedro Ross Leal used **Radio Rebelde** to request a final effort from Cubans working on the sugar campaign (Alfonso, 1992).

In mid-July, with some operations still underway, long and severe electricity blackouts were felt throughout the island. Again, no official news on damages or disruptions to the sugar campaign were made available although the breaking of a major power line that furnishes electricity to the central and eastern provinces must have disrupted milling operations.

On July 19, S. Diatchkov, associate director of the Latin American Division of the Russian Committee on Foreign Economic Relations, stated in Moscow that the last shipments of Russian oil and Cuban sugar for 1992 had reached their destinations. He went on to say that Russia does not have enough oil to export and is buying some sugar from Western Europe (Gluck, 1992).

When all the above factors are combined, the lowest end of the production range provided by Minister Herrera (5.5 million metric tons) has to become the highest end when forecasting Cuba's potential sugar production for the near future for two reasons. First, there seems to be no solution in sight for Cuba's current shortages of fuel, fertilizer, other inputs and spare parts. Second, the devastating effects of the 1991-92 season will impact on the performance of both fields and factories in future crops.

New Export Trends Since the Early 1990s

For the reasons explained in a previous section of this paper, Cuban sugar exports began to experience a new reallocation in the early 1990s (Table 5). Since the early 1960s, the U.S.S.R. was the largest importer of Cuban sugar. In the 1980s, Cuban deliveries averaged below the four million tons specified in Cuba's contract with the former Soviet Union. The drastic changes in trade relations between Cuba and Russia during 1992 indicate that the 56.7% of Cuban sugar exports purchased by the former Soviet

Union in 1991 has become history.

Eastern Europe is a lost outlet for Cuban sugar. For political (more than economic) reasons, these countries imported substantial amounts of Cuban sugar for the past 30 years. The amounts represented more than one million tons, or between 14.7 and 16.7% of total Cuban sugar exports until 1989. The figures fell to over 615,000 tons in 1990 and to 68,000 tons in 1991 when they represented only 1% of total Cuban sugar exports (Table 5).

Asia and Oceania, which include several socialist countries, have been purchasing over one million metric tons of Cuban sugar for the past several years. The countries in these areas accounted for 19% of Cuban sugar exports in 1991 (Table 5).

The Middle East and Africa show slight increases in Cuban sugar imports for 1990 and 1991 when compared with the 1980s. These purchases now represent 11% of total Cuban sugar exports (Table 5).

Countries in the Western Hemisphere have also increased their purchases of Cuban sugar in the first two years of the 1990s. The main buyers include Canada, Venezuela and Mexico.

Western Europe is not an important client of Cuban sugar. The 213,000 tons imported in 1991 have been the highest amount in many years but represented only 3% of total Cuban sugar exports (Table 5).

The 1992 Sugar Trade Agreements

Cuba's trade agreements for 1992 parallel the disastrous projections of sugar output in the current season. La Sociedad Económica (1992b, p. 2) assumes a maximum of 5.0 million metric tons. Other sugar analysts estimate Cuban sugar exports for 1992 at 4.5 million metric tons, compared with average annual worldwide exports of 7.1 million metric tons in 1988-90 (Hagelberg, 1992). The country breakdown, from early 1992 agreements with CIS and other countries and past sales, would be as follows:

CIS	1,500,000
China	900,000
Other countries. . .	1,600,000
Miscellaneous sales .	<u>500,000</u>
Total	4,500,000

The 4.5 or 5.0 million metric tons could very well represent maximum figures in the immediate future and are likely to decrease for three reasons. First, Cuba's Far Eastern markets are threatened by cheaper freight rates for sugar from Thailand and Australia. Second, the North African markets face competition from subsidized European exports of refined sugar (La Sociedad Económica, 1992a, p. 2). Finally, the current economic changes in the CIS countries will decrease the demand for Cuban sugar in the future. For example, Russia's decision to cancel the final phase of their 1992 sugar trade agreement with Cuba, which has reduced the CIS figure by 500,000 tons in 1992, was based on oil shortages and sugar purchases from the European Community.

U.S.-Cuba Future Relations

Future relations between Cuba and the United States will have a significant influence on Cuba's sugar industry and sugar exports. There are two possible scenarios: U.S. trade with Castro's Cuba and with a post Castro Cuba.

Based on the numerous statements made by President Bush against Castro and his regime, the first scenario would seem unlikely (although not impossible) to occur under the current Administration. Smith and Morales (1988), however, have outlined major areas of disagreement between their two countries while advocating negotiations rather than continued confrontation.

Under the second scenario the United States would recognize a post Castro government in a democratic Cuba and re-establish diplomatic and commercial relations with Cuba.

Although the two scenarios would bring about different trade relations between the two countries, there is no doubt that Cuban sugar would be a topic of major importance under both scenarios. The former

Cuban sugar quota, although temporarily suspended in 1960, has disappeared as a result of decreasing imports brought about by expanded domestic production in the United States and shifts to less expensive substitutes caloric sweeteners like high fructose corn syrup. The three million tons average that Cuba exported to the United States in 1958 and 1959 represent twice the amount of total U.S. import requirements for 1991-92. Table 2 shows the reallocation of the Cuban quota in 1962 and 1965. Table 6 contains quota allocations for 1990-91 and 1991-92. The number of quota-holding countries, excluding Cuba, has increased from 21 in 1962 to 29 in 1965, and to 40 in 1991. Relative shares have also changed. However, it is interesting to note that, in previous cases similar to Cuba's, the U.S. Congress has reinstated sugar quotas withheld for political reasons. That was the case of Nicaragua, after the defeat of the Sandinista Government, and of South Africa as recent as 1991-92. Since sugar exports are the main source of Cuban foreign exchange, it is not unlikely that some type of provision may need to be made by the U.S. Congress for sugar imports from Cuba. Leaving the solution to politicians, let us take a look at the potential amounts of Cuban sugar that could become available for the U.S. and other markets.

Potential Surpluses of Cuban Sugar

The preceding analyses on Cuba's producing and exporting capabilities allow the projection of different levels of surpluses of Cuban sugar in the immediate future and the remainder of the decade (Table 7). As discussed above, current forecasts for the 1991-92 harvest fall between 5.0 and 5.5 million metric tons with the possibility of lower outputs in the current and following years. For that reason, potential production ranges from a low 4.0 to a high 5.5 million metric tons. After deducting 900,000 tons for direct consumption and industrial use (allowing for a minor increase from the 810,000 tons average of the 1985-89 period computed from data shown in Pérez-López (1991a, p. 27)), potential amounts available for exporting range from 3.1 to 4.6 million metric tons. Finally, 1992 export projections amount to 4.5 or 5.0 million tons with potential decreases after 1992.

The third row in Table 7 highlights the likely outcomes from different production levels in 1992 with exports assumed at 4.5 million tons. The figures do not take into account changes in stocks or increases in production and decreases in consumption in the importing countries. If the most optimistic production figure of 5.5 million metric tons is achieved, Cuba will have a surplus of about 100,000 metric tons of sugar in 1992. In the following years, assuming additional losses in export markets and unless the crop reaches catastrophic proportions, higher surpluses are plausible. For example, Timm (1992) reported in late July 1992 that traditional buyers of Cuban sugar, from Japan to CIS countries, are turning to Thailand to solve their sugar needs. Uncertainty about future Cuban supplies are also forcing South Korea, Malaysia, and Iran to consider purchasing Thai sugar. These trade agreements will inflict severe damage to Cuba's future exporting capabilities.

There seem to be three courses of action for the Cuban government. First, Cuba could take away markets from other exporters by exercising the option of selling at a discount from world prices; but, as a sugar analyst has stated, "one difficulty is that in competing for significant Asian outlets against more closely located suppliers, Cuba operates under the disadvantage of higher transportation costs" (Hagelberg, 1992, p. 2). The second alternative would come about as the result of a successful agreement in the Uruguay Round of negotiations under GATT. This scenario, under which Cuban sugar would compete in a free world market, however, would take several years to materialize. The last alternative is access to the U.S. market. As discussed in the previous publication (Alvarez, 1992a; 1992b), and recognizing that some type of provision may need to be made by the U.S. Congress for sugar imports from a democratic Cuba, there is no reason to believe that the U.S. market can absorb Cuban sugar surpluses of around 1 million metric tons.

Table 2. Reallocation of the Cuban sugar quota among foreign countries in the 1962 and 1965 amendments to the Sugar Act of 1948.a

1965 Amendment

1962 With Cuban share

Country Amendment share reallocatedb

----- -Percent- -----

In Western Hemisphere		
Cuba	57.77	50.00 --
Mexico	6.71	7.73 15.46
Dominican Republic	6.71	7.56 15.12
Brazil	6.37	7.56 15.12
Peru	6.71	6.03 12.06
British West Indies	3.19	3.02 6.04
Ecuador	0.88	1.10 2.20
French West Indies	1.06	0.95 1.90
Argentina --	0.93	1.86
Costa Rica	0.88	0.89 1.78
Nicaragua	0.88	0.89 1.78
Colombia --	0.80	1.60
Guatemala	0.71	0.75 1.50
Panama	0.53	0.56 1.12
El Salvador	0.36	0.55 1.10
Haiti	0.71	0.42 0.84
Venezuela --	0.38	0.76
British Honduras	0.35	0.22 0.44
Bolivia --	0.09	0.18
Honduras --	0.09	0.18
Paraguay	0.35	-- --
Outside Western Hemisphere		
Australia	1.41	3.60 7.20
Republic of China	1.24	1.50 3.00
India	0.71	1.44 2.88
South Africa	0.71	1.06 2.12
Fiji	0.35	0.79 1.58
Thailand --	0.33	0.66
Mauritius --	0.33	0.66
Malagasy Republic --	0.17	0.34
Swaziland --	0.13	0.26
Southern Rhodesia --	0.13	0.26
Netherlands	0.35	-- --

aQuotas represent relative shares of U.S. sugar requirements remaining over the allocations to domestic sources, the Philippines, and other exceptions as stated in each amendment.

bAssuming U.S. consumption requirements of not over 10 million short tons.

Sources: U.S. Congress and U.S. Senate Reports as they appear in Bates (1968, p. 525).

Table 3. Cuban sugar exports by trading partners, selected years, 1959-91.

Percent of
Eastern Other Eastern Other

Year USSR China Europe countries Total USSR China Europe countries

--- Million metric tons, raw value - - - - - Percent - - - - -

1959	0.27	0.00	0.00	4.68	4.95	5.5	0.0	0.0	94.5
1960	1.58	.48	.23	3.34	5.63	28.1	8.5	4.1	59.3
1965	2.46	.40	.67	1.79	5.32	46.2	7.5	12.7	33.6
1970	3.11	.53	.96	2.31	6.91	45.0	7.7	13.9	33.4
1975	3.19	.18	.58	1.79	5.74	55.6	3.1	10.1	31.2
1976	3.04	.25	.94	1.53	5.76	52.8	4.3	16.3	26.6
1977	3.79	.23	.64	1.58	6.24	60.7	3.7	10.3	25.3
1978	3.94	.53	.61	2.15	7.23	54.5	7.3	8.4	29.8
1979	3.84	.49	.74	2.20	7.27	52.8	6.7	10.2	30.3
1980	2.73	.51	.69	2.26	6.19	44.1	8.2	11.2	36.5
1981	3.20	.57	.91	2.39	7.07	45.3	8.0	12.9	33.8
1982	4.43	.92	.80	1.58	7.73	57.3	11.9	10.4	20.4
1983	3.31	.77	1.00	1.71	6.79	48.8	11.3	14.7	25.2
1984	3.65	.71	1.17	1.49	7.02	52.0	10.1	16.7	21.2
1985	3.71	.68	1.03	1.79	7.21	51.5	9.4	14.3	24.8
1986	4.02	.31	.86	1.51	6.70	60.0	4.6	12.9	22.5
1987	3.86	.61	1.02	.99	6.48	59.6	9.4	15.7	15.3
1988	3.31	1.40	1.04	1.22	6.97	47.5	20.1	14.9	17.5
1989	3.47	0.89	0.83	1.93	7.12	48.7	12.5	11.7	27.1
1990	3.58	0.89	0.52	2.18	7.17	49.9	12.4	7.3	30.4
1991	3.83	0.80	0.07	2.07	6.77	56.6	11.8	1.0	30.6

Sources: International Sugar Organization, various issues; Comité Estatal de Estadísticas, 1970-1986; and Licht (July 1991).

Table 4. Indicators of the Cuban sugar industry, 1950-51 through 1990-91.

Effective Cane Cane Polarizat.
Crop milling milled mil. Sugar Recov. (grade of
year season for sugar rate product. rate sugar)

Million 1,000 Mil.m t, Days met.tons m t/day raw val. % Degrees
1950-51 96 44.9 468 5.82 12.95 96.97
1951-52 120 59.5 496 7.30 12.26 97.03
1952-53 84 40.8 489 5.22 12.80 97.21
1953-54 79 39.3 495 4.96 12.62 97.23
1954-55 69 34.8 507 4.60 13.20 97.25
1955-56 72 37.0 514 4.81 13.00 97.27
1956-57 87 44.7 514 5.74 12.84 97.21
1957-58 84 45.7 544 5.86 12.82 97.29

1958-59 89 44.8 503 6.04 13.48 97.24

1959-60 88 47.5 540 5.94 12.51 97.32

1960-61 104 54.3 522 6.88 12.67 97.54

1961-62 76 36.7 483 4.88 13.30 97.32

1962-63 68 31.4 462 3.88 12.36 97.58

1963-64 82 37.2 454 4.47 12.02 97.70

1964-65 105 50.7 483 6.16 12.15 97.69

1965-66 76 36.8 484 4.54 12.34 97.83

1966-67 101 50.9 504 6.24 12.26 97.68

1967-68 87 42.3 486 5.16 12.20 97.75

1968-69 86 40.5 471 4.46 11.01 97.77

1969-70 143 79.8 558 8.54 10.70 97.66

1970-71 101 51.5 510 5.92 11.50 97.64

1971-72 91 43.5 478 4.32 9.93 97.69

1972-73 92 47.5 516 5.25 11.05 97.73

1973-74 95 49.6 517 5.93 11.96 97.88

1974-75 99 50.8 513 6.31 12.42 97.74

1975-76 99 52.0 525 6.16 11.85 97.75

1976-77 104 56.2 540 6.49 11.55 97.74

1977-78 119 67.0 563 7.35 10.97 97.78

1978-79 128 73.0 570 7.99 10.95 97.81

1979-80 109 61.6 565 6.67 10.83 98.18

1980-81 114 66.4 582 7.36 11.08 98.17

1981-82 124 73.5 593 8.21 11.17 98.14

1982-83 113 68.7 608 7.11 10.35 98.14

1983-84 126 78.4 622 8.21 10.47 98.15

1984-85 103 66.8 649 8.00 11.98 98.20

1985-86 104 68.3 657 7.26 10.63 98.26

1986-87 99 66.9 674 7.12 10.64 98.30

1987-88 100 68.4 680 7.42 10.85 98.31

1988-89 109 75.0 689 8.12 10.83 98.30

1989-90 NA 70.0 NA 8.00 11.40 NA

1990-91 NA 67.5 NA 7.62 11.30 NA

Source: Comité Estatal de Estadísticas (various issues); Buzzanell (1992).

Table 5. Cuba's sugar exports to selected countries and regions, average 1984-88, 1989, 1990, and 1991.

Region	Average	Annual	Annual	Annual
Country	1984-88	1989	1990	1991

- - - - Metric tons, raw value - - - -

U.S.S.R. 3,710,000 3,469,000 3,576,000 3,835,000

Percent of total 53.4 48.7 49.9 56.7

Eastern Europe

Albania 23,243 23,655 23,519 10,781

Bulgaria 332,566 308,382 145,874 42,631
Czechoslovakia 153,038 159,142 89,264 0
German Dem. Rep. 289,838 357,174 96,850 0
Hungary 0 0 0 0
Poland 58,633 58,384 0 0
Romania 163,882 266,368 259,720 14,670
Yugoslavia 4,176 18,104 0 0
Sub-total 1,025,376 1,191,209 615,227 68,082
Percent of total 14.7 16.7 8.6 1.0

Asia and Oceania

Bangladesh 2,470 0 0 0
China 740,739 889,173 892,130 796,563
India 54,459 0 0 0
Indonesia 8,019 26,424 0 0
Japan 374,470 205,059 162,492 410,906
Kampuchea 1,193 0 2,165 0
Korea, Dem. P. Rep. 26,408 30,170 36,713 24,993
Malaysia 40,680 84,414 28,624 0
Mongolia 1,889 0 0 0
New Zealand 8,809 0 0 39,825
Pakistan 13,495 0 0 0
Sri Lanka 5,239 13,009 0 0
Viet Nam, Soc. Rep. 17,401 12,498 11,059 9,486
Sub-total 1,295,271 1,260,747 1,133,183 1,281,773
Percent of total 18.6 17.7 15.8 18.9

Middle East and Africa

Algeria 83,301 190,314 195,326 199,912
Angola 46,215 9,659 13,815 0
Cape Verde 0 4,879 5,979 10,750
Egypt 177,091 38,518 278,874 141,653
Ethiopia 962 0 0 0
Ghana 8,631 12,939 15,040 33,560
Guinea-Bissau 217 0 0 0
Iran 0 0 0 0
Iraq 78,272 40,239 28,249 27,083
Jordan 0 0 13,017 14,753
Libya 50,217 44,369 86,677 89,178
Lebanon 0 0 0 15,782
Senegal 4,111 0 0 0
Syria 69,988 65,040 89,979 140,917
Tunisia 40,575 73,332 51,380 68,520
Turkey 0 0 13,017 0
Uganda 7,544 15,174 0 0
Yemen, Dem. Rep. 0 0 0 0
Sub-total 567,124 494,463 791,353 742,108
Percent of total 8.2 6.9 11.0 11.0

Western Hemisphere

Brazil 0 149,144 163,046 0

Canada	152,055	179,758	290,725	332,407
Mexico	10,540	67,610	357,940	183,661
Nicaragua	4,344	10,699	0	0
Netherlands Antilles	411	0	0	1,084
Peru	21,525	29,379	0	0
Suriname	0	0	0	0
Venezuela	48,907	109,715	115,882	105,447
Sub-total	237,782	546,305	927,593	622,599
Percent of total	3.4	7.7	12.9	9.2
Western Europe				
European Community	34,130	68,025	41,106	93,224
Finland	49,162	74,750	51,643	93,624
Portugal	16,995	0	0	0
Sweden	12,604	11,473	31,383	25,193
Switzerland	3,040	3,205	1,505	1,141
Sub-total	115,931	157,453	125,637	213,182
Percent of total	1.7	2.2	1.8	3.2

Total exports 6,951,484 7,119,177 7,168,993 6,762,744

Source: International Sugar Organization, as it appears in Buzzanell (1992, p. 37).

Table 6. U.S. sugar tariff rate quota, 1990-91 and 1991-92.

1990-91 1991-92

Quota Actual Net Quota

Country allocat. imports diff. allocat.

----- short tons, raw value -----

Dominican Republic	394,638	392,158	2,480	256,348
Brazil	325,130	325,130	0	211,195
Philippines	354,280	351,637	2,642	196,630
Australia	186,109	186,109	0	120,892
Guatemala	107,630	107,533	97	69,913
Argentina	96,418	96,256	162	62,630
Peru	91,934	90,299	1,635	59,718
Panama	65,026	64,691	335	42,239
El Salvador	58,299	58,299	0	37,870
Colombia	53,883	53,492	391	34,956
South Africa	0	0	0	33,500
Nicaragua	47,087	46,344	743	30,587
Swaziland	35,877	35,877	0	23,304
Costa Rica	33,634	33,634	0	21,848
Thailand	31,392	31,287	105	20,392
Mozambique	29,150	28,242	907	18,934
Guyana	26,907	0	26,907	17,478
Mauritius	26,907	26,907	0	17,478
Taiwan	26,907	26,907	0	17,478
Zimbabwe	26,907	26,907	0	17,478
Belize	24,665	24,647	19	16,022
Ecuador	24,665	24,665	0	16,022
Jamaica	24,665	24,665	0	16,022

Honduras	22,423	21,929	494	14,565
Malawi	22,423	22,423	0	14,565
Fiji	20,180	20,180	0	13,109
Bolivia	17,938	17,619	319	11,653
India	17,938	17,794	144	11,653
Barbados	15,696	0	15,696	10,195
Trinidad-Tobago	15,696	15,536	160	10,195
Congo	8,852	0	8,852	8,001
Cote D'Ivoire	8,852	8,852	0	8,001
Gabon	8,852	8,852	0	8,001
Haiti	8,852	8,830	22	8,001
Madagascar	8,852	8,852	0	8,001
Mexico	8,852	8,727	125	8,001
Papua New Guinea	8,852	8,850	1	8,001
Paraguay	8,852	8,850	1	8,001
St. Christopher-Nevis	8,852	0	8,852	8,001
Uruguay	8,852	8,626	226	8,001
Subtotal	2,312,853	2,241,539	71,314	1,524,876
Specialty sugars	2,000	237	1,763	1,825
Total	2,314,853	2,241,776	73,077	1,526,701
Canada	27,127	17,000		

Source: Economic Research Service, USDA (1991, p. 43).

Table 7. Potential surpluses of Cuban sugar in the near future at different levels of production (minus consumption) and exports.

Production (million metric tons)

4.00 4.25 4.50 4.75 5.00 5.25 5.50

Production minus consumption (million metric tons)

Exports 3.10 3.35 3.60 3.85 4.10 4.35 4.60

----- Million metric tons -----

5.00 -1.90 -1.65 -1.40 -1.15 -0.90 -0.65 -0.40

4.75 -1.65 -1.40 -1.15 -0.90 -0.65 -0.40 -0.15

4.50 -1.40 -1.15 -0.90 -0.65 -0.40 -0.15 0.10

4.25 -1.15 -0.90 -0.65 -0.40 -0.15 0.10 0.35

4.00 -0.90 -0.65 -0.40 -0.15 0.10 0.35 0.60

3.75 -0.65 -0.40 -0.15 0.10 0.35 0.60 0.85

3.50 -0.40 -0.15 0.10 0.35 0.60 0.85 1.10

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