

11-6-2013

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Recommended Citation

Salazar-Carrillo, Jorge, "The Collapse of the Cuban Sugar Industry: An Economic Autopsy" (2013). *Economics Research Working Paper Series*. 5.

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The Collapse of the Cuban Sugar Industry: An Economic Autopsy

by Jorge Salazar-Carrillo¹.

Sugar cane cultivation, harvesting, cleaning, milling, derivatives production, warehouses, and transportation to ports were totally controlled by the Sugar Ministry (MINAZ) in the 1990's and the early years of the millennium. It had provincial offices, but the power resided with the Ministry's central location at Havana. The prices for inputs and outputs involved in sugar production, and the relationship between prices and subsidies were set by the Ministry of Finance and Prices².

MINAZ had total control over the process of production of sugar and its by-products (including transportation, distribution, and domestic wholesaling and retailing, including packaging). The Union de Empresas Operadoras de Azucar y sus Derivados was the body which co-ordinated the sugar producing industry, and was a subsidiary of MINAZ. MINAZ was responsible for sugar production and moving it to warehouses at ports for shipping. Cubazucar, a subsidiary of the Ministry for Foreign Commerce (MINCEX), then took over the sugar at the ports, where it was loaded onto vessels for shipping. In addition, Cubacontrol a subsidiary of MINCEX, was in charge of inspecting warehouses and providing inspection certificates.

Historically, pre-dating the Castro regime, the economy of Cuba had been substantially dependent on its sugar industry. The first economic treatise on Cuba in the English language, written by Henry C. Wallich, stated that Cuba had "*an almost exclusive reliance upon sugar exports*"³. This extreme dependence on one commodity can be used to a country's advantage. A substantial expansion of the leading sector (i.e. sugar) can lead to the generation of sizeable income which can benefit the rest of the economy through its contributions to growth and development. Cuba was able to piggyback on the expansion of sugar production and its higher prices during the late 1940s and early 1950s, to the extent that "*it seems safe to say that among all tropical countries Cuba has the highest per capita income. This income is produced by a highly capitalized economy concentrating upon a single export product-sugar. By pushing specialization to an unusual extent, the Cuban economy has been able to turn in an exceptional performance*"⁴. The same conclusion was arrived at by the Cuban Economic Research Group gathered by the University of Miami late in 1961. "With the expansion in sugar

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² See G. B. Hagelberg and Jose Alvarez, "Cuba's Costs of Sugar Production: Past, Present, and Future," in Jorge F. Perez-Lopez and Jose Alvarez, eds. Reinventing the Cuban Sugar Agroindustry, Lexington Books, 2005, pgs. 176-182.

³ See Henry C. Wallich, Monetary Problems of An Export Economy, The Cuban Experience 1914-1947, Harvard University Press, Cambridge, Massachusetts, 1960, pg. VII.

⁴ See Henry C. Wallich, ibid., pg. 3.

production...growth took place in the other productive sectors”⁵. Of course since sugar had been the overwhelmingly dominant factor in Cuban exports, the argument was made that as sugar went (up or down), so did the economy of the island. Yet “at the turn of the twenty-first century, the Cuban sugar agroindustry was but a shadow of its former self. It was no longer the engine of economic activity.”⁶

As shall be seen further on, the intention under the Soviet dominated Council of Mutual Economic Assistance (CMEA) was that Cuba would provide the majority of the sugar required by its member states, with a plan to increase production up to 14 million tons by the beginning of the 1980s. While this goal was never reached, production in 1989 reached 7.58 million tons. However this level of production was predicated on large subsidies of oil and equipment from the Soviet Union. This, coupled with the Soviet style “gigantism” (i.e. huge areas of land under one administration) and large quantities of fertilizer, pesticides, etc. in use, resulted in the Cuban sugar industry becoming highly inefficient. The goal prior to 1989 was simply increased production via any means, rather than seeking to increase it by greater efficiency.

Such a productive approach in effect takes no account of the input costs of production. Notwithstanding the fact that accurate information regarding two key costs of sugar, namely agricultural and transport costs, are difficult to estimate in Cuba, statistics indicate that the cost of producing Cuban sugar became substantially higher than in other major sugar-producing nations during the communist period. The information available on production costs place them “*in the range of 7 to 8 cents a pound in the mid-1970s, rising to slightly more than 9 cents in an efficient mill toward the end of the decade*”.⁷ Jorge Perez-Lopez adjusted these estimates for inefficiencies, resulting “in an estimated of average costs of 10.4 cents a pound in 1984”.⁸ By the 1996-1997 harvest, without the benefit of CMEA subsidies (i.e. still operating under a production system similar to that used under CMEA, but having to purchase machinery and inputs at international market prices), the cost of production was estimated conservatively, to be of the order of 19.9 cents per pound.⁹ For the next harvest (1997-1998) a new study

⁵ See Cuban Economic Research Group, A Cuban Study, University of Miami Press, Miami, Florida, 1963, pg. 1274. For a fuller treatment of primary products as leading sectors in general see Jorge Salazar, Primary Type Export Activities as Leading Sectors in Economic Development, University Microfilms, Ann Arbor, Michigan, 1967, and Jorge Salazar-Carrillo, Oil in the Economic Development of Venezuela, Praeger Publishers, New York, 1976 and “Interdependence and Economic Performance in Cuba” in Irving L. Horowitz ed. Cuban Communism VII, Transaction Publishers, 1989.

⁶ Jorge F. Perez-Lopez and Jose Alvarez, “The Cuban Sugar Agroindustry at the end of the 1990s.” in Jorge F. Perez-Lopez and Jose Alvarez, eds. Reinventing the Cuban Sugar Agroindustry, *op.cit.*, pg. 41.

⁷ As cited in G. B. Hagelberg and Jose Alvarez, “Cuba’s Costs of Sugar Production: Past, Present, and Future,” in Jorge F. Perez-Lopez and Jose Alvarez, eds. Reinventing the Cuban Sugar Agroindustry, *op.cit.*, pg. 175.

⁸ See Jorge F. Perez-Lopez, The Economics of Cuban Sugar, University of Pittsburgh Press, Pittsburgh, Pennsylvania, 1991, pgs. 116-117.

⁹ See G.B. Hagelberg, “On the Trail of Cuba’s Sugar Production Costs’, in F.O. Licht, International Sugar and Sweetener Report, 130, 14 (29 April, 1998) pgs. 221-224.

undertaken by Alvarez and Peña Castellanos estimated the cost per pound of sugar to be in the range of 20.2 to 21.9 cents per pound.¹⁰ There was a bevy of estimates produced with the harvests of 1999-2000 and 2000-2001 by the Cuban government (these ranged between 14.4 to 15.0 cents per pound of sugar). Unfortunately, these figures were not reliable, as they certainly did not include all farm costs, and imports were accounted for at the artificial exchange rate of one Cuban peso per dollar¹¹, as opposed to the prevailing exchange rate at the time approximately 25 pesos per dollar. In a newspaper interview the head of the sugar workers union stated a figure of 16.3 cents per pound.¹²

A good example of the inefficiencies created under CMEA, is the degree of mechanization in the Cuban sugar industry. Compared to the use of tractors in the 1950s, when Cuba was one of the leading sugar producers in the world, *“Cuba’s stock of agricultural tractors grew by 32.4 percent during the decade of the 1970s and by an additional 12.4 percent in the 1980s; in 1989, Cuba had a ratio of 43 hectares of cultivable land per tractor, compared to the Latin American average of 130 hectares of cultivable land per tractor...nearly one-half of the stock of agricultural tractors in the country (37,990 units) was devoted to sugarcane cultivation and harvesting.”*¹³ At the same time the harvesting of sugar became heavily mechanized. The percentage of sugarcane cut by chopper-harvester increased from 45 percent in 1979-1980 to 71 percent in 1989-90.¹⁴ This high degree of mechanization, without accompanying efficiencies, contributed both to high production costs, high maintenance costs (and as highlighted later in this article, capital to import spare parts was scarce in the 1990s) and, once cheap oil from the Soviet Union was no longer available, high fuel costs.

The adopting of the Soviet mentality of increasing production without regards to cost, was also apparent in the extension of the duration of the sugar harvesting and milling over the late 1970s, 1980s and 1990s. The average number of harvest days increased to 145, and milling days to 110, compared to those numbers in the 1950s, which had been 99 and 85¹⁵ (note that production in the 1950s was substantially higher than in the 1990s). Longer harvests generally result in lower industrial yields. “In the 1980s these averaged less than 11 percent sugar, base 96%, extracted per ton of sugarcane ground, compared to the 12.75 percent average of the 1950s. This was primarily due to the lower average sucrose content of cane ground over a

¹⁰ Jose Alvarez and Lazaro Peña Castellanos, *Cuba’s Sugar Industry*, University Press of Florida, Gainesville, 2001, pg. 87.

¹¹ As reported in G. B. Hagelberg and Jose Alvarez, “Cuba’s Costs of Sugar Production: Past, Present, and Future,” in Jorge F. Perez-Lopez and Jose Alvarez, eds. *Reinventing the Cuban Sugar Agroindustry*, *op.cit.*, pg. 176.

¹² Manuel Cordero, *Trabajadores*, July 8, 2002.

¹³ For this and related points refer to Jorge F. Perez-Lopez and Jose Alvarez, “The Cuban Sugar Agroindustry at the End of the 1990s”, *op.cit.*, pg. 30.

¹⁴ *Ibid*, pg. 30.

¹⁵ Refer to Brian Pollitt, “The Technical Transformation of Cuba’s Sugar Agro Industry,” in Jorge Perez-Lopez and Jose Alvarez, *op. cit.*, pgs. 51 and 52.

more protracted period”.¹⁶ As well as the greater extraneous material that reached the mills together with productive cane stalks, as a result of mechanization.

During the period 1989 to 2002, the global sugar market changed substantially. As can be seen from Table 1, global production increased by 17.8%, with Brazil starting to export large quantities of sugar for the first time (see Table 2 below) after a massive increase in production (more than doubling in ten years). In the meantime, Cuban production decreased by 40%, the only major sugar producing nation to record a decline in production over this period.

Table 1. Sugar Production in Selected Countries and the World, 1991-1993 to 2000-2002.

	<u>Average</u> <u>1991-1993</u>	<u>Average</u> <u>2000-2002</u>	<u>Absolute</u> <u>Change</u>	<u>Percentage</u> <u>Change</u>
<u>Brazil</u>	9,825.30	20,122.50	10,297.20	104.8
<u>India</u>	12,911.80	19,892.60	6,980.80	54.1
<u>EU-15</u>	16,826.60	17,198.40	371.80	2.2
<u>China</u>	7,966.70	8,193.80	227.10	2.9
<u>USA</u>	6,775.60	7,553.10	775.50	11.5
<u>Thailand</u>	4,383.50	5,988.40	1,604.90	36.6
<u>Mexico</u>	4,040.10	5,167.60	1,127.50	27.9
<u>Australia</u>	4,015.50	4,932.90	917.40	22.8
<u>Cuba</u>	6,232.60	3,775.60	-2,457.00	-39.4
<u>Pakistan</u>	2,506.70	2,702.40	195.70	7.8
<u>World</u>	113,904.00	134,198.50	20,294.50	17.8

Source: Sergey Gudoshnikov, “World Sugar Supply and Demand until 2010 and Beyond”, in Jorge F. Perez-Lopez and Jose Alvarez, *ibid.*, pg. 101. Based on the International Sugar Organization (ISO) Year Books.

Table 2. World’s Largest Sugar Exporters, 1991-1993 and 2000-2002, in oootons

	<u>1991-1993</u> <u>(Mean)</u>	<u>World Share</u> <u>(%)</u>	<u>2000-2002</u> <u>(Mean)</u>	<u>World Share</u> <u>(%)</u>
<u>Cuba</u>	6,674.7	23	3,141.9	8
<u>EU</u>	5,065.6	17	5,659.9	14
<u>Thailand</u>	3,025.9	10	3,768.7	9
<u>Australia</u>	2,810.8	10	3,969.7	10
<u>Brazil</u>	1,842.1	6	10,353.0	26

¹⁶ See Brian Pollitt, *ibid.*, pg. 53.

Subtotal	19,419.2	67	26,890.3	67
World				
Total	29,194.3		39,058.4	

Source: Sergey Gudoshnikov, *ibid.*, pg. 101. Based on ISO *Year Books*. And author's calculations.

A study for crop year 1998-1999 concludes: *"the average production cost for the largest cane sugar exporters (Australia, Brazil, Colombia, Cuba, Guatemala, South Africa, and Thailand) was estimated at 9.7 cents per pound. Since three of the top exporters (Australia, Brazil, and Guatemala) are low-cost producers, it stands to reason that Cuban production costs were above the 9.73 cents per pound average."*¹⁷ Sugar industry analyst James Fry stated in 1997 that in respect of the problems faced by the Cuban sugar industry, there was *"a huge capacity producing half of what it used to, running up their costs to well over U.S. \$0.20 per pound."*¹⁸

Another disadvantage that became increasingly obvious as the 1990s moved on was the inability of the Cuban sugar industry to add value to its traditional centrifugal sugar production.¹⁹ The lack of investment meant that the Cuban sugar industry did not take advantage of opportunities to diversify into refined sugar and sweets with higher degrees of polarization, like white sugar, as well as organic sugar.²⁰ For example, the large increase in Brazilian sugar production is due to a recognition of the increased demand for biofuels, which Cuba has not sought to diversify into at all. Cuba was increasingly at a disadvantage in producing and marketing products with higher degrees of polarization (i.e. high-quality grade sugar), and thus achieving higher prices, not to mention the competition coming from high-fructose corn syrup. Even though Cuba had 17 sugar refineries, with a daily capacity of 6,000 to 7000 tons, and an overall theoretical capacity of one million tons, its participation in the export of refined products remained relatively small.²¹

The result of the loss of CMEA subsidies was that sugarcane production decreased from a mean during the 1980s of 69.8 million tons per annum to 32 million tons in 2001. Cuba could not finance its sugar industry in the early 1990s when it was forced to purchase oil and spare parts on the international market at prevailing prices.²² *"The primary cause of collapsing production was not any absolute lack of markets...but shortages of key productive inputs that had hitherto been imported; fertilizers and other agricultural chemicals, fuels and assorted machinery and parts for both field and factory. The magnitude of such shortages did not simply match the fall in sugar earnings but actually exceeded it. This was*

¹⁷ Refer to Jorge R. Perez-Lopez, *"Reinventing the Cuban Sugar Agro Industry, ibid.*, pg. 306.

¹⁸ Consult James Fry, "General named Minister of Sugar Industry," in *Economic Eye on Cuba*, October 20-26, www.cubatrade.org.

¹⁹ Jorge F. Perez-Lopez and Jose Alvarez, "The Cuban Sugar Agroindustry at the end of the 1990s" in Jorge F. Perez-Lopez and Jose Alvarez, *Reinventing the Cuban Sugar Agroindustry, op.cit.*, pg. 38.

²⁰ Jorge F. Perez-Lopez and Jose Alvarez, *ibid.* and Brian Pollitt, "Crisis and Reform in Cuba's Sugar Economy," in Archibald Ritter, ed., *The Cuban Economy*, University of Pittsburgh Press, 2004.

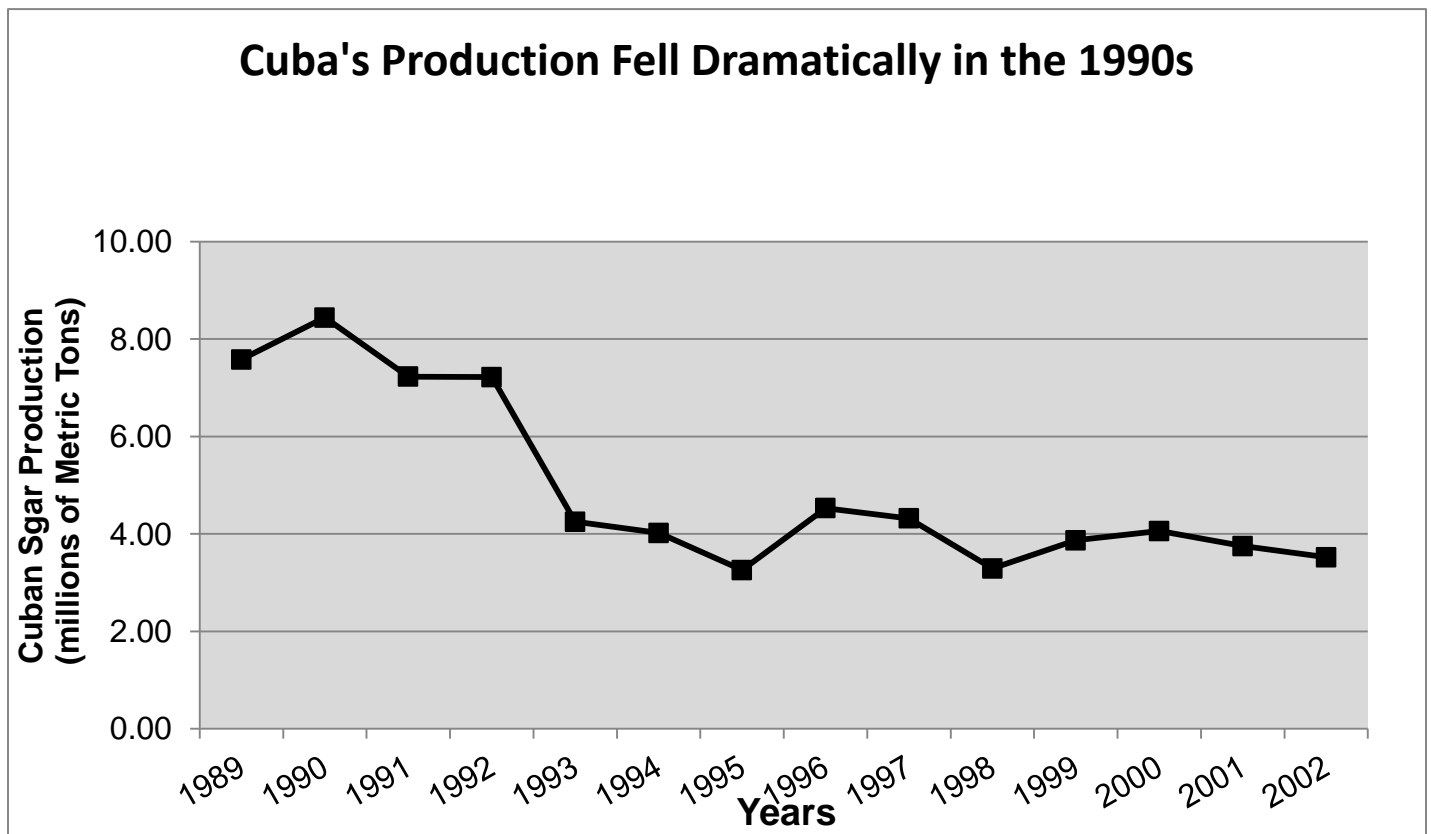
²¹ Review Jorge F. Perez-Lopez and Jose Alvarez, *ibid.* and Brian Pollitt, "Crisis and Reform in Cuba's Sugar Economy," in Archibald Ritter, ed., *The Cuban Economy, ibid.*

²² See Brian Pollitt, *ibid.*

because the national economic crisis was so acute that a major part of shrinking sugar export earnings was performed diverted to finance other imports considered to be yet more vital, most notably oil and food. Moreover, since a number of international financiers or suppliers would accept only the proceeds of sugar exports as collateral for loans or commodities, the pressure on the state to maximize such earnings was extreme. Indeed, during the most difficult years...the search to maximize sugar production (and thereby exports) was so great that it forced the adoption of harvesting practices that might have increased sugar production in one season, but only at the cost of lower production, and higher unit costs, in the next.”²³

The inefficiency of the Cuban sugar industry, allied to the decreasing market price of sugar on the international markets in the late 1990s and early 2000s, meant that Cuba was receiving less and less money from purchasers of its sugar. The graphs below show the decrease in Cuban sugar production in the 1990s, and the fall in the market price of sugar in cents per pound. Finally, Table 3 shows Cuban sugar production for the years 1989 to 2002, with the average market price per pound and value to Cuba of its sugar exports:

Graph 1



Alvarez, *op.cit.*, pgs. 56 and 57.

Graph 2

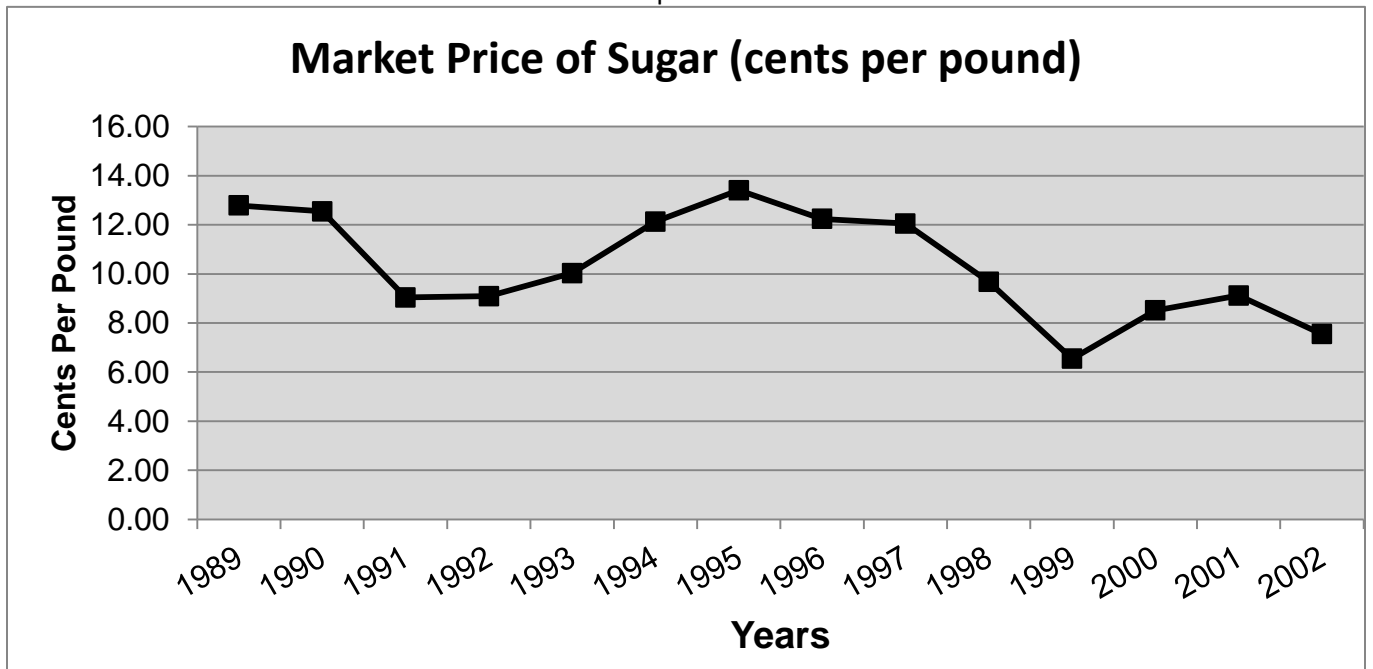


Table 3 Cuban Production of Sugar, its World Price and the Value to Cuba of Exports (in million tons, cents and million dollars).

	<u>Production</u>	<u>Price</u>	<u>Value of exports</u>
<u>1989</u>	7.58	12.79	3,959
<u>1990</u>	8.44	12.55	3,690
<u>1991</u>	7.23	9.04	2,670
<u>1992</u>	7.22	9.09	1,300
<u>1993</u>	4.25	10.03	820
<u>1994</u>	4.02	12.13	785
<u>1995</u>	3.26	13.41	855
<u>1996</u>	4.53	12.24	1,095
<u>1997</u>	4.32	12.05	920
<u>1998</u>	3.29	9.68	715
<u>1999</u>	3.87	6.54	560
<u>2000</u>	4.06	8.51	642
<u>2001</u>	3.75	9.12	589
<u>2002</u>	3.52	7.55	511

Source: International Sugar Organization, Sugar Year Book, several years; Commodities Research Board (CRB) Commodities Year Book, several years; Central Intelligence Agency, Cuba: Handbook of Trade Statistics, various years, Virginia, U.S.A.; and author's calculations.

As can be seen from Table 3, the decrease in Cuba's sugar production took place almost concurrently with a decrease in the market price of sugar, so Cuba's actual income from sugar decreased

substantially over the period. In fact, sugar was overtaken by tourism as the main source of external income during those years. However, while sugar was not providing as much export earnings as had historically been the case, it was an important provider, to an island desperately in need of foreign exchange, and which was not in a position (due to lack of finance for its imports) to easily diversify into other areas, to make up for lower revenues from sugar production.

In addition to exporting the bulk of its sugar, Cuba also retains a percentage of its production for internal consumption. This sugar is held at certain warehouses for gradual release to the population, tourists and for industrial uses. Thus the amount of sugar held in storage fluctuates throughout the year. The quantity of sugar held at the end of the sugar production season is known as the “ending stocks”, and the most accurate source of information as to Cuba’s ending stocks is the International Sugar Organization (ISO). The table below shows ISO data on Cuba’s ending stocks since 1989 in December of each year.

Table 4 Cuban Ending Sugar Stocks and their Share of Total Production, 1989-2002 (in metric tons and percent)

<u>1989</u>	301,199	4.0%
<u>1990</u>	637,093	7.5%
<u>1991</u>	147,457	2.0%
<u>1992</u>	339,129	4.7%
<u>1993</u>	127,143	3.0%
<u>1994</u>	291,979	7.3%
<u>1995</u>	366,946	11.3%
<u>1996</u>	395,412	8.7%
<u>1997</u>	398,293	9.2%
<u>1998</u>	408,543	12.4%
<u>1999</u>	376,788	9.7%
<u>2000</u>	305,557	7.5%
<u>2001</u>	422,372	11.3%
<u>2002</u>	274,659	7.8%

Source: International Sugar Organization, Sugar Year Book, various years. As reported by the Cuban government, but additionally checked. And author’s calculations.

Table 5 Volume of Cuban Sugar Exports and their Share of Production (in million tons and percent)

	<u>Production</u>	<u>Exports</u>	<u>Share of Exports</u>
<u>1989</u>	7.58	7.12	94
<u>1990</u>	8.44	7.17	85
<u>1991</u>	7.23	6.77	94
<u>1992</u>	7.22	6.08	84
<u>1993</u>	4.25	3.67	86
<u>1994</u>	4.02	3.19	79
<u>1995</u>	3.26	2.60	80
<u>1996</u>	4.53	3.83	85
<u>1997</u>	4.32	3.58	83
<u>1998</u>	3.29	2.57	78
<u>1999</u>	3.87	3.20	83
<u>2000</u>	4.06	3.42	84
<u>2001</u>	3.75	2.93	78
<u>2002</u>	3.52	3.07	87

Source: ISO, Sugar Year Book, various years.

In both, 2001 and 2002, sugar production in January, February and March averaged around 850,000 tons per month (2,577,433 tons and 2,536,929 tons respectively for the three month period) with exports peaking in March in both years at 932,539 tons in 2001 and 795,794 tons in 2002. For the period April to June in both years, production was around 330,000 tons per month (975,203 tons and 973,534 tons respectively for the three month period). In these circumstances, it is highly unlikely that the Cubans would have kept significant amounts of sugar available, or unallocated in the Cuban sugar industry.