RUSSIAN OIL-FOR-SUGAR BARTER DEALS 1989-1999

José F. Alonso and Ralph J. Galliano

The fall of the Berlin Wall in November 1989 and the breakup of the Soviet Union in December 1991 became the precursors for the collapse of the Cuban economy, central to which were the Soviet oil-for-sugar swaps over the preceding three decades. At its zenith, this barter arrangement provided the financial basis for Cuba to sustain the agricultural inputs necessary to produce sufficiently large annual harvests to permit significant sugar export levels and oil re-export revenues. At its nadir, the systemic failure in the oil-for-sugar arrangement created shortages throughout the Cuban economy including fuel, fertilizers, herbicides, and spare parts for farming equipment and sugar mills. Over the past decade, this is marked by the simultaneous downward spiral of Cuba's oil imports along with its sugar exports. Cuba's historic energy dependence and limited oil resources coupled with the sudden disruption of the oil-for-sugar barter arrangement severely impacted the Cuban economy from which it has yet to fully recover.

SUGAR PRODUCTION

In the post-Berlin Wall period covering crop years 1988-89 through 1991-92, Cuban sugar production declined by 1.1 million metric tons (mt.) or 13.75 percent from 8.1 million mt. to 7.0 million mt. The first significant drop in Cuba's sugar production, following the after shock of the breakup of the Soviet Union, came during crop year 1992-93, when production from 1991-92 to 1992-93 plunged nearly fifty (46.9) percent from 7.0 million mt. to 4.3 million mt. This crop year 1992-93 serves as the benchmark measuring the success or failure of the Cuban sugar industry to go-it-alone. Sans Soviet oil-for-sugar subsidies, and lacking the necessary agricultural inputs compounded by persistent technical and managerial difficulties, Cuban sugar production remained in the 4.0 million metric ton range until it finally bottomed-out during the 1997-98 crop year, where at 3.2 million mt. (2,204.6 lbs./mt.) it nearly dipped to Cuba's 1931 output level of 3.1 million Spanish tons (2173.913 lbs./ton).[1]

Table 1. Cuba: Sugar Production 1989-99[a] (millions)

Years	Metric Tons	Years	Metric Tons
1998-99	3.8 [b]	1992-93	4.3
1997-98	3.2	1991-92	7.0[c]
1996-97	4.2	1990-91	7.6[d]
1995-96	4.4	1989-90	8.0
1994-95	3.3	1988-89	8.1
1993-94	4.0		

Source: b) Banco Nacional de Cuba, Economic Report 1998, April 1999, p. 17. Crop years 1992–93 through 1998–99. c) UN Economic Commission for Latin America (CEPAL) 1993, p. 13, Table 1, 7 June 1994. d) ASCE, Vol. 2, 1992, p. 145. Crop years 1988–89 through 1990–91.

a. Harvest year September–August.

SUGAR EXPORTS

Several years ago, the late Nicolás Rivero in an unpublished manuscript wrote: "Sugar is to Cuba as corn is to Iowa." The Soviet oil-for-sugar barter deals highlighted Cuba's dependence on sugar exports to acquire the energy needed to provide fuel to run the

1. *Anuario Azucarero de Cuba* (Cuba Sugar yearbook) 1961, Vol. XXV, Ministerio del Comercio Exterior, La Habana, Cuba, 1961.

Figure 1. Cuba: Sugar Production 1989-99

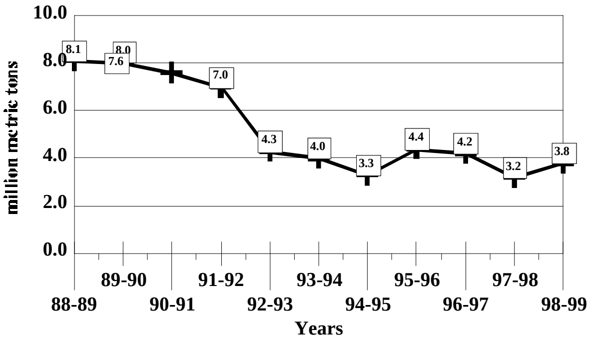
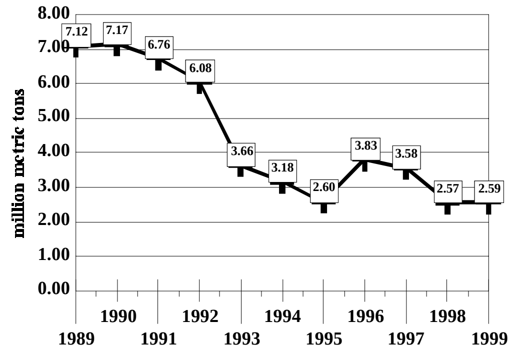


Figure 2. Cuba: Sugar Exports 1989-99



country's economy. Given Cuba's limited stocks, sugar exports have declined in tandem with the fall in production. Over the last decade, Cuba's sugar exports fell from a high of 7.17 million mt. in 1990 to a low of 2.57 million mt. in 1998, a drop of 64 percent. Since 1996, sugar exports have declined steadily and have not exceeded 3.0 million mt. Comparatively, sugar production fell from a high of 8.1 million mt. in 1989 to 3.2 million mt. in 1998, a drop of 60 percent. Cuban sugar industry technicians and managers were caught unprepared with an inefficient and obsolete infrastructure in a state-controlled economy that has led to the closing of over forty sugar mills.[2]

Table 2. Cuba: Sugar Exports 1989-99 (millions)

Year	Metric Tons	Year	Metric Tons
1999	2.60 [a]	1993	3.66
1998	2.57 [b]	1992	6.08
1997	3.58 [c]	1991	6.76
1996	3.83	1990	7.17
1995	2.60	1989	7.12
1994	3.18		

Source: a) Planned: FAS-USDA, 1998-99. b) International Sugar Organization (ISO), London, Sugar Yearbook, 1998, May 1999. c) International Sugar Organization (ISO) London, Sugar Yearbook, 1997, May 1998. Covers period 1989 through 1997. d) UN Economic Commission for Latin America (CEPAL) 1997, Statistical Appendix, Table A53.

SUGAR EXPORTS TO RUSSIA

The fall of the Berlin Wall and the breakup of the Soviet Union also brought the disintegration of Cuba's sugar market within the Moscow-dominated Eastern European economic bloc, called the Council for Mutual Economic Assistance (CEMA), where Cuba was the chosen sugar producer. Over the 1989-1999 period, 1991 set the high water mark for Cuban sugar exports to Russia at 3.835 million mt. and 1995 the low water mark at .727 million mt., a steep decline of 81 percent. Even at .800 million mt., projected 1999 sugar exports to Russia barely exceed 1995 export levels.

Table 3. Cuba: Sugar Exports to Russia 1989-99 (millions)

Year	Metric Tons	Year	Metric Tons
1999	.800 [a]	1993	1.85
1998	1.5 [b]	1992	2.92
1997	1.467 [c]	1991	3.835
1996	1.825	1990	3.576 [d]
1995	.727	1989	3.489
1994	1.013		

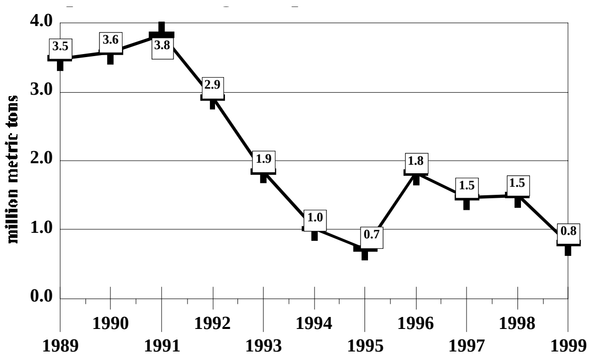
Source: a) Planned: Bloomberg, "Russia Boosts Oil Exports to Cuba 79%; Paid in Sugar," 14 May 14, 1999. b) Bloomberg, "Russia, Cuba to Discuss Boosting Trade Ties Tomorrow," May 11, 1999 c) International Sugar Organization (ISO) London., Sugar Year Book, 1997, May, 1998. ISO figures based on monthly export figures from the Cuban government. This source covers period 1997 through 1991. d) Economist Intelligence Unit (EIU) Cuba Country Profile, Report No.1, 1993, p.10. Covers period 1989 through 1990.

SUGAR PRICES

As Cuba's sugar production and exports headed downward, world sugar prices, which averaged 13.71 cents per pound in 1989, had fallen to 8.83 cents per pound by 1991, experiencing gradual recovery

2. "Poca azucar, pero la mejor en 5 años," *El Nuevo Herald* (27 de Mayo de 1999).

Figure 3. Cuba: Sugar Exports to Russia 1989-99



through 1994 when prices reached 12.17 cents per pound. In 1995, however, prices began their present downward cycle, averaging 6.07 cents per pound through May 1999. World sugar prices are described as being at 14-year lows due to the continued excess of production vs. consumption along with protectionist government policies to subsidize exports.

According to John Love, U.S. Department of Agriculture commodity analyst, speaking at the annual International Sweetener Symposium in Napa Valley, California, "historically a 3-5 year period is necessary for the sugar market to turn from bearish to bullish. World sugar production is expected to exceed consumption in 1999/2000. Surplus will add to stocks for the third consecutive year."[3] At that rate, world sugar prices could experience another two years of declining prices and Cuba's sugar production could continue to hover around 4 million metric tons per year over the next several years—still only 50 percent of the 1989 to 1990 production figures.

OIL PRODUCTION AND IMPORTS

In light of Cuba's historic energy dependence and limited oil resources, its energy picture was worsened by the seismic shift in international events taking place between 1989 and 1991. Cuba's annual domestic production declined from an already meager .718 million mt. in 1989 to a low of .529 million mt. by 1991 averaging .639 million mt. annually during this critical three-year period.

Table 4. Annual Average Raw Sugar Futures Prices 1989-99[a]

Year	Cents/lb	$/mt	Year	Cents/lb	$/mt
1999 [b]	6.07	133.82	1993	10.22	225.31
1998	8.81	194.23	1992	9.03	199.08
1997	11.36	250.44	1991	8.83	194.67
1996	11.42	251.77	1990	12.54	276.46
1995	12.13	267.42	1989	13.71	302.25
1994	12.17	268.30			

Source: a) Annual average World Sugar No. 11 futures prices on nearby contract obtained from the Coffee, Sugar, and Cocoa Exchange (CSCE) in New York. b) 1999 average world sugar price on nearby contract through May 28.

Figure 4. Annual Average Raw Sugar Futures Prices 1989-99

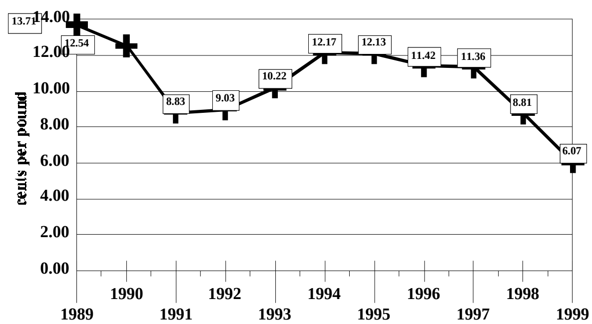


Table 5. Cuba: Oil Production 1989-99 (millions)

Year	Metric Tons	Barrels[c]
1999	2.0[a]	14.6[a]
1998	1.6782[b]	12.250[b]
1997	1.4615	10.668
1996	1.4757	10.772
1995	1.4708	10.736
1994	1.2988	9.481
1993	1.1076	8.085
1992	.8821	6.439
1991	.5268	3.845
1990	.6709	4.897
1989	.7184	5.244

Source: a) Projected: Reuters Limited, "Target for two mln tonnes oil output '99," May 21, 1999. b) La Habana, Cuba: Banco Central de Cuba "Informe Económico 1998," Abril 1999, p. 16. This source covers period 1989-98. Note: c) Calculated using 7.3 barrels per metric ton.

At the same time, Cuba's oil imports showed a steady drop of 38 percent from 13.10 million mt. in 1989

3. PRNewswire, "USDA Predicts More Low Sugar Prices, Cites Foreign Protections," August 9, 1999.

Figure 5. Cuba: Oil Production 1989-99

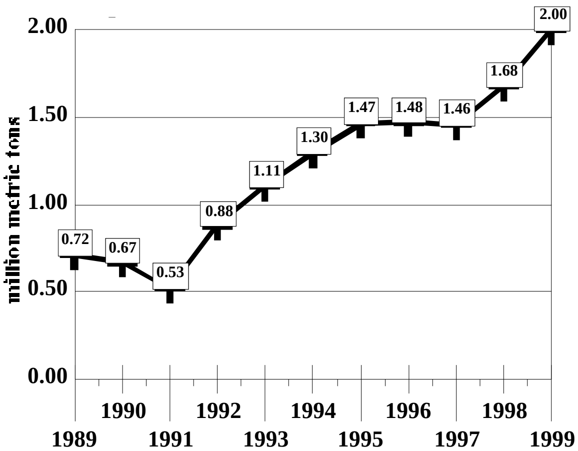
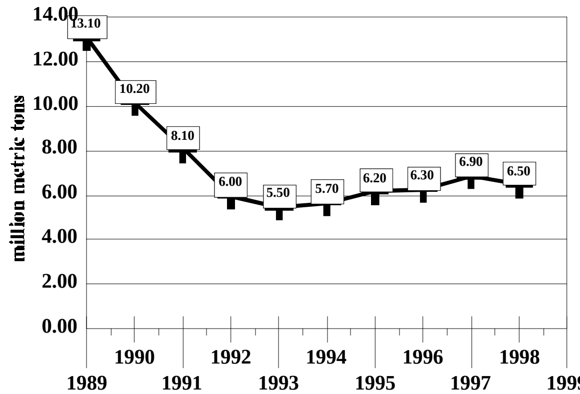


Figure 6. Cuba: Oil Imports 1989-99



to 8.10 million mt. by the end of 1991. When imports bottomed out in 1993 at 5.50 million mt., combined figures for production of 1.108 million mt. added to imports for 1993 equaled only 6.6 million mt. This was still short of Cuba's minimum annual oil requirement of 7.5 million mt.[4] Between 1989 and 1998, Cuba could only produce between 10 and 22 percent of its crude oil requirements.

Table 6. Cuba: Oil Imports 1989-99 (millions)

Year	Metric Tons	Barrels[b]	Year	Metric Tons	Barrels[b]
1999	n/a	n/a	1993	5.5	40.15
1998	6.5 [a]	47.45	1992	6.0	43.8
1997	6.9	50.37	1991	8.1	59.13
1996	6.3	45.99	1990	10.2	74.46
1995	6.2	45.26	1989	13.1	95.63
1994	5.7	41.61			

Source: a) UN Economic Commission for Latin America (CEPAL), 1998, Table 14, p. 28. This table covers period 1989 through 1998. Note: b) Calculated using 7.3 barrels per metric ton.

The breakup of the Soviet Union marked a turning point for Cuba as it sought Western oil partners with expectations these alliances would provide new technologies and result in quality oil finds leading to increased domestic production. Cuba Unión del Petróleo (CUPET), Cuba's state-owned oil company, auctioned oil blocs to Western oil companies.[5] Although no significant finds have been reported, Cuba's domestic oil production has been growing gradually from its low point during this ten year period of .529 million mt. in 1991 to 1.678 million mt. in 1998 with projections for 1999 set at 2 million mt. Oil import levels remain below the 7 million mt. level largely due to Cuba's poor hard currency position and the direct effect of relatively high average annual crude oil prices from 1989 through 1999. Despite the gradual increase in domestic production, Cuba must import from 73 percent (5.5 million mt.) to 92 percent (6.9 million mt.) of its annual crude oil needs (7.5 million mt.).

OIL IMPORTS FROM RUSSIA

Remaining the largest crude oil producer in the world, the first six months of 1990 registered the steepest decline in Soviet crude oil production since the end of World War II. Soviet production fell from 1.679 million mt. per day in the first six months of 1989 to 1.606 million mt. per day during the same period of 1990.[6] Internally, the combination of Soviet budgetary problems, an oil export decline, increasing foreign debt, and difficulties in obtaining foreign credit, required the Soviet Union to demand hard

4. *Offshore* (January 1996).

5. "Beginning of an Oil Rush?," *Cuba Business*, Vol. 5, No. 2 (April 1991); "Oil for Survival," *Cuba Business*, Vol. 6, No. 2 (June 1992).

6. "More Soviet Industry Trade Barriers Collapse," *Oil & Gas Journal*, Vol. 88, Issue 40 (October 1, 1990).

cash payments for its oil exports to Cuba. Beginning January 1, 1991, the Soviet Union shipped oil to Cuba based on world market prices calculated in dollars rather than rubles.[7]

By mid-1990 when Soviet shipments were delayed or failed to materialize altogether, Cuba began to scramble for alternative oil supplies. As a result, Cuba announced for the first time in 30 years that it would permit foreign investment in its petroleum industry creating a production sharing agreement with the French oil company Total[8] and subsequently with Swedish and Canadian companies. These agreements, which were later referred to as Production Sharing Contracts (PSC), would have "maximum terms of 25 years with exploration periods of 4 years" where Cuba would "take 11% of production and tax net profits at the rate of 30%."[9]

The crisis in the Soviet oil industry caused Cuba's crude oil imports to drop precipitously between 1989 and 1992, from 8.5 million mt. to 1.8 million mt., or by 6.7 million mt. (78 percent). This differential nearly reached the level of Cuba's minimum annual oil requirement of 7.5 million mt. Prior to 1991, Soviet crude oil provisions had exceeded 11 million mt., in addition to special concessions granted in the form of a hard currency oil account which allowed Cuba to reexport oil at world market prices and retain the hard currency proceeds.[10] For example, 1985 Soviet oil exports to Cuba, including deliveries from Latin America, totaled 13.1 million mt.[11] After 1991, the Soviet Union had ceased to exist and along with it the three-way oil supply exchange agreement whereby the Soviet consignment to Cuba had been arriving largely in the form of Venezuelan crude via its state owned oil company, PDVSA, while the Soviets had been supplying crude to Venezuela's joint venture refinery, Veba, in Germany.[12] Cuba's Russian oil imports have never recovered.

Table 7. Cuba: Oil Imports from Russia 1989-99 (millions)

Year	Metric Tons	Year	Metric Tons
1999	1.5[a]	1993	1.6[d]
1998	1.125[b]	1992	1.8e
1997	1.125	1991	5.3[f]
1996	1.125	1990	8.5
1995	1.125	1989	8.5
1994	1.8[c]		

Source: a) Planned. Russian trade ministry spokesman Igor Makurin specified an agreement to trade 800,000 metric tons of raw Cuban sugar in exchange for 1.5 million metric tons of crude oil in 1999. Reportedly, 300,000 metric tons of oil had been shipped to Cuba this year. Reuters Limited, "Sugar trade taken aback by Cuban-Russian barter deal," May 17, 1999. b) According to Makurin, the Russian oil-for-sugar protocol from 1995 - 1998 called for 14.25 million metric tons of oil in exchange for 4.75 million metric tons of sugar. During that period, Russia only managed to supply 4.5 million metric tons of oil to Cuba. Figures based on even distribution of 4.5 million metric tons over 1995–1998 period. c) Miami Herald, "Russia plans to deliver full quota of crude oil," June 1, 1995, p. 12A. d) Journal of Commerce, "Russia Agrees to Increase Oil to Cuba This Year," July 7, 1993, p. 7B. e) Economist Intelligence Unit (EIU) Cuba Country Profile 1994-95, p. 24. f) Oil and Gas Journal, July 6, 1992, p. 64. Figures consist of crude oil imports. Does not include imports of additional petroleum products. This source covers period 1989-1991.

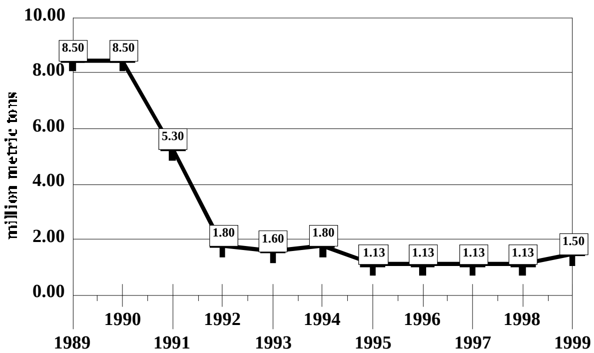
RUSSIAN OIL FOR CUBAN SUGAR

As direct Soviet oil deliveries to Cuba nearly came to a standstill by the end of 1991, the Soviet Union indicated its reduction in the purchase of Cuban sugar leading to the collapse of the Soviet oil-for-sugar arrangement. Oil imports from Russia have not exceeded 2 million mt. since 1992, while sugar exports to Russia have not exceeded 3 million mt. since that same year.

The Joint Commission on Russian-Cuban Economic Cooperation culminated its three-day meeting in Moscow on May 14, 1999 by finalizing a new oil-

7. "Moscow Paper Warns of Oil Exports to Cuba," *Oil & Gas Journal*, Vol.89, Issue 25 (June 24, 1991).
8. "Cuba, Soviets Deals Highlight Total E&D Push," *Oil & Gas Journal*, Vol. 88, No. 53 (December 31, 1990).
9. "First License Round in 30 Years Sheds Light on Cuba's Geology," *Oil & Gas Journal* (April 26, 1993).
10. *Economic Report* (La Habana, Cuba: Banco Nacional de Cuba, May and October 1989 and previous editions).
11. "Moscow Paper Warns of Oil Exports to Cuba," *Oil & Gas Journal*, Vol. 89, Issue 25 (June 24, 1991).
12. "Cuba's Oil Crisis Spells Trouble for Castro, Opportunity for Foreign Petroleum Investment," *Oil & Gas Journal,* Vol. 90, Issue 27 (July 6, 1992).

Figure 7. Cuba: Oil Imports from Russia 1989-99



for-sugar agreement. Signed by Russian Trade Minister Georgy Gabuniya and Cuban Foreign Trade Minister Ricardo Cabrisas, the arrangement called for the shipment of 1.5 million mt. of crude oil to Cuba in return for 800,000 mt. of raw sugar for Russia. As discussed earlier, Russian oil for Cuban sugar trade protocols for the period 1995 through 1998 called for 14.25 million mt. of crude oil to be shipped to Cuba in return for 4.75 million mt. of raw sugar to be shipped to Russia. Actual quantities of crude oil shipped to Cuba by Russia were 4.5 million mt. during that four-year period.[13]

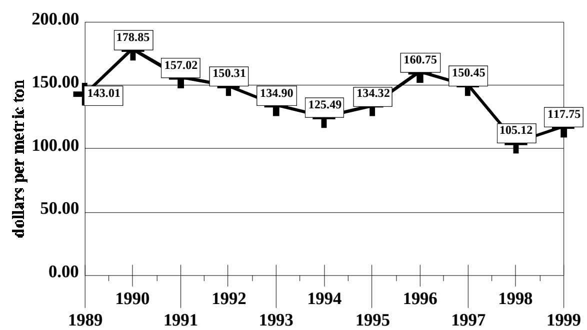
The Russian-Cuban economic cooperation agreement of May 14th is expected to be the last such subsidized arrangement between the two long-time trading partners. Trade Ministry spokesman Igor Makurin acknowledged the Russian government's role in the Cuban sugar-for-oil swap stating that beginning in 2000 only Russia's private trading companies will be involved. This suggests the oil-for-sugar trade actually will be based on world market price levels and no longer subsidized by the Russian government. The announced end to the Russian oil-for-sugar subsidized barter deals is likely to bring more difficulties for Cuba since back payments owed to its oil suppliers amounted to $300 million at the end of 1998.[14]

Table 8. Annual Average Crude Oil Futures Prices 1989-99

Year	Dollars/Metric Tons[a]	Dollars/Barrels[c]
1999	117.75[b]	16.13[b]
1998	105.12	14.40
1997	150.45	20.61
1996	160.75	22.02
1995	134.32	18.40
1994	125.49	17.19
1993	134.90	18.48
1992	150.31	20.59
1991	157.02	21.51
1990	178.85	24.50
1989	143.01	19.59

Source: a) Annual average crude oil futures prices per barrel obtained from the New York Mercantile Exchange (NYMEX). b) Average crude oil price through July 31st. Note: c) NYMEX price conversion to dollars based on 7.3 barrels per metric ton.

Figure 8. Annual Average Crude Oil Futures Prices 1989-99



CRUDE OIL AND RAW SUGAR MARKET PRICE EXCHANGE VALUES

From 1989 through 1999 one metric ton of sugar was of greater value than one metric ton of oil with equilibrium reached when crude oil sold for $18.50 per barrel and sugar sold for 6.12 cents per pound. That level was not reached during this period. The value of sugar was more than double the value of oil in 1989 and then again in 1994 and nearly reached that level again in 1995 when sugar was valued at 1.99 times that of oil. In 1989, Cuba produced 8.1 million mt. of sugar which sold at 13.71 cents per pound. While in 1994, Cuba produced 50 percent

13. "Cuba's 1998/99 sugar crop tops 3.7 man tones," Reuters, May 17, 1999.
14. Pascal Fletcher, "Cuba economy feeling liquidity squeeze—bankers," Reuters (May 26, 1999).

less sugar—4 million mt.—when it was priced at 12.17 cents per pound.

Table 9. Crude Oil and Raw Sugar Market Price Exchange Values 1989-99

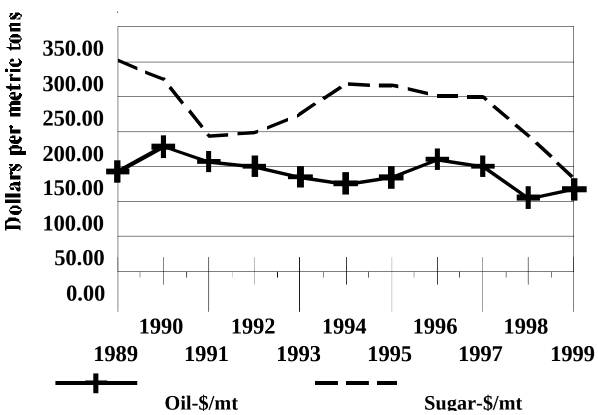
Year	Oil[a] $/bls	Sugar[c] Ct/lbs	Oil $/mt	Sugar $/mt	Exchange Sugar/Oil
1999	16.13[b]	6.07[d]	117.75	133.82	1.13649
1998	14.40	8.81	105.12	194.23	1.84770
1997	20.61	11.36	150.45	250.44	1.66457
1996	22.02	11.42	160.75	251.77	1.56626
1995	18.40	12.13	134.32	267.42	1.99092
1994	17.19	12.17	125.49	268.30	2.13807
1993	18.48	10.22	134.90	225.31	1.67015
1992	20.59	9.03	150.31	199.08	1.32449
1991	21.51	8.83	157.02	194.67	1.23975
1990	24.50	12.54	178.85	276.46	1.54576
1989	19.59	13.71	143.01	302.25	2.11353

Source: a) Annual average crude oil futures prices per barrel obtained from the New York Mercantile Exchange (NYMEX). b) 1999 average crude oil price through July 31. c) Annual average World Sugar No. 11 futures prices per pound on nearby contract obtained from the Coffee, Sugar, and Cocoa Exchange (CSCE) in New York. d) 1999 average world sugar price through May 28.

Note: 1.0 metric ton (mt) of sugar can purchase over 1.0 metric ton of oil.

Equilibrium: Commodities exchange on a 1:1 ratio when the crude oil price reaches $18.50 per barrel and raw sugar price reaches $0.061262 per pound.

Figure 9. Oil and Sugar Market Price Exchange Values



The rise and fall of commodity prices notwithstanding, Cuba has maintained a distinct advantage in the oil-for-sugar barter marketplace as the unit value of sugar consistently has exceeded the unit value of oil. The disadvantage to Cuba has been its highly erratic sugar production levels.

CONCLUSION

The hidden effect of the cutoff of Soviet oil shipments was the sudden increase in Cuba's oil import costs at world market price levels combined with the end of excess oil supplies beyond its domestic needs that had previously provided substantial reexport revenues from concessionary Soviet oil imports. As a result of decreased oil imports from Russia, Cuba curtailed energy consumption and paid more for its oil imports in order to meet its minimum crude oil requirements. The result was Cuba's inability to sustain its sugar production at levels approaching those of 1988-89 through 1991-92.

The apparent end to the Russian oil-for-sugar barter arrangement raises the question of how Cuba will be able to afford and obtain its minimum annual oil supply requirement of 7.5 million mt. The difference between its 1999 projected domestic oil production level of 2 million mt. and annual requirement is 5.5 million mt. At 1999 market prices, Cuba's bill would be well over half a billion dollars or $647.625 million. At current sugar price levels (May 28, 1999 at $133.82/mt), Cuba would need to export 4.84 million mt. to pay the import costs to meet its oil needs (see Table 5). Cuba has neither exported more than 4.84 million metric tons of sugar since 1992 nor has it produced more than 4.84 million metric tons of sugar since crop year 1991-92.

One possible alternative to Cuba's dilemma would be its inclusion in the San Jose Pact.[15] The pact, which does not involve sugar, is operated by Latin oil giants Mexico and Venezuela that have since 1980 granted oil discounts to Central American and Caribbean countries. Linked to oil prices, the pact "sets aside a percentage of the oil bill to generate resources for financing the commercial exchange of goods and services and/or development projects in the countries participating in the program." Although Cuba's inclusion already has been rejected this year, Venezuela appears interested in reaching a bilateral arrangement with Cuba.

15. Ralph J. Galliano, "Cuba Considered for San Jose Oil-for-Trade-Pact," *U.S. Cuba Policy Report*, Vol. 6, No. 6 (June 30, 1999).