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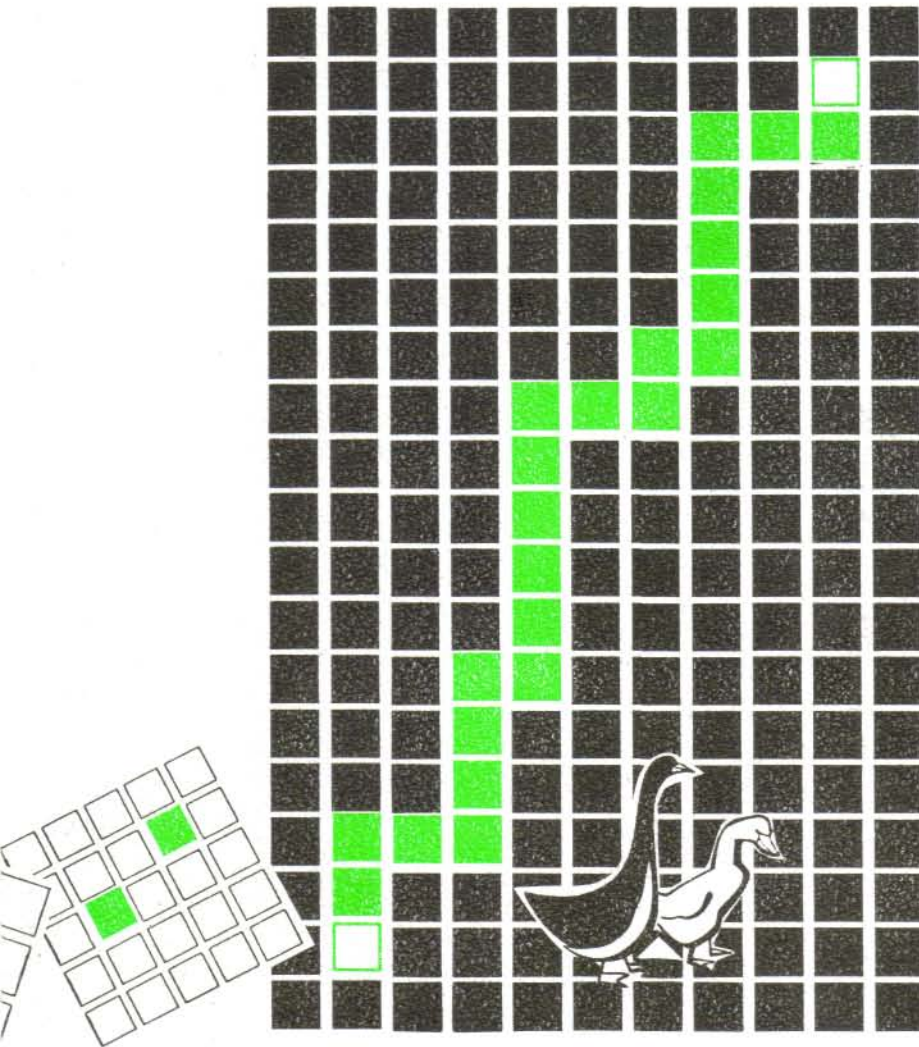
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NEGOTIATING THE FUTURE OF CARICOM'S SUGAR INDUSTRY: THE IMPLICATIONS OF WTO-TYPE COMMITMENTS

Clive Y. Thomas¹

ABSTRACT

This paper examines the core considerations affecting negotiations for the future of the Caricom's sugar industry. These are the capacity and performance of the industry and its competitiveness as limiting factors; the absence of "popular education" on the issues and the continued suppression of historical detail in relation to the world sugar market in current discourses about globalization and free trade, the implications of current WTO commitments and their likely trajectory in the future, key features of the world sugar market; the impact of the recent Cotonou Agreement and the special concessions offered by the European Union to the LLDCs; and, the prospects for the US sugar regime.

1. INTRODUCTION

This paper examines the core issues involved in negotiating the future of Caricom's sugar industry. It does so after the recent Cotonou Agreement between the African Caribbean and Pacific (ACP) group of countries and the European Union (EU) (June 2000), following on the expiry of Lomé IV this year, and the just announced "anything-but-arms" (ABA)

proposal granting zero duty and quota free access for all products from the less and least developed countries (LLDCs) commencing in January 2001.

A three year transition period for sugar, as one of four sensitive commodities was announced (the others are rice, bananas and rum). The core issues are:

- Industry performance, capacity and competitiveness as limiting factors

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- Popular education: in particular the "suppression" of historical detail in the current discourse on globalization and free trade
- The implications of current WTO commitments and their likely future trajectory
- Structural features of the global sweeteners market as the context for the Region's export trade in sugar
- The Cotonou Agreement, the proposed ABA special concessions to the LLDCs, and the EU-ACP Sugar Protocol
- Prospects for the US Sugar Regime.

Two immediate observations are necessary. First, this presentation draws extensively on the work-in-progress and forthcoming publications cited in the References. Second, because of the tremendous range of material to be covered and the time constraint, I have had to be very selective in today's offerings, with the result that there may be many errors of omission.

2. PERFORMANCE, CAPACITY AND COMPETITIVENESS

It goes without saying that at every stage negotiating the future of the Region's sugar industry has to be guided by a realistic appraisal of its present situation and prospects. There is no merit in negotiating for amounts that are beyond the industry's capacity to deliver. Nor is there any merit in doing so for amounts that are below that capacity. The

fundamental concern is that the region's industry is very high cost and uncompetitive, and is likely to remain this way beyond the medium term, even on the basis of a moderately optimistic outlook. Therefore, preferential market sales will always be indispensable for its survival. Even in cases where expansion and/or modernization plans are underway, the expanded throughput is not likely to lower unit cost to a level that is competitive with prevailing or expected world sugar prices over the medium term. Indeed, reliance on preferential sales remains attached to these plans. In this Section we attempt a brief appraisal of the performance, capacity and competitiveness of the regional sugar industry.

A striking feature since the mid-1960s is the trend in production. Graph 1 and Table 1 indicate that during the World War II years regional output fluctuated around a mean for the period of 0.6 million tonnes. After the War, output trended upwards. In the mid-1950, the West Indies was the world's second largest sugar exporter, after Cuba. The six year average output for 1964-9 was 1.3 million tonnes, or more than twice the average for 1940-45. Output peaked at 1.4 million tonnes in 1965. Thereafter, output has generally trended downwards, averaging about 0.8 million tonnes during the period 1994-99. While country performances during this period have been uneven, significantly the number of countries producing sugar has been reduced from ten to six.

On average, about 85 percent of regional output is exported as raw for processing overseas. Sales to the EU market under the EU-ACP Sugar Protocol is by far the largest, 85 percent of total exports. For the remainder, the USA is 8 percent, intra-regional trade 4 percent, and trade on the world market 3 percent.

Since the peak output year (1965), yields of cane per hectare and sugar per hectare have fallen by one quarter and one-third respectively, while factory efficiency has declined by 17 percent. Again the performance of individual countries varies (details of these can be found in Northover and Thomas (1999)). However, present costs of production are very high C about five times the free market price. The weighted average cost of production for the 1998/99 crop year has been estimated at 31US cents/lb. Individual country costs ranged from 16 to 56 US cents/lb. The industry's survival is therefore critically dependent on the protection afforded by the Sugar Protocol sales.

While there are uniformities, the structure of the regional industry also varies considerably. This is clearly revealed in the patterns of ownership and management, and the prevailing mix of estates and small farms. For example, while in each country the pattern of ownership differs, special management arrangements have been put in place in all of them. Similarly, while all countries have an individual small farming sector producing sugar cane for processing in

mills that are centrally owned, the size of this sector varies from 10 percent of the total to 100 percent.

Despite the downward trend in output, the predicament is that sugar still is the second largest employer in the Region. In two territories (Barbados and St. Kitts-Nevis) there are labour shortages, and migrant labour is imported for harvesting. Sugar's overall contribution to both GDP and commodity exports varies widely, reflecting for the most part the degree of diversification in the particular country. Thus the GDP ratio ranges from one to 16 percent, and the export ratio from one to 29 percent. The industry also has important linkages, externalities, social relations and multiplier effects, as well as produces two important by-products: bagasse and molasses. The by-products are used as fuel (bagasse) on estates, or as feed or inputs into the local alcohol/rum industry. There are also distinct sugar communities in the region, which have existed for a long time, and whose survival are crucially dependent on the sugar industry. This is of particular importance since there is no other crop that is capable of replacing sugar, which has the best domestic resource coefficient of all agricultural crops in the region (Thomas 1995).

Northover and Thomas (1999) provides a useful catalogue of the important factors contributing to the decline in the Region's sugar industry:

- The impact on costs of reduced throughput.
- Deteriorating physical infrastructure, poor maintenance and insufficient new investments and their impact on efficiency.
- Notwithstanding the reduction in number of mills in the region from 55 in 1961 to 23 today, aged factories and agricultural equipment are very much in use. These are operating at less than acceptable levels of outlays for maintenance. These reduce the industry's capacity to complete harvesting and processing within reasonable cropping periods. Cropping periods are 30 percent longer than are required for efficient mill operations.
- Significant increases in "kill-to-mill" times, which affect cane quality.
- Deteriorating husbandry (particularly ratooning, replanting, and fertilizer use), cultivation, and reaping practices over the years.
- The adverse incidence of poorer sugar cane varieties, and increased pests and diseases.
- Politicisation in nationalized industries. This was due to government's political interference in state-owned companies in a multiplicity of ways, as well as political conflicts based on the political allegiances of workers which were frequently given to political parties in opposition to the government.
- A pattern of outdated industrial relations practices, which seem to sustain the cycle of industrial conflict on the estates.
- The ageing labour force referred to earlier.
- Reduced R&D and declines in workforce training.
- Poor wages and working conditions and their impact on labour supply. These should be allied to the pressures created from economic diversification and the emergence of higher wage sectors (especially tourism).
- The wastage of skills in the industry because of external migration.
- Alienation of sugar cane lands to housing property development especially in the smaller land scarce countries.
- Low levels of re-investment in the industry because of concerns about market uncertainty and the size of the required investments. Linked to this also, is the high cost of credit.
- Poor management and poor information and data management system.
- A weak regulatory and incentive framework within which the industry works, especially in areas like price fixing for farmers' cane, land administration and land use, labour productivity and wage payments, and

fiscal regimes." (Northover and Thomas, 1999).

The circumstances revealed above make it obvious that the industry's decline and its uncompetitive structure place negotiations at a considerable disadvantage. Promises of future improvements are not likely to be readily welcome, given the secular nature of the difficulties identified. There is need therefore for the industry at the regional level, to send the strongest possible signal that it intends to take these problems in hand and address them regionally. A high-powered Regional Commission on the Sugar Industry and its Future, may be the way to go to generate both concerted regional attention and to signal unwillingness for the present state of affairs to continue. The further advantage of such an approach is that it allows national efforts to continue from the platform of an agreed regional position. Such agreement is essential for two areas of the industry's operations:

- The regional market for raw sugar, estimated at about 154,000 tonnes.
- The regional market for processed sugar, estimated at about 126,000 tonnes.

There is still to be put in place a systematic regional mechanism for optimizing the localisation of this sugar, which is equivalent to about 30 per cent of current output.

3. HISTORICAL DETAIL

As a rule the level of public awareness of the issues at stake is very important in contributing to a "supporting" atmosphere in negotiations between states, especially where these are on-going for a considerable time period and where the consequences could be very grave for at least one of the parties.

This is the case in general for Caribbean agriculture and more particularly so for sugar. The danger in the present situation, is that there has been a considerable suppression of historical detail in the recent discourse on globalization and free trade policies, and their impact on the re-negotiation of the sugar trade. In this regard space will only permit a few of summary observations. These, however, should be part of a broader awareness among the Caribbean public.

To begin with, awareness of the historically strategic role that sugar played in the development of the world economy should be promoted. Sugar was, by far, the leading commodity in the modern development of international trade and capitalism as a global enterprise. The role that colonially structured protection/mercantilism played in this development is not widely appreciated. Subsequent sea-changes that occurred in the global marketing arrangements for sugar depended almost entirely on the shifting interpretation of the needs of the major importers. In

particular this was the case for the colonial powers (Britain and Europe).

In particular, World War II pressures on the domestic availability of food led Britain to offer a guarantee for the purchase of all exportable sugar from the Region during the war. After the war, the fear was that raw supplies to its refineries would be disrupted on account of the opportunities elsewhere for higher prices created by shortages and a sellers' market for the Region's sugar. The Commonwealth Sugar Agreement (CSA) which was agreed to in 1951 and, which was subsequently transformed into the present ACP-EU Sugar Protocol (1974), was not a unilateral gesture of generosity by Britain and Europe to the ACP sugar producers - as it is widely described today. It represented, in large measure, the continued pursuit of their self-interest, as the fear was then that there would be a high long-term price for sugar, and indeed for all primary commodities. One only has to recall the commodity boom of the 1970s, and the peaking of sugar prices at 64 cents/lb in 1974. Yet the signing of the Sugar Protocol Agreement was based on a price of only 147 British pounds per ton, when, the world price was more than 2½ times higher. As was pointed out earlier, in the mid 1950s the Region was the world's second largest sugar exporter and, despite declines in output after that, it remained among the top ten exporters right up to the mid-1990s. Such a perspective helps to explain why the commitment was made by both the EU

and the ACP sugar exporters, to establish the Sugar Protocol as an "indefinite agreement".

An additional benefit for the EU was that the domestic pricing arrangements for sugar within the EU's Common Agricultural Policy (on which the Sugar Protocol is based) also bolstered the position of European farmers in their desire to expand beet sugar output. The consequence was dramatic. At the time the Sugar Protocol was signed, the EU was a net importer of sugar - the world's largest. Two decades later, it was both the world's largest importer and exporter of sugar. Clearly with such results it cannot be reasonably argued that the Sugar Protocol targeted the ex-colonies principally.

The conclusion noted above is not as surprising as it appears, for of the particular historical juncture under consideration, the underlying rationale for trade policy was very different from today's. We shall return to this point later.

It is to be deeply regretted that the EU Sugar Protocol is portrayed as a "handout" to the ACP states, and that this gained such wide acceptance. Although late, there is need for a public relations offensive to correct it. The historical record is clear, from the outset the concern behind the Protocol was to promote the mutual economic advantage of all parties over the long term. This meant for both Europe and the ACP an emphasis on assured supplies and long term stability in earnings, both of which

elements are embodied in the Sugar Protocol.

4. THE WTO/UR ARRANGEMENTS

In looking at the likely impact of the WTO/UR Agreement, we have to recognise that the arrangements for the marketing of the Region's sugar embody features that characterized trade relations between developed and developing countries and among developing countries up to the 1970s. These are:

- discriminatory preferences and non-reciprocal obligations and rights;
- a focus on commodity trade based on price and quota guarantees for primary exports;
- the linkage between trade concessions and official concessional flows; and
- an "inward focus" to regional cooperation arrangements, based on common external protection and the promotion of import substitution activities.

Since the UR/WTO Agreement, new liberal trade principles of reciprocity, non-discriminatory treatment, and "neutral" non-trade distorting regional co-operation arrangements are being embraced. Present negotiations/re-negotiation of the region's major external trade arrangements with Europe and the US are being pursued within a WTO-compatible framework. However, the traditional features of its trade still remain fairly well entrenched, and, in the case of

sugar, these are seemingly protected by international law.

The Agreement on Agriculture (AOA) of the UR/WTO Agreements focuses on rules and commitments in four areas: market access, domestic support, export competition, and sanitary/phyto-sanitary measures. These are significant because of their likely impact on the continued purchase of preferential sugar by the EU and the US. Generally the commitments are:

- to convert variable import levies into binding tariffs, and to reduce these tariffs by 20%, subject to the operation of safeguard clauses.
- to maintain current access for sugar imports at a minimum of 5% of average consumption during the base period 1986-88
- to reduce global farm spending by 20% as measured by the Aggregate Measure of Support (AMS)
- to limit the volume of subsidized sugar imports as agreed in the schedules (e.g. for the EU, a reduction of 21% net of imports from ACP countries and India.),
- to limit the budgetary outlay on export subsidies (e.g. for the EU, a reduction of 36% net of imports from ACP countries and India).

The practice of binding tariffs and basing them on 1986-90 as the base period has produced the outcome known as "dirty tariffication". This along with WTO allowed arrangements to treat existing imports under special

arrangements as qualifying for the market access provision, as well as the Blair House Agreement on Domestic Support, have considerably watered down the impact of the UR/WTO Agreement on the world sugar market. The sanitary/phytosanitary provisions also seem more relevant to trade in other sweeteners, which are already subject to government regulation.

In Northover and Thomas (2000), attention is drawn to the UNCTAD (1996) report on three models used to project world prices as a consequence of the WTO agreement. The ABARE model, projected price increases of 5.3 and 4.7 percent by year 2000 for raw and white sugar respectively. The USDA projected price increases of 2-5 percent by year 2000 and 4-8 percent by year 2005. UNCTAD itself projected a 10 percent increase after the transitional period to year 2000, if there was no price response in the markets of developing countries. In the more likely case of such a response, the price increase was projected at less than 5 percent. In all the models the projected price increases would have to be moderated by supply responses in low cost exporting countries. Recent World Bank (April 1999) projections show nominal prices of 7, 10.4 and 11.3 cents per lb for raw sugar for the years 2000, 2005, and 2010. The constant price equivalents (1990 base) are 6.6, 8.6 and 8.3 cents per lb respectively.

With the recent fall in sugar prices, these price projections now appear

optimistic. Much of the earlier work reported here was based on the expectation of significant gains in sugar consumption following on the growth of incomes due to the impact of WTO trade liberalization. A great deal of this positive impact was expected in Asia, but this has not occurred. The 1997 Asian crisis has led to falls in consumption, and the depreciating exchange rate in that region has led to greater tolerance for the dollar price decline of sugar. However, the Asian crisis effects may not been the primary factor behind the fall in sugar prices. More and more as recovery begins to emerge in Asia, the data suggest a broader and longer lasting fall in primary commodity prices. It is of note that the annual decline in a number of other commodities, including vegetable oils, rice, maize, wheat, soybean and coffee has exceeded 2 percent per annum since 1950 (FAO). This broader decline appears to reflect the effects of increased supplies brought about by improved technology, reduced costs of production, and a more "liberal" policy framework - all working in conjunction with the more traditional primary commodity price cycles. To the extent this is accurate, price recovery from the current fall in sugar prices may be quite difficult, as such efficiency gains do not dissipate easily. We should therefore ponder on the aptness of the World Bank's conclusion to the effect that: "This suggests that commodity prices may have taken another step down in the long history of

declining prices relative to those of manufactured goods" (World Bank, April 1999, p.7).

As a final comment it should be stressed that over the long-term, the greatest benefits of the WTO are likely to derive from the greater transparency and predictability it brings to the world sugar trade, as non-market barriers and their trade distorting effects are reduced - no matter how slowly. Sugar is still one of the most regulated commodities. It is produced and sold in highly segmented markets, which are "thin". Although the process is slow, liberalization and de-regulation have started and will grow with time. Countries such as those in Caricom, which enjoy significant preferences in their sugar sales and the income transfers that go with these, may not find this heartening - particularly at a time of low world sugar prices. However, to the extent that these preferential arrangements become "WTO-recognised" in the context of the newly emerging liberal trade order, they carry with them an explicit obligation for compensation, if access is to be reduced in any way. The road from here to there, however, is likely to be long and tortuous. This does not, however, rule out the possibility that the EU and the US may increase access of other sugar producers to their markets by increasing the size of their tariff rate value of the protection that is afforded by the existing preferential arrangements from which the region benefits so much.

5. STRUCTURAL FEATURES OF THE WORLD MARKET FOR SUGAR

There is a long list of structural features of the world sugar market which impact on negotiating the future of Caricom's sugar. Included in these are:

- the global competition between beet and cane sugar
- the shifting balance between white and raw sales and the issue of white quality
- transportation and storage costs (an estimated 90 percent of sugar is transported by water, with freight rates complicated by competition and changing capacities)
- the utilization (and benefits from) beet and cane by-products (molasses, surplus electricity, feedstock for alcohol distilleries etc.)
- the likely impact of high fructose syrups (HFS) on sucrose consumption
- the future impact of the evolution of high intensity sweeteners (HIS) on sucrose production and sales
- the institutional functioning of trading houses in sugar markets.

These cannot be addressed in this short presentation, and instead I draw attention to the results of four LMC econometric models, which yield significant insights:

- First, despite the "thin" global sugar market and the role of non-market

factors in these, the long run trend in world free market prices represents a fairly accurate guide to the long run costs of production for competitive beet/cane sugar industries.

- Second, over the long term, world output "closely tracks" world consumption. However, given the huge volume of global sugar output even small incremental changes have huge implications for the volume of production and the resources required to do this.
- Third, if world sugar prices are adjusted for inflation and the depreciation of the US dollar relative to other currencies, sugar prices have been low and the "new high" declared in the late 1980s and early 1990s when sugar traded between 8-15 cents/lb did not exist.
- Fourth, much of the behaviour of sugar prices can be explained as the combined effect of three variables: the sugar stock/consumption ratio, the interest rate, and world oil prices.

6. THE SUGAR PROTOCOL

By and large Caricom sugar producers have performed reasonably well with respect to fulfilling their quota obligations with the exception of Trinidad and Tobago, which has had its quota cut by one-third because of short-deliveries over the period 1978 - 1984, in circumstances where force majeure could not apply (see Table 2). The Sugar Protocol assures two

types of transfer benefits: stabilization of export earnings (prices) and income transfers due to receipt of prices higher than world prices. The measured benefits are shown in Tables 3 and 4.

The Cotonou Agreement which superseded Lomé IV seems to confirm for the time being the original status of the Sugar Protocol. In that Agreement review of trade arrangements for sensitive commodities (including sugar) is to take place during a transition period of 8 years. The new trading arrangements of the Agreement do, however, stress the need for final WTO compatibility in EU-ACP trade. Formal negotiations are scheduled to begin in September 2002, so that final arrangements will be in force by January 1, 2008. More important, however, may well be the recent ABA proposal under which the EU will grant zero duty and quota free access for all exports (except arms) from the LLDCs. Currently, the 48 LLDCs produce over 2 million tonnes of sugar and this arrangement could potentially put an end to the EU sugar regime as it is now. Naturally, Caricom sugar producers have protested, particularly as this proposal violates the spirit of partnership that is supposed to lie behind the Cotonou Agreement as well as the commitment to "joint consultations on market access", written into it. It is too early to predict the outcome of all this, but we assume, perhaps heroically, that modalities will be worked out to ensure that the spirit of the Cotonou Agreement prevails during the transition period. It is

difficult to imagine the Agreement floundering within months of its coming into force.

Current arrangements under the WTO also allow temporary reprieve for the Sugar Protocol. The AoA however, unmistakably brings it under closer scrutiny and perhaps worse, exposes it to the maneuverings between the major agricultural competitors - the EU and the US. Northover & Thomas (2000) concluded that: "the prospects for Caricom's sugar are not altogether bleak", based on considerations, which would now include the Cotonou Agreement and the granting of duty-free non-reciprocal access to the LLDCs. These are:

- The Cotonou Agreement is a mutually satisfactory replacement for the revised Lomé IV which it replaces.
- The continued integration of the Sugar Protocol into the EU domestic sugar regime even as the regime is reformed.
- The uncertain effects of the ABA access granted to the LLDCs is recognized, but we assume that these will not be disruptive and that the spirit of compromise embodied in the Cotonou Agreement will prevail.
- The "WTO-recognition" of 1) ACP sugar imports as an offset for export commitments under the UR and 2) ACP sugar counting towards the current market access of the AoA.
- The continued EU practice of "dirty tariffication" under the AoA.

- The EU use of existing "safeguard clauses" of the WTO.
- The "convergence of interest" amongst the EU beet farmers, refining interests, and the ACP states in (1) preserving relative price stability, and (2) the use of adaptive quota cuts as the basic response mechanism to liberalisation.
- The continuation of the WTO reform process along the same "path gradients" taken to date, where the main impact is observed in the reduction of sugar import tariffs.
- All the above continue even if the EU is enlarged.

We then identified a best case scenario as one with: "only moderate pressure on prices for Protocol Sugar, possibly a reduction by a politically safe 2-3% per annum from 2001". (Northover & Thomas, p.17).

In this scenario high production costs in Barbados, Jamaica, St. Kitts and Nevis and Trinidad and Tobago will lead to lower transfer benefits and increased pressures against the domestic funding of sugar. These in turn will lead to considerable problems in the rural and national economies of the countries concerned. For the worst case scenario we admitted: "a potential but improbable threat to the existence of the Protocol, which if it emerged would nonetheless imply a case for compensation". (Northover & Thomas).

In such a worst case, the transfer benefits disappear and the closure of the

industry (except possibly for Belize and Guyana) becomes a real possibility. Unless of course costs in these countries can be dramatically lowered (at least halved), and sugar sold profitability on the world market. Given the importance of these industries to the rural and national economies of the countries concerned, the social and political turmoil is likely to be considerable. In both scenarios the Region's weak under-belly is the declining competitiveness/productivity of its sugar industries. The negative precedents of bananas, rice and rum have also to be taken into account.

6.1 The US Sugar Regime

In the case of the US Sugar Regime our assessment is more gloomy. We concluded that: "the possibility of retaining both transfer benefits and access to the US market in the wake of free trade with Mexico seems less likely, as we expect the US market to become more open to international competition". (Northover & Thomas).

We anticipate reverses in both price and quota size. As with the EU Sugar regime, the AoA has had very little impact on the operation or the effect of the US sugar programme. Market access is catered for through the existing TRQ arrangements, which is presently above its current access commitment, and "dirty tariffication" has also been practised. The US does not have export subsidies for sugar; the DMS does not directly apply.

In this situation it is the NAFTA arrangements that are key. Of these two deserve special mention:

- i. duties on Mexico's second tier imports falling to zero in the year 2008, and rapid growth of their second tier imports (being especially encouraged by the prevailing low world sugar prices), already putting pressure on US domestic prices
- ii. their access quota jumps from 25,000 short tons current to 250,000 short tons in 2000, and it is not fully settled if these new imports will be counted, either within the guaranteed minimum access level of 1,250,000 short tons, or above the guaranteed minimum.

Table 1. Sugar Output 1940-1999 (six years averages)

Period	Sugar Output (000 tonnes)
1940 - 45	560
1946 - 51	731
1952 - 57	1027
1958 - 63	1194
1964 - 69	1279
1970 - 75	1124
1976 - 81	976
1982 - 87	766
1988 - 93	705
1994 - 99	805

Source: Northover and Thomas (1999).

Table 2: Performance under Protocol and SPS Arrangements

	Protocol	SPS
Barbados	Satisfied since 1975 except in 1994/95. But <i>force majeure</i> accepted and quota maintained.	Satisfied since 1995 except in 1997/8 when short delivered quota. No deliveries in 1998/9
Belize	All obligations met every year.	All obligations met every year.
Guyana	Short delivered in years: 1988/89 35,493 MT WSE 1989/90 13,200 MT WSE 1990/91 45,600 MT WSE But <i>force majeure</i> accepted and quota maintained.	All obligations met every year.
Jamaica	All obligations met every year.	All obligations met every year.
Trinidad & Tobago	Short delivered in years: 1978 16,511 MT 1979 2,772 MT 1980 8,967 MT 1981 5,848 MT 1982 22,465 MT 1983 10,385 MT 1984 27,365 MT Trinidad & Tobago's original quota of 72,632 tonnes has been reduced to 46,053 tonnes.	All obligations met every year.
St. Kitts-Nevis	All obligations met every year.	All obligations met except in 1998/9.

Source: Northover and Thomas (1999) as adapted from James (1998).

Table 3. Effects of the Sugar Protocol on the Instability of Sugar Export Earnings (a) 1975 – 1991

	Instability Without Sugar Protocol (Coefficient of Variation in %)	Instability With Sugar Protocol (Coefficient of Variation in %)	Effects of the Sugar Protocol on the Instability of Export Earnings (b) (%)
Barbados	59.58	24.49	-58.90
Belize	43.63	23.83	-45.38
Guyana	44.86^^	35.66	-20.51
Jamaica	49.91	15.21	-69.53
St. Christopher & Nevis	47.51	16.92	-64.44
Trinidad and Tobago	40.74^	13.45^	-66.99
Total ACP	41.99	16.85	-59.87
Total ACP (median)	49.41	31.97	-33.59

(a) Instability was computed with the trend-corrected coefficient of variation as introduced by Cuddy and Della Valle (1978)

(b) Computed as: (instability with protocol – instability without protocol) . 100/ instability without Protocol

^ Linear-trend-corrected coefficient of variation

^^ Log-linear-trend-corrected coefficient of variation.

Source: Northover and Thomas (1999) as adapted from Herrmann & Weiss (1995).

Table 4. National Welfare Effects Due to Transfer and Risk Benefit Under the Sugar Protocol in 1000 ECU, 1975-91 ($\rho = 0.5$)⁽¹⁾

Countries	Transfer Benefits (1)	Risk Benefits (2)	Total Welfare Effects (3) = (1) + (2)
Barbados	136,054	24,275	160,329
Belize	109,739	12,541	122,280
Guyana	419,265	17,320	436,585
Jamaica	329,697	37,938	367,635
St. Kitts & Nevis	42,470	5,528	47,998
Trinidad and Tobago	123,416	11,461	134,877
CARICOM	1,160,641 (32.79%)		1,269,704 (32.9%)
ACP	3,539,259 (100 %)		3,855,687 (100%)

⁽¹⁾ (Rho) Value assumed for the coefficient of relative risk aversion

Source: Northover and Thomas (1999) as adapted from Herrmann & Weiss (1995).

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