



Mobilizing Foreign Exchange Reserves For  
Economic Growth in CARICOM

by

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Table 1\*

Volume and Value of Major Exports and Tourism Receipts

	1974	1975	1976	1977	1978
Bauxite (tons mill)	8.0	5.5	6.3	6.4	6.6
(J \$ mill)	134.7	106.9	112.6	145.9	138.0
Alumina (tons mill)	2.9	2.3	1.6	2.1	2.2
(J \$ mill)	346.7	346.9	276.8	343.3	355.5
Sugar (tons 000)	296.7	253.6	229.8	216.6	199.2
(J \$ mill)	74.4	139.7	55.9	54.1	52.9
Bananas (tons 000)	72.3	68.1	76.6	78.8	75.7
(J \$ mill)	11.5	14.6	11.9	13.3	15.3
Tourism (J \$ mill)	121.2	116.8	96.1	79.2	166.6
Total Receipts	688.5	724.9	553.3	635.8	728.3

\*Sources: Bank of Jamaica, Report and Statement of Accounts, Annual.

Jamaica Department of Statistics, Social and Economic Survey, Annual.

slow economic growth in the major industrial economies following the dislocations to the global economy brought about by the substantial increases in petroleum prices since 1973. At the same time, particularly in the area of sugar and bananas, domestic production was undermined by unfavourable climatic conditions, as well as, labour disruptions, and tourism by internal political conditions.

The stagnation in foreign exchange earnings from exports and tourism was also associated with a cessation of private capital inflows by 1976, and as a consequence increased reliance had to be placed by the government on external borrowing. In Table 2 below we have set out the external debt position of the government from 1974 to 1978. As the Table reveals there was a major

Table 2\*

Government of Jamaica External Debt and Debt Service Charges  
J \$ Mn

	1974	1975	1976	1977	1978
Total External Debt	272.3	381.5	444.0	484.7	1174.8
Debt Service					
Interest	28.4	46.2	52.8	54.7	107.8
Amortization	20.6	29.4	47.8	78.0	231.0
Total Debt Service	49.0	75.6	100.6	132.7	338.0
Debt Service % Gross Exports Goods & Services	5.4	7.4	11.7	14.7	19.2

\* Source: Bank of Jamaica, Report and Statement of Accounts, Annual.

increase in the level of external indebtedness over the period although the 1978 values are somewhat biased given the approximate 50 percent devaluation of the currency in that year. Of even more importance than the growth in the total size of the debt was the increase in the burden of the debt service charges on the national economy. Interest and amortization charges increased from approximately 5 percent to 19 percent of the value of gross exports of goods and services. This increase in the burden of debt service charges reflects not only the increase in the absolute size of the debt, but the fact that by 1978 almost 50 percent of the debt was in the form of instruments with a period to maturity of less than 5 years.

It is against this background of economic stagnation and decline and growing external indebtedness that we now turn to the task of trying to determine the foreign exchange requirements which would be associated with a return to positive economic growth.

### Estimating Jamaica's Foreign Exchange Requirements

The normal approach which would be adopted in estimating what is sometimes called the foreign exchange gap would involve the construction of a complete econometric model of the Jamaican economy.<sup>3</sup> In this instance a much less ambitious path will be followed. We will attempt to identify potential changes in outlays on imported commodities and the means of financing these imports from bauxite and alumina earnings, other commodity exports and receipts from tourism for the period up to 1985. In so doing we will derive an approximation of the financing requirements for meeting specified growth targets, before dealing with the matter of approaches to meeting external debt service charges.

#### Merchandise Imports

The level of spending on commodity imports in recent years has been influenced by the series of ad hoc measures which have been adopted in the face of the foreign exchange crisis. As a result, in order to determine a set of systematic relationships between the performance of the economy and import spending, it was necessary to try to determine the nature of the relationship in a period when such extraordinary measures were not in force. We have, accordingly, chosen the period from 1963 to 1972 as a reference base. Total commodity imports was then subdivided into the following groups

- M<sub>1</sub> This includes all items falling within SITC classes 0 and 1 with the exception of unmanufactured tobacco.
- M<sub>2</sub> All items falling within SITC class 8 as well as essential oils and medicinal and pharmaceutical products from SITC class 5.
- M<sub>3</sub> All items falling within SITC classes 2, 3, 4 and 5 with the exception of those class 5 items in M<sub>2</sub> and unmanufactured tobacco.
- M<sub>4</sub> All items falling within SITC class 7.

The task was then that of establishing the principal determinants of import-demand for items falling within those four broad groups using linear regression analysis.

In considering the factors which would likely play an important role in determining  $M_1$ , consisting of food, beverages and tobacco, one would expect that outlays on these items would in the main be determined by private consumption expenditure. At the same time one might expect that import spending on these items could be moderated by growth in the domestic production of food working partially to replace imports. Two separate estimates were made for  $M_1$ . The first employed private consumption expenditure as the sole independent variable, and the second employed private consumption expenditure and gross domestic product of the agricultural sector as independent variables. The estimates were as follows:

$$\begin{array}{l} M_1 = .08536 P_C - .31670 \quad R^2 = .9818 \\ \quad (19.432) \quad (-.14462) \quad d = 2.2437 \\ \\ M_1 = .07460 P_C + .24307 GDP_A - 8.2905 \quad R^2 = .9865 \\ \quad (12.787) \quad (2.4125) \quad (-2.2143) \quad d = 2.1489 \end{array}$$

where  $P_C$  represents private consumption expenditure,  $GDP_A$  gross domestic product of the agricultural sector,  $R^2$  the coefficient of determination adjusted for degrees of freedom,  $d$  the Durbin Watson statistic, and the numbers in parenthesis are the  $t$ -ratios.

The estimates revealed a direct rather than inverse relationship between these imports and agricultural production. This might in part be explained by the fact that the income effect of changes in agricultural production on consumption of imports, out-weighed any substitution effects.

In the case of  $M_2$ , which consists in the main of durable and non-durable consumer goods, apart from food and tobacco products, we again selected private consumption expenditure as the principal determinant. We were also

concerned with trying to determine the potential effect of import substitution on these imports. Two estimates were made for  $M_2$ , one with private consumption as the single independent variable and the second using gross domestic product in the manufacturing sector as the second independent variable.

$$\begin{aligned} M_2 &= .05318 P_C - 4.0751 & R^2 &= .9333 \\ &(15.945) \quad (-2.4374) & d &= 1.6156 \\ M_2 &= .05178 P_C + .007132 GDP_m - 4.0721 & R^2 &= .9235 \\ &(3.5474) \quad (.01980) \quad (-2.4335) & d &= 1.6116 \end{aligned}$$

where  $GDP_m$  represents gross domestic product of the manufacturing sector. The estimated coefficient for gross domestic product of the manufacturing sector was of the wrong sign and was not significant.

Given the structure of the economy, with its heavy dependence on imported inputs for most productive activities, it was decided that the principal determinants of  $M_3$ , which in the main consists of intermediate inputs, would be dependent on the level of activity in the agricultural, mining, manufacturing transportation, utilities and the construction sectors.<sup>4</sup>

$$\begin{aligned} M_3 &= 3.9184 + .25613 GDP^* & R^2 &= .9346 \\ &(.47694) \quad (11.383) & d &= 1.8658 \end{aligned}$$

where  $GDP^*$  measures total gross domestic product for the six sectors listed above.

Finally, it was thought that  $M_4$ , consisting mainly of machinery and equipment would be mainly determined by gross fixed capital formation

$$\begin{aligned} M_4 &= .60707 GFCF - 36.437 & R^2 &= .8477 \\ &(7.1488) \quad (-2.8181) & d &= 1.8334 \end{aligned}$$

To summarize, the following four equations were employed estimate changes in imports.

$$M_1 = .08536 P_C - .31670$$

$$M_2 = .05318 P_C - 4.0751$$

$$M_3 = 3.9184 + .25613 \text{ GDP}^*$$

$$M_4 = .60707 \text{ GFCF} - 36.437$$

Merchandise Exports

Turning now to the question of commodity exports. The country's major exports are bauxite and alumina, sugar and bananas. The normal expectation would be that export sales are mainly determined by the economic performance of the major industrial economies of North America and Western Europe, the major markets for these items. However it would appear that in the case of the two agricultural products, the level of domestic production frequently is the factor of overriding significance. As a result, our estimates of potential changes in exports of these items is determined on the basis of historic peak levels in the volume of exports of these items which will be used as a basis for extrapolations. Since the United States is the major market for the countrys' exports of bauxite and alumina, it was thought the index of industrial production of that country could be used as the independent variable in estimating export sales of these commodities. The following estimate was derived

$$X_{Bl} = 1.0796 IP_u - 75.365$$

(5.9990)      (-2.7260)

$$R^2 = .7006$$

$$d = 1.8205$$

when  $X_{Bl}$  represents exports of bauxite and alumina and  $IP_u$  is the index of industrial production for the United States. The estimated elasticity at the mean was 1.85.

As far as the residual exports are concerned, consisting mainly of manufactured products, the CARICOM market has emerged as the major export.

market for these items. The somewhat unsatisfactory approach will be adopted of extrapolating export sales on the basis of trends in the growth of these exports to the CARICOM market.

In so far as receipts from tourism are concerned, a major determinant could be the levels of national incomes of North American and European countries, the principal countries of origin for tourists. In addition, as was revealed by the experience of 1976 and 1977, such difficult-to-quantify factors as the political climate could have an equal if not more important impact on earnings from tourism. Nevertheless, we estimated the relationship between income in the major industrialized countries and receipts from tourism, employing the value index of GDP of the OECD countries as the income variable with the results shown below

$$\begin{aligned}
 XT_R &= .74508 IO_E - 50.360 & R^2 &= .6655 \\
 &(6.0582) \quad (-3.1083) & d &= 1.6325
 \end{aligned}$$

where  $XT_R$  represents receipts from tourism and  $IO_E$  the value index of GDP of the OECD countries. The estimated elasticities at the mean was 2.1.

Domestic Production and Consumption

The traditional pattern was followed of assuming that domestic production, GDP, would be determined by accumulated capital stock lagged one year. Applying this principle to the 1963 to 1974 period yielded the following estimate. The

$$\begin{aligned}
 GDP &= 481.48 + .27924 \Sigma GFCF_{t-1} & R^2 &= .9892 \\
 &(60.549) \quad (28.687) & d &= 2.3487
 \end{aligned}$$

coefficient of GFCF is then the reciprocal of the incremental capital output ratio, suggesting in this instance a value of 3.6. This period was associated with major capital investments in the bauxite and alumina industries, particu-



larly, in the late sixties. Nevertheless, because of the failure to replace capital in recent years and the likely heavy investment requirements in the mining and agricultural sectors, the incremental capital output ratio might more closely approximate 5 for the period up to 1985.

Output in the six major sectors, agriculture, mining, manufacturing, transportation, utilities, construction, was linked to GDP with an estimated elasticity of 1.

$$\begin{aligned} \text{GDP*} &= .53461 \text{ GDP} - .97396 & R^2 &= .9783 \\ & (20.168) \quad (-.05367) & d &= 2.4427 \end{aligned}$$

Private consumption expenditure was treated as being determined by GDP. The following relationship was determined.

$$\begin{aligned} P_C &= 77.751 + .61413 \text{ GDP} & R^2 &= .9479 \\ & (0.3745) \quad (12.839) & d &= 2.3022 \end{aligned}$$

#### Estimate of the Foreign Exchange Gap

In Table 3 we have set out estimates of earnings from exports and tourism and payments for imports in terms of US dollars in 1985. Estimates of foreign exchange receipts were determined in the following way. In the case of receipts from bauxite and alumina, we used as a basis for our estimates the average of earnings from these activities for 1977 and 1978 as reported by the Bank of Jamaica in its foreign exchange budget.<sup>5</sup> These estimates reflect receipts from royalties and the levy, as well as, payments by the companies to meet local operating expenses. This is more appropriate than the reported value of exports of bauxite and alumina, although it is reasonable to expect that these earnings will be closely related to exports. It was indicated above that the level of industrial production in the United States was a reasonable guide in explaining export sales of bauxite and alumina.

Table 3

Foreign Exchange Receipts and Outlays - Major Transactions

1985

US \$ M<sub>n</sub>

Transaction	Value
<u>Receipts</u>	
Bauxite and Alumina	422
Bananas	35
Sugar	113
Other Exports	246
Tourism	138
Total	954
<u>Payments</u>	
M <sub>(1)</sub>	261
M <sub>(2)</sub>	159
M <sub>(3)</sub>	669
M <sub>(4)</sub>	587
Total Imports	1676
Receipts - Payments	-722

Most economic forecasts for the United States economy suggests that there will be very slow growth over the first half of the current decade with growth in real terms averaging at most 2 percent. Given our elasticity estimate which was slightly less than 2 it seemed that at a maximum, receipts from this sector would grow at an average annual rate of 5 percent.

In the case of bananas a major determinant of export earnings in the past has been domestic production. As was indicated in Table 1, the volume of exports remained virtually unchanged between 1974 and 1978. In projecting

receipts from banana exports we then selected as a target the 1973 volume of exports. The realization of that export target by 1985 would require an average annual growth rate of approximately 5 percent based on the 1978 export volume. As far as prices are concerned, export unit prices for bananas, like many other primary products have been historically unstable. The position was taken that the average annual price increase of approximately 6 percent over the 1974 to 1978 period, is likely the best prospect for the trend in prices in the forthcoming period. Our 1985 estimate was then based on an average annual increase in export volume of 5 percent and unit prices of 6 percent.

The volume of sugar exported in 1978 was about one third less than that exported in 1974. At the same time export price per ton in 1978 was just about 6 percent above the 1974 price level. Sugar prices changed very little on a year to year basis, with the exception of 1975, when prices were in excess of US \$ 500 per ton. In estimating receipts from sugar sales in 1985 we first select as a target for the volume of exports, the level achieved in 1974. The realization of such a target by 1985 would require an annual average growth rate of 5 percent. The 1985 estimate for sugar export sales was then based on this export volume target being realized along with a 5 percent average annual increase in the export price.

The category, other exports, consists in the main of exports of manufactured products. The CARICOM market has emerged as the major export market for these items. The 1985 estimate was extrapolated on the basis of an assumed average annual 10 percent growth rate. Jamaican CARICOM exports grew at an average annual rate of 12 percent between 1973 and 1978.

In estimating receipts from tourism we have made no attempt to incorporate the effect of socio political developments in the country. Instead

we base our estimate on the extent to which earnings will be influenced by income levels in the main countries of origin for tourism. We have assumed that income will grow in these countries at not more than 2 to 3 percent annually. Given our estimated income elasticity of 2, reported earlier, the estimate for 1985 was based on an annual growth rate of 5 percent.

In estimating import outlays we operated under the assumption of the realization of an annual average growth rate of 2 percent in real terms. Moreover, since spending on imports will be basically income determined, we build in an annual average inflation factor of 10 percent to arrive at what would be the costs of foreign exchange outlays on imports reflecting global inflationary trends. The table then shows imports across the four categories, as defined earlier, for 1985.

A comparison of the projected foreign exchange receipts with import spending, in Table 3, suggests that additional financing, in excess of US \$ 700 million, would be required to realize the rather modest annual real growth target of 2 percent. Moreover, the table does not include external debt service payments.

The whole matter of debt service charges raises the issue of debt rescheduling and what goals should be established in trying to arrive at a tolerable level for the debt burden. It is our view that the issue should be resolved on the basis of such charges not absorbing more than a certain percentage of gross current receipts from commodity exports and tourism. Such a target might, for example, be set at 15 percent.

It must be emphasized that not only are the estimates rough approximations rather than precise predictions, no account is taken of other potentially important sources of foreign exchange receipts such as, direct investment flows and foreign aid. Direct investment flows will depend on how aggressively government pursues such investment, as well as, the way in which foreign investors view the investment climate in the country. Foreign aid flows by and large

reflect the political objectives of the donor countries and the attitude of multilateral agencies towards the economic policies pursued by the country. In 1978 Jamaica received foreign aid and loans on concessional terms from member countries of the Development Assistance Committee and multilateral agencies amounting to US \$ 122 million.<sup>6</sup>

#### Mobilizing Foreign Exchange Reserves

In this section we will put forward a series of proposals suggesting ways in which through regional co-operation the foreign exchange reserves of member countries of CARICOM might be mobilized to support regional development in the coming years. In addition we will also propose a regional co-operative approach for raising funds from external sources.

In Table 4 we have set out the year end international reserve position for the so called more developed CARICOM countries for the period 1973 through 1979. The most notable feature of the table is the remarkable increase in the reserve position of Trinidad and Tobago and the deterioration in the Guyanese and Jamaican positions. Consequently, any consideration of ways of effectively mobilizing foreign exchange reserves will essentially be based on ways in which Trinidad and Tobago will be willing to play the central role. Its willingness would no doubt be influenced by the potential benefits which could be realized. That country has in the past provided financial support to its CARICOM partners on concessionary terms, but there are obvious limits to such support. The problem which will be faced by countries, such as Jamaica in the eighties, is the ability to secure long term development financing. Our initial proposal then concerns the establishment of such a regional long term lending facility in the form of what we will call a CARICOM Development Fund. Let us now turn to a consideration of the potential operational features of this fund.

Table 4\*

International Reserves CARICOM Countries: US \$ M<sub>n</sub>

	1973	1974	1975	1976	1977	1978	1979
<b>Barbados</b>							
Total Reserves	32.4	39.2	39.6	28.0	37.0	59.8	66.1
Foreign Exchange	26.6	33.3	32.5	21.0	29.7	52.7	57.1
<b>Guyana</b>							
Total Reserves	14.0	62.6	100.5	27.3	23.0	58.3	17.5
Foreign Exchange	9.1	55.6	90.2	23.2	19.7	54.7	13.8
<b>Jamaica</b>							
Total Reserves	127.4	190.4	125.6	32.4	48.3	58.8	68.6
Foreign Exchange	119.7	184.1	120.6	31.5	30.9	53.0	68.1
<b>Trinidad/Tobago</b>							
Total Reserves	47.0	390.3	751.0	1013.5	1481.7	1804.8	2137.8
Foreign Exchange	38.4	374.9	720.2	972.5	1433.4	1744.0	2047.0

\*Source: International Monetary Fund, International Financial Statistics, (August 1980).

It will be assumed that Trinidad and Tobago could be induced to contribute 5 percent of its gross foreign exchange reserves towards the operation of the fund with a commitment to increase this amount by 10 percent of the country's incremental reserves. Based on the country's gross foreign exchange reserves at the end of 1979, the initial contribution would be approximately US \$ 100 million. These funds would then be employed to buy bonds issued by member governments with a period to maturity of 10 or more years. These bonds would be issued and repayable with respect to principal and interest in US dollars. The fund would be administered by the Central Bank of Trinidad and Tobago and the loans granted would be at commercial rates. The advantage to the borrowing country would be the fact that the long term nature of the borrowing would ease the burden of interest and amortization charges.

Although the Central Bank of Trinidad and Tobago would manage the fund, there could be an agreement to the effect that in the interest of maintaining some degree of equity in terms of access to the fund no more than one third of the share of the bond portfolio could consist of the bonds of any one country.

The operation of such a fund could be even more efficient if there could be developed a resale market for these bonds. Through resale additional funds would be available for lending. One possible way in which such a market might be developed would be through government agreement to require the branches of international firms to invest a minimum portion of their employee pension funds in these bonds. This requirement might be accompanied by a guarantee by the fund managers that they would stand ready to repurchase the bonds at current market prices.

As an alternative to the type of debtor/creditor relationship embodied in the capital development fund some consideration could be given to direct government investment in directly production activities. Governments of member CARICOM states, regardless of their ideological stance, are all committed to an activist governmental role in the economies of their respective countries. This activity could be extended on a regional basis with governmental equity holdings in such leading economic sectors as bauxite and alumina, sugar and bananas and tourism. The debtor/creditor relationship would then be replaced by one of ownership participation. This would complement the existing schemes for encouraging private firms to operate in different countries in the region. This type of activity would not only provide needed foreign exchange, but might also be considered to hold the added advantage of helping member countries break their reliance on the major international firms which tend to dominate these leading sectors.

### External Financial Support

Let us now turn to a consideration of potential arrangements for raising foreign exchange from extra regional sources. The approach which is being proposed here would involve negotiating on a CARICOM basis with the governments of the developed Commonwealth countries, Canada, the United Kingdom, Australia and New Zealand, to provide a guarantee with respect to principal and interest for bonds issued by the region. The responsibility of raising funds in the capital markets of the respective countries would be the responsibility of a single CARICOM agency, with member governments, on the basis of an agreed formula, being contingently liable for the total debt of the agency. An advantage of this approach is that it overcomes the political roadblock of raising more developmental assistance from these countries, while the existence of a government guarantee would enable these bonds to be marketed privately and at lower cost. Each of the guarantors would provide a guarantee for a certain portion of the portfolio. For example, the governments of Canada and the United Kingdom could agree to guarantee 30 percent each, Australia 25 percent and New Zealand 15 percent.

The next issue concerns the size of the loans which would be the recipient of this guarantee. It might be the case that a reasonable limit, given the potential regional financial requirements, would be of the order of US \$ 500 million. This could be combined with a proviso that the maximum bond issue in any one year would be US \$ 100 million. This would mean in terms of the guarantee proposal, that the governments of the United Kingdom and Canada would be guaranteeing loans of a value of US \$ 30 million each, Australia, US \$ 25 million and New Zealand, US \$ 15 million at a maximum in any one year.

The CARICOM agency would be floating long term bonds. The funds



raised would then be disbursed among CARICOM members based initially on their contingent liability to the agency. A member could exceed this limit on the basis of agreement of all parties. The agency would disburse funds at a rate slightly above its own borrowing rate, for example, a half of one percent, as a means of covering the administrative costs of its operation.

Although in this instance we have raised the question of a loan guarantee by some Commonwealth governments, a similar principle could be incorporated in approaches to other European countries and the government of the United States.

#### Conclusions

In proposing methods for raising foreign exchange we have placed emphasis on the importance of raising long term financing. This emphasis on long term financing is based on the fact that through such long term support, debt service charges would not impose an onerous burden on the borrowing countries. We have not directed our attention to ways and means of raising concessionary finance. This is consistent with our view that in the immediate future, with an outlook of very slow growth in the industrialized countries a great effort will be required to maintain existing levels of foreign assistance, much less realize substantial increases. The debt problem, currently, reflects the heavy reliance on short term borrowing in recent years. To meet the financing needs emphasis must be placed on access to long term capital financing.

Footnotes

1. H. B. Chenery and A. M. Strout, "Foreign Assistance and Economic Development", American Economic Review, September 1966; R. McKinnon, "Foreign Exchange Constraints in Economic Development and Efficient Aid Allocation", Economic Journal, June 1964; Trade Prospects and Capital Needs of Developing Countries, United Nations, New York, 1968; D. J. Harris, "Savings and Foreign Trade as Constraints in Economic Growth: A Study of Jamaica", Social and Economic Studies, June 1970.
2. Availability of foreign exchange will clearly not be a matter of concern for Trinidad and Tobago the only member state which is a petroleum exporter.
3. For example the study by D. J. Harris cited previously.
4. This a similar procedure to that adopted by Harris except he excluded the agricultural sector. D. J. Harris, op. cit., p. 154.
5. Bank of Jamaica, Report and Statement of Accounts, 1978, p. 10.
6. O.E.C.D., Development Co-operation Review, 1979.

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