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THE SIGNIFICANCE OF EXCHANGE RATE DEVELOPMENTS FOR

THE ECONOMIES OF THE COMMONWEALTH

CARIBBEAN

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Relevant Characteristics

It is possible to reach generalized conclusions on the structural effects of exchange rate adjustments in the Commonwealth Caribbean on account of the pervasive presence of important characteristics. In general, the constituent economies are small and narrowly specialized with disproportionately large primary sectors. Financial market development is rudimentary and interest rates are largely administered. Foreign currency flows are monitored and controlled so rigidly, that capital flows are unlikely to exhibit much sensitivity to changes in interest rates. In Guyana and Jamaica payments, even for current imports are released only in conformity with allocations within a foreign exchange budget. Finally, and perhaps most importantly, is the fact that daily adjustments in the exchange values of domestic currencies are not determined by indigenous economic conditions, but by controlled movements in the market valuation of the intervention currency.

From these features, we may draw a number of conclusions which have an important bearing on the following analysis. For example, characteristics of smallness usually implies the inability of the State to affect the foreign price of traded commodities.

Although this observation is generally true of extra-regional trade, there are important exceptions on the export side. Production differentiation in tourism¹ and near monopoly control of the market for calcined bauxite ensure a degree of price responsiveness to locally determined levels of supply. In the short run, the supply of exports is fairly rigid; since, in addition to the first characteristic, capacity creation in the predominant primary sector usually requires long gestation periods.

The third characteristic, viz. the narrow production base, forces a heavy dependence on imports and minimizes the substitution effect of higher import prices. In general, the price of traded commodities are determined and denominated in foreign currency, with the result that changes in the value of the intervention currency influences the region's term-of-trade, and thus also its balance of payments and its real income potential. It will be seen that changes in the intervention rate affect the balance of payments exclusively, mainly on account of the price elasticity of demand for imports. Note also that changes in the exchange value of the intervention currency also exert a secondary impact in the balance of payments in consequence of the elasticity factor. Lastly, the rudimentary state of financial intermediation betrays the absence of an adequate infrastructure to support an independently managed float. We shall elaborate upon these conclusions as the analysis develops.

Let us turn our attention briefly to the immediate historical developments which appear to have given rise to the prevailing concern over the structural significance of exchange rate movements.

From Bretton Woods to Smithsonian

The events which followed the suspension of US dollar convertibility in August 1971 culminated in a new international monetary arrangement in which the Bretton Woods System of adjustable par values gave way to a universal float.

Under the former system, it was customary for the typical developing country to peg its currency to a single intervention currency, with an established par value in gold. Each country was expected to intervene, when necessary, to maintain the value of its currency within prescribed limits of its official par value; the object of intervention being to equalize the forces of supply and demand for the domestic currency at some desired exchange rate. In practice, the Bretton Woods System ensured reasonable stability, since major adjustments had to be approved by the International Monetary Fund upon clear evidence of the existence of "fundamental disequilibrium."² The prevailing concern with exchange rate stability was understandable in light of recent experience with competitive devaluation and its retarding influence on global trade and development.

Under the Bretton Woods System, regional currencies maintained a fixed parity relationship with the pound. So invariable was that relationship thought to be that full awareness was assumed in the preparation of mathematical exercises in many qualifying examinations with the region. Just eighteen

months after the Smithsonian Agreement was reached, the pound was released from its gold anchor and allowed to float. However, the pre-Smithsonian parity with regional currencies persisted until January 1973, when Jamaica realigned its currency to the US dollar. Similar realignments followed and, in time, the pound completely lost its status as an intervention currency within the region. Barbados and Guyana realigned in 1975 and were joined by Trinidad and the E.C.C.A. territories in 1976. (See Table 1 on next page).

TABLE 1

IMPORTANT EXCHANGE RATE ADJUSTMENTS WITHIN THE REGION

| Country | Date of Realignment to US \$ | Pre-Smithsonian Parity (with Sterling as Intervention Currency) | Rate of Point of Realignment to US \$ | Rate at December 31, 1976 |
|-------------------|------------------------------------|---|---|---------------------------------|
| Barbados | July 1975 | B\$4.80 : £1:US\$2.40 | B\$2.00:US\$1:£4.32 | B\$2.00:US\$1: £3.40 |
| Guyana | October 1975 | G\$4.80 : £1:US\$2.40 | G\$2.55:US\$1:£5.78 | G\$2.55:US\$1: £4.34 |
| Jamaica | January 1973 | J\$2.00 : £1:US\$2.40 | J\$0.91:US\$1:£2.17 | J\$0.91:US\$1: £1.55 |
| Trinidad & Tobago | May 1976 | TT\$4.80 : £1:US\$2.40 | TT\$2.40:US\$1:£4.22 | TT\$2.40:US\$1: £4.08 |

Source: Bank of Guyana, Circulars to Commercial Banks (1973-1977)

The replacement of par values by central rates, with wider margins, ushered in the existence of "managed float". Even before July 1974, when the value of the present numeraire, viz. the S.D.R., was allowed to reflect the weighted average movement of 16 major currencies,³ it was quite plausible to contend that a general float existed. The fact that some currencies floated meant that all other currencies floated with respect to them. Valuation is simply multidimensional. However, the global dimension of the float is certainly made obvious by the fact that the S.D.R. value of each currency fluctuates daily.

Table 2 on the next page contains an index of the S.D.R. value of 7 major currencies between July 1974 and June 1977.

The SDR value of the Dutch Florin increased in that period as many percentage points as the SDR value of the pound declined. Apart from the Canadian dollar, the remaining currencies appreciated viz-a-viz. the SDR or the system's numeraire. We are concerned with the impact of such fluctuations on the region as a whole, on member states within it and on important sectors within each State.

TABLE 2

SEMI-ANNUAL INDEX OF THE SDR VALUE OF MAJOR CURRENCIES IN REGIONAL TRADE

| | 1974 | 1975 | | 1976 | | 1977 | |
|-----------------|--------|---------|---------|---------|---------|--------|---------|
| | July 1 | Dec. 30 | June 30 | Dec. 29 | June 29 | Dec 28 | June 28 |
| U.S. Dollar | 100.0 | 98.6 | 97.4 | 103.1 | 105.1 | 103.8 | 103.8 |
| Canadian Dollar | 100.0 | 96.8 | 92.2 | 98.8 | 105.9 | 99.8 | 95.1 |
| Pound Sterling | 100.0 | 96.9 | 89.4 | 87.3 | 78.6 | 73.9 | 74.8 |
| Japanese Yen | 100.0 | 93.7 | 94.2 | 96.4 | 101.2 | 101.6 | 109.4 |
| Deutsche Mark | 100.0 | 105.4 | 106.0 | 100.7 | 104.7 | 112.7 | 112.8 |
| Dutch Florin | 100.0 | 105.3 | 106.3 | 102.2 | 102.5 | 112.3 | 113.3 |
| Swiss Franc | 100.0 | 118.0 | 117.2 | 118.1 | 128.2 | 127.3 | 125.6 |

Source: Bank of Guyana, Private Files

Appropriate Valuation

Traditional indicators of appropriate valuation have, in general, taken too narrow an approach in determining the appropriate structure of exchange rates. Adherents of the purchasing power parity hypothesis, for example, focus on relative cost in relation to exchange value. They contend that if one unit of commodity A exchanges for 3 units of currency B and 6 units of currency C, then 1 unit of currency B should equal 2 units of currency C.⁴ Cost considerations also take a prominent place in Lewis' analysis of exchange rates in the Commonwealth Caribbean. In his second address to the board of governors at the Caribbean Development Bank, Sir Arthur Lewis argued that exchange rates within the region were over-valued in relation to internal costs.⁵

It is important to recognise that the exchange rate instrument is part of a package of economic policy measures, which may be assigned to a variety of economic targets. Under the Bretton Woods System, par value adjustments were generally endorsed by the Fund, when clear evidence of 'fundamental disequilibrium' was present. This condition was manifested in some or all of the following economic maladies: persistent balance of payment deficits, little or no growth, high unemployment and spiralling inflation. The nature of these maladies points to the potential conflict in the use of the exchange rate instrument. Devaluation will, *ceteris paribus*, improve the balance of payments and the possibility of enhancing the rate of growth and employment, but will certainly aggravate the already high rate of inflation.⁶

In practice, ceteris paribus conditions do not always hold. The positive effects of devaluation may be neutralized by a liberal credit policy. This possibility may be appreciated either by reference to the real balance effect of monetary theory, or the more familiar absorption approach.

Devaluation increases domestic prices and thus reduce the level of real balances. As efforts are made to restore that level to its initial relationship with real income, aggregate demand declines in relation to aggregate supply with beneficial effects on the balance of payments. However, that result will not obtain, if the increased demand for real balances is financed by credit expansion. Higher credit leads to greater absorption and the possibility of erasing the positive effects of devaluation. This is significant in light of present efforts to erase huge deficits in three of the four countries within the M.D.C. group.⁷ The recent trend in reserve holdings is depicted in table 3.

TABLE 111

END OF YEAR FOREIGN RESERVE TRENDS - G\$ Million

| | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 |
|-------------------|-------|-------|-------|-------|-------|--------|--------|
| Barbados | | | 50.4 | 31.4 | 31.8 | 80.2 | 30.2 |
| Guyana | 34.7 | 46.4 | 66.8 | 23.9 | 94.2 | 184.5* | -55.0* |
| Jamaica | 234.0 | 313.7 | 176.4 | 136.6 | 226.6 | 3.6 | -518.0 |
| Trinidad & Tobago | 106.6 | 169.7 | 119.9 | 72.9 | 834.2 | 1857.8 | 2596.6 |

* Banking System only

Sources:

Central Bank of Barbados, Economic and Financial Statistics 1974-1977,

Bank of Guyana, Monthly Bulletin, 1973-1977

Bank of Jamaica, Report and Statement of Accounts 1973-1977

Central Bank of Trinidad and Tobago, Annual Reports, to 1976

Exchange Rate Dependency

Exchange rate developments in Caricom countries are not the result of conscious planning, but the outcome of oscillations in the foreign currency markets of major metropolitan countries with which they trade. These developments, therefore, have no relation to local assymetries in trade and related payments. In fact, daily adjustments in the exchange rates of traded currencies affect not only the external value of regional currencies, but also the terms-of-trade⁸ and thus also the balance of payments of host countries. Secondary effects on the balance of payments also result from the impact of each currency movements on the domestic currency value of imports.

The choice of intervention currency per se is immaterial to the region's terms-of-trade and the foreign currency balance on current account. However, even in the absence of elasticity considerations, the local currency value of the current account balance invariably reflects the valuation adjustments of metropolitan currencies. That is, the local conversion of the foreign currency balance will mirror variation in the relative value of the local currency and create the illusion of possible advantages from an alternative choice of intervention currency. The illusion becomes evident when the balance is adjusted for changes in purchasing power.

These conclusions are elucidated in the following example:
The example assumes two currency areas and a completely

free intervention policy. It will be seen that the designation of a single intervention currency for the region as a whole permits a convenient and realistic representation of the initial position. Example:

A, which symbolizes the Caricom region as a whole, trades with countries in two currency areas, but has pegged its currency to the US dollar. At any point in time, its current account balance may be expressed either in local currency, in US dollar, or in the alternative currency group. The initial balance is given respectively as:

$$B_L = S + D \quad (1)$$

$$B_{\$} = S + D \quad (2)$$

$$B_{\text{€}} = S + D \quad (3)$$

where

| | | |
|----------|---|---|
| B_L | = | Current account balance in local currency |
| $B_{\$}$ | = | Current account balance in US dollars |
| S | = | Surplus |
| D | = | Deficit |

The subscript L, \$ and € symbolizes respectively the local currency, the US dollar and the average of other currencies.

Implicitly the ratios of L:S:£ are given by a:b:c. the ratio a:b expresses the exchange rate of the local currency in terms of the US dollar, or the units of local currency which must be exchanged from one US dollar. Similarly, c:b gives the units of other currencies which must, on average, be exchanged for one US dollar. Implicit in the above formulation is the assumption that A enjoys a surplus with B and a deficit with C.

Since the region has a surplus in its current transaction with the dollar area and a deficit in its current transactions with other countries, it is invariably true that A receives a terms-of-trade advantage whenever the US dollar appreciates in value viz-a-viz other traded currencies and suffers a terms-of-trade loss, whenever the US dollar depreciates in relation to other currencies. The terms-of-trade phenomenon involves prices as well as quantities, since it relates to the weighted average of both export and import prices. Thus, a US dollar appreciation leads, ceteris paribus, to higher average prices for exports and imports but, since exports to the dollar area are larger than imports from it, it is obvious that the average price of exports will increase by more than that of imports. The reverse obtains when the US dollar depreciates viz-a-viz other currencies in which the region trades.

The net gain or loss from such movements is reflected in sizes and/or direction of the region's current account balance. Observe that in foreign currency the balance is not affected by the choice of intervention currency, since neither b/c nor its inverse $c:b$ depends on the size of 'a'.

Let us make the example somewhat more concrete by attaching arbitrary values to each variable at time t . Accordingly,

$$S_t = \text{US\$}20, \quad D_t = -\text{£}10, \quad \text{and } a_t:b_t:c_t = 5:2:1$$

From equations (1) to (3) we obtain:

$$B_{L_t} = \frac{5}{2} (20) + 5 (-10) = 10 \quad (4)$$

$$B_{\$}_t = 20 + \frac{2}{1} (-10) = \text{US\$}0 \quad (5)$$

$$B_{\text{£}_t} = \frac{1}{2} (20) + -10 = 0 \quad (6)$$

As a matter of ideal coincidence the current account is in overall balance, reflecting neither surplus nor deficit. The occurrence of a zero sum in equations (4) to (6) testifies to their logical consistency.

If the US dollar appreciates by 25% viz-a-viz currencies in the second group, the ratio L: \$: £ become 3.75: 1.5: 1 or 5: $\frac{4}{3}$ yielding

$$B_{L_{t+1}} = \frac{5}{2} (20) + \frac{15}{4} (-10) = 12.50 \quad (7)$$

$$B_{\$}_{t+1} = (20) + \frac{3}{2} (-10) = \text{US\$}5.00 \quad (8)$$

$$B_{\pounds}_t = \frac{2}{3} (20) + (-10) = \pounds 3.33 \quad (9)$$

It may be observed that the currency valuations of the new balance are in the same ratio as the prevailing exchange rates.

If however, the local currency is pegged to a third currency outside the dollar area, a:c will revert to its value at time t, while a:b becomes 25:8. Note that these changes affect only the local currency value of the current account balance, since the ratio, b:c, and its inverse c:b are not further affected. Thus the switch in intervention currency inflated B_L from L 12.50 to L 16.66 but adds nothing to its purchasing power. It is, therefore, of no significance to A's terms-of-trade.

The Intervention Rate and the Balance of Payments

In the preceding section, it was argued that the size of the ratio a:b, or its inverse b:a had no bearing on the region's terms-of-trade. The latter depended, inter-alia, on the value of the \pounds in terms of the \$ or the size of the ratio b:c. It was also pointed out that the current account balance in each currency area is for the terms-of-trade, an equally crucial factor.

Whereas positive adjustments in the terms-of-trade increase the balance of payments surplus or reduce its deficit, changes in the latter are not always associated with the terms-of-trade.

An increase in the intervention rate (a:b) will always improve the balance of payments, providing that the joint elasticities of demand for the region's imports and supply of its exports are greater than one⁹. Since the region's export trade is plagued by supply rigidities, it is reasonable to assume that the short-term balance of payment effects of changes in the intervention rate proceed exclusively from adjustments in import levels.

Let us illustrate with the aid of the following assumptions:

- 1) The ratio a:b:c in the original example, changes from 5:2:1 to 6:2:1, that is, L devalues by 16.7% with respect to both the pound sterling and the U.S. dollar
- 2) Prices in the commodity market are held constant.
- 3) The price elasticity of demand for imports = 1.2
- 4) The quantum of export sales is insensitive to price movements
- 5) The change in import quantities from B and C is proportional to the prevailing distribution.

Pre-devaluation:

$$B_t = X_t - M_t \quad (10)$$

$$B_{L_t} = 50 - 50 = 0 \quad (11)$$

$$B_{\phi_t} = 20 - 20 = 0 \quad (12)$$

$$B_{\pounds_t} = 10 - 10 = 0 \quad (13)$$

Post-devaluation:

$$B_{t+1} = M_{t+1} - M_{t+1} \quad (14)$$

$$B_{L_{t+1}} = 60 - 45.6 = 14.4 \quad (15)$$

$$B_{\$/t+1} = 20 - 15.2 = 4.8 \quad (16)$$

$$B_{\pounds/t+1} = 10 - 7.6 = 2.4 \quad (17)$$

Despite the short-run nature of the analysis, and the inelasticity of export supply in that period, the sensitivity of domestic demand to changes in import prices is enough to improve the balance on current account. It is noted that:

$$E_m + E_x > 1$$

In this instance the 'real' change in the current account balance results from the price effect of the exchange rate adjustment. Again, the currency valuations of the current account balance are in the same ratio as the prevailing exchange rates viz. 6:2:1. Observe that the price change is equal to the movement in the exchange rate and not its inverse - the adjustment in the foreign currency value of L. Thus, although the L devalues by 16.7% with respect to \$ and £, the exchange rate (and, therefore prices) of \$ and £ in terms of L increases by 20%

The price effect of exchange rate adjustments should be seen apart from complementary or competitive effects emanating from supply and demand forces in the commodity market,

if we are to appreciate diversions in the empirical estimates of exchange rates and price trends.

Although it is necessary to specify the responsiveness of demand for imports to changes in import prices, it is not essential to assume import quantities. The point elasticity, measuring the responsiveness of import quantities to changes in import prices is expressed as:

$$\epsilon_m = \frac{\Delta Q_{m,t+1}}{Q_{m,t}} \bigg/ \frac{\Delta P_{m,t+1}}{P_{m,t}}$$

Thus the percentage change in the quantum of imports from period t to $t+1$ (i.e. $\frac{\Delta Q_{m,t+1}}{Q_{m,t}}$) is given by $\epsilon_m \frac{\Delta P_{m,t+1}}{P_{m,t}}$,

where ϵ_m = elasticity of demand for imports and P_m = import prices. Therefore, if period t is the base year, $\frac{\Delta P_{m,t+1}}{P_{m,t}}$ is the import quantum index.

Note that $\frac{Q_{m,t+1}}{Q_{m,t}}$ may be written as:

$$\frac{Q_{m,t+1}}{Q_{m,t}} = 1 + \epsilon_m \frac{\Delta P_{m,t+1}}{P_{m,t}} = B \frac{V_{m,t+1}}{P_{m,t+1}} \bigg/ B \frac{V_{m,t}}{P_{m,t}} = \frac{V_{m,t+1}}{P_{m,t+1}} \frac{P_{m,t}}{V_{m,t}} \quad (19)$$

Where V_m = value of imports

and B = constant

$$\text{Thus } V_{m,t+1} = V_{m,t} \frac{P_{m,t+1}}{P_{m,t}} \left(1 + \epsilon_m \frac{\Delta P_{m,t+1}}{P_{m,t}} \right) \quad (20)$$

which is the formula used above to calculate the new level of import payments. Note that Q does not appear in equation (20).

Observe too that ϵ , in the formulation, is a negative quantity.

Once ϵ is known, the new value of imports may be calculated from its present value and the percentage change in import prices. This is a significant advantage, since in practice import quantities cannot be aggregated into a single magnitude. Moreover, import elasticities, though not available in precise magnitudes, are thought to exist within a range of - 0.5 to - 1.0 or just above for the typical developing country.¹⁰

Earlier, it was noted that the terms-of-trade index portrays the relative levels of import and export prices. However, these prices are themselves represented by relevant indices whose domestic values reflect pertinent developments in the commodities and foreign exchange markets. The latter's influence on domestic prices is related to two factors:

- 1) The magnitude of exchange rate changes, and
- 2) The currency denomination of external payments and receipts.

If both are available, we can estimate, at various levels of the regional structure, the terms of trade impact of changes in the relative value of traded currencies. It is convenient, for illustrative purposes, to revert to the previous dichotomy of traded currencies, involving the U.S. dollar, on one hand, and a representative unit of other currencies on the other. If, as suggested by statistics on the direction of trade some 77% of the region's receipts come from, and 67% of its payments goes to the dollar are¹¹. Then the terms-of-trade movements which are likely to result from relative changes in the U.S. dollar value can be calculated as follows:

TABLE 4

CARICOM COUNTRIES ¹⁾TERMS-OF-TRADE EFFECT OF ADJUSTMENT IN THE VALUE OF THE U.S. DOLLAR

| Implicit Index of U.S. : £ Exchange Rate | Hypothetical Index of the S.D.R. Value of the U.S. dollar | Hypothetical Value of the Average S.D.R. Value of the Rest of the World Currencies | Implicit Index of U.S. : £ Currency Value | Cumulative Effect on Export Prices (U.S. Peg) (%) | Cumulative Effect on Import Prices (U.S. Peg) (%) | Cumulative Changes in the terms of Trade Index % |
|--|---|---|---|--|--|--|
| 166 | 75 | 125 | 60 | 15 | 22 | -6 |
| 150 | 80 | 120 | 67 | 12 | 16 | -4 |
| 135 | 85 | 115 | 74 | 8 | 12 | -3 |
| 122 | 90 | 110 | 82 | 5 | 7 | -2 |
| 111 | 95 | 105 | 90 | 2 | 3 | -1 |
| 100 | 100 | 100 | 100 | 100 | 100 | |
| 90 | 105 | 95 | 111 | -2 | -3 | 1 |
| 82 | 110 | 90 | 122 | -4 | -6 | 2 |
| 74 | 115 | 85 | 135 | -6 | -9 | 3 |
| 66 | 120 | 80 | 150 | 8 | -11 | 3 |
| 60 | 125 | 75 | 167 | 13 | 9 | 4 |

1) Includes data for both the LDC and ADC

Source: Table 7 below

The indices of the SDR value of the U.S. dollar and of the rest of the world currencies are hypothetical. However, they are provided over the likely range of the average movement of the U.S. dollar in relation to other traded currencies. Note that the effect on import and export prices reflect not only the relative value of the dollar, but also the adjusted trade distribution, which is used as a proxy for the currency distribution of payments and receipts. For example, the effect on import prices is given by the product of the exchange rate movement and the proportion of non-U.S. dollar payments.

Ideally, the flow of payments and receipts by currency should be obtained directly from statistics on the sale and purchase of foreign exchange. However, although the basic data are, in varying degrees, collected by central banks in the region¹² constructed series are short, and not generally reconciled with relevant stock movements.¹³ Moreover, no analytical use of these series has been attempted.

One plausible alternative proxy of the currency distribution of receipt flows is the currency distribution of foreign reserves. However, its representative value is reduced by the growing involvement of regional central banks in portfolio management. This practice has been intensified since the adoption of the system of central rates with its greater scope for interest arbitrage. Moreover, only Jamaica has a published series, which significantly, dates back to the inception of the post-Smithsonian Phase. See table 5 below.

TABLE 5

JAMAICA

CURRENCY DISTRIBUTION OF GROSS FOREIGN RESERVES¹⁾

| | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 |
|--------------|------|------|------|------|------|------|
| Sterling | 72.1 | 55.6 | 59.6 | 63.6 | 42.0 | 9.8 |
| U.S. dollars | 42.3 | 37.8 | 61.1 | 75.0 | 78.7 | 39.1 |
| Can. dollars | 0.1 | 0.1 | 0.4 | 0.2 | 0.9 | 0.9 |
| Deusthe Mark | - | 10.0 | 0.2 | - | - | - |
| S.D.R. | 10.6 | 5.6 | 7.1 | 5.8 | 4.7 | 6.4 |

1) Data are for November 31 of each year.

Source: Bank of Jamaica, Monthly Reviews 1971 - 1977

The table shows a sharp decline in the share of assets held in the United Kingdom, following the termination of the Sterling Agreement in December 1974. This suggests that the currency denomination of receipts is not an important factor in the determination of the currency portfolio of the prevailing reserve stock. Finally, the influence of reserve size on its allocation cannot be discounted entirely. In this exercise, the currency distribution of foreign payments and receipts is estimated from trade statistics. The procedure followed is that of classifying into the dollar area all countries whose currencies are maintained in unitary or other fixed relationship to the U.S. dollar, or whose international transactions are likely to be denominated and more importantly, determined in that currency. This step virtually establishes the weights within a dichotomous framework and thus provides the basis for estimated of varying term-of-trade effect from specific changes in the U.S. dollar value. Before observing the variation among member states, let us first note the relevant trade distribution contained in the table 6 below.

Within that context, it appears that the countries or regions which merit inclusion into the dollar area are the United States itself, Canada, Caricom, Latin America and an estimated 50% of those not specifically identified. Thus, the estimated share of receipts from the dollar area are 63% for Barbados, 56% for Guyana, 61% for Jamaica and 86% for Trinidad and Tobago. On the payments side, the respective shares are 64, 63, 72 and 58 percent. It may be recalled that the region

TABLE 6

MDC MEMBER STATESDIRECTION OF TRADE DURING 1975

(PERCENTAGE SHARE)

| | UK | USA | CANADA | LATIN AMERICA | EEC | CARICOM | OTHER | TOTAL |
|-----------------------------|----|-----|--------|------------------|-----|---------|-------|-------|
| <u>EXPORTS</u> | | | | | | | | |
| Barbados | 29 | 31 | 7 | 0 | 3 | 20 | 10 | 100 |
| Guyana | 21 | 26 | 3 | 1 | 5 | 12 | 32 | 100 |
| Jamaica | 23 | 38 | 3 | 1 | 1 | 4 | 30 | 100 |
| Trinidad and Tobago | 4 | 66 | 1 | 2 | 0 | 9 | 16 | 100 |
| Total Caricom ²⁾ | 11 | 54 | 2 | 3 | 2 | 8 | 20 | 100 |
| <u>IMPORTS</u> | | | | | | | | |
| Barbados | 23 | 21 | 9 | 12 | 9 | 18 | 8 | 100 |
| Guyana | 21 | 29 | 4 | 3 | 9 | 21 | 13 | 100 |
| Jamaica | 13 | 37 | 5 | 15 | 7 | 9 | 15 | 100 |
| Trinidad and Tobago | 9 | 21 | 3 | 2 | 3 | 3 | 59 | 100 |
| Total Caricom ²⁾ | 12 | 28 | 4 | 12 | 5 | 7 | 32 | 100 |

2)

Where unavailable, estimates are based on values realized in the previous year

2)

Also includes the L.D.Cs

Source: Calculated from UN ECLA Economic Activity - 1975 Caribbean Countries (Aug. 15, 1976)

as a whole, including LDC , gets 77% of its foreign receipts from the dollar area and makes 67% of its payments there.

In general, the currency distribution of receipts and payments indicate a tendency for Trinidad and Tobago's terms-of-trade like those of the regions as a whole, to improve when the value of the dollar increases in relation to other currencies and to decline, when the reverse obtains. The opposite occurs in the case of Guyana and Jamaica. For Barbados, the balanced distribution of foreign currency flows appears to neutralize the influence of exchange rates on its terms-of-trade. Note that the influence on Jamaica's terms-of-trade, indicated in the above distribution is justified only in so far as the flow of receipts and payments are confined to visible trade. The effects are estimated in table 7 below, over a specific range of fluctuations in the average value of the dollar.

Observe that the terms-of-trade effect which is derived from the ratio of the respective indices is of the same magnitude in the negative and positive range. See also table 7 above. The more pronounced difference in the pattern of Trinidad's payments and receipts makes for a more significant terms-of-trade response to changes in the relative value of traded currencies. Moreover, the dominance of Trinidad's influence on the distribution of regional trade* virtually ensures correspondences

* In 1974 and 1975 Trinidad and Tobago's trade just exceeded 50% of the total for the region as a whole.

TABLE 7

| | Previously Specified Range of U.S. E Rate | | Proportion of Trade with U.S. Exports Imports | | Price Effect Exports Imports | | Terms of Trade Effect |
|-------------------|---|-----|--|-----|---------------------------------|-----|--------------------------------------|
| | (a) | (b) | (%) | (%) | (%) | (%) | + = Improvement - = Deterioration |
| Barbados | (a) | 66 | 63 | 64 | 42 | 42 | 11 |
| | (b) | -60 | | | -38 | -38 | 11 |
| Guyana | (a) | 66 | 58 | 63 | 38 | 41 | -2 |
| | (b) | -60 | | | -35 | 38 | 2 |
| Jamaica | (a) | 66 | 61 | 72 | 40 | 48 | -5 |
| | (b) | -60 | | | -36 | 43 | 5 |
| Trinidad & Tobago | (a) | 66 | 86 | 58 | 57 | 38 | -13 |
| | (b) | -60 | | | -52 | 35 | 13 |

Source: Table 6

in the direction in which the terms-of-trade change.

Earlier, it was pointed out that terms-of-trade developments within the region are exogenously determined in both the exchange and commodity markets. However, these developments are not uniform from state to state, or from industry to industry within them. It seems desirable therefore, that a system of corrective transfers should be established at several levels of the regional structure without penalty to the designated recipients. As practical measures, such arrangements are possible only within sovereign states, where provisions for taxes and subsidies already exist. The exercise in terms-of-trade accounting, like inflation accounting is important in itself and should form a conscious part of the determination of enterprise efficiency, particularly in the export sector of the region's economies.

TABLE 1A

BARBADOS - YEARLY AVERAGE SPOT RATES OF TRADED CURRENCIES

(B\$)

| Currency | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 |
|----------|-------|-------|-------|-------|-------|------|------|
| US\$ | 2.00 | 1.96 | 1.92 | 1.96 | 2.05 | 2.08 | 2.00 |
| Can\$ | 1.92 | 1.94 | 1.94 | 1.96 | 2.09 | 2.04 | 2.02 |
| UK £ | 4.80 | 4.80 | 4.80 | 4.80 | 4.80 | 3.76 | 3.60 |
| DM | 0.55 | 0.58 | 0.64 | 0.77 | 0.85 | 0.87 | 0.98 |
| Yen | 0.006 | 0.006 | 0.007 | 0.007 | 0.007 | .009 | .007 |
| S.Fr. | 0.46 | 0.48 | 0.54 | 0.64 | 0.82 | 0.87 | 0.80 |
| F.Fr | 0.36 | 0.36 | 0.40 | 0.44 | 0.46 | 0.51 | 0.39 |
| Guy\$ | 1.00 | 1.00 | 0.93 | 0.93 | 0.93 | 0.89 | 0.78 |
| Jam\$ | 2.40 | 2.40 | 2.40 | 2.17 | 2.26 | 2.28 | 2.20 |
| TT\$ | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.96 | 0.82 |

Source: Calculated from IMF, International Finance Statistics, August 1977.

TABLE 18

GUYANA - YEARLY AVERAGE SPOT RATES OF TRADED CURRENCIES

(G\$)

| Currency | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 |
|----------|-------|-------|-------|------|------|------|------|
| US\$ | 2.00 | 1.96 | 2.09 | 2.13 | 2.23 | 2.33 | 2.55 |
| Can\$ | 1.92 | 1.94 | 2.11 | 2.13 | 2.27 | 2.29 | 2.56 |
| UK £ | 4.80 | 4.80 | 5.21 | 5.21 | 5.21 | 5.16 | 4.60 |
| DM | 0.55 | 0.58 | 0.70 | 0.84 | 0.92 | 0.98 | 1.06 |
| Yen | 0.006 | 0.006 | 0.008 | .008 | .008 | .009 | .008 |
| S. Fr | 0.46 | 0.48 | 0.59 | 0.70 | 0.89 | 0.98 | 1.02 |
| F. Fr. | 0.36 | 0.36 | 0.43 | 0.48 | 0.50 | 0.57 | 0.51 |
| BDS \$ | 1.00 | 1.00 | 1.09 | 1.09 | 1.09 | 1.12 | 1.27 |
| JAM \$ | 2.40 | 2.40 | 2.60 | 2.36 | 2.43 | 2.57 | 2.80 |
| TT\$ | 1.00 | 1.00 | 1.09 | 1.09 | 1.09 | 1.08 | 1.04 |

Sources: Calculated from IMF, International Finance Statistics, August 1977.

TABLE 1C

JAMAICA - YEARLY AVERAGE SPOT RATES OF TRADED CURRENCIES

(J\$)

| Currency | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 |
|----------|------|------|------|------|------|------|------|
| US \$ | 0.83 | 0.82 | 0.80 | 0.90 | 0.91 | 0.91 | 0.91 |
| Can. \$ | 0.80 | 0.81 | 0.81 | 0.90 | 0.92 | 0.89 | 0.92 |
| UK £ | 2.00 | 2.00 | 2.00 | 2.21 | 2.12 | 2.01 | 1.85 |
| DM | 0.23 | 0.24 | 0.27 | 0.35 | 0.38 | 0.38 | 0.38 |
| S Fr. | 0.19 | 0.20 | 0.23 | 0.29 | 0.36 | 0.38 | 0.37 |
| F.Fr. | 0.15 | 0.15 | 0.17 | 0.20 | 0.20 | 0.22 | 0.18 |
| BDS \$ | 0.42 | 0.42 | 0.42 | 0.46 | 0.44 | 0.39 | 0.46 |
| G\$ | 0.42 | 0.42 | 0.38 | 0.42 | 0.41 | 0.44 | 0.36 |
| TT\$ | 0.42 | 0.42 | 0.42 | 0.46 | 0.44 | 0.42 | 0.37 |

Source: Calculated from IMF, International Finance Statistics, August 1977.

TABLE 10

TRINIDAD AND TOBAGO - YEARLY SPOT RATES OF TRADE CURRENCIES

(TTO)

| Currency | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 |
|----------|-------|-------|-------|-------|-------|-------|-------|
| US \$ | 2.00 | 1.96 | 1.92 | 1.96 | 2.05 | 2.17 | 2.44 |
| Can. \$ | 1.92 | 1.94 | 1.94 | 1.96 | 2.09 | 2.13 | 2.46 |
| UK £ | 4.30 | 4.30 | 4.80 | 4.80 | 4.80 | 4.80 | 4.42 |
| DM | 0.55 | 0.58 | 0.64 | 0.77 | 0.85 | 0.91 | 1.02 |
| Yen | 0.006 | 0.006 | 0.007 | 0.007 | 0.007 | 0.008 | 0.008 |
| S. Fr. | 0.46 | 0.48 | 0.54 | 0.64 | 0.82 | 0.91 | 0.98 |
| F. Fr. | 0.36 | 0.36 | 0.40 | 0.44 | 0.46 | 0.53 | 0.49 |
| Guy\$ | 1.00 | 1.00 | 0.92 | 0.92 | 0.92 | 0.93 | 0.96 |
| Jam\$ | 2.40 | 2.40 | 2.40 | 2.17 | 2.26 | 2.39 | 2.68 |
| BDS\$ | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.04 | 1.22 |

Source: Calculated from IMF, International Finance Statistics, August 1977.

APPENDIX

TABLE A-2

THE SDR VALUE OF CARICOM CURRENCIES

| | B\$ | GD | J\$ | TT\$ |
|-------------|--------|--------|--------|--------|
| 1970 | 0.5000 | 0.5000 | 1.2000 | 0.5000 |
| 1971 | 0.4898 | 0.4511 | 1.1755 | 0.4898 |
| 1972 | 0.4506 | 0.4150 | 1.0814 | 0.4506 |
| <u>1973</u> | | | | |
| March | 0.4754 | 0.4379 | 1.0132 | 0.4754 |
| June | 0.4955 | 0.4563 | 1.0132 | 0.4955 |
| Sept. | 0.4631 | 0.4265 | 1.0132 | 0.463 |
| Dec. | 0.4458 | 0.4106 | 1.0132 | 0.4458 |
| <u>1974</u> | | | | |
| March | 0.4182 | 0.3852 | 0.9119 | 0.4128 |
| June | 0.4128 | 0.3802 | 0.9120 | 0.4128 |
| Sept. | 0.4089 | 0.3766 | 0.9269 | 0.4089 |
| Dec, | 0.3932 | 0.3621 | 0.8823 | 0.3932 |
| <u>1975</u> | | | | |
| March | 0.4029 | 0.3710 | 0.8817 | 0.4029 |
| June | 0.3740 | 0.3445 | 0.8884 | 0.3740 |
| Sept. | 0.4294 | 0.3358 | 0.9396 | 0.3646 |
| Dec. | 0.4271 | 0.3350 | 0.9396 | 0.3601 |
| <u>1976</u> | | | | |
| March | 0.4324 | 0.3391 | 0.9513 | 0.3452 |
| June | 0.4363 | 0.3422 | 0.9598 | 0.3635 |
| Sept. | 0.4332 | 0.3397 | 0.9529 | 0.3610 |
| Dec. | 0.4304 | 0.3375 | 0.9468 | 0.3586 |
| <u>1977</u> | | | | |
| March | 0.4314 | 0.3383 | 0.9490 | 0.3616 |
| June | 0.4289 | 0.3363 | 0.6862 | 0.3574 |

SOURCE: Calculated from Central Bank of Barbados; Economic and Financial Statistics, Table 112.

F O O T N O T E S

1. The growing tendency to denominate hotel charges in U.S. Dollars and the increasing popularity of package tours have minimized the influence of local factors.
2. See I.M.F., Articles of Agreement
3. The rationale for arriving at daily adjustments in S.D.R. values as well as the method used in computing them on a weighted average basis is contained in the I.M.F., Annual Report, 1974, p.51.
4. See, for example, Don Usher, The Price Mechanism and the Meaning of National Income Statistics. (Oxford:Clarendon Press, 1968) pp. 45-54.
5. See C.D.B., "Statement by the President at the Second Annual Meeting of the Board of Governors". (St. Lucia, April 21, 1972).
6. Very often less profound, but nevertheless, significant considerations prove decisive in the choice of both the intervention rate and intervention currency. With respect to the latter, the motivating factor for the regions as a whole appears to be the convenience of international trade.

The decision by Barbados, in July 1975, to restore the value of its currency to its pre-Smithsonian parity with the U.S. dollar was prompted by the fact that that currency's virtual depreciation came as a result of its sterling peg, rather than as a consequence of internal economic weakness. Although Guyana realigned its currency at the prevailing market rate, the decision was taken in the light of the inflationary effects of depreciation which was thought to be inevitable in a continued intervention link with sterling. In its most recent exchange rate decision (taken in April 1977) Jamaica sought to protect essential consumer goods from the price effect of devaluation, while increasing the intervention rate applicable in other transactions. This (special) rate was designed, inter-alia, to arrest further erosion in the balance of payments, as well as to improve the viability of the export sector. Finally, it is contended that:

"One of the main considerations involved in the appropriate exchange rate for the dollar was the fiscal impact of such an action on government revenues and its ability to meet budgeted expenditures".

7. See O.E.G. Johnson, "The Exchange Rate as an Instrument of Policy in a Developing Country". I.M.F. Staff Papers, Vol. XXX 111 No. 2 pp. 335-6.
8. The terms-of-trade express the relationship between the average price of exports and that of imports. When prices increase more than in proportion to import prices, the terms-of-trade improve and vice-versa.
9. This conclusion was first proclaimed in the famed Marshall/Lerner condition. See, for example, S.S. Alexander, Effects of a Devaluation. "A simplified Synthesis of Elasticity and Absorption Approaches," A.E.R. March, 1959.
10. See A.C. Harberger, "Some Evidence on the International Price Mechanism," Journal of Political Economy, Vol.65 pp. 189
11. The relevant estimating procedure is explained below in relation to the currency distribution of receipt and payment flows affecting member states.
12. The weighted average of global currency movements on the valuation of particular currencies is generally calculated with trade weights. See, for example, Avinash Ghagwat and Yusuke Onitsuka "Export-Import Responses to Devaluation: Experience of the Non-industrial Countries in the 1960s" I.M.F. Staff Papers, Vol. XXI No. 2, July 1974, pp.414-462.
13. So far, Jamaica has not prepared such a series although it has a comprehensive data base from which to do so. The writer has been assured, however, that the requisite machinery will be set in train shortly.

B I B L I O G R A P H Y

1. Alexander, S.S., "Effects of a Devaluation: A Simplified Synthesis of Elasticity and Absorption Approaches", A.E.R. (March, 1959).
- 1B Barton, Winston, " In search of Consensus on a Regional Exchange Rate Strategy", Monetary Studies Conference, May 1976.
2. Bank of Guyana, Annual Reports, 1970-1973.
3. Bank of Jamaica, Reports and Statement of Accounts 1970-1976.
4. Bank of Jamaica, Monthly Review, 1973-1977
5. Bhagwat, Avinash and Onitsuka Yusuke, "Export-Import Responses to Devaluation: Experience of the Non-Industrialized Countries in the 1960s", I.M.F. Staff Papers, Vol. XX1 No. 2, July 1974, pp. 414-462.
6. Central Bank of Barbados, Annual Statistical Digest, 1975
7. Central Bank of Barbados, Economic and Financial Statistics, June 1977
8. Central Bank of Trinidad & Tobago, Annual Reports, 1970-1976.
9. Central Bank of Trinidad & Tobago, "Statement for Government Information Service," June 1976.
10. Frenkel, Jacob and Johnson, H.G., The Monetary Approach to Balance of Payment, Toronto: George Allen, Unwin Ltd., 1976.
11. Harberger, A.C., "Some Evidence of International Price Mechanism", Journal of Political Economy, Vol. 65.
12. International Monetary Fund, Annual Report, 1974, Johnson, O.E.G., "Exchange Rate as an Instrument of Policy in a Developing Country" I.M.F. Staff Papers, Vol. XX111 No. 2.

13. Lewis, Arthur, "Statement by the President at the Second Annual Meeting of the Board of Governors", 1972.
14. Ministry Paper, "Multiple Exchange Rate", April 1977
15. U.N.E.C.L.A., Economic Activity - Caribbean Community Countries, 1975
16. Usher, Don, The Price Mechanism and the Meaning of National Income Statistics, Oxford: Clarendon Press, 1968.