

PUBLIC EXPENDITURE AND BALANCE OF  
PAYMENTS PROBLEMS IN THE EASTERN  
CARIBBEAN

by

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## Introduction

Superficially, there are two features which are part of the economic landscape of the Microstate Economies of the Eastern Caribbean. One is a persistent public sector deficit and the other is a balance of payments problems. The former seems to be endemic to small, developing Third World economies; the latter has only been accorded active front page news within the last decade.

Public sector deficit is definable as the excess of public sector expenditures over public sector revenues - expenditure over revenues for short. The Balance of Payments (BOP) would involve: (1) Exports; (2) Imports; (3) Unilateral transfers; (4) increases in foreign assets and (5) some statistical discrepancy as a balance item.

Simplistically, we know that a country which imports (M) more than its exports (X) has to pay the difference in some offsetting credit, such as gold or some other internationally accepted reserve. The gold or international reserve form of payment is contingent upon there being no other means of payment available to the country in question. In the Eastern Caribbean, imports (M) have traditionally exceeded exports (X). It therefore means that the current account balance of payments, that is,  $(X-M)$  or net exports ( $X_n$ ) have to be paid by some means acceptable to the international community.

The Eastern Caribbean countries do not have a tremendous amount of access to the gold and or capital markets hence they are continuously constrained in their economic developments prospects due to the balance of payments constraints which are imposed upon their budgets. The constraints are readily observable if we analyze the variables of which the Balance of

payments are comprised. Following that we will look at what others have said vis-a-vis the balance of payments. Next we will demonstrate via a statement of the problem of this paper that the current account section of BOP is the more critical part of analysis for the Eastern Caribbean. We will follow this with a general equilibrium model, a subset of which will be the focus of our paper. In turn, data will be presented and some empirical analyses performed to affirm or disaffirm the substance of our contention or hypothesis linking public sector expenditure and the current account. We conclude the paper with a discussion of the empirical results.

### The Balance of Payments

In a schematic manner the Balance of Payments (BOP) is comprised of: net exports ( $X_n$ ); net sales of financial assets ( $A_n$ ); net decrease in the quantum of international reserves ( $R_n$ ); and net receipts of unilateral transfers ( $T_n$ ).

Conventionally, net exports are exports minus imports ( $X-M$ ). This is also called the current account or the balance of trade (BOT). Net sales of financial assets ( $A_n$ ) include foreign securities, foreign bank accounts and other currency holdings; direct investment in foreign enterprises; government loans to foreign entities; local government holdings of foreign funds, and the reserve position at the International Monetary Fund (IMF). These could be considered increases in financial assets abroad ( $A_{na}$ ).

On the other hand there are assets which include foreign purchases of regional securities; accounts in regional banks; accounts in foreign banks in the region (tax evasion, avoidance) direct investment in regional enterprises. These could be considered as increases in financial assets in the region ( $A_{nr}$ ).  $A_{na} + A_{nr}$  equals  $A_n$ , or net capital outflows.

Unilateral transfers ( $T_n$ ) are those funds which a country receives or is given such that its favor could be purchased, its friendship could be counted on or its vote could be depended upon in international fora.

It is generally understood that the BOP always balances; this means that:

$$X_n + A_n + R_n + T_n = 0 \quad (1)$$

When  $R_n$  is positive this signifies a deficit in the BOP or a so called unfavourable balance of payments. A favourable balance of payments or surplus is the case when  $R_n$  is negative. From equation one

$$-R_n = X_n + A_n + T_n \quad (2)$$

If  $dR = -R_n$ , where  $dR > 0$  implies growth in international reserves, and  $dR < 0$  implies a decline in international reserves, then

$$dR = X_n + A_n + T_n \quad (3)$$

It is possible that  $X_n$  could be positive while  $dR$  is less than zero, and vice versa. The magnitude of  $dR$  and  $X_n$  depend upon what is happening in the net financial assets ( $A_n$ ) and unilateral Transfer account ( $T_n$ ). Regardless of what is happening in a country's economic sphere, the balance of payments always balances. This has led to our dubbing the balance of payment "echo-economics."

In sum, the balance of payments accounts are an indepth treatment of the transactions of the household, business and public sector of a country with other countries. Public sector transactions of the Eastern Caribbean appear in the balance of payments account because the region receives payments from abroad; receives aid, grants, loans from abroad; makes expenditures abroad, and sell some securities abroad. Many foreign countries reciprocate in the terms mentioned above by purchasing and investing and making other financial transactions in the region. On the whole, however, balance

of payments problems per se are more a statistical artifact of non-independent countries, territories and colonies. We will deal with this later when we formulate our hypothesis linking public sector expenditure and the balance of trade.

#### What Others Have Said About BOP

From our reading of what others have said about the Balance of Payments (BOP) and its impact on economies, we note that a variety of factors are causal in creating BOP problems. Girvan (1980:58) captures the essence of the Caribbean factor when he notes that "the balance of payments is fundamentally a manifestation of the balance of forces to which a country is subject, in both its internal and international relationships." This view is a politico-economic reading of the BOP problems. Indeed, 1973 could conveniently be cited as the year in which recent concerns with the BOP problems was catapulted on the political and economic horizons. With the aftermath of the OPEC offensive, many Third World, peripheral capitalist countries were thrown in a state of disequilibrium. The non-oil exporting countries were thrown in a state of mounting fuel costs. These costs impinged on the short and long range goals of development in the various countries. The attendant general inflationary spiral which followed the oil price hike created some devastating social and economic conditions in the countries in question. The Eastern Caribbean States or the Associated States were severely affected. "In many ways," as Francis (1977:446) said, "the Associated States represent a modern miracle of survival in coming through the current period of serious world inflation." This period of analysis was 1970-1975. Over the last five years, the issue of BOP problems has taken a turn for the worse in the Eastern Caribbean States.

"Objectively," as Shaw (1973:9) notes, "obtaining a balance of payments equilibrium is one of the sought-after objectives of government policy." What is a satisfactory balance of payments position is not terribly clear. Over the years, however, many of the discussions of the BOP problems seem to revolve around issues of monetary and fiscal policy features, factors pertaining to the Balance of Trade (*pari passu*, the terms of trade), and currency devaluation.

Polak and Argy (1971) and Taylor (1972) have implicit discussions with regards to the BOP problems and the credit-linked monetary and fiscal policy alternatives of developing countries. Taylor (1972) concluded that he believes that changes in government expenditure and exports reflect balance of payments issues. More specifically, he argued, "the close association between government expenditure and balance of payment items should be a warning that monetary and fiscal (sic) action should be harmonised if the real effects of a monetary policy are to take place" (Taylor, 1972:179).

Now that BOP problems have taken center stage in economic analyses, many people are coming around to the realization that trade on the current account of the balance of payments has increased faster than the liquidity position of the countries. This liquidity problem or deficit problem has affected countries, particularly Microstate Economies (MSEs), in their ability to attain certain goals. For the Microstate economies (MSEs) of the Eastern Caribbean, deficits seem to be the norm. In general the full effects of terms of trade have also impacted, negatively, on the region's capacity to aid the most affected lower socio-economic strata in the societies.

The question of exchange rate and the BOP seems to be focussed on the monetary approach to BOP problems. In a European prototype open economy, namely, Britain, Ball, Burns and Laury (1977:2) contend that the "monetary

approach to the balance of payments has stressed the role of exchange rate adjustment as a mechanism which enables an open economy to choose its own rate of inflation rather than accept the determination by the rest of the world." It is our view that the Eastern Caribbean States have not acceded to such an exalted position of manipulating exchange rate policies and imported inflation in line with their desired quantum.

Immediately after World War II, the view that was moment centered on an exchange rate policy linked with an "appropriate fiscal policy, (which) could be used as an instrument to reconcile full employment and a satisfactory balance on the current account"(Ball, Burns, Laury, 1977:2). The openness of some economies also lead some writers to the conclusion that, "following exchange rate changes, the public sector deficit and the current account will tend to move together." (Ball, Burns and Laury, 1977:20). From simulation results of Britain's economy, Ball, Burns and Laury obtained results which seem to substantiate the above view. They cautioned, however, that "there is no question of causality from the public sector to the overseas sector. It is simply that in the long run both deficits react in a similar manner to exchange rate changes." (Ball, Burns, Laury, 1977:20).

On another score, Kaldor (1971) of the New Cambridge School of Thought (Neild, 1974) suggested that fiscal policy should be zeroed in on the balance of payments problems. Concurrent with this orientation, the exchange rate should be employed as a tool to establish the magnitude of "domestic activity by export led growth." Ball, Burns and Laury refute this notion. It is not fundamentally clear why they refute the argument. In the Eastern Caribbean, Kaldor's as well as Ball, Burns and Laury's contentions are germane to our hypothesis linking public sector expenditure and the balance

of payments, specifically, the balance of trade. We will develop this hypothesis later.

The final factor which relates to BOP problems is currency devaluation. From a reading of Wolfson (1979), Cooper (1971) and Haberler (1961), we concur with the very important point made by Wolfson (1979:83)

"It is a well-known finding of the theory of international trade that a currency devaluation will improve a country's balance of payments to the extent that the sum of the elasticity of its demand for imports and of the effective foreign demand for its exports is greater than unity."

Unfortunately, currency devaluation is not a panacea for the economic ills of countries. We believe that currency devaluation is a placebo. It is a sugar-coated bitter pill. Countries, such as those in the Eastern Caribbean, which depend on export crops are traditionally faced with the problem of inelasticity in the short-run for their goods and services. The demand for the imports is almost always inelastic. This is true because, in many cases, there are minute instances of effective import substitution in the domestic economies. What could be done about this issue of the balance of payments, the balance of trade, currency devaluation and public sector expenditure or deficit? Technically, we could suggest that Eastern Caribbean countries could be more productive in their export sector. This simple solution has some serious systemic problems. We will now turn to this issue by presenting a statement of the problem of our paper.

#### Statement of the Problem

Hinshaw (1959:276) makes the point that the shift in the U.S.A. surplus to deficit position in the overall BOP, in the post-war era, was due, in large measure, to the changes in the exports-imports sector. We are of the view that it is the current account, or the balance of trade component of the BOP, that is of moment in an analysis of the underpinning links with public



sector expenditure in the Eastern Caribbean. Following Shaw (1973:10), we view the BOP objective "as the need to maintain international competitiveness... (In this respect), "the onus of a satisfactory (BOP) performance must fall principally on the trading account." As far as the Eastern Caribbean States are concerned, the "capital account (of the BOP) must be looked upon as fulfilling merely a short-term emergency role in time of crises" (Shaw, 1973:10). Our focus, therefore, is not on the overall BOP which may be a misnomer in the Eastern Caribbean non-independent States, but on the Balance of Trade (BOT).

We arrived at this view from the ideas of Prebisch, Shaw, looking at the experiences of the Eastern Caribbean States, among other factors. Our ideas could be traced to some more critical concerns which we have repeated elsewhere (Jones-Hendrickson, 1979). We believe that the formulation of public sector and monetary policies in the Caribbean must be integrative such that they have a positive impact on the balance of payments, specifically the balance of trade component of the balance of payments. Given the openness of the Caribbean economies, specifically the Microstate Economies of the Eastern Caribbean, this integrative approach of the public sector (fiscal) and monetary policies, is of tremendous import vis-a-vis the Balance of Trade sector.

Conventional wisdom maintains that "trade is better than aid." In this light, it was once thought that developing countries should develop by increasing their exports. Peripheral countries were supposed to increase their exports while centre countries were to continue in their industrialization. It seems, however, that Raul Prebisch's advise was being ignored. He contended that as the technical ability increases in peripheral primary

production, a significant quantity of the "fruits of such technical advance will usually be transferred from the peripheral countries to the outer world..." Prebisch (1959:252). Primarily, argued Prebisch, the "greater the inelasticity of demand for peripheral exports, the larger the proportion of the fruits that is so transferred." (Prebisch, 1959:252).

In the Caribbean context, while they were exporting goods and services, the terms of trade were turning against them. The Caribbean, and particularly, the Eastern Caribbean increased their exports, but they also increased their imports. The efforts in the export sector was short changed because the real purchasing power of the countries was on a down trend. In practical terms the Eastern Caribbean Microstate Economies are in a situation where their exports, income and employment are functions of the external decision-making, goals and aspirations of others. Hence, we argue that public sector expenditure patterns are linked to the balance of trade or the foreign trade sector. Phillips (1957:151), Khaleed (1969:53-82) and Wolfson (1979:84) have also developed similar points of departure.

In summary, the Eastern Caribbean Countries' balance of payments, in our estimation, seem to revolve around the subset of BOP namely BOT. Imbalances in BOP could revolve around the exchange rates at which the EC dollar exchanges. There are limited degrees of freedom that the East Caribbean Currency Authority has over the exchange rate regime. We suspect that even if it were a Central Bank, it still would have limited degrees of freedom given the region's powerlessness relative to the world monetary situation.

The classic notions about balance of payments problems could be gleaned from many classic texts. Some summary statements from one text are from Weintraub (1970:370-375). His points show what should obtain, all things

being equal. Our position and comments reflect what we believe more approximate the balance of trade/balance of payments and public sector expenditure position in the Caribbean.

Traditionally, when a deficit position obtains in the BOP position, it is reasonable to argue that "high domestic money costs and prices" vis-a-vis foreign costs may be responsible. In any given year, when there are price change sensitivity, exports would be larger than normal. Foreign investment will be larger than normal, because the region would be a less expensive place in which to invest.

Basically, "a payments deficit" may be linked to a 'high' and a payments surplus to a 'low' domestic money costs and prices relative to foreign money costs and prices (Weintraub 1970:370). Imbalances in the capital accounts (of the BOP) may reflect differences in the underlying supply and demand conditions between the money and capital markets of the Eastern Caribbean and foreign countries. If the interest rate which equates EC supply and demand for investment funds is lower than the interest rate equating supply and demand in foreign countries, there may be capital outflow. However, in the region, there seems to be little control over the interest rate regimes, if we recall the works of Bourne and Joefield-Napier on this idea.

Traditionally viewed, international financial flows help to determine domestic interest rates. Outflows tend to raise the domestic yields and inflows to change them above and below, respectively, the rates that would obtain in the absence of international capital movements. (Weintraub 1970 :375). But, as the singing group, the Tradewinds, say, "it's traditional."

Girvan, Bernal and Hughes (1980:133) put their idea in focus when they noted that the current account deficit of the balance of payment may be seen

as a rough approximation of the magnitude of foreign capital inflows in a country. In the Eastern Caribbean, this idea is particularly apropos.

The Eastern Caribbean states, like all other countries, have the power of not cooperating with other countries in terms of trade. However, the EC states are functionally and fundamentally dependent on other countries for their supply of imports and the demand for their exports. The region is agriculturally dominant; sugar, bananas, citrus, spices form significant proportions of the GDP. In some cases, as in St. Kitts, sugar represents approximately 90 percent of the GDP. This extremely high dependence on agriculture puts the region in an extremely dependent position on the outside world vis-a-vis exports.

Foreign capital forms a significant component of the operational thrust of the region. It is not clear, however, whether the net movement of capital is in favor of the region or the foreign country. From casual empiricism, we may infer that there is a net outflow, as opposed to a net inflow. When we consider the classic instancing of the balance of payments in the Eastern Caribbean, we are inclined to the view that the current account or balance of trade component of the BOP is the proverbial tail which wags the dog in the region. In this regard, we will now build our discussion around public sector expenditure and the balance of payments in the Eastern Caribbean over the period 1970-1979. The sequence of events will be the presentation of a general equilibrium model, discussion of a subset of that model, data presentation, some empirical analyses of the model, discussion of the results, and a conclusion of the work.

A General Equilibrium Model

Following Bowers and Baird (1971), let us specify equilibrium in an open economic system such as the Eastern Caribbean. The domestic goods and services market, (IS), the domestic money market (LM), the foreign exchange market (FX), and the Balance of Trade Market (BOT) are all assumed to be in equilibrium. The four markets may be written according to Bowers and Baird (1971:282-289):

$$\begin{aligned} (4) \quad Y &= f_1(G, r, X_n) \text{ ----- IS curve} \\ (5) \quad r &= f_2(M, Y) \text{ ----- LM curve} \\ (6) \quad E &= f_3(r, X_n, R) \text{ ----- FX curve} \\ (7) \quad X_n &= f_4(Y, E) \text{ ----- BOT curve} \end{aligned}$$

where  $Y$ ,  $r$ ,  $E$ ,  $X_n$ , are equilibrium levels of aggregate demand, interest rates, exchange rate, and net exports, respectively. The exogeneous variables over which the public sector may have some control are  $G$ , public sector expenditure,  $M$ , money supply and  $R$ , the rate of change of foreign exchange; this is our  $\Delta R$  from earlier discussions.

The total differentials equations equations of (4) through (7) are:

$$(8) \quad dY = f_{11}dG + f_{12}dr + f_{13}dX_n$$

$$(9) \quad dr = f_{21}dM + f_{22}dY$$

$$(10) \quad dE = f_{31}dr + f_{32}dX + f_{33}dR$$

$$(11) \quad dX = f_{41}Y + f_{42}E$$

Following conventional notation, the behavioral assumptions are (see footnote one):

$$\begin{bmatrix} f_{11} & f_{12} & f_{13} \\ f_{21} & f_{22} & 0 \\ f_{31} & f_{32} & f_{33} \\ f_{41} & f_{42} & 0 \end{bmatrix} = \begin{bmatrix} + & + & + \\ - & + & 0 \\ + & + & - \\ - & - & 0 \end{bmatrix}$$

A Subset of the General Model

From Bourne (1977) we may follow the argument and simplify the above model. Bourne was interested in analyzing "bank portfolio in Jamaica." His most pertinent conclusion was that from his "statistical estimation of the interest rate functions", there was "a relatively unimportant role for interest rates . . . ." We will appeal to this argument as well as the view that the interest rate in the Eastern Caribbean cannot deviate for long from those rates which obtain in the world money market. From these two points we will assume that  $dr$  equals zero. Furthermore, since the Eastern Caribbean dollar is linked to the U.S.A. dollar, we will assume that a quasi-fixed exchange rate regime is in vogue. This implies that we can set  $dE$  equal zero, although  $dR$  is not equal to zero.

In point of fact, the four equation system is now reduced to:

$$(12) \quad dY = f_{11}dG + f_{12}dX_n$$

$$(13) \quad dX_n = f_{41}dY$$

Our concern is the determination of public expenditure or fiscal policy on net exports. We will make the determination in two steps. First, we will

rewrite equation (12) to (12)'

$$(12)' \quad dG = \frac{dY}{f_{11}} - \frac{f_{12}dX_n}{f_{11}}$$

Substituting equation (13) into (12)' we get

$$\begin{aligned} dG &= \frac{dY}{f_{11}} - \frac{f_{12}}{f_{11}} (f_{41}dY) \\ &= \frac{dY (1 - f_{12}f_{41})}{f_{11}} \end{aligned}$$

$$\frac{dG}{dY} = \frac{1 - f_{12}f_{41}}{f_{11}} > 0$$

We note that the impact of public sector expenditures is reduced as a result of a negative impact of the positive change in aggregate demand on net exports.

Our fundamental concern involves the second step. We need to determine the effect of public sector expenditure on increased imports or alternatively on the quantum of net exports. From equation (13) we have

$$dX_n = f_{41}dY$$

or

$$\frac{dY}{dX_n} = \frac{1}{f_{41}} < 0$$

Now, the marginal rate of change between public sector expenditure and net exports, or the balance of trade, involves changes which relate to aggregate demand and aggregate demand which relates to net exports. Hence we may write

$$\frac{dG}{dX_n} = \frac{dG}{dY} \frac{dY}{dX_n}$$
$$-1 < \frac{dG}{dX_n} = \frac{1 - f_{12}f_{41}}{f_{11}f_{41}} < 0$$

*Deductively* ←

In sum, what we have demonstrated is the following: an increase in net exports will decrease public sector expenditures by a smaller amount than an increase due to the change in public sector expenditure with respect to aggregate demand. Conversely, a rise in public sector expenditure will cause a fall in net exports but by a smaller quantum than any initial increase of public sector expenditure vis-avis aggregate demand. Implicit in this argument of the negative value of  $\frac{dG}{dX_n}$  is the notion that there will be no impact on domestic aggregate demand, if all of the rises in public sector expenditures go towards the purchase of imports (that will be a case where  $f_{11} = 0$ ). Given the nature of the implicit balance of payments problems in the Eastern Caribbean export-led economies, we believe that there is a fundamental paradox in terms of the non-impact on domestic aggregate demand when increases in public sector expenditures are devoted to imports. This classical position seems to suggest that Eastern Caribbean type economies could successfully insulate their domestic economies from the vagaries of the world system. That this is a fallacy is evident from the deteriorating terms of trade and the implicit balance of payments problems of the Eastern Caribbean States.

Let us turn to the data for the period 1970-1979 and consider the results of the subset of the general equilibrium model, among other indices of balance of payments features.



### An Analysis of the Data

In table one we present indices showing the trend in net exports (Xn), gross domestic product (GDP) and public sector or government expenditure (G) between 1970-1979. Beginning in 1970, net exports (Exports minus Imports) have gotten worse. The higher the figure, the worse the overall value is. In case of the Eastern Caribbean, this came about as a result of a progressive increase in imports relative to exports. The Xn figures are more accurately presented with the base year 1970 equals to minus 100, since the Balance of trade was negative for all of the years in question.

The geometric growth rate for the aggregates indicate a 10.1% decrease for Xn, 10.0% increase for GDP and a 15.6% increase for government expenditure.

Table two depicts the net terms of trade, more accurately an index of export values divided by an index of import values the ratios of net exports to gross domestic product and government expenditure to gross domestic product.

It should be noted here that the net terms of trade show a 9.5% geometric growth rate per annum. This is indicative of the high import content and the low base of exports. In other words, a falling index would be representative of (a) rising exports vis-a-vis imports; (b) declining exports vis-a-vis imports, (c) increases in both exports and imports, but with imports increasing less rapid than exports or (d) decreases in both variables but with imports declining faster than exports.

The ratio of net exports to GDP shows an almost negligible decline (Xn series if negative). Here, numbers below 100 are reflective of "non-exhaustive" feature of net exports relative to gross domestic product. In a technical sense, this Xn to GDP ratio pertains to the openness of economies in

question. Consequently, indices below 100 could be term "positive" in terms of the economies, whereas indices above 100 may be termed negative in terms of the exhaustive openness of the economy.

Finally, the ratio of government expenditure to gross domestic product shows geometric growth rate per annum of 5.1 percent. The share of government has been increasing significantly since 1970. The growth rate has not kept pace with inflation which has been running on the order of nearly four times the growth rate of government expenditures to GDP.

We are interested in analyzing the changes in government expenditures and net exports. We also are interested in looking at some correlations, despite the shortcomings of this analysis; and finally we are interested in analyzing the elasticities derivable from the aggregates presented.

Figure one illustrates some general features of the kinds of changes and their relationship which are implicit in net exports, gross domestic product and government spending. Figure two gives similar insights for the changes in the net terms of trade, ratios of net terms of trade to GDP, and government spending to GDP.

In table three we present the correlation coefficients of the three variables in question. There are clear shortcomings to this analysis. As it is well known, there could be a host of intervening factors, coincidental and chance issues which combine to produce the high correlations. In terms of regression analyses, these will be the core issues in the collinearity problems. Nevertheless, the high significance of the correlation coefficients, while not indicative of causation, are sufficiently significant (note the t-values) for us to pay some attention to the relationships

which obtain among the variables in question.

Finally, we present some marginal propensities (slopes) and elasticities of the three variables. All of the slopes are positive, except the years 1971-72 and 1972-73 in the cases of the change of government expenditures and gross domestic product to net exports. Over the period of analysis, the geometric mean of the slopes of the three cases were 1.64, 1.34 and 1.23, respectively (see table four). The values were fairly high (perhaps erratic) in all cases. The "erratic" effects were magnified in the case of the change in government expenditures relative to net exports. Since  $\Delta G/\Delta X_n$  is a product of  $\Delta G/\Delta GDP$  and  $\Delta GDP/\Delta X_n$  the internal dynamics of the latter variables were reflected in the change in government expenditures vis-a-vis net exports.

In table five we present the elasticities and the marginal rates of change. All elasticities are mildly elastic. A one percent change in net exports brings about a 1.55 percent increase in government expenditures. This is comprised of a one percent change in gross domestic product which brings about a 1.29 percent increase in government expenditures and a one percent change in net exports which causes a 1.16 percent change in gross domestic product.

#### Comments and Conclusion.

In the classical or traditional rendition of "balance of payments economics," it is assumed that net exports have a negative relationship to the level of aggregate demand (Takayama, 1972:334; Bowers and Baird, 1971: 284). In other words, in assuming that  $dX_n/dGDP < 0$ , the point could

be made that total exports are not dependent on aggregate demand. However, the reality of the Eastern Caribbean States is such that, we believe, this is an incorrect specification of the net exports or balance or trade effects in these export-led economies.

From the results in table four, we note that over the period of analysis,  $dX_n/dGDP$  is positive. We are of the view that  $dX_n/dGDP$  should be positive. Microstate, open, peripheral capitalist economies, such as those in the Eastern Caribbean, need imports, capital, skills, technologies, and so forth, to mount meaningful, realistic and viable programmes. Exports, therefore, are not only a function of foreign demand and the ratio of foreign prices to domestic prices, they must also be a function of domestic aggregate demand.

If our contention is accepted that exports are a function of the level of gross domestic product in the Eastern Caribbean, then  $\Delta X_n/\Delta GDP$  is the region's marginal propensity to export minus the region's marginal propensity to import. This value could be positive. That the value was positive over the period of analysis seems to affirm our suspicion, although we admit that the time series is too short for a powerful conclusion of our suspicion.

If  $dX_n/dGDP$  or in the discrete case  $\Delta X_n/\Delta GDP$  is positive, then when we consider  $dX_n/dG$ , its positive value should come as no surprise since  $dG/dGDP$  or  $dG/dY$  (in the model) is positive. Fundamentally, we believe that the balance of payments problems in the Eastern Caribbean Microstate Economies, and Microstate Economies similarly circumstanced, will be until these economies develop mechanisms and wherewithal to insulate their economies from the vagaries of the international order.

But, the implicit paradox is, the economies need the world order if they are to survive, principally, along agriculturally dominant paths.<sup>2</sup>

In sum, the export content of imports, the import content of export, and the nature of gross domestic product, must be accorded meaningful weighting in determining how the net terms of trade will affect Microstate Economies' balance of trade, and in tandem, balance of payments, and public sector expenditures. Essentially, given the large marginal propensity to import, in the Eastern Caribbean, we believe that some of the changes in government expenditures are exported. By the same token, the high proportion of import and export to GDP seems to indicate that the vagaries of the external economic system affect the level of domestic aggregate demand far more negatively, in light of deteriorating terms of trade, than is observable from a superficial analysis of the deficit in the balance of trade or current account. It seems that a quantity of the regional thrust from the increase in government expenditures is lost through the net export of goods and services.<sup>3</sup> It is therefore not clear, to us, that  $dG/dX_n$  must be, unequivocally, less than zero, as traditional "balance of payments economics" would have us believe. We submit that in the Eastern Caribbean, and in Eastern Caribbean-type States, the change in government expenditures relative to net exports is positive. As  $X_n$  grows,  $G$  tends to grow. This positive relationship, implicitly, exacerbates the BOP problems. Finally, if we are forced to specify a BOT equation, it will be:

$$X_n = f(Y, E, P)$$

with behavioral assumptions,  $f_y > 0$ ,  $f_e \geq 0$ ,  $f_p \leq 0$

and where  $Y$  is real income or output;  $E$  is the exchange rate, and  $P$  is output price.

The last point in understanding the paradox linking government expenditures and the net exports variable centers around the traditional view of fiscal policy under flexible and fixed exchange rates. Recall that we stated that the exchange rate is quasi-fixed, given the linking of the region's currency to the umbrella currency, the United States of America dollar. No doubt this view could be challenged.

Takayama (1972, ch. 11) reviews the traditional case when he states that under a flexible exchange rate regime, and with free movement of capital, fiscal policy tends to generate small increases in employment and output. It is further argued that fiscal policy will facilitate a right shift of the IS-curve (Hicks, 1937). All things being equal, there should be a net inflow of foreign capital, due to the rise in the level of the rate of interest. The contention here is a simple one. The balance of payments will be brought into equilibrium by the vacillations of the exchange rate. Hence, the "increase in net inflow (or the decrease in net outflow) of foreign capital must be accompanied by an offsetting deterioration in the trade balance." (Takayama, 1972: 328). This deterioration in the trade balance will force a left shift in the IS-curve. Assuming free movement of capital, and a small economy, the capital will flow into the small economy thereby restoring the IS-curve to its original position. (Takayama, 1972: 328).

This seems to be more fiction than fact. We suspect that as Eastern Caribbean States increase their government expenditures to raise their level of output and exports (which increase in output and exports came from output and expenditure of a previous period), the level of imports in-

creases, thereby effectuating an exacerbation of the terms of trade. This exacerbation, inter alia, leads to crippling effects on the offsetting accounts in the balance of payments. Fiscal policy could work in ameliorating some of the impact of the balance of payments in the Eastern Caribbean. However, it ought to be noted that when the public sector spends to import and spends to export, the residual to the countries in question may be negative. In other words, the rise in government expenditures may be accompanied by a deterioration in net exports or BOT. This in turn could have an impact on the balance of payments and hence on the countries ability to provide certain goods and services.

In the final analysis, the Microstate Economies of the Eastern Caribbean have a balance of payments problem in the genuine sense, if they are treated as independent entities subject to the artificial issue of balancing the various accounts in the balance of payments. However, in my view, and from the preliminary "empirical" estimation, the key issue that should be of moment to the Eastern Caribbean States is their relationship of government expenditure and net exports, or the current account component of the balance of payments. Over the period of analysis, there has been a positive relationship, as opposed to a negative relationship, as traditional analysis would have us believe.

T A B L E 1

INDICES OF NET EXPORTS, GDP AND GOVERNMENT  
EXPENDITURE IN THE EASTERN CARIBBEAN  
STATES, 1970-1979 (1970=100)

YEAR	Xn	GDP	G
1970	100	100	100
1971	121	110	112
1972	119	118	118
1973	108	128	132
1974	112	140	165
1975	114	153	190
1976	132	166	234
1977	163	181	236
1978 <sup>1</sup>	194	197	274
1979 <sup>1</sup>	216	214	319
GRPA <sup>2</sup>	10.1%	10.0%	15.6%

SOURCE: ECCM Secretariat Annual Digest of Statistics, 1975  
1976/1977 Trade Reports (For Nominal data)

NOTE: (1) For 1978 - 1979, these are estimates for all  
three aggregates. Data aggregated from the  
individual states.

(2) GRPA: geometric growth rate per annum.

Xn, 1970 = EC\$ - 172.2m

GDP, 1970 = EC\$312.1m; G, 1970 = EC\$97.0m



T A B L E 2  
NET TERMS OF TRADE, NET EXPORTS TO GDP  
AND GOVERNMENT EXPENDITURE TO GDP IN  
THE EASTERN CARIBBEAN 1970-1971 (1970=100)

YEAR	NTT	Xn/GDP	G/GDP
1970	100	100	100
1971	92	110	102
1972	104	101	100
1973	145	84	103
1974	152	80	118
1975	158	75	124
1976	157	80	141
1977	172	90	130
1978	189	98	139
1979	207	101	149
GRPA	9.5%	.1%	5.1%

SOURCE: ECCM *Annual Digest of Statistics, 1975 and Trade Digest from 1976, 1977* (For original data).

NOTE: Estimates for 1978 - 79.

NTT, 1978 Exports EC\$75,692; Imports, \$266,125. For other base year nominal data, see Table 1.

Figure 1 Rates of Change of Net Exports, Gross Domestic Product and Government Expenditure in Eastern Caribbean, 1970/71-1978/79

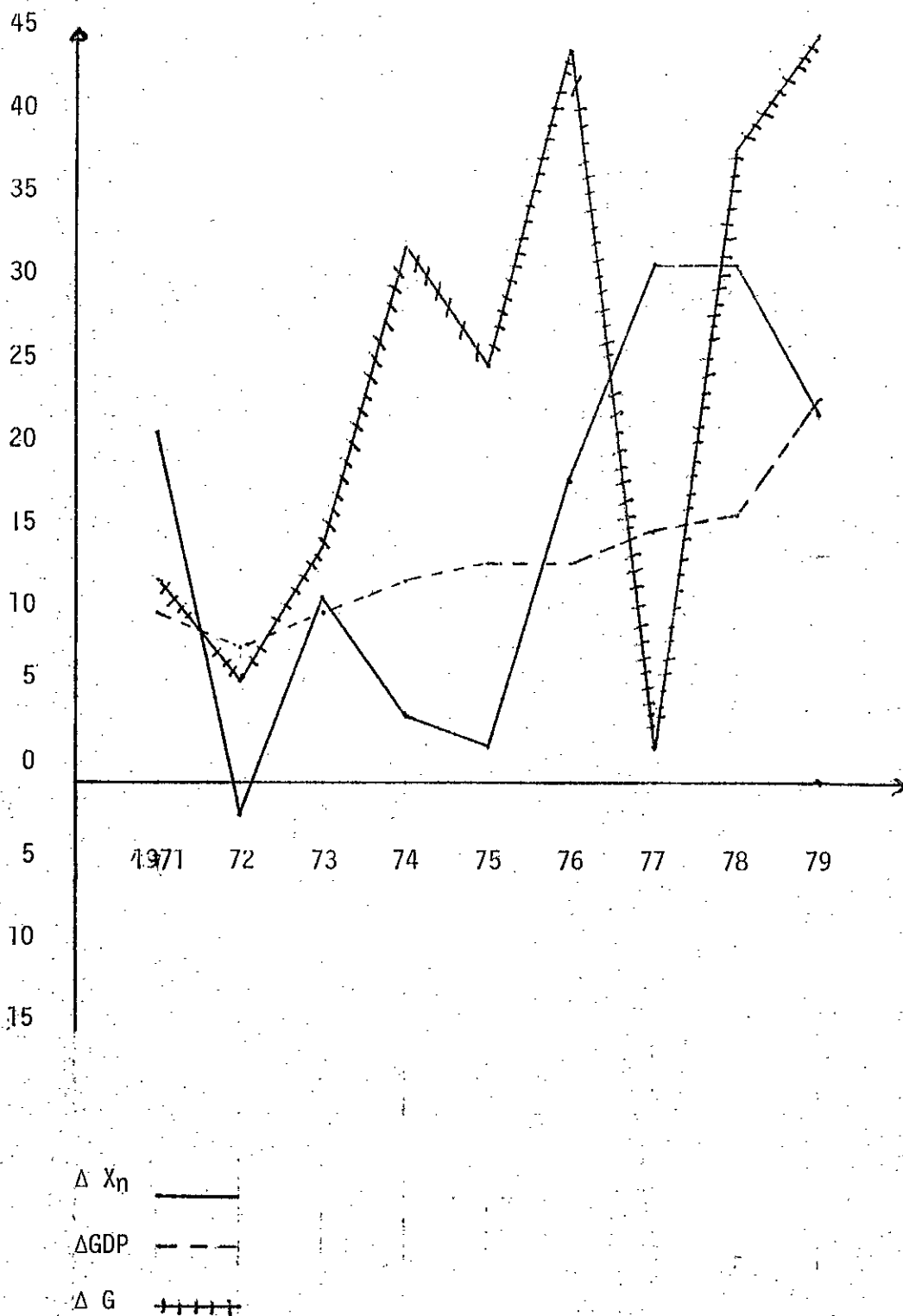


Figure 2 Rates of Change in Net Terms of Trade, Net Exports to GDP, and Government Expenditure to GDP

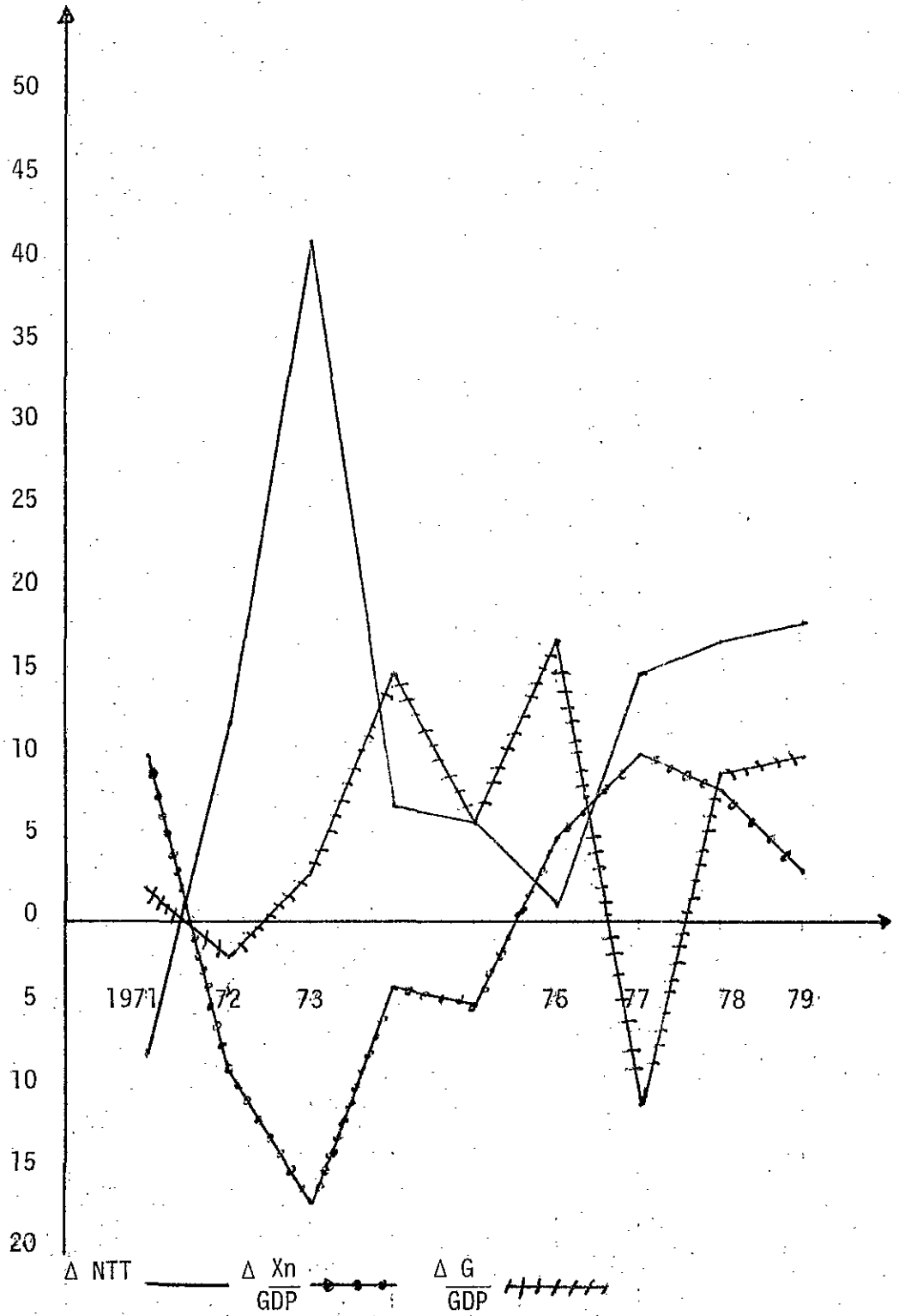


TABLE 3

CORRELATION COEFFICIENTS			
	G	Xn	GDP
G	1.00		
Xn	.90 (5.84)	1.00	
GDP	.99 (19.80)	.90 (5.84)	1.00

NOTE: The values in parentheses are the t - values at 5% level.  $t(8) .05 = 2.31$ , hence all of the correlation coefficients are significant.

GDP is expressed as Y in the equation in the model.

TABLE 4

SLOPES OF VARIABLES

YEAR	$\frac{\Delta G}{\Delta X_n}$	$\frac{\Delta G}{\Delta GDP}$	$\frac{\Delta GDP}{\Delta X_n}$
1970-71	.58	1.20	.48
1971-72	-3.00	.75	-4.00
1972-73	-1.27	1.40	.91
1973-74	-8.25	2.75	3.00
1974-75	12.48	1.92	6.50
1975-76	2.43	3.38	.72
1976-77	.06	.13	.48
1977-78	1.24	2.38	.52
1978-79	2.06	1.96	1.05
GR*	1.64	1.34	1.23

SOURCE: Calculated from Table One.

\* Geometric mean.

TABLE 5

ELASTICITIES AND SLOPES OF VARIABLES			
	$\frac{\Delta G}{\Delta X_n} \cdot \frac{X_n}{G}$	$\frac{\Delta G}{\Delta GDP} \cdot \frac{GDP}{G}$	$\frac{\Delta GDP}{\Delta X_n} \cdot \frac{X_n}{GDP}$
	1. 55	1 . 29	1. 16
$\frac{\Delta G^*}{\Delta X_n}$	1. 64	--	--
$\frac{\Delta G}{\Delta GDP}$	--	1 . 34	--
$\frac{\Delta GP}{\Delta X_n}$	--	--	1. 23

NOTE: The elasticities and slopes were all evaluated at the geometric rate of change and the geometric means for the entire period 1970 - 1979.

\* Geometric mean.

FOOTNOTES

1.  $f_{11} > 0$  government expenditures multiplier.
- $f_{12} < 0$  the slope of the IS curve is negative.
- $f_{13} > 0$  export multiplier.
- $f_{21} < 0$  the interest rate is negatively related to the money supply.
- $f_{22} > 0$  the slope of the LM curve is positive.
- $f_{31} > 0$  the exchange rate is positively associated with the level of interest rates.
- $f_{32} > 0$  the exchange rate is positively related to net exports.
- $f_{33} < 0$  the rate of exchange in foreign reserves is inversely related to the exchange rate.
- $f_{41} < 0$  net exports are inversely related to the level of aggregate demand.
- $f_{42} < 0$  net exports are inversely related to the exchange rate.

2. The Eastern Caribbean countries need the world economic systems, if they are to survive and grow. That point seems to be an indisputable fact. However, Arthur Lewis (1980) believes that even if the "engine of growth" is slowed down in the developed countries, the developing countries could survive. Specifically, notes Lewis (1980:560):

from the standpoint of the individual LDC it matters not at all what the MDC growth rate may be. Given resources and flexibility, it can always sell more to MDC's. However, it thereby displaces some other LDC's trade. What one can do cannot be done by all.

I agree, fundamentally, with Lewis. The idea that Lewis refers to is the classic case of a paradox of composition, as far as trade and trading relationships are concerned.

3. In the Appendix, we present a more detailed analysis of what we perceive are the links between government expenditure and exports in the Eastern Caribbean between 1955-1975. The appendix is drawn from Jones-Hendrickson (1979: chp.6).

APPENDIX

Recently, we completed a document in which we tested, that is regressed, government expenditures (E) on exports (X) and government expenditures lagged one period ( $E_{t-1}$ ). Our main aim was to determine the nature of the concept of export-propelled economies, and to determine the nature of the impact of fiscal policies on exports. In light of our present paper, we feel it is useful to highlight the results of that document, and specifically the equation that was tested. The equation was of the order of a lagged adjustment model. We had

$$\log E_t = AZ + b \log X_t + (1-Z) \log E_{t-1} + U_t \quad (\text{A.1})$$

In its normal multivariate form, we had

$$\log E_t = \log a + v \log X_t + w \log E_{t-1} + U_t \quad (\text{A.2})$$

where in equation A.1, E is government expenditure; A is a constant; b is an estimate of the short-run elasticity; Z measures the speed with which the dependent variable, E, adjusts to equilibrium;  $(1-Z)/Z$  measures the mean adjustment lag; and  $b/Z$  measures or estimates the long-run elasticity of government expenditures with respect to exports.

In table A.1 we present the results for the Eastern Caribbean States according to the equation form of A.2. In table A.2 we present the results according to the equation form of A.1.



Table A.1

EXPENDITURE AS A FUNCTION OF EXPORTS AND EXPENDITURE LAGGED ONE PERIOD

Country	Intercept	v	w	R <sup>2</sup>	SER
Antigua	3.022	2.174* (.650)	-1.615 (.931)	.740	.537
Dominica	.140	.086 (.162)	.897* (.110)	.994	.030
Grenada	-.512	.596* (.240)	.532* (.141)	.944	.099
Montserrat	.069	.044 (.093)	.958* (.086)	.978	.055
St. Kitts/N/A	-.399	.021 (.133)	1.043* (.073)	.981	.049
St. Lucia	-1.339	.341* (.154)	.860* (.141)	.984	.071
St. Vincent	-.181	.007 (.121)	1.025* (.043)	.994	.031

Source: Jones-Hendrickson (1979:197), Table 3.

These values in parentheses are the standard errors. The starred values are indicative of t-values which are significantly different from zero at the 5% level of significance. The t-values are obtained by dividing the each of the coefficients by the respective standard errors.

The equation associated with the above results is:

$$\log E_t = \log a + v \log X_t + w \log E_{t-1} + U_t$$

Table A.2  
PARAMETERS OF THE EXPENDITURE EQUATION

Country	b	Z	b/Z	(1-Z)/Z
Antigua	2.174	2.615	.831	-.618
Dominica	.086	.103	.835	8.709
Grenada	.598	.468	1.278	1.137
Montserrat	.044	.041	1.073	23.390
St. Kitts/N/A.	.021	-.043	-4.853	-24.256
St. Lucia	.341	.140	2.436	6.143
St. Vincent	.007	-.025	-.311	-40.366

Source: Jones-Hendrickson (1979:198), Table 5.

The equation from which these values were derived is:

$$\log E_t = AZ + b \log X_t + (1-Z) \log E_{t-1} + U_t$$

From the results in table A.1, it is observable that all of exports variables, except Antigua's, are inelastic. In the case of Antigua, a 10 percent increase in exports brought about a 21.74 percent increase in public expenditures. St. Vincent's case was very minute. Here, a 10 percent increase in exports brought about a .07 percent increase in public expenditures. The t-values for Antigua, Grenada and St. Lucia are significant for the exports variable at the 5 percent level of significance. All of the lagged variable coefficients, except Antigua's, are significant at the 5 percent level of significance. Given the collinearity between  $E_t$  and  $E_{t-1}$ , we expected the statistical significance of the latter variable.

In the lagged variable case, Dominica, Montserrat and St. Lucia presented instances of inelasticities. The other states had positive elasticities, except Antigua. Finally, in all of the states, except Antigua, over ninety percent of the variation is being explained. While the  $R^2$  for Antigua is less than ninety percent, it is still significant, if we consider the overall F-value. In this case the F-value is 25.69. If we test the null hypothesis that  $\hat{v} = \hat{w} = 0$  at the 1 percent level of significance, the  $F(2,18)$  is 6.01. Since 26.59 is greater than 6.01 we reject the null hypothesis.

Underpinning the results in table A.2 are the short-run (b) and long-run (b/Z) elasticities, and the mean adjustment lags  $(1-Z)/Z$ . On the expenditure side, the long-run elasticities for all states, except Antigua, are greater than the short-run elasticities. There was one unexpected case, that of St. Kitts-

Nevis-Anguilla. Here, the results indicated that a 10 percent increase in exports was associated with a 48.53 percent decrease in government expenditures.

The speed with which actual expenditures adjusted to equilibrium expenditures was the longest for Antigua, 2.615 years and the shortest for Montserrat, or about two weeks. These data are to be compared with the negative results for St. Kitts Nevis and Anguilla and St. Vincent. These negative results were unexpected. They present a challenge in terms of a sound economic explanation. We are inclined to believe that a one period lag model may not be applicable to the expenditure vis-a-vis exports relationships in the case of these two states.

The mean adjustment to equilibrium values occurred above one year in the cases of Dominica, Grenada, Montserrat and St. Lucia. It went from a low of 1.137 years in Grenada to a high of 23.390 years in the case of Montserrat. There are three negative values for the states of Antigua, St. Kitts, Nevis and Anguilla, and St. Vincent.

All things being equal, it is safe to say that there is a definite relationship between exports and government in the the Eastern Caribbean States. The slopes in the lag adjustment model are positive. These are in accordance with my interpretation in the present paper where the point is made that  $dG/dX_n$  should be positive, as opposed to negative from the conventional reading of the issues. Some more work needs to be done on this issue.

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