THE DETERMINANTS OF THE CARIBBEAN'S EXPORT PERFORMANCE

by

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ABSTRACT

Improving the Caribbean's export performance is the major challenge facing these trade oriented countries in the 1990's. The paper using conventional models attempts to highlight the key influences on the Caribbean's export performance. The results indicate that economic policy should focus on improving the profitability of tradable production relative to non-tradable's via a range of incentives including the exchange rate.

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Introduction

As part of the overall interest in trade and development some researchers have focused on analyzing developing countries export performance. A variety of approaches have been adopted but I will use time series (regression) analysis of export performance functions or more widely known as export "supply" functions. These analyses attempt to identify the major determinants of a country's export performance over time (see Donges and Riedel (1977), Krueger (1978) and Yang (1981)).

Research on the Caribbean countries[1] has not followed this methodology. Rather it has tended to focus on exports and economic development in the context of the centre/periphery model of the 'Dependency School', which initially evolved in Latin America (see Best and Levitt (1969), Beckford (1972). More recent discussions on the role of exports in economic development have been in the context of 'product cycle' trade theory (see T.M.A. Farrell (1982)). Wherein commodities are considered to have different product cycles and demand rises and dies out (declines) over varying lengths of time. Consequently, the small economy must know when to move in and out of the production of different commodities.

Therefore, there is a need to analyze the Caribbean's export performance more closely and this paper attempts to do so via some standard export performance functions. In addition, given the contemporary export performance in the region and the arguments for greater export diversification, the results may provide some policy insights into a successful export strategy. The paper is arranged

as follows. The next section briefly reviews the data on export performance. This is followed by a short review of the literature outlining the model of export supply to be used in the paper. Third, econometric results are presented for aggregate and individual export supply equations. Finally, the results are interpreted and some conclusions are drawn.

Review of Export Performance

Generally, over the last two decades the performance of the Caribbean's major exports - sugar, bananas, bauxite and oil - (notwithstanding Trinidad's 'windfall gains' from the petroleum industry) has been poor. Manufacturing exports were promising in the 1970's but declined significantly in the 1980's except for Costa Rica. The only real positive aspect has been the rapid growth in tourist receipts and the corresponding emergence of the tourist industry as the major supplier of foreign exchange earnings except in the cases of Guyana and Trinidad and Tobago.

The data in Table 1a. confirms that the export performance of Caribbean countries declined over the two decades. Caribbean countries export growth rates were substantially lower than the average for middle-income countries and were not comparable with "successful" exporters (middle-income) - Thailand, Malaysia, Mauritius. The data in Table 1b over shorter time periods is consistent with our observation from Table 1a. Manufacturing export performance was initially promising in all countries except Trinidad and Tobago. However, over the decades of the 1970's and

1980's the sector's export growth rates declined and there was a substantial contraction in export activity.

On the positive side there was the phenomenal growth in tourist receipts that accompanied the rapid expansion of the tourist industry. Growth rates in the OECS[2] countries (notably Antigua and St. Lucia were particularly impressive and there were also strong performances in Jamaica and the Bahamas. Barbados experienced a slow down in its initial strong performance.

The present study recognizes the importance of the tourist industry but is concerned with analyzing the performance of aggregate exports and a few 'non-traditional' manufacturing exports e.g. clothing.

Table 1a: The Growth of Merchandise Exports (overall)

COUNTRY	1965-80	1980-88
Honduras	3.1	2.8
Guatemala	4.8	-2.0
Costa Rica	7.0	2.9
Dominican Rep.	1.7	0.0
Mauritius	3.1	12.1
Thailand	8.5	11.3
Malaysia	4.4	9.4
Jamaica	-0.3	-4.5
Barbados[1]	-0.3	0.2
Trinidad & Tobago	-5.5	-6.0
Middle Income Economies	2.4	5.8

Source: World Development Report (1990) (World Bank Publication pp. 204-205).

[1]Barbados' data is for 1967-80 and 1980-87.

Table 1b: Growth of Merchandise Exports - Caribbean Countries (Percentage changes (average)) (Constant 1980 Dollars)

COUNTRY	1967-75	1976-81	1982-87
Barbados	-0.6	-0.9	-0.5
Costa Rica	10.0	0.5	0.5
Dominican Rep.	0.5	0.4	-
Guyana	0.5	0.2	-0.05
Jamaica	0.2	0.4	-0.3
Trinidad & Tobago	-0.5	-0.4	-0.4

Source: Calculated from World Tables 1988-89 (World Bank Publication).

Table 1c: Growth of Manafacturing Exports - Caribbean Countries (Percentage changes (average)). (Constant 1980 Dollars)

COUNTRY	1967-75	1976-81	1982-87
Barbados	18.7	21.2	-9.9
Costa Rica	13.3	0.4	9.6
Dominican Rep.	1.15	-0.3	0.4
Guyana	0.5	-0.5	0.7
Jamaica	17.4	0.4	-0.3
Trinidad & Tobago	-0.2	12.04	-0.2

Source: Calculated from World Tables 1988-89 (World Bank Publication).

Table 1d: Growth of Tourist Receipts[1] (Percentage change (average))

COUNTRY	1977-81	1982-87
Barbados	27.4	0.7
Domincan Rep.	27.7	18.9
Jamaica	33.8	12.7
Trinidad & Tobago	-0.6	-12.8
Bahamas	12.0	15.2
Antigua	16.4	25.7
St. Lucia	13.0	13.2

Source: World Bank estimates.

[1]The data is for percentage changes in current value tourist receipts (US $ Million).

Aggregate Export Performance

(i) Model of Export Supply

Previous studies estimating the export supply function notably Donges and Riedel (1977), Kruger (1978) and Yang (1981) have generally employed similar models. The basic model is a single equation export supply function which is based on the "small country" assumption, i.e. small countries are 'price takers' in the international market so export demand is infinitely elastic. Even though empirical specifications may vary in these studies the basic model is the following:

$$\log X_t = b_0 + b_1 \log (PX/PD_t) + b_2 \log IP_t + b_3 \log Cu_t + u_t \quad \ldots\ldots\ldots (1)$$

$$b_1 > 0; \; b_2 > 0; \; b_3 < 0.$$

where:
- X= exports (constant value)
- PX= is an index of effective export price in local currency.
- PD= is an index of the domestic wholesale price.
- IP= is an index of industrial production (a proxy for the capacity to produce).
- Cu= is a measure of capacity utilization (as a proxy for demand pressure on export supply.

A careful explanation of the variables specifically highlighting the adjustments I have made to the model is now in order. First, the effective export price is really an index of prices received by exporters in foreign currency (PE), multiplied by the effective exchange rate (ER): hence;

$$PX = PE \cdot ER \quad \ldots\ldots\ldots\ldots (2)$$

Now, the effective exchange rate is defined to be the official exchange rate plus all export subsidies, - direct export subsidies, tax exemption, preferential export loans etc. In some formulations e.g. Donges and Riedel (1977) this is net of the restrictiveness of the import regime i.e. tariffs, quotas, import licenses etc. The use of PD as a divisor to PX is to capture the competition between a country's export sales and its local sales rather than with exporters in foreign countries. In short, the relative price PX /PD measures the relative profitability of export sales; this is usually called the Real Effective Exchange Rate (REER). However, there is a great deal of difficulty in obtaining time series data on export subsidies, export credit, quotas's, etc. for many countries and the Caribbean countries are no exception. But there are alternative measures of the REER that can be used. One could calculate the REER as the inflation adjusted weighted average of bilateral nominal exchange rates of an individual country's currency with all other countries that are important to that country's international transaction i.e. major trading partners of the country. Using the arithmetic averaging technique

this results in the following definition of the REER:

$$REER = 100 * \sum_{i=1}^{n} W_i * (E_{it}^* / P_{it}) \quad \ldots\ldots\ldots(3)$$

where: W_i^* = the normalized export weight and is defined as:

$$W_i^* = W_i / \sum_{i=1}^{n} W_i \text{ and } \sum_{i=1}^{n} W_i^* = 1.$$

$E_{it}^* = (E_{it} / E_{io})$ = the index of the price of the home currency in terms of the i^{th} trading partners currency relative to a base year.

$P_{it}^* = (P_{it} / P_{io})$ = the ratio of the price index of the i^{th} trading partner in period t relative to the price index of the home country in period t, with the base year equal to the base year of E_i^*.

This measure of the REER (which I use) tells us about changes in the relative profitability of a country's tradable goods (i.e. relative to non-tradable goods) over time. Note, that unlike the former measure of the REER this measure captures the competition with exporters in other countries.

In this standard formulation of the REER the critical feature in terms of economic meaning is the weighting procedure employed. Maciejewski (1983) argues that "to be economically meaningful the index must capture the type of competitive relationship that predominates in the major international markets for which the reporting country is effectively competing". To try and achieve this objective three basic weighting procedures are suggested by

Maciejewski (1983, p. 505):

	Competitors		Adequate Weighting Procedures
a.	Domestic producers in the importing markets are the main competitors.	a.	Trade export weights.
b.	Other exporters selling to the same importing markets are the main competitors.	b.	Weights that reflect the shares of other exporters in markets of interest to countries under study.
c.	Both domestic producers and other exporters to importing markets are the main competitors; in this case, all suppliers are relevant.	c.	Weights that reflect effectively competing shares of domestic producers and of other exporters in markets of interest to the country under study.

The most common measure of the REER uses weighting procedure (a). Now, the way I have defined the REER a depreciation should induce an increase in export supply and as such an inverse relationship is postulated. Note, the REER is a policy variable (exogenous) as movements in the nominal exchange rate by policy-makers can appreciate or depreciate the REER.

Second, estimates of a country's capital stock are used as a proxy for capacity to produce. The methodology used to derive capital stock estimates (constant value) in a common currency (US $) across the sample of countries is presented in Appendix 1. The argument is that a larger productive capacity is assumed to increase output and thus the ability to supply export markets.

Despite the fact that I have employed the "small country" assumption in order to avoid consideration of world demand, a similar assumption with respect to the domestic market has not been made. But rather than estimate a simultaneous model of export

supply and domestic demand I find it as acceptable to include a domestic demand variable in the single-equation export function.[3] One can argue that this variable should capture "recession-boom" effects i.e. the attitude of inward-looking entrepreneurs who would tend to opt for local orders when domestic demand rises (given capacity constraints in the short run it will be at the cost of exports) and to expand exports when demand falls. A measure of capacity utilization has traditionally been used. The measure is usually a semi-log trend of the industrial production index. I offer a measure of capacity utilization using GDP joining the "peaks" of the series over the sample period 1968-87 for each country.

The estimating equation is as follows:

$$X = a_0 + a_1 \text{ REER} + a_2 k + a_3 \text{ Cu} + u$$

$$a_1 < o;\ a_2 > 0;\ a_3 < o \quad \ldots\ldots\ldots\ldots\ldots\ldots (4)$$

(ii) Estimation and Results

Our principal interest is in Jamaica, Barbados, Guyana and Trinidad and Tobago. But given data limitations and without compromising our economic theory I estimated the equation by ordinary least squares (OLS) for a pooled cross-section/time series. I wanted to pool the Caribbean countries with others that had similar features to the former. The decision rule was follows:- middle-income country, small size (population less than 5 million), major exports are primary products, manufactures and tourism and manufacturing is at least 20% of GDP. In this context

I choose Costa Rica, Dominican Republic[4] and Mauritius. Note that these countries also had data available (from the same sources) for the period 1968-87. Finally, I estimated a log-linear version of the equation[5] and used country dummy's to allow for country-specific intercepts. Therefore, the estimating equation used was:

$$\log X = a_0 + a_4 D_1 + a_5 D_2 + a_6 D_3 + a_7 D_4 + a_8 D_6 + a_9 D_7 + a_1 \log REER + a_2 \log K + a_3 \log Cu + u_t \quad \ldots\ldots\ldots(5)$$

where:

D_1 = Country dummy for Jamaica.
D_2 = " " " Barbados.
D_3 = " " " Mauritius.
D_4 = " " " Dominican Republic.
D_6 = " " " Guyana.
D_7 = " " " Costa Rica.

So, the left out country is Trinidad and Tobago.

Results from estimating the pool regression using OLS are presented in Table 2.

Table 2: Pooled 1968-87 Regression Results:
Export Supply Equation (t-ratio in parentheses):
Dependent Variable : Exports

	Parameters				Country Intercept Dummy Variables								
Equation	a_0	a_1	a_2	a_3	D_1	D_2	D_3	D_4	D_6	D_7	DF	R^{-2}	F-STAT
(1)	10.5224 (15.89) *	-0.614 (-3.65) *	-0.0544 (-0.931)	0.1314 (1.45) ***	-1.592 (-14.4) *	-2.701 (-13.39) *	-1.758 (-10.399) *	-1.441 (-13.18) *	-2.175 (-9.106) *	-1.635 (-12.707) *	131	0.86	101.551
(2)	10.519 (15.906) *	-0.614 (-3.65) *	-0.0588 (-0.953)	0.1325 (1.461) ***	-1.593 (-14.402) *	-2.702 (-13.395) *	-1.759 (10.406) *	-1.441 (13.179) *	-2.176 (-9.108) *	-1.636 (-12.714) *	131	0.86	101.193

Notes: * significant at 1%
** significant at 5%
*** " " 10%.
Equation 1 uses capital stock estimates with a 5% appreciation rate.
Equation 2 uses capital stock estimates with a 10% depreciation rate.
Park-Glejer's test for heteroscedasticity did not detect its presence.

Data: - Exports (constant value) source: World Tables 1988/89.
- Gross Domestic investment source; World Tables 1988/89.
- Capacity utilization calculated from GDP source: World Tables 1988/89.

Data for Computing the REER:

a. Export shares were computed from the U.N. Commodity Trade Statistics (various issues).
b. Price ratios were computed from the IMF's International Financial Statistics (various issues).
c. Nominal exchange rates were drawn from the IMF's International Financial Statistics.

The REER performs well and is significant at 1%. Our export elasticity of supply with respect to the REER is - 0.614 which is fairly inelastic but not significantly so. Note that the elasticity does not change over both equation (1) and (2). In fact, the results do not appear to be sensitive to different capital stock estimates using depreciation rates of 5% and 10%.

It appears that exchange rate depreciation does generate some export response. It is certainly not an unambiguous case for 'competitive devaluation' in small, open economies but it does imply a role for exchange rate adjustments in the whole range of incentives aimed at export promotion.

Our capacity proxy i.e capital stock variable does not perform well (not statistically significant) and is of the wrong sign. This is not an entirely surprising result since it corresponds to the anecdotal arguments that have been articulated suggesting that investment has principally been taking place in the non-tradable sector at the cost of the tradable sector. Worrell (1990) presents empirical evidence further supporting this proposition. The policy implication is that economic policies must divert an increasing share of domestic investment into the tradable sector.

Finally, our capacity utilization variable performs reasonably well (i.e. it is significant at 10%) but it is of the wrong sign. Once again this is not a surprising result in these types of economies. In the period primary exports[6] dominated these countries export basket and only negligible amounts of these were sold on the domestic market in their raw form. Therefore,

increases in domestic demand would not an induce entrepreneur in the short run to increase local sales at the expense of exports. Hence, in these economies it is possible to observe increases in exports and domestic demand.

Composition of Exports and Individual Export Supply Functions

One of the criticism's of export performance functions is that they are for too aggregative. Of course if 85% of a country's total exports are a single commodity, e.g. oil then this is not the case. Now in the case of Caribbean countries there are four main types of exports:

(a) Primary exports - mainly bauxite, bananas and sugar.

(b) Fuels - primarily petroleum from Trinidad and Tobago.

(c) Simple light manufactures - mainly clothing, toys, paper products and to a lesser extent furniture.

(d) Services - this is really tourism.

Types (a), (b) and (d) are traditional exports and (c) is the major non-traditional export.[7] Given our definitions of non-traditional exports I suggest the following classifications:

(i) Clothing (SITC 84) - '807 Exports'[8] - Jamaica, Barbados, Costa Rica and the Dominican Republic.

(ii) Miscellaneous Manufactures (SITC 89) - includes toys, paper products, sound recorders, - Jamaica and Barbados.

(iii) Information Processing Services - mainly data processing - Jamaica, Dominican Republic and to a lesser extent Barbados.

(iv) Resource - based heavy industry - ammonia, urea, fertilizers, steel rods - Trinidad and Tobago.

The information Processing Industries are of recent vintage and really started around 1986 so there is little data on these industries. In addition, the resource - based industries are concentrated in Trinidad and Tobago and are unique to that country. Therefore, the concentration is on the conventional labour - intensive manufactures for developing countries - clothing (SITC 84) and miscellaneous manufacturers (SITC 89).

A similar model is used for the estimation of individual export equations but with some modifications particularly to the measurement of the REER variable.

Given the variety of weighting procedures identified by Maciejewski (1983) based on the competitive environment, the weights are changed to more closely reflect the circumstances of individual exports. The data on clothing exports and miscellaneous manufactures indicate that they are principally exported to the U.S. market. Now, differential labour costs between the U.s. and Caribbean producers would give the latter some comparative advantage. But domestic producers in the U.S. are not the only source of competition. Other foreign suppliers, e.g. Mexico, may

out-compete Caribbean suppliers resulting in a decline in export volume of these commodities. Hence, the export weights for the REER are weights that reflect the shares of the Caribbean's "competitors" in the U.S. market.

One should probably make some important observation's about the U.S. clothing market as it is heavily quota constrained and there are a lot of distortion's to market forces. The principal obstacle to free trade in this market is the Multi- Fibre Agreement (MFA).[9] Under this arrangement some developing countries are heavily quota constrained and the key ones in the U.S. are Korea, Taiwan and Hong Kong. In the 1980's these countries have had quota utilization rates of 90% or more. These countries are not considered as "competitors" as they are supply constrained and the existence of quota's introduces a demand element. The aim is to identify unconstrained suppliers to the U.S. market for most years of the period 1968-1987.[10]

Table's 3 and 4 presents the competitors choosen for each country for SITC 84 and SITC 89.

Table 3: Competitors for Caribbean '807' (Clothing) Exporters in the U.S. Market

Group 1	Group 2	Group 3
Costa Rica	Costa Rica	Pakistan
Haiti	Haiti	Malaysia
Honduras	Honduras	Philippines
Dominican Rep.	Dominican Rep.	Thailand
Barbados	Barbados	Indonesia
Jamaica	Jamaica	
	Mexico	

In the case of Barbados, Costa Rica, Jamaica and the Dominican Republic it is a similar group of competitors.[11] The only difference between group 1 and group 2 is Mexico. Mexico has become a significant producer of labour intensive manufactures but operates on a larger scale than any of the Caribbean countries. So, it is added to the group to test the sensitivity of the results to the variable specification.

Table 4: Competitors for Caribbean Miscellaneous Manufactures (SITC 89) in the U.S.

Group 4	Group 5
Mexico	Pakistan
Haiti	Malaysia
Venezuela	*Indonesia*
Barbados	Philippines
Jamaica	Thailand

Given the absence of data on capital stocks in the manufacturing sector's of these countries I use the estimates of the aggregate capital stock I used previously.

A capacity utilization measure is used to proxy the effect of domestic demand pressure on exports. However, the Cu measure is obtained by joining the "peaks" of manufacturing GDP over the period. Once again country dummy's are introduced for country-specific intercepts; so the estimating equation is the following:

$$CX = b_0 + b_1 REER + b_2 K + b_3 CuM + b_4 TIME + b_5 D_1 + b_6 D_2 + b_7 D_3 + u_1 \ldots\ldots (6)$$

$$b_1 < 0;\ b_2 > 0;\ b_3 < 0.$$

Notes:

CX= Clothing exports to the U.S. (constant value).

REER= Real effective exchange not (competition - weighted). Note there are 3 groups of competitiors (i.e. 3 measures of the REER) so 3 equations are estimated.

D_1= Jamaica's country dummy.

D_2= Barbados's " " .

D_3= Dominican Rep. " " .

so the left out country is Costa Rica.

u_1= disturbance term Cstochastic

TIME= time trend.

CuM= Capacity utilization manufacturing.

Results from estimating the pooled regression are presented in Table 5.

Table 5: Pooled 1968-89 Regression Results:
Clothing Export Supply Equation (t-ratio in parantheses)
Dependent Variable: Clothing Exports to the U.S.A

Equation	b_0	b_1	b_2	b_3	b_4	D_1	D_2	D_3	R^{-2}	F-STAT	D.F.
(1)	-79.307	-1.135	0.694	7.999	0.205	30.993	42.111	22.953	0.78	41.336	73
	(-6.116)	(-3.089)	(4.333)	(5.609)	(12.79)	(9.117)	(6.87)	(6.716)			
	*	*	*	*	*	*	*	*			
(2)	-67.728	-0.248	0.477	6.584	0.191	26.843	35.331	19.321	0.75	35.735	73
	(-5.062)	(-0.834)	(3.058)	(4.49)	(11.753)	(7.894)	(5.667)	(5.52)			
	*	n.s.	*	*	*	*	*	*			
(3)	-67.858	-1.234	0.673	6.968	0.187	27.426	37.02	19.999	0.78	42.499	73
	(5.686)	(-3.373)	(4.433)	(5.35)	(12.456)	(9.305)	(6.755)	(6.481)			
	*	*	*	*	*	*	*	*			

Note: b_1 D_2 a parameter estimate for each different measure of the competitor - unsighted REER. Now,
equation 1= REER with competitor group 1
equation 2= " " " " 2
equation 3= " " " " 3

* means significant at 1%.
n.s. means not significant.

Note: Park-Glejer's test for heteroscedasticity did not detect its presence.
DATA: U.S. Import's of SITC 84 Source: U.N. Commodity Trade Statistics.
Manufacturing GDP Source: World Tables 1988/89.

In the case of SITC 89 a similar pooled regression is estimated except that the measures of the REER now correspond's to competitor groups 4 and 5 and therefore 2 equations are estimated. The estimating equation is as follows:

$$MISC\ XC = C_0 + C_1\ REER + C_2\ K + C_3\ CuM + C_4\ D_1 + U_2$$

Notes:

Misc XC= Miscellaneous manufacture (constant value; deflated by the U.S. manufacturing price index (1980=100)).

REER= using competitor group weights 4 and 5.

Pl= Jamaica's country dummy . Barbados is the left out country.

u_2= stochastic disturbance term.

Results from estimating the pooled regression are presented in Table 6.

Table 6: Pooled 1968-87 Regression Results: Miscellaneous Manufactures Export Supply Equation (t-ratio in parentheses)
Dependent Variable: Miscellaneous Manufactures

Equation	C_0	C_1	C_2	C_3	D_1	R^{-2}	F-STAT	D.F.
(1)	20.888 (0.039) n.s.	-3.662 (-1.519) ***	0.511 (1.688) ***	5.305 (2.05) *	-4962.13 (-1.853) **	0.11	2.28	36
(2)	-74.800 (-0.137)	-3.157 (-0.89)	0.511 (1.633)	5.505 (1.98)	-4999.1 (-1.918)	0.07	1.834	36

Notes:
* means significant at 1%
** means significant at 5%
*** means significant at 10%
n.s. means not significant

Data: U.S. Imports of miscellaneous Manufactures:
Source: U.N. Commodity Trade Statistics

The results in Table 5 indicate that there are differences in the performance of the REER variable with different weights. From equation's (1) and (2) one can see that adding Mexico to competitor group 1 hurts the performance of the variable as it is no longer statistically significant. Hence, the results are sensitive to the specification of the variable. In equation's (1) and (3) the elasticity of clothing export supply is elastic with values of -1.135 and -1.234. This represents tentative evidence that exchange rate depreciation and overall changes in incentives[12] in favour of tradable production will positively affect clothing export supply.

In all three equations our capital stock performed well (i.e. significant at 1%) and indicates that increased productive capacity will positively affect clothing supply.

Finally, our proxy for domestic demand pressure (CuM) is statistically significant but not of the correct sign. Once again this implies that firms in the clothing sector do not expand local sales in the short run to rising domestic demand at the cost of exports. Note, this is probably not true for the entire manufacturing sector (see Ayub (1981)) since I have focused on the major non-traditional exports.

The SITC 89 export equation does not perform well and really does not explain much of the variation of exports of miscellaneous manufactures. However, in equation (1) all of the variable are significant at 10% or better. In Table 6 the REER variable's is significant at 10% and of the correct sign. But one cannot be

satisfied with the results with such a low R^{-2} and F-statistic. The results probably suggest the need for a longer time series or aggregation with other similar countries as done previously.

Given the poor results I plot the dependent variable against the two measures of the REER for Jamaica and Barbados (refer to Appendix 2). In both countries there is a downward trend in SITC 89 exports. But barbados' REER is appreciating and Jamaica's is depreciating. If one is to believe the theory this is a paradoxical result for Jamaica. Of course export response will be affected by chronic macroeconomic instability as is the case in Jamaica.

Conclusion

The poor performance of Caribbean exports over the last two decades is a source of great concern to policy makers. The paper using a simple model of export supply attempts to isolate some of the key determinants of the Caribbean's export performance. The results would seem to suggest that exchange rate depreciation and/or other incentives that increase the relative profitability of tradable production would have a positive impact on the performance of overall exports and some non-traditional manufacturing exports. So the challenge for policy is to formulate a package of incentives (which must be maintained over time) to stimulate tradable production. In addition, it does not appear that rising domestic demand induces entrepreneur to expand domestic sales at the cost of exports.

Footnotes

1. Caribbean countries in this paper generally means the members of the Caribbean Community (CARICOM).

2. The OECS (Organisation of Eastern Caribbean States) countries are: Antigua, St. Lucia, St. Vincent, Dominica, St. Kitts/Nevis, Grenada and Montserrat.

3. This approach is generally consistent with a variety of studies - Donges and Riedel (1977); Yang (1981) to mention a few

4. The Dominican Republic is a Caribbean country but not a member of CARICOM which is my principal concern.

5. Log-linear version sometimes produce better fitting equations and Kenen (1984) argues there is no coherent room for this outcome.

6. I define non-traditional exports in the Caribbean as all exports except for the major primary exports and tourism.

7. U.S. custom regulations 807 permits U.S. firms to assemble clothing (sewing) in offshore sites in the Caribbean countries duty-free given at least 40% of the value added occurs in the U.S.

8. The Arrangement Regarding International Trade in Textiles, better known as the Multi - Fibre Arrangement (MFA) came into effect January 1st 1974. The underlying principle of the MFA was the need for some sort of organization in the international trade of all textiles. It sought to legitimize the error-expanding quotas which the industrialized countries were placing on imports of synthetic and wool textile from the producing nations. Just as with previous arrangements it attempted to share the burden of increased imports more evenly amongst importers.

9. The U.S. has a series of bilateral quotas with individual countries and I have received recent data on these which I will use in a revised version of the paper.

10. Of course for each country's REER they drop out of their competitor group.

11. These countries are all '807 exporters'.

12. One should note that exchange rate depreciation is not the only way of increasing the relative profitability of tradable production. It can also be done by lowering the price of a

key non-tradable - labour - i.e. wages or introducing fiscal and/or incentives that are biased in favour of tradable production.

APPENDIX 1

The Derivation of Capital Stock Estimates

$$I_t = K_t - K_{t-1} + aK_{t-1} \quad \ldots\ldots\ldots\ldots\ldots(1)$$

or,

$$I_t = K_t - (1-a)\, K_{t-1} \quad \ldots\ldots\ldots\ldots(2)$$

hence,

$$I_t = (1-bL)\, K_t \quad \text{where:} \quad b = (1-a)$$

so,

$$K_b = \frac{I_t}{(1-bL)}$$

$$k_t = b\, I_t + b^2\, I_t + b^3\, I_{t-2} + \ldots\ldots\ldots$$

Where: I_t= gross domestic investment
k_t= capital stock
a= depreciation note.

In calculating the capital stock two depreciation rates were used -- 5% and 10%. With two estimates of the capital stock one can test the sensitivity of the estimates to different depreciation rates in the estimation of the model.

To obtain constant value (1980 dollars estimates of the capital stock in a common currency (US $) I followed Leamer (1984 pp. 233) and converted investment flows year by year into dollars and used the U.S. absorption deflator to convert to constant dollars.

APPENDIX 2

REER'S FOR SITC 89 (MISCELLANEOUS MANUFACTURES) EXPORTERS TO THE U.S.

Competitor Group 4	Competitor Group 5
Mexico	Pakistan
Venezuela	Malaysia
Haiti	Thailand
	Philippines
	Indonesia

Jamaica

REERJ4 = REER (1980=100) for Jamaica (Group 4 competitor weights)
REERJ5 = REER (1980=100) for Jamaica (Group 5 competitor weights)
USJAXC = Jamaica's SITC 89 exports to the U.S. (constant value

Barbados

REERB4 = REER (1980=100) for Barbados (Group 4 competitor weights)
REERB5 = REER (1980=100) for Barbados (Group 5 competitor weights)
USBDXV = Barbados SITC 89 exports to the U.S. (constant value)

Figure 1a: Barbados's reer(competitor group4)

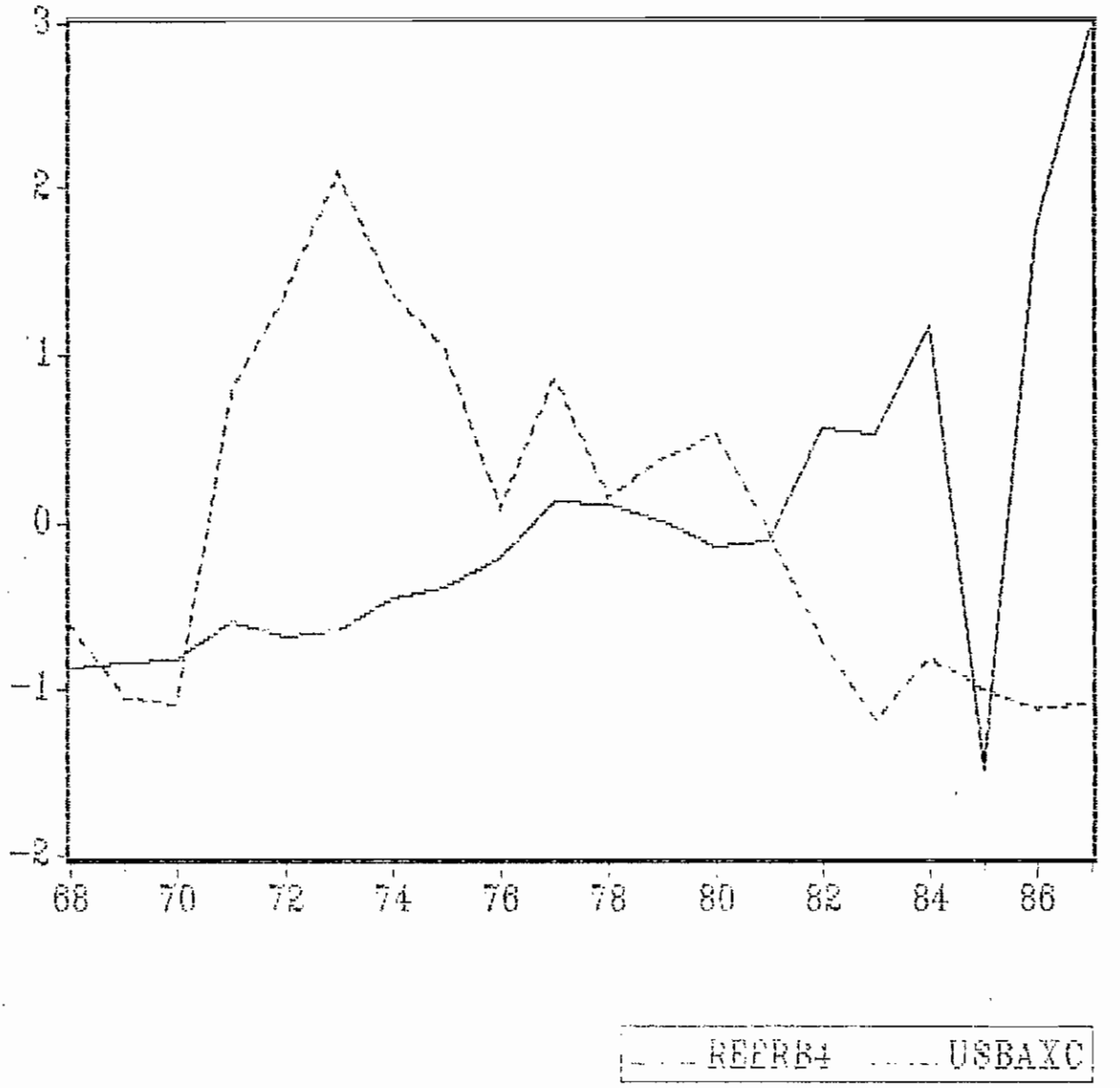


Figure 1b: Barbados's reer(competitor group5)

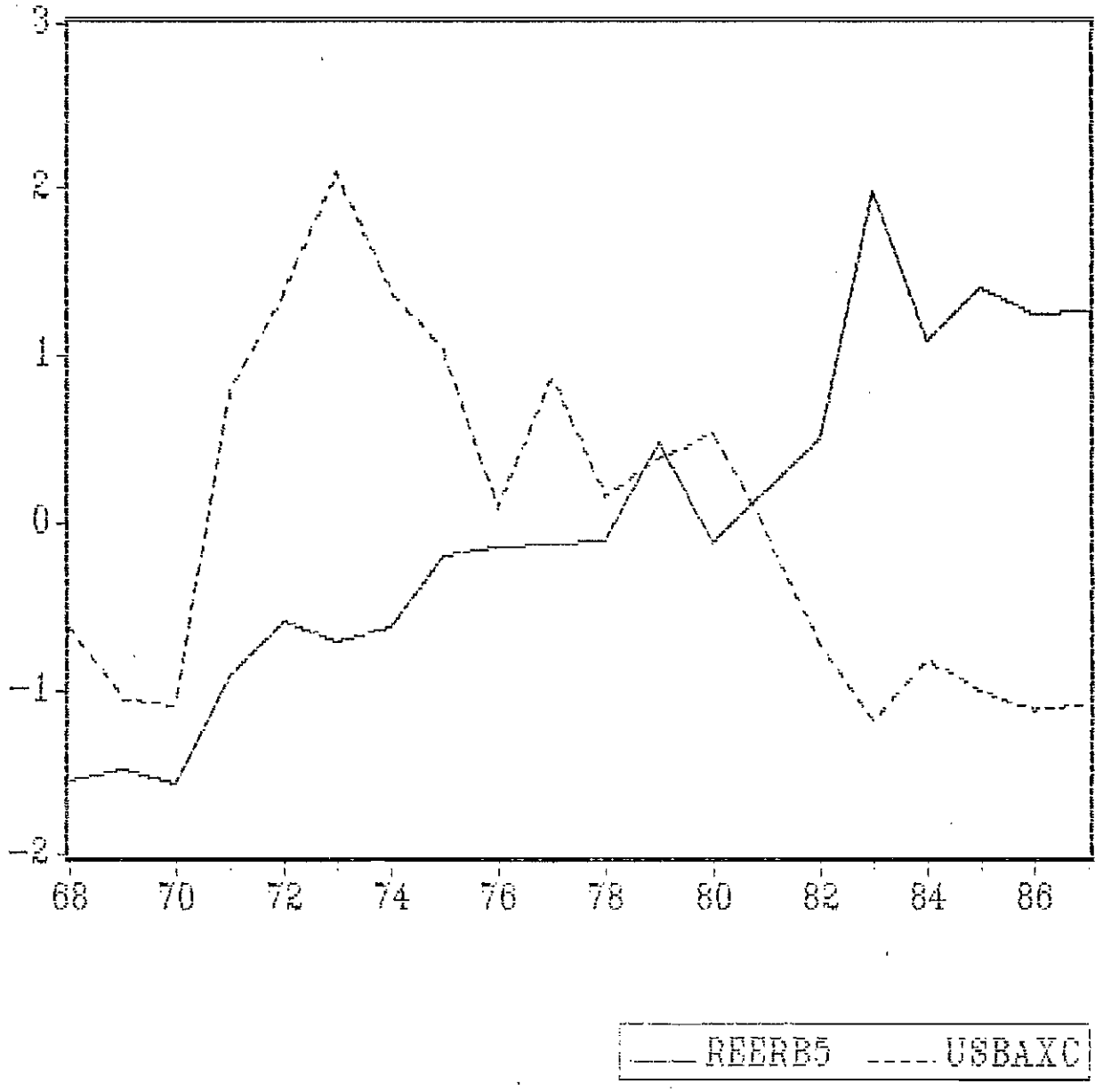


Figure 2a: Jamaica's reer(competitor group4)

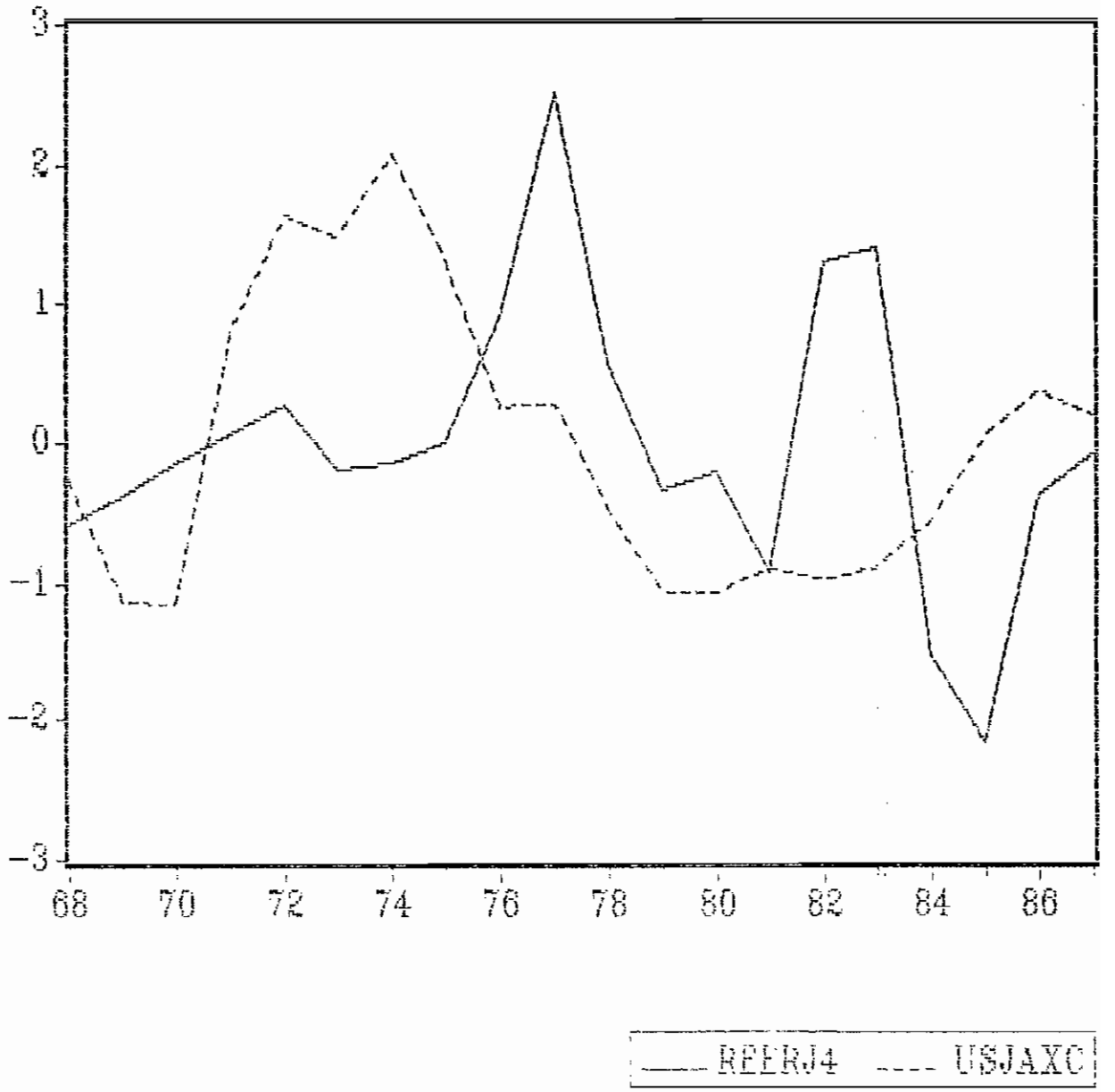
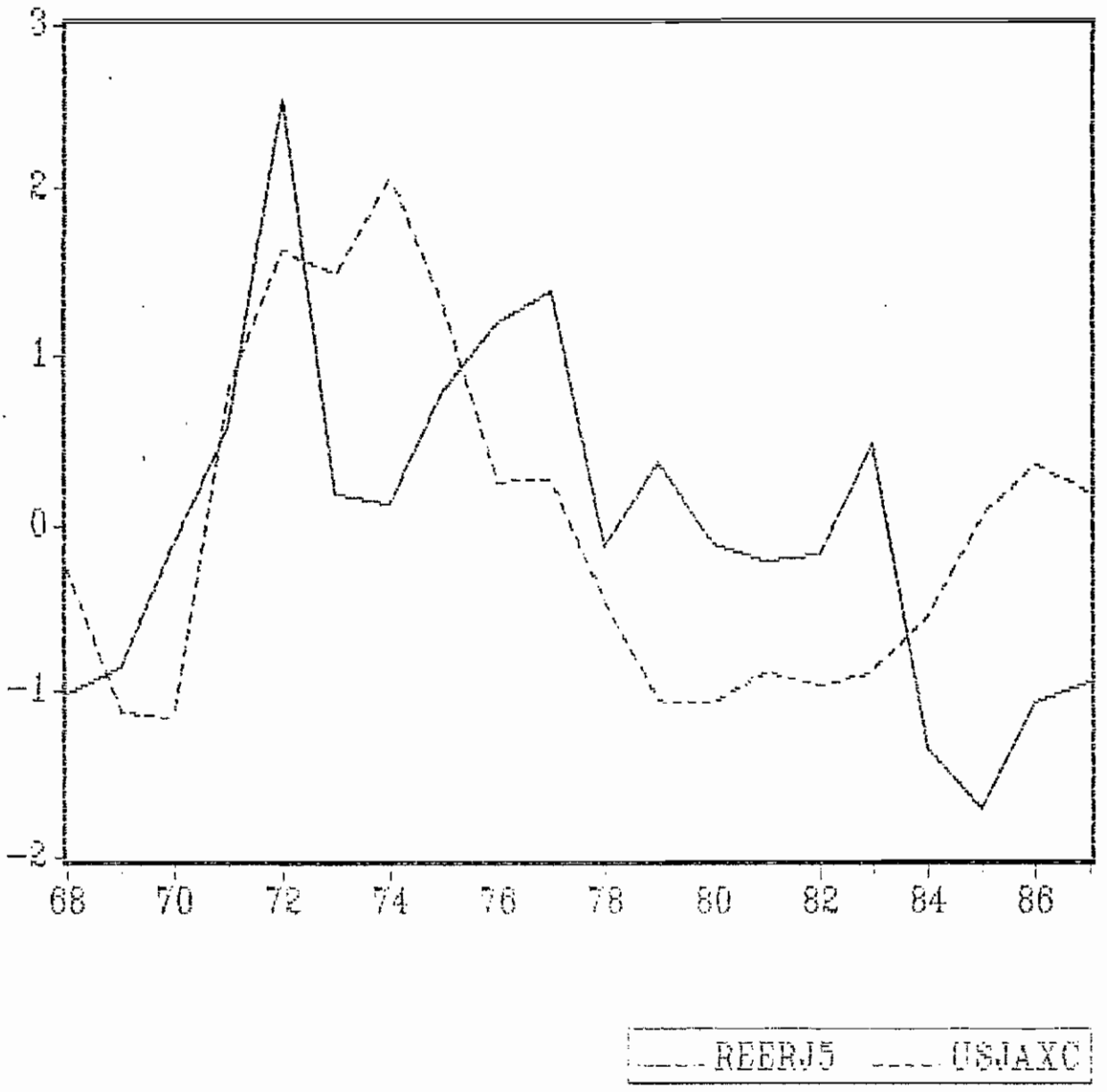


Figure 2b: Jamaica's reer(competitor group5)



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