

THE EFFECTS OF DEVALUATION ON COMPETITIVENESS
AND TRADE

by

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The decline in intra-Caricom trade in the 1980s has been blamed on member countries' economic misfortunes and on the imposition of trade restrictions, as well as changes in each country's competitive position. This note isolates the effects of competitiveness, and, more specifically, the impact of devaluation. Have devaluations been an important source of competitive advantage, and has this competitive edge been reflected in the devaluing country's exports? In section one we deal with the effects of competitive advantage on exports; section two addresses the relationship between devaluation and competitive advantage.

Competitive Advantage and
Intra-Caricom Exports

We use two statistical methodologies to test for the relationship between competitive advantage and exports. For trade between Barbados and other Caricom MDCs (Guyana, Jamaica and Trinidad-Tobago) we have 17 years' data, which allows us to estimate a functional relationship for the determinants of exports. For trade among other countries we have fewer observations, so we are forced to use non-probabilistic inference. We ran export equations of the form

$$\ln X_{ij} = f(\ln V_j, \ln c_{ij})$$

for Barbados' exports to each MDC, and for their exports to Barbados. X_{ij} represents exports from country i to country j ,

V_j is j 's GDP and c_{ij} is an index of country i 's competitive position with respect to country J . (Exports and GDP are in nominal values for want of an export price deflator; we would have preferred to work with real magnitudes.) The equation is a conventional demand function; exports rise when the recipient country can afford to buy more, and when the price at which the imports are sold in the recipient country falls relative to local prices. The index of competitiveness is given by

$$c_{ij} = (P_i/P_j) - (e_i/e_j)$$

where P_i and P_j are consumer price indices and e_i and e_j are exchange rates. If i 's exchange rate (in terms of some numeraire) were the same as j 's, i would be able to supply goods to j at the same price (P_i) it supplies to its own market. Its competitiveness would depend on how that price compares with P_j . If i 's currency is devalued (an increase in e_i), goods which sell for P_i in country i are now cheaper than P_i in country j by the extent of the devaluation - and conversely if j devalues. The index c_{ij} therefore represents the relative price at which i 's goods are sold, given devaluations by i or j .

There is more than enough capacity to supply all the goods demanded in regional trade, so there is no need to take explicit account of supply factors in estimating the determinants of exports.

The results presented in table 1 suggest that exporters' fortunes depend mainly on the economic fortunes of importing countries. With respect to Barbados' trade with Jamaica and with Trinidad-Tobago, the recipient country's income is the main influence on exports, in both directions. Caricom trade is growing just as fast as the importer's national income in most cases, and twice as fast for Barbados' exports to Jamaica.

Loss of competitiveness is not an inhibiting factor. Rather, there appears to be an inverse relationship between Barbados' exports and her competitive position - when Barbados loses competitive advantage with respect to Jamaica and Trinidad-Tobago her exports seem to rise nonetheless. However, we do not wish to draw any inference from this peculiar result, beyond the implication that losses in competitive position do not appear to have been damaging.

Barbados' loss of competitive advantage with respect to Guyana has been of benefit to Guyanese exporters but it has not been a hindrance to Barbados' exporters (although much of the explanation of Barbados' exports to Guyana is missing). Changes in competitiveness do not emerge as a factor inhibiting exports between Barbados and other Caricom MDCs, in either direction.

Economists have no way of knowing a priori whether equations should be specified in logarithmic form, though the tendency is to use logs for demand equations, as we have done. In our case

the results obtained from use of actual variables rather than their logs do not alter the overall picture, though the equations do not fit the data as well as the log forms do.

For trade among all Caricom MDCs other than Barbados we use the hypothesis of constant elasticity of exports from i to j with respect to j 's GDP. That is, when j 's GDP rises by 10% we presume the demand for i 's goods (and all others) rises by 10% as well, all else being constant. If there is a change in i 's competitiveness relative to j , and this is the only factor disturbing the underlying (constant by assumption) relationship between GDP and the demand for exports, then the relationship between the index of competitiveness and the export/GDP elasticity should be a systematic one. The export/GDP elasticity changes only to the extent that it is displaced by changes in competitiveness. (This procedure is a non-probabilistic analogue to the tests used for trade with Barbados.)

In table 2 we present the elasticities of exports with respect to the index of competitiveness (ELX), the elasticities of exports with respect to GDP (RXY), and the elasticities of RXY with respect to the index of competitiveness (ELR). There is no discernible pattern which might lead us to suspect a relationship between exports and competitiveness; to all intents and purposes the elasticity of the export/GDP elasticity is a random variable. (The test may be performed in

reverse, by assuming the export/competitiveness elasticity constant, apart from any change in GDP and comparing that elasticity with changes in GDP; the conclusion is the same.)

Devaluation and Competitiveness

Jamaica's large devaluations between 1977 and 1979 and between 1983 and 1985 gave her a sizeable competitive advantage against all her trading partners (see table 2). Trinidad - Tobago gained a similar advantage with her December 1985 devaluation, and Guyana may have gained from her currency depreciation between 1983 and 1985. (Recent price indices are not available for Guyana, so we cannot be sure.) All other exchange rate movements have been swamped by the effects of price changes.

Relative prices are the most persistent factors underlying changes in competitiveness, over the 1970s and 1980s as a whole. Countries with the lowest rates of inflation (Guyana in the 1970s, Barbados in the 1980s) have made the most persistent gains, while Barbados was able to erode some of the advantage gained by Jamaica between 1977 and 1979 by virtue of lower inflation in subsequent years. Changes in the competitiveness index are broken down into relative price and exchange rate elements in table 3.

Concluding Remarks

Devaluation would not appear to be a major cause of reduction in Caricom exports. Devaluation does have the effect of making the devaluing country's exports more price competitive in the

short term, but lasting competitive advantage depends on maintenance of low rates of inflation. More significantly, price competition plays no discernable role in the overall pattern of export growth.

Nonetheless, devaluation and price competition may affect specialised goods or particular market segments, and the effects may be noticeable in the short run, even if they do not persist. Disaggregated analyses would be needed to detect these effects. Moreover, the analysis does not deal with issues such as the effects of devaluation on firms' balance sheets in the short run. While these effects may be significant in particular cases and therefore deserve closer study, they evidently are not of a magnitude to affect overall export performance. The decline in Caricom trade must be blamed on other factors, unless and until we have better evidence to the contrary.

TABLE 1

ESTIMATES OF CARICOM TRADE ELASTICITIES

Co-efficients which are significant at 10% (2-tail test)
(Standard Errors in Brackets)

Exports from 1st Country to 2nd	R ²	Durbin- Watson Stat.	F	Constant Term	Income (Importing Country)	Competitiveness
B'dos - TT	97.6	1.28	325.6	-8.6 (0.7)	1.3 (0.1)	0.9 (0.4)
B'dos - Guy.	58.9	1.71	12.5			2.9 (2.4)
B'dos - Ja.	92.0	1.56	92.6	-17.5 (3.2)	2.4 (0.4)	2.1 (0.8)
TT - B'dos	97.9	1.71	382.4	-3.5 (0.4)	1.1 (0.1)	
Guy. - B'dos	90.6	1.83	77.8	1.7 (0.6)		-1.5 (0.2)
Ja. - B'dos	93.8	1.01	122.6	-5.0 (1.2)	1.1 (0.2)	

Note: Observations for 1966-82.

Table 2

COMPETITIVENESS, EXPORTS

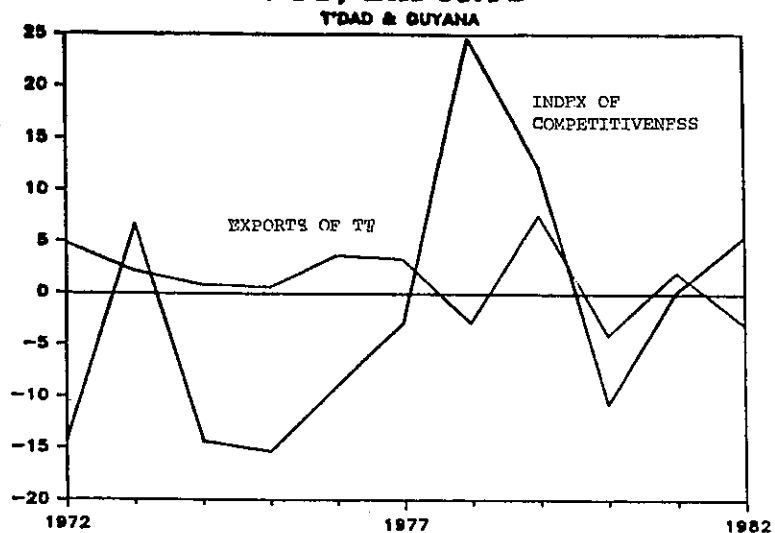
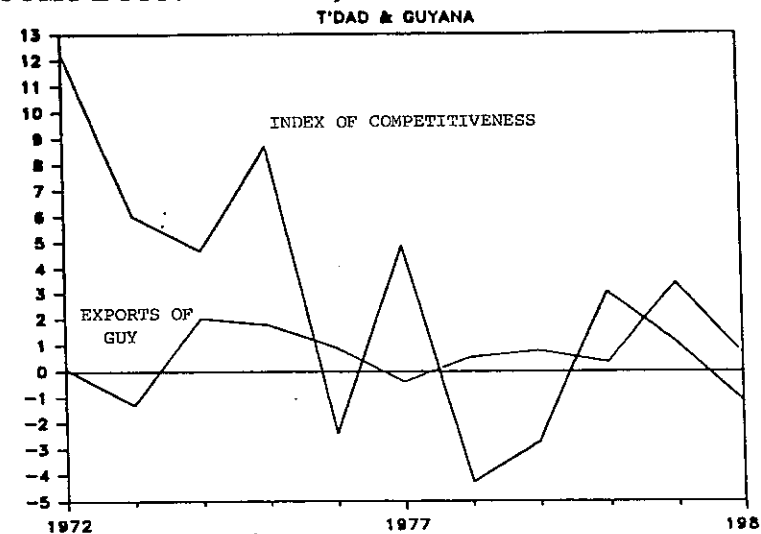


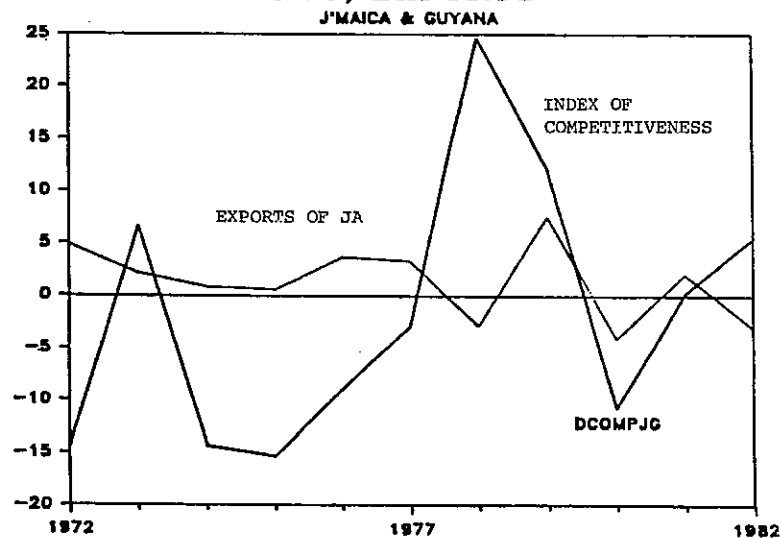
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COMPETITIVENESS, EXPORTS



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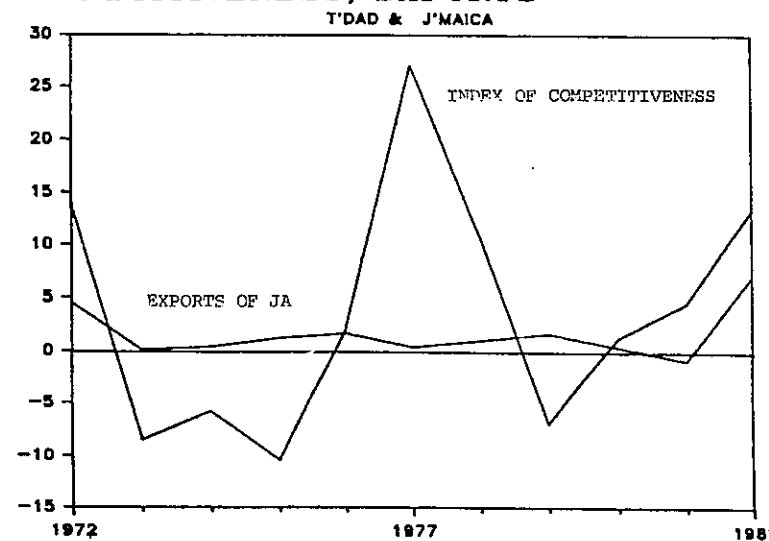
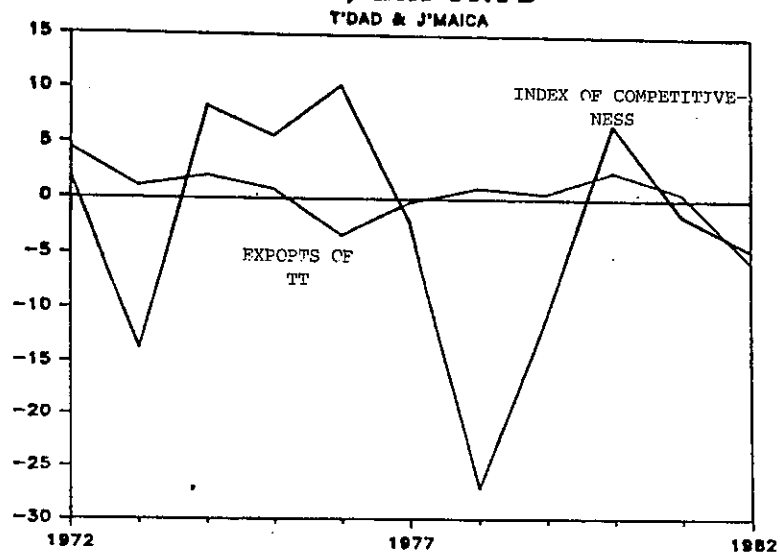


TABLE 2

COMPETITIVENESS, EXPORTS**JAMAICA DEVALUATIONS AND COMPETITIVENESS**

(Percentage)

	1977-79	1983-85
Jamaica/Barbados		
Depreciation ¹	52	55
Competitive Gain ²	44	61
Jamaica/Guyana		
Depreciation	52	24
Competitive Gain	51	n.a.
Jamaica/Trinidad-Tobago		
Depreciation	52	16
Competitive Gain	38	13 ³

1 .Of the Jamaica dollar with respect to the Barbados dollar.

2 A gain for Jamaica has a positive sign.

3 1983-84.

TABLE 3 (page 2)

ELEMENTS OF COMPETITIVE ADVANTAGE BARBADOS - JAMAICA

	Relative Prices B'dos/Jamaica	Exchange Rate BDS\$/J\$	Change in Comp. (%) (Jamaica gain:-)
1970	1.57 1.59 1.76 2.08 1.97	2.40 2.37 2.50 2.16 2.26	-4.7 -2.7 --5.2 -37.1 9.6
1975	1.76 1.74 1.71 1.43 1.27	2.22 2.20 2.20 1.42 1.14	9.1 0.6 1.7 -30.0 -10.8
1980	1.15 1.12 1.11 1.04 0.81	1.13 1.13 1.13 1.04 0.51	9.1 2.2 1.2 -1.7 -58.8

TABLE 3 (page 1)

ELEMENTS OF COMPETITIVE ADVANTAGE BARBADOS - GUYANA

	Relative Prices B'dos/Guyana	Exchange Rate BDS\$/G\$	Change in Comp. (%) (Guyana gain:-)
1970	0.78 0.83 0.92 1.19 1.22	1.00 0.99 0.92 0.93 0.92	-8.6 -6.3 -20.2 -27.9 -3.3
1975	1.19 1.18 1.20 1.17 1.14	0.86 0.79 0.79 0.79 0.79	-4.8 -8.3 -1.0 2.0 2.8
1980	1.15 1.01 0.89 0.82	0.79 0.72 0.67 0.67 0.52	-0.5 2.4 6.7 7.6

TABLE 3 (page 3)

ELEMENTS OF COMPETITIVE ADVANTAGE BARBADOS - TRINIDAD TOBAGO

	Relative Prices B'dos/TT	Exchange Rate BD\$\$/TT\$	Change in Comp. (%) (TT gain :-)
1970	1.01 1.04 1.12 1.35 1.33	1.00 1.00 1.00 1.00 1.00	-9.8 -3.2 -7.2 -20.6 1.3
1975	1.19 1.17 1.15 1.18 1.18	0.93 0.82 0.84 0.84 0.84	3.6 -11.0 3.6 -2.3 0.1
1980	1.15 1.11 1.04 0.94	0.84 0.84 0.84 0.84 0.84	2.5 3.5 5.4 10.3

TABLE 3 (page 4)

ELEMENTS OF COMPETITIVE ADVANTAGE JAMAICA - GUYANA

	Relative Prices Jamaica/Guyana	Exchange Rate J\$/G\$	Change in Comp. (%) (Guyana gain:-)
1970	0.50 0.52 0.52 0.57 0.62	0.42 0.42 0.37 0.43 0.41	-3.8 -3.6 -14.3 6.7 -14.3
1975	0.68 0.68 0.70 0.82 0.90	0.39 0.36 0.36 0.55 0.69	-15.3 -8.9 -2.8 24.7 12.3
1980	1.00 0.90 0.80 0.79	0.70 0.70 0.63 0.59 0.64 1.03	-10.6 0.3 5.5 9.2

TABLE 3 (page 6)

ELEMENTS OCOMPETITIVE ADVANTAGE TRINIDAD-TOBAGO - GUYANA

	Relative Prices TT/Guyana	Exchange Rate TT\$/G\$	Change in Comp. (%) (Guyana gain:-)
1970	0.78 0.79 0.83 0.88 0.92	1.00 0.99 0.92 0.93 0.92	1.1 -3.0 -12.2 -6.0 -4.7
1975	1.00 1.01 1.04 1.00 0.97	0.92 0.96 0.94 0.94 0.94	-8.7 2.4 -4.9 4.3 2.7
1980	1.00 0.92 0.85 0.88	0.94 0.85 0.80 0.80 0.63	-3.1 -1.1 1.2 -3.0

TABLE 3 (page 5)

ELEMENTS OCOMPETITIVE ADVANTAGE TRINIDAD-TOBAGO - JAMAICA

	Relative Prices T'dad/Jamaica	Exchange Rate TT\$/J\$	Change in Comp. (%) (Jamaica gain:-)
1970	1.55	2.40	4.7
1971	1.52 1.58 1.54 1.48	2.37 2.50 2.16 2.24	0.5 1.9 -13.6 8.4
1975	1.47 1.48 1.49 1.22 1.08	2.39 2.68 2.64 1.70 1.36	5.7 10.4 -2.0 -27.1 -11.0
1980	1.00 1.01 1.06	1.35 1.35 1.35	6.8 -1.4 -4.6
1983	1.11 0.98	1.24 0.61	-13.5 -81.0