"Indicators of Competitiveness in the Eastern Caribbean Currency Union."

By

Dr. Wendell Samuel

Senior Economist, Western Hemisphere Department

International Monetary Fund

Mr. Allister Mounsey

Economist, Eastern Caribbean Central Bank

Paper presented at the XXXIV Annual Monetary Studies Conference

Georgetown, Guyana

November 12-16, 2002

Indicators of Competitiveness in the Eastern Caribbean Currency Union: The Case of St. Lucia

Draft

Abstract

The Eastern Caribbean Central Bank (ECCB) has traditionally used the real effective exchange rate (REER) as a benchmark for movements in the external competitiveness of the currency union. The ECCB recognises however that this measure may not be adequately capturing movements in, nor is it providing satisfactory insight into the dynamics of competitiveness of the region. This paper estimates additional indicators of competitiveness, discusses methodologies for their derivation and comments on observed trends. The indicators used in this analysis are the REER, ratio of trade balance to total trade, output per worker as a measure of labour productivity, export volume index and the terms of trade. All of these indicators seem to suggest that there has been a negative shift in the external competitiveness of Eastern Caribbean currency union (ECCU) during the late 1990's.

Allister Mounsey
Research Department
Eastern Caribbean Central Bank

Introduction

The Eastern Caribbean currency union (ECCU) comprises of eight island economies[1] that share a common currency-the Eastern Caribbean dollar (EC$). Being small open economies (SOE) the external competitiveness of economy becomes of paramount importance. In addition these states have clearly indicated a preference for low inflation and economic stability by their adoption and maintenance of fixed exchange rate regime with the US dollar. This policy decision comes with the possibility that for significant periods of time the real effective exchange rate (REER) could be misaligned. It is therefore incumbent on the member territories of the ECCU to correct for these misalignments over time by improving their competitiveness in production (productivity).

Currently the Eastern Caribbean Central Bank (ECCB) uses the REER as a benchmark for movements in the external competitiveness of the currency union. The objective of this paper is to identify additional indicators that can be used to more fully assess developments in external competitiveness of the region. It also calculates and discusses developments in these indicators for the case of St. Lucia for the period 1992 to 2002.

The rest of the paper is divided as follows. Section II presents a theoretical background. In section III, data and methodology issues are discussed. The analysis of the indicators of competitiveness is presented in section IV, while section V presents one possible story that can be told based on developments in the indicators over the period. The paper concludes with section VI: conclusions and recommendations.

II. Literature Review

Competitiveness is a fairly easy concept to understand and interpret at the firm level. Uncompetitive firms will see their "bottom line" eroded constantly over time thus

[1] Namely: Anguilla, Antigua and Barbuda, Dominica, Grenada, Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent and The Grenadines.

causing them to cease to exist. However viewing competitiveness on a national scale as being analogous to the meaning of the term at a firm level, can lead to conclusions such as Krugman (1994)[2] who contends that competitiveness is a meaningless concept for countries as they "have no well defined bottom line" and "do not go out of business." Perhaps the most widely used definition of international competitiveness is that coined by the President's commission on Industrial Competitiveness (1985): " A nation's competitiveness is the degree to which it can, under free and fair market conditions, produce goods and services that meet the test of international markets while simultaneously expanding the real incomes of its citizens." For analytical and policy purposes Alavi (1990) suggests two complementary views of international competitiveness:

a) ***Competitive standing***, which refers to international trade performance.
b) ***Long-term ability to compete***, which refers to a country's long-run ability for growth and the development of an economic foundation and export base that adjusts readily and rapidly to volatilities of world demand.

Even after definitional issues are dispensed with, the concept of national competitiveness is plagued with contentious issues, particularly at the level of measurement. Robert Reich, in his article, "Who is Us?"(1990)[3] expressed that there is great difficulty in identifying specific firms or products with particular countries. Ohmae in his book "The Borderless World"(1990)[4] suggests that the increasingly "interlinked" global economy has significantly diminished the importance of national borders to the extent that global competition is something occurring less between countries than between globalised, "nationalityless" corporations.

Problems at the measurement level are exacerbated by the fact that the literature presents a plethora of indicators of competitiveness. For some of these indicators the relationship between the indicator and concept of international competitiveness is not clear-cut. Alavi (1990) illustrates this using the trade balance (a popular indicator of competitiveness)

[2] As cited in Rapkin and Strand (1995)
[3] As cited in Rapkin and Strand (1995)
[4] cited in Cohen (1995)

> The relationship between IC [international competitiveness] and the trade deficit may not be as transparent as it seems....Trade imbalance can be corrected at least in three ways without addressing IC problem. First, currency depreciation might improve the trade balance ...However, this is a short term solution if industry in other countries continues to gain in relative productivity. Second, trade balance improves when the domestic economy is in recession while the rest of the world is prosperous....Third, by protecting domestic industry from foreign competition.

Turner and Van't dack (1993) in their article entitled "Measuring International Price and Cost Competitiveness" highlight a number of methodological issues involved in the construction of some of the more widely used indicators of international price and cost competitiveness. In relation to the CPI deflated REER, they highlighted the following deficiencies:

a. Consumer prices may be a poor proxy for the prices of traded goods, as they exclude important tradable good like capital goods for example, and are affected indirect taxes, subsidies, and price controls

b. Consumer prices include goods and services that are not internationally tradable.

Enoch (1978)[5] and Wickham (1987)[6] have argued that while the CPI may not be appropriate as measure output prices, it might be quite appropriate as a proxy measure of the underlying cost of production. While Kahn (1986)[7] argued that the link between consumer prices and cost can be spurious and is only short run.

The Caribbean has produced a number of studies examining the issue of competitiveness. Boamah (1989) examined the relative external competitiveness of Barbados, Guyana, Jamaica and Trinidad and Tobago using productivity-adjusted manufacturing wages and the real effective exchange rate (REER). He found that Barbados was less internationally competitive at the end of 1987 than her three regional trading partners. Henry (2001) uses a number of indicators to measure competitiveness of the Jamaica economy. He focussed

[5] as cited in Turner and Van't dack (1993)
[6] as cited in Turner and Van't dack (1993)
[7] as cited in Turner and Van't dack (1993)

on the real effective exchange rate, the ratio of tradable prices to non-tradable prices and the ratio of the trade balance to total trade. He concluded that between the period 1986 to 2000, there was a general decline in the external competitiveness of the Jamaica economy. He argued that any gain of external competitiveness from depreciation of the Jamaica dollar was eroded by an increase in cost to producers as measured by the consumer price index.

Few studies on the competitiveness of ECCU economies are found in the literature. One paper by Gelos (1996) posed the question of whether the Eastern Caribbean dollar was overvalued, and attempted to estimate the degree of real exchange rate misalignment in the currency area. Using various indicators of competitiveness he stated that it was extremely difficult to estimate the precise degree of misalignment of the EC$, but concluded that the evidence points to an overvaluation.

III. Data and Methodology

Five indicators are used in this paper to measure competitiveness in the ECCU. The real effective exchange rate (REER), terms-of-trade (as a proxy for profit margins within export sectors), export volume index, the ratio of trade balance to total trade (trade ratio), output per worker. The indicators are measures of *competitive standing* rather than *long-term ability to compete* [8]as defined by Alavi (1990).

The data used in this paper comes from the ECCB and the statistics division in St. Lucia. The indicators presented were computed only for St. Lucia[9], but are believed to be fairly representative of developments in the region, particularly the Windward Islands. All data series were reported on an annual frequency. For the most part the data covers the ten-year span between 1992 and 2001, with the exception being the output per worker series where due to data constraint this was reported from 1994 to 2001.

[8] Ideally a *Long-term ability to compete* should be assessed within the context of a model that incorporates several measures of *competitive standing* measures plus policy and institutional–determined factors.
[9] St. Lucia was chosen because of data availability in the case of output per worker and because of time constraints in the case of the other indicators.

1. The Real Effective Exchange Rate

The real effective exchange rate is the most popular indicator of competitiveness found in the literature. It is the weighted version of the external real exchange rate index with weights assigned to trading partners reflecting the share of overall trade. Sahely (2001) constructed a CPI deflated fixed-base REER for St. Lucia and the ECCU; a brief description of the methodology is given below.

Let P_{it}^{*} represent the ratio of the consumer price index of the home country in period t to the consumer price index of the i^{th}trading partner in period t, i.e., the domestic price/foreign price

The *Nominal Effective Exchange Rate* (*NEER*)

$$\text{NEER}_{t} = 100\prod_{i=1}^{n}\left(S_{it}^{*}\right)^{w_i^{*}} \qquad (1a)$$

The *Real Effective Exchange Rate* (*REER*)

$$\text{REER}_{t} = 100\prod_{i=1}^{n}\left(S_{it}^{*}P_{it}^{*}\right)^{w_i^{*}} \qquad (1b)$$

where S_{it}^{*} represents the exchange rate indices relative to a base period (t = 0) and w_i^{*} is the appropriate trade based weight assigned to currency i.

An increase in REER indicates an appreciation, which suggests a decline in competitiveness.

2. The Terms-of-Trade (proxy for profit margin)

The terms-of-trade is an index of the ratio of a country's average export prices to its import prices. In simplified terms it relates to the performance of export prices relative to import prices. Mounsey (2002) constructed a fixed-based terms-of-trade index[10] for St. Lucia for the period 1992 to 2001, using import and export data aggregated at the three (3) digit Standard International Trade Classification (SITC) level.

Mathematically the terms of trade can be written as:

$$TOT^t = \frac{P_x^t}{P_m^t} \times 100 \qquad (2)$$

Where;

P_x^t = the unit value of export at time t

P_m^t = the unit value of import at time t

By definition the methodology for calculating terms-of-trade (TOT) essentially is methodology used for calculating unit values of imports and exports. The unit value of imports/exports is given by the following geometric average:

$$P^t = 100 \prod_{i=1}^{n} \left(\frac{V_i^t}{V_i^0} \right)^{w_i}, \qquad \sum_{i=1}^{n} w_i = 1 \qquad (3)$$

$$w_i = \frac{V_i^0 Q_i^0}{\sum_{i=1}^{n} V_i^0 Q_i^0}$$

where:

V_i^t = the "imputed" per unit price of imports/exports in time t belonging to category i.

[10] Mounsey constructed both a fixed and a chain-based index, however only the fixed-based index is presented since both indices yielded qualitatively similar results.

V_i^0 = the "imputed" per unit price of imports/exports in the base period ($t = 0$) belonging to category i.

Q_i^0 = is quantity of category i imported/ exported in the base period ($t = 0$).

An increase in the ratio (equation 2) is considered an improvement in the terms of trade as it implies that more commodities can be imported per unit of goods exported.

The terms-of-trade in the context of small open economies (SOE) can be viewed as the price of exports relative to the (non-labour/land) input cost of producing these export commodities[11]. When viewed in this way the terms-of-trade can be seen as an indicator of the sum of profits of all agents in the export sectors. Specifically a decrease in the terms of trade will under the basic assumption laid out above, translate to a fall in the ratio of revenue to cost other things being equal, suggesting a fall in profit margins i.e. profit realised per unit of variable cost.

3. Export Volume Index

The export volume index presents in an aggregated way what has been happening to the quantity of exports (both commodities and services). Mounsey (2002) constructed the export and import volume index by dividing the appropriate value index by the appropriate unit value index[12].

$$VOL_x^t = 100\prod_{i=1}^{n}\left(\frac{Q_{ix}^t}{Q_{ix}^0}\right)^{w_i} \approx \frac{100}{P_x^t}\left(\frac{\sum_{i=1}^{n} V_{ix}^t Q_{ix}^t}{\sum V_{ix}^0 Q_{ix}^0}\right)100 \qquad (4)$$

Where, the variables are as defined in equations (2) and (3) above with the subscript x added to denote export.

[11] The basic assumption is that in SOE all non-labour and non-land factors are imported, with zero elasticity of substitution between the factors of production.

[12] Provided that the underlying preference function is homothetic (or close to being so), the so-called "factor-reversal" property will hold (approximately) for geometric averages or Divisia-Tornqvist indices as they are sometimes called.

The export volume index can give insight into the movements of external competitiveness over time, as increased competitiveness other things being equal should result in greater volumes being exported.

4. Trade Balance to Total Trade (Trade Ratio)

To compensate for the criticisms levelled at the trade balance as a proxy of competitiveness (see Alavi 1990), researchers have augmented the indicator by dividing the trade balance by total trade, thereby limiting the extent to which recession in the domestic economy relative to the rest of the world would cause the indicator to improve.

$$TR = \left(\frac{X-M}{X+M}\right)100 \qquad (5)$$

where X and M are total value of exports and total value of imports respectively.

An increase in external competitiveness should result in an improvement in the trade ratio over time.

5. Output per worker

Output per worker is used as a proxy measure for labour productivity. In order to get an estimate of output per worker, GDP in each sector was expressed as a ratio of number of persons employed in the sector.

$$\psi_i^t = \frac{Y_i^t}{E_i^t} \qquad (6)$$

Where;

Y_i^t = GDP in sector i.

E_i^t = number of persons employed in sector i.

This indicator should be used in conjunction with a wage index, to assess movements in per unit labour cost. Per unit labour cost defined as:

$$PL_t = \frac{WR_t}{\psi_t} \qquad (7)$$

where:

PL_t is per unit labour cost in time t

WR_t is the wage rate

A fall in per unit labour cost is considered an improvement in external competitiveness, as the cost effectiveness of production would have improved. Due to the unavailability of wage data[13] per unit labour cost could not be calculated. However it is widely accepted in the literature that wages are 'sticky downwards' therefore it is assumed that generally wages would increased during the period or remain constant. Under the assumption unchanged wage rates output per worker would be a good proxy for per unit labour cost[14], if wages increased during the period this proxy would be biased downwards.

IV: Trends in Competitiveness in the Eastern Caribbean Currency Union

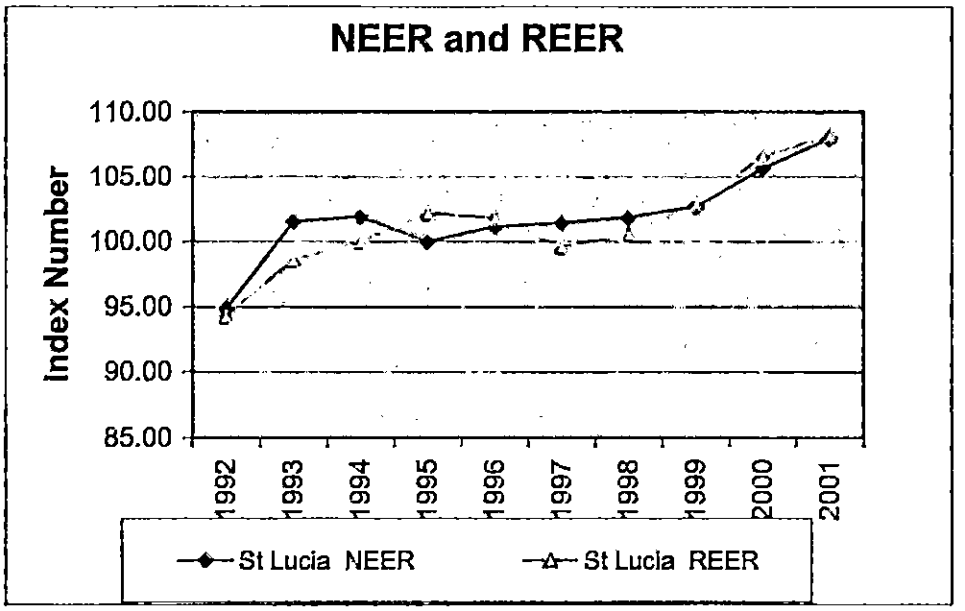
1. The Real Effective Exchange Rate

The period 1992 to 2001 has seen an average rate of appreciation of the REER of 1.08 per cent per annum. Figure 1 gives a pictorial view of is development over the period. As suggested by Figure 1 the REER has been mirroring the NEER which suggests that the appreciation of the REER was, for the most part, attributable to a general appreciation of the US dollar (to which the EC dollar is pegged) vis-à-vis other currencies, rather than adverse movements in relative prices.

Figure 1

[13] St. Lucia conducted one occupation and wage survey during the period, this was done in 2000.

[14] $\frac{PL_t}{PL_{t-1}} = \frac{\psi_{t-1}}{\psi_t}$



2. Terms of Trade

The terms-of-trade (goods and services) has deteriorated steadily during the period 1994 to 2001; on average the rate of decline measured 5.9 per cent per annum. The worsening terms of trade was due to persistently falling export prices averaging declines of 2.5 per cent during the period, and consistently rising import unit value averaging increases of 3.6 per cent during the period. Figure 2a depicts these developments. Figure 2b shows terms-of-trade for goods only and figure 2c shows terms-of-trade for goods excluding banana exports[15].

Trends in the terms of trade (goods) index indicate a decline in the index since 1994, with the decline averaging 5.7 per cent per annum. An examination of the terms of trade of goods excluding bananas (see figure 2c) also reveals a similar erosion of the terms of trade during the period of roughly 5.2 per cent on average. In both cases the decline was due both to a fall in the unit value index of exports and a rise in the unit value index of imports. The growth in the average price of imports was due in part to rising fuel prices coupled with increases in the price of several other heavily weighted import items.

[15] Bananas from St. Lucia have preferential access in the UK market.

Figure 2d shows what has been happening to the export unit values of various export sectors of the St. Lucian economy. The graph suggests that the tourism industry has sustained the longest period of decline in average prices (1996 to 2001), possibly suggesting a declining rate of profitability in this sector over the period under consideration. A similar story could be told for the other foreign exchange earning sectors at some period in the eleven-year span; in the case of non-banana exports 1993 to 1997 and in the case of banana exports 1994 to 2001 (though there were several years when prices increased, the trend has been downward during the period).

Figure 2a

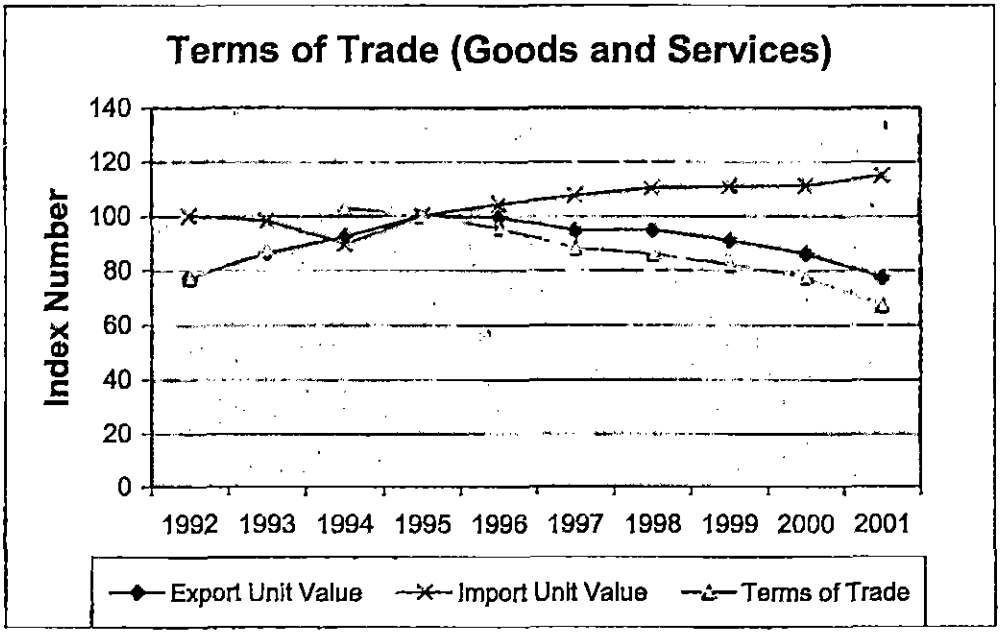


Figure 2b

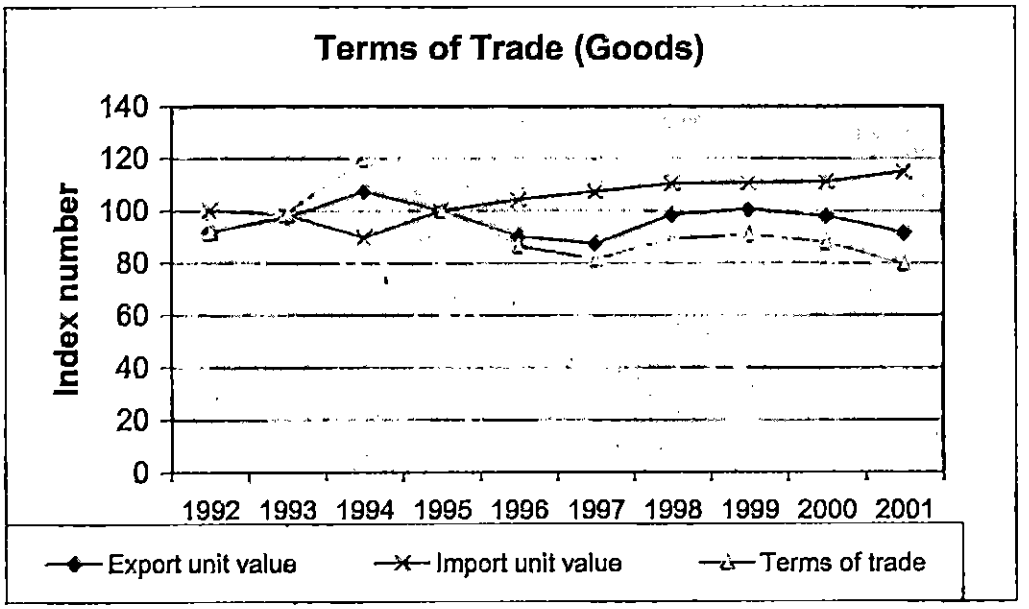


Figure 2c

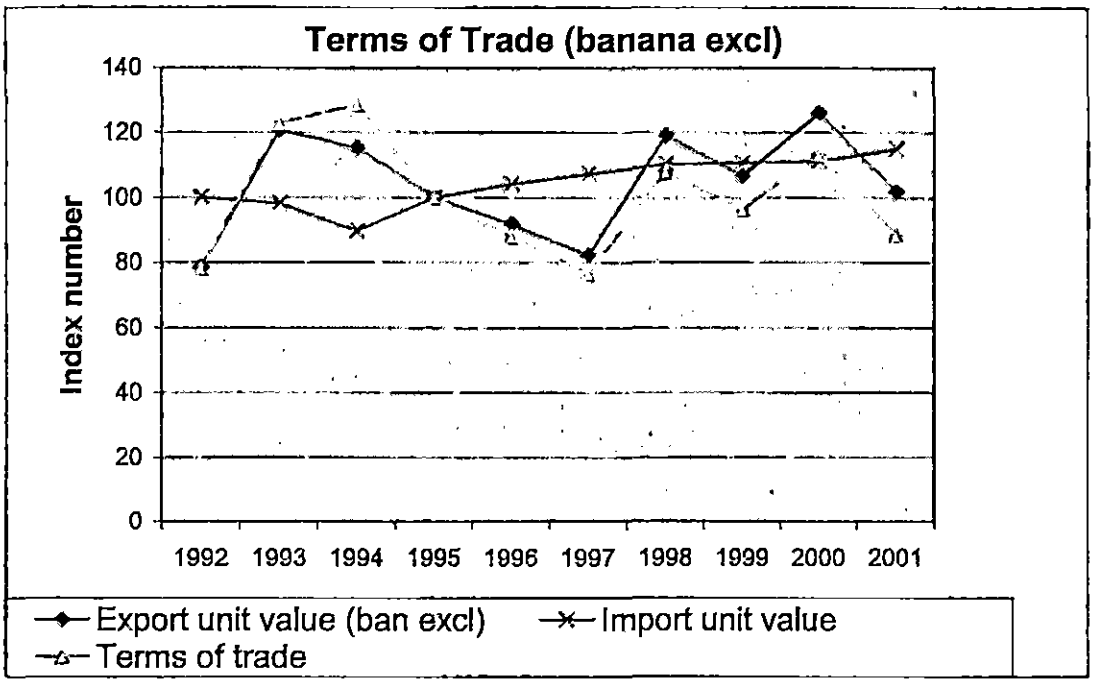
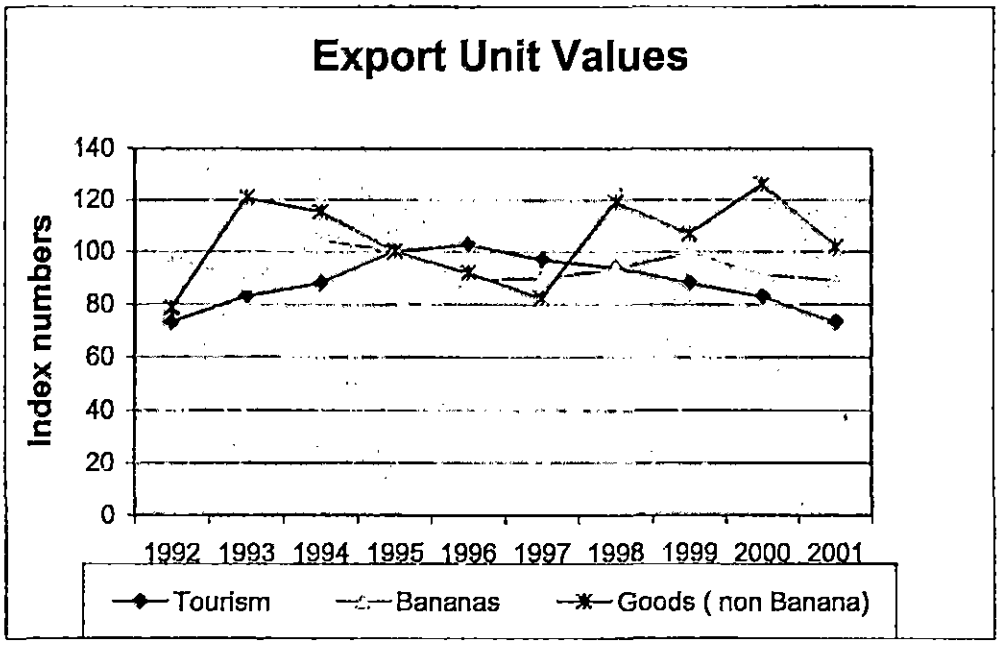


Figure 2d



3. Export Volume Index

The export volume index (goods and services) declined during the period 1992 to 1994, however from 1994 to 2000 the index was on a positive growth path (see Figure 3a). Figure 3b shows how development in the various export sectors contributed to the performance of the overall volume index. Generally the volume of tourism exports increased throughout the period by an average of 1.2 per cent per annum, however in the period 1994 to 2000 this growth rate was approximately 4.6 per cent, reflecting declines in the first two years and also in 2001. Declines averaging 15.0 per cent and 9.0 per cent per annum were recorded in the volume of banana and non-banana goods exported during the eleven-year span. The net effect of these developments is an average decline of 1.8 per cent per annum in the volume of goods and services exported over the period under consideration. The fall in export volumes coupled with development in the average export prices resulted in an average decline in the value of exports of 1.8 per cent per annum (see figure 3a).

Figure 3a

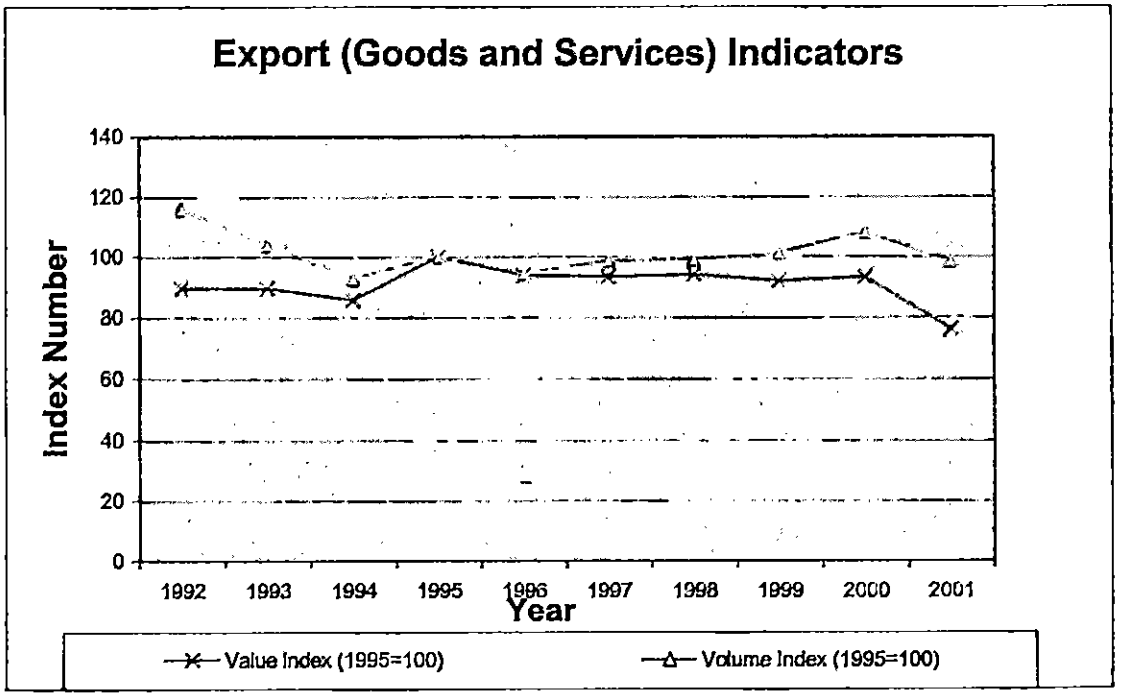
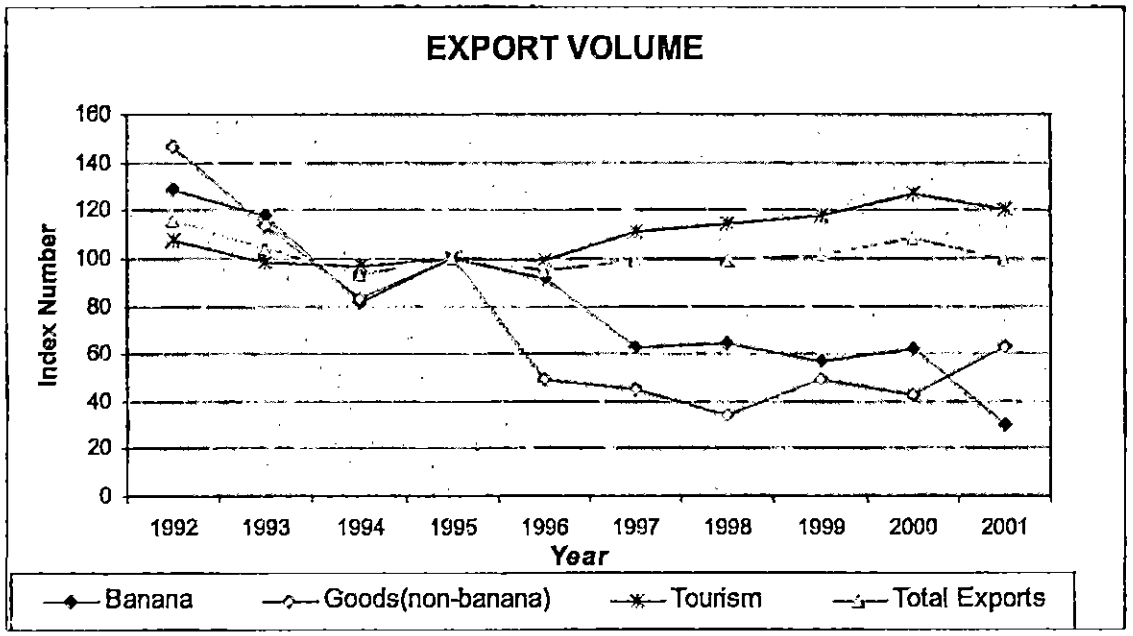


Figure 3b



4. Trade Balance to Total Trade Ratio

Figure 4a reveals that the trade ratio (trade balance/total trade) has deteriorated considerably throughout the period under review, moving from negative 5.6 per cent in 1992 to negative 10.1 per cent in 2001, a deterioration of 6.8 per cent per annum. The period 1993 to 1997 saw the sharpest rate of decline with the ratio declining by an average of 22.0 per cent per annum.

Figure 4a

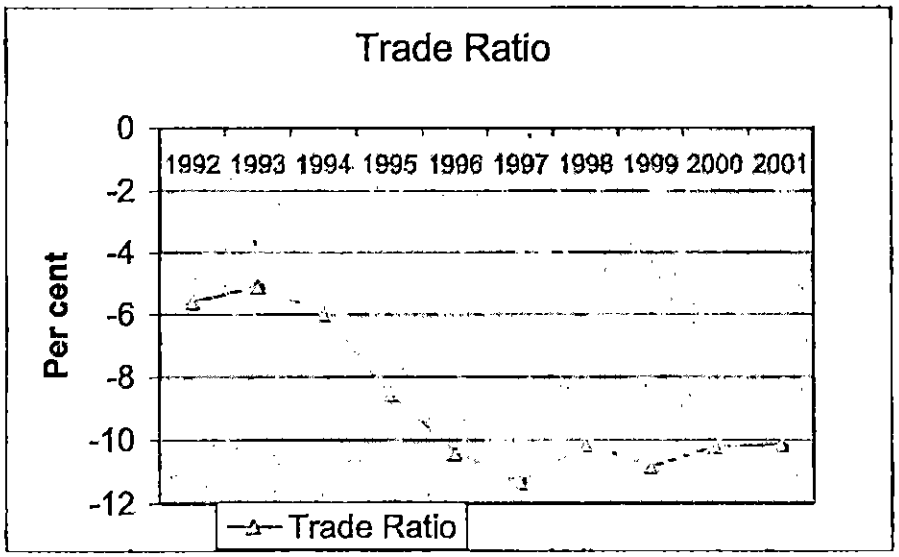
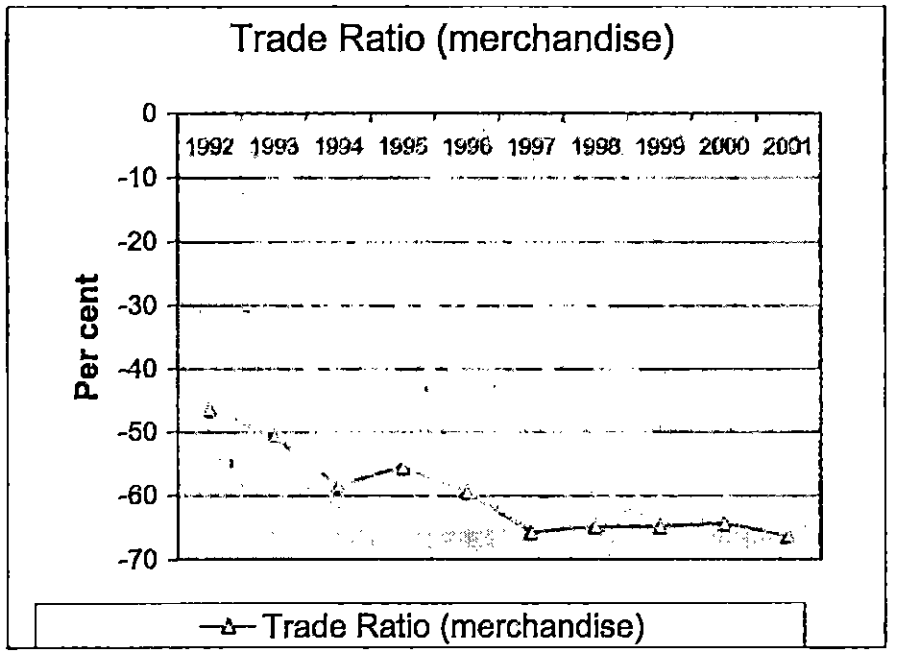


Figure 4b

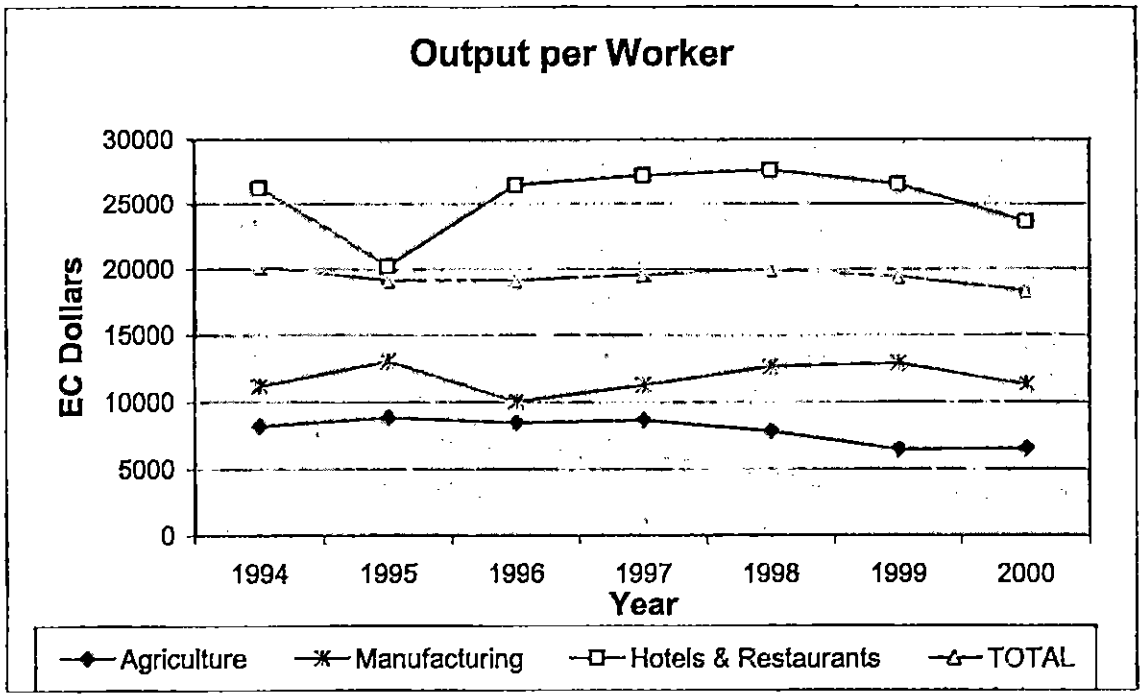


5. Output per Worker

Output per worker for the total economy has fallen by an average of 1.6 per cent annum, which translates to an annual increase of at least 1.6 per cent in per unit labour cost[16]. This fall in productivity has by and large been led by a 3.7 per cent per annum fall on average in output per worker (at least a 3.8 per cent increase in per unit labour cost per annum) in the agricultural sector. The hotel and restaurant sector (tourism sector) has been showing fluctuations in this crude indicator of labour productivity, however indications are that output per worker is trending upwards. Surprisingly the data suggest that output per worker in the manufacturing sector has risen by an average of 0.1 per cent per annum during the period. Figure 5 shows the developments in output per worker.

Figure 5

[16] Assuming unchanged or increasing wage rates.



V. Implications: The Competitiveness Story

By pegging the value of the EC dollar to the US dollar, St. Lucia and other ECCU countries have surrendered control over movements in the EC dollar vis-à-vis other currencies that are not similarly pegged to the US dollar. The nominal effective exchange rate in this case is exogenous to the country. Therefore the NEER is an appropriate point of departure from which one can begin to trace the 'competitiveness story' in St. Lucia.

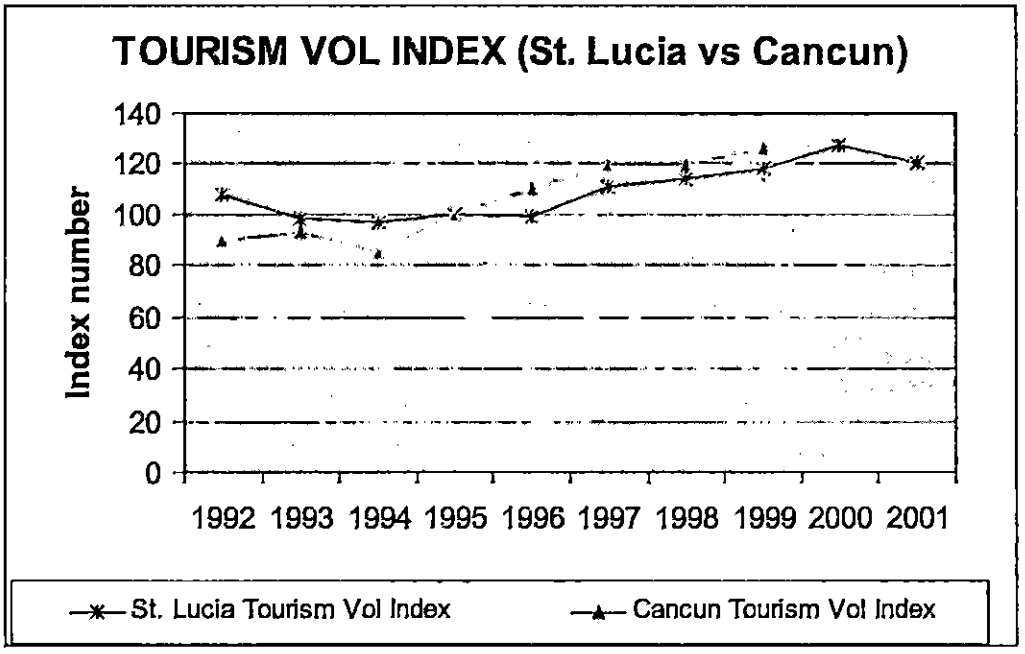
The NEER appreciated during the period 1992 to 2001 due to appreciations in the US dollar vis-à-vis other currencies. The REER generally moved in tandem to the NEER. Because imports from the USA accounted for 36.1 per cent of total imports (in 1995) and there were a few 'mini-oil shocks' during the period, the appreciation of the NEER/REER did not result in falling import prices as would normally be expected. On the other hand banana prices[17] which are negotiated in pound sterling, have been falling

[17] Banana is St. Lucia's major export commodity, accounting for some 53.1 per cent of merchandise exports in 1995.

in EC$ terms as a result of the appreciating NEER/REER. Consequently the terms-of-trade on goods has moved adversely during the period, as depicted in figure 2b.

Tourism prices fell during most of the period under consideration. It is unlikely that this phenomenon was attributable to the appreciating NEER, as prices in this sector are generally quoted in US dollars. One possible explanation for the fall in tourism prices after 1996, is that the industry in St. Lucia had to adjust prices downward as a result of increased external competition, the effects of which could be seen in the decline in the tourism volume index, which fell by an average of 2.2 per cent during 1992 to 1996, in contrast to an average increase of 5.2 per cent in volume index[18] for Cancun[19](see figure 6).

Figure 6



Declining export prices plus rising input prices (proxied by the import unit value index) suggest that the average return per unit of (non-labour/non-land) expenditure has been falling in the export oriented sectors of the St. Lucian economy. If the picture in figure 5

[18] The volume index for Cancun was constructed by the author using data from the CTO on foreign hotel guest and average length of stay.

[19] The Mexican island of Cancun is regarded as one of the English speaking Caribbean's major competitors, CTO uses its performance as a benchmark in it annual report.

is a true reflection of labour productivity it means that profitability of firms would have been further reduced by the fact that the return on labour expenditure would have been declining over the period.

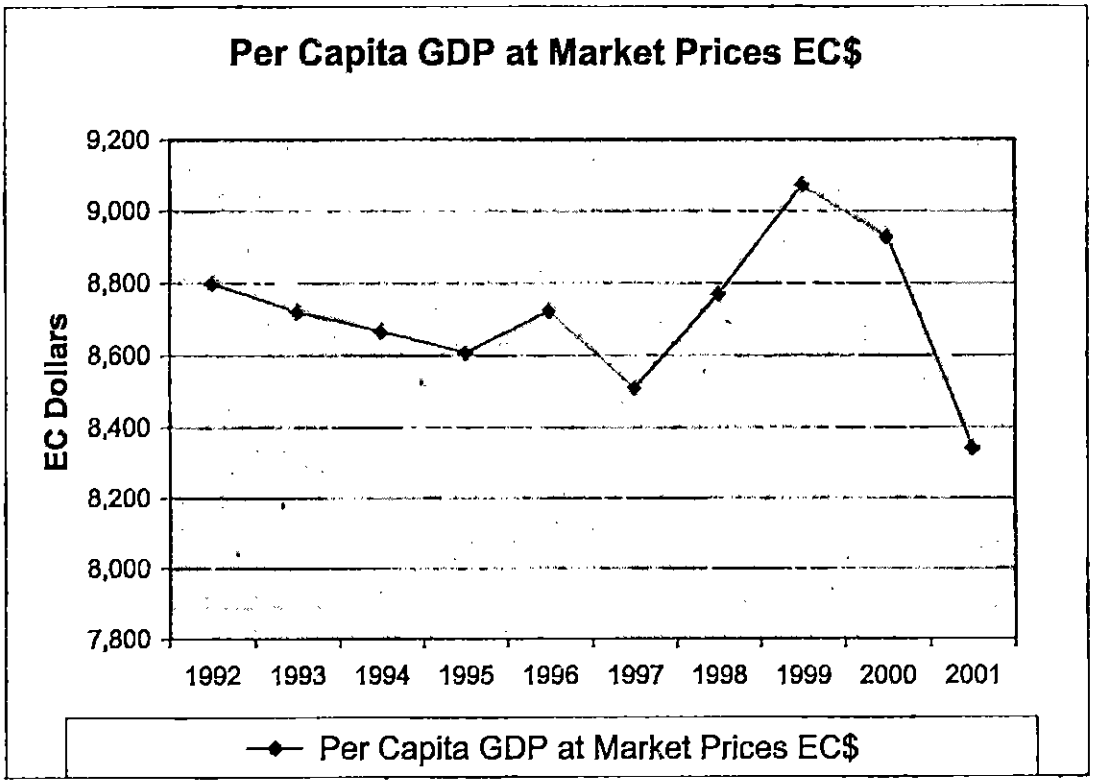
The fall in export prices coupled with increased costs, both in terms of imported inputs and per unit labour cost, caused firms in the agriculture and manufacturing sectors to adjust output in a downward direction. The tourism sector, though suffering from significant declines in price, and rising cost (imported materials) has managed to increase its volumes. This increased volume possibly due to higher world demand for tourism[20] rather than increased market share, would have mitigated to some extent the negative pressures on profits caused by falling price and rising cost.

As a result of the aforementioned developments there has been a steady decline in real per capita GDP in St. Lucia throughout the period (figure 7), with sudden increases in 1998 and 1999 being associated with major capital expenditure on the part of the central government.

The analysis thus far suggests that the *competitiveness standing* of St. Lucia (and possibly that of the ECCU) has been eroded during the period under review, due both to external factors such as the cost of imported inputs and domestic factors such as rising per unit labour cost.

[20] If Cancun is indeed a major competitor, making the two destinations substitutes; then the joint upward almost parallel movement in the graphs (post 1996) in figure 6 suggest that they are both moving in response to some common external factor.

Figure 7



VI Conclusion and Policy Recommendations

The various indicators of competitiveness suggest that the decade of the nineties was characterised by a significant eroding of the external competitiveness of St. Lucia (and possible the ECCU). Furthermore in sectors like the banana industry the *long-term ability to compete* for the sector is quite dubious, because of their apparent inability to show improvement in 'competitiveness' in an environment of protection such as currently exist. The tourism industry which is the leading industry in St. Lucia seems to have been the sector with strongest resilience, and its prospects seems relatively optimist, however many commentators in the tourism arena are of the view the tourism product in St. Lucia and the Eastern Caribbean is not price competitive relative to major competitors.

Policy Recommendations

In as much as the ECCB has opted for an environment of low inflation, the maintenance of the fixed exchange rate regime is seen as important to meeting the objective (Mounsey and Samuel, 2000). It therefore means that issues of competitiveness must be addressed from the production side. Given non-labour inputs costs are generally determined externally increased competitiveness can be best achieved if the growth rate of labour productivity outstrips the growth rate of wages.

The need for productivity growth in the ECCU economies becomes even more apparent when one notes that monetary and fiscal initiatives aimed at boosting economic growth in the short run are limited by the exchange rate policy that has been adopted. Therefore the only area where effective adjustment could be made is within the productive base of the economy - hence the need to have wages, prices, employment and productivity moving in a sustainable fashion.

The ECCB in collaboration with the International Labour Organisation (ILO) has embarked on a programme aimed at producing key indicators of labour market activity. This should assist in monitoring productivity gains over time. The programme also facilitates the establishment of tripartite consultative committees (TCC) comprising the government, the private sector and the trade unions to discuss wages, prices, employment and productivity. The establishment of these institutional arrangements should facilitate consensus building during negotiations on appropriate economic policies; thus hopefully allowing for sustainable movement wages, price and productivity.

References

Alavi, Hamid (1990) "International Competitiveness: Determinants and Indicators," World Bank Industry and Energy Department Working Paper Industry Series No.29 (March 1990)

Caribbean Tourism Organization "Caribbean Tourism Statistical Report 1999-2000"

Caribbean Tourism Organization "Caribbean Tourism Statistical Report 1996"

Cohen, Stephen D., "Does the United States Have an International Competitiveness Problem," in National Competitiveness in a Global Economy, ed. by David P. Rapkin and William P. Avery (London: Lynne Rienner Publishers, 1995)

Eastern Caribbean Central Bank "Report and Statement of Accounts for Financial Year Ended 31 March 2000"

Eastern Caribbean Central Bank "Report and Statement of Accounts for Financial Year Ended 31 March 1999"

Gelos, Gaston (1996)"Is the Eastern Caribbean Dollar Overvalued? " Estimating the Degree of Real Exchange Rate Misalignment in the East Caribbean Currency Area (ECCA) IMF WP/96

Henry, Chandar (2001)"Measuring Competitiveness in the Jamaican Economy", Bank of Jamaica Working Paper

Mounsey, Allister (2002) "Methodology for Calculating Terms of Trade: The Case of St. Lucia" Research Department, Eastern Caribbean Central Bank (unprocessed mimeo)

Mounsey, Allister and Wendell Samuel (2001)"Exchange rate management in the ECCU" Research Department, Eastern Caribbean Central Bank (mimeo)

Paiva Claudio (2001) "Competitiveness and the Equilibrium Exchange Rate in Costa Rica", IMF Working Paper WP/01/23

Rapkin, David P., and Jonathan R. Strand "Competitiveness: Useful Concept, Political Slogan, or Dangerous Obsession," in National Competitiveness in a Global Economy, ed. by David P. Rapkin and William P. Avery (London: Lynne Rienner Publishers, 1995)

Sahely, Leah (2001) "Documentation on the Construction of the Real Effective Exchange Rate Index" Research Department, Eastern Caribbean Central Bank (mimeo)

Turner, Philip, and Josef Van't dack (1993)"Measuring International Price and Cost Competitiveness", BIS Economic Papers No 39 (November 1993)

Wickham, Peter (1993) "A Cautionary Note on the Use of Exchange Rate Indicators," IMF Paper on Policy Analysis and Assessment PPAA/93/5