



CENTRAL BANK OF
TRINIDAD & TOBAGO

MEASURING THE COMPETITIVENESS OF THE TRINIDAD & TOBAGO ECONOMY

*Leslie-Ann Des Vignes and
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ABSTRACT

The objective of this paper is to evaluate the indicators currently used to measure competitiveness of the Trinidad and Tobago (T&T) economy, with a view to improving and expanding these measures, given the complexity and multi-dimensional aspects of this concept and its growing importance. The paper briefly reviews the literature on competitiveness with emphasis on definitional and measurement issues. It analyzes the principal measure, the real effective exchange rate, employed by the Bank to monitor the country's competitiveness, the relative unit labour cost measure which was recently developed, the terms of trade and the global competitiveness indices computed by the WEF. The paper then assesses the adequacy of these measures and ends with recommendations.

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MEASURING THE COMPETITIVENESS OF THE TRINIDAD AND TOBAGO ECONOMY¹

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1. INTRODUCTION

Competitiveness, in recent times has grown in importance as an indicator of the performance or the potential of an economy in the context of international economic relations. Countries have become obsessed with defining and measuring competitiveness since its début as a determining factor of long-term growth and prosperity. This has contributed to the proliferation of a diverse literature on defining and measuring competitiveness. Several definitions of competitiveness have been proffered with no general agreement on any given one. Moreover, competitiveness can be measured at the national, industry or firm level. While, the concept may be simple to define and measure at the firm level, it is most exigent at the national level, due to its multifaceted nature.

This paper will focus on measuring competitiveness at the national level in Trinidad and Tobago (T&T) and will *aim to evaluate the current economic indicators used to measure the competitiveness of the Trinidad and Tobago economy, with a view to improving and expanding the measures*. The paper is structured as follows. Section II, will review a cross section of the literature on competitiveness emphasizing the definitional and measurement issues. Section III, will assess the indicators currently used to measure competitiveness of the T&T economy such as the real effective exchange rates (REER), relative unit labour cost (RULC), the terms of trade index (TOT) and the composite indices that incorporate both the macroeconomic and microeconomic aspects. The subsequent section will discuss the empirical trends of Trinidad and Tobago's

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competitiveness and compare the results across the different measures. The paper will then conclude with recommendations for further developmental work.

2. LITERATURE REVIEW

2.1 Theoretical Underpinnings, Definitional and Measurement Issues

The concept of competitiveness in the past two to three centuries has been rooted in the traditional trade theories surrounding comparative advantage, which state that if the relative opportunity costs of producing goods differed among countries, then potential gains existed from specialization and trade. Comparative advantage has been attacked on many grounds but particularly on the assumptions underlying the standard theory, which have been found to be unrealistic such as perfect competition with efficient markets, homogeneous products, universal access to technology with no learning costs, no externalities or scale economies, technically efficient firms and full employment of resources.² The theory has also been criticized for being static and detractors suggested that competitiveness theory in the 21st century required an approach that encompassed dynamism, upgrading and innovation.

Thus, the new trade theories have shifted emphasis away from comparative advantage to competitive advantage. The more recent or new trade theories differ from the traditional comparative advantage theory by assuming differentiated products, imperfect competition and increasing returns to scale. Competitive advantage, the new buzzword at the end of the twentieth century was coined by Porter (1990), who suggested that competitive advantage was created and sustained by firms' ability to innovate and improve the quality of their products and the production processes through technological advancement.

2.2 Classification of Theories

The diversity of theories on competitiveness has resulted in a plethora of definitions and a wealth of indicators for measuring competitiveness. Wignaraja (2003)

² Asian Development Outlook 2003: Competitiveness in Developing Asia. National Competitiveness: A Dangerous Obsession?

has attempted to classify the theories into three distinct groups. The first is from a macroeconomic perspective, the second from a business strategy point of view and the third from a technology and innovation approach.³

2.2.1 Macroeconomic Perspective

This school of thought is based on macroeconomic theory and policy which suggests that the exchange rate is a key factor in the determination of a country's ability to create the macroeconomic conditions suitable for achieving international competitiveness. It defines international competitiveness "*as the level of the real exchange rate which in combination with the requisite domestic economic policies achieve internal and external balance*" (Wignaraja 2003). An appreciation of the real exchange rate is associated with a loss in a country's international competitiveness, while a depreciation of the real exchange rate implies an improvement.

The measures connected with this definition are the relative price of non-tradeables to tradeables, real effective exchange rates, relative consumer prices, relative wholesale prices and relative unit labour costs in the manufacturing sector. The most popular and widely used of these measures is the real effective exchange rate given the easy availability of the data.

The macroeconomic perspective has been criticized for the use of only relative prices or unit costs indicators in its measurement of competitiveness since non-price factors such as technological capabilities and the ability of firms to compete on delivery are not taken into account. Secondly, there is little scope for government policy since it depends mainly on the exchange rate to correct balance of payments disequilibria and to restore profitability of the tradeables relative to the non-tradeables and the loss in competitiveness. However, it does not address those factors that hinder firms' ability to be successful in developing countries such as poor infrastructure and a lack of scientific and engineering skills.

³ Competitiveness Analysis and Strategy, Ganeshan Wignaraja, 2003.

Nevertheless, the measures falling under this perspective are widely used in examining competitiveness issues in developing and developed countries. In the Caribbean much work has been done in constructing and analyzing competitiveness measures (REERs, RULCs). For instance, in Trinidad and Tobago work has been done by Phillip Colthrust and Janice Nicholls in developing the REER, while competitiveness studies have been undertaken in Jamaica (Chandar Henry), the ECCB (Dr. Wendell Samuel and Allister Mounsey) and Caricom (Dr. Karl Bennett).

2.2.2 Business Strategist Perspective

Unlike the first approach which is based on economic grounds, the Business Strategy approach is from a business studies perspective and is concerned with issues of rivalries between firms and the strategies adopted by firms as they compete with each other locally and internationally. Porter, one of the leading supporters of this school of thought has attempted to study the international economic relations of nations by means of micro level business strategy theory. According to Porter, competitiveness and productivity are the same, since in his opinion the “only meaningful concept of competitiveness at the national level is national productivity”, due to the fact that productivity is primarily associated with improving a nation’s prosperity and standard of living over time. He developed a “Diamond Model” in which he identified four interrelated factors necessary for sustaining competitiveness, these are: firm strategy, structure and rivalry, demand conditions, related supporting industries and factor conditions (key factors that are created e.g. skilled labour, capital and infrastructure). The government acts as facilitator in this model encouraging firms to become competitive and creating the environment that enables firms to increase productivity and become more competitive by improving the infrastructure and investing in specialized education and engineering etc.

Porter’s concept of competitiveness has been integrated into the definition used by the World Economic Forum (WEF). In the 2005-2006 issue of the Global Competitiveness Report (GCR), competitiveness is summarized as *“that collection of factors, policies and institutions which determine the level of productivity of a country*

and that therefore determine the level of prosperity that can be attained by an economy. However, productivity is also the key driver of the rates of return on investment, which in turn determine the aggregate growth rates of the economy. Thus, a more competitive economy is one that is likely to grow faster over the medium to long term". This definition is very broad and uses a vast number of indicators to formulate the composite indices on competitiveness, namely, the business competitiveness index (BCI) and the growth competitiveness index (GCI). Many countries have gravitated towards this new thought of competitiveness and are compiling indicators on the microeconomic aspects to be able to benchmark their competitiveness against each other. In the Caribbean, Trinidad and Tobago, Jamaica, Dominican Republic and in recent times Guyana are involved in compiling such composite indicators to benchmark their competitiveness against leading developed and other developing countries.

The business strategy perspective has been criticized by Krugman on the assertion that nations compete like corporations on the world markets, he objects to this analogy since "international trade is not a zero sum game but one in which specialization and trade according to comparative advantage results in gains to all nations". Secondly, the definition of national productivity is said to be unclear and not well defined for computation (it does not specify if total factor productivity or partial productivity indicators should be used). Finally, the role of government is too limited since the presence of market failures constrains the development of competitiveness.

The measures discussed in this paper will focus on the abovementioned perspectives; however, for completeness the third school of thought is briefly mentioned below.

2.2.3 Technology and Innovation Perspective

This approach is rooted in industrial competitiveness. It accentuates the role that enterprises must play in importing technology (via foreign direct investment) and the ability to learn this technology (through training and research and development like), resulting in mastery, improvement and consequently innovation. The innovation and

learning process necessitate interactions among different institutions (firms, government, support institutions and other actors) within the National innovative system (NIS). Government has an active role in creating competitiveness under this approach.

This theory put forward a definition of micro and macro level competitiveness which is found in OECD (1992) *“In microeconomics, competitiveness refers to the capacity of firms to compete, to increase their profits and to grow. It is based on costs and prices, but more vitally on the capacity of firms to use technology and the quality and performance of products. At the macroeconomic level it is the ability to make products that meet the test of international competitiveness while expanding domestic real income.”*

One of main measures associated with the approach is the manufacturing export competitiveness index (MECI), which is used to benchmark manufactured export competitiveness in developing countries. It is constructed using data on the value of manufactured exports per capita, average manufactured export growth over medium to long term and technology-intensive manufacture exports as a percentage of total merchandise exports. This index is thought to be more appropriate for developing countries being more focused in its measurement of competitiveness than those constructed by the WEF. This MECI is somewhat challenging to construct since it is difficult to determine what criteria should be used for selecting exports that are technologically intensive. This is not clearly stated in the methodology.

Other useful measures falling under this school of thought are the market share indicators. The analysis using market shares can vary tremendously depending on the scope required, since market shares can be the ratio of a country's exports to the World export, to the exports of a specific region or even to total exports of the country's major trading partners.

3. MEASURES OF COMPETITIVENESS - T&T

This section highlights the competitiveness measures utilized in Trinidad and Tobago. These are the real effective exchange rate, the relative unit labour cost and the terms of trade which are based on the macroeconomic perspective and the composite indices which are based on the business school perspective.

3.1 Real Effective Exchange Rate

The REER measure was adopted by the Central Bank of Trinidad and Tobago in the early 1980's to gauge the international competitiveness of locally produced goods. This measure was further refined in the mid-1990s when the index was rebased. A series is published at regular frequencies. The REER indices are computed by deflating a nominal effective exchange rate (NEER) index by an index of relative prices, which is termed, effective inflation rate (EIR). The NEER reflects the value of a country's currency relative to the value of the currencies of its major trading partners, with reference to a specific base period⁴. The EIR measures domestic inflation rates relative to those of the major trading partners. Mathematically, the index can be written as:

$$REER_t = 100 \prod_{i=1}^n \left(\frac{S_{it}}{P_{it}} \right)^{w_i}$$

Where:

S_{it} - represents the nominal exchange rate index of the home currency at time t in terms of an index of the i^{th} countries currencies. (Relative to the base period)

w_i - is the appropriate trade weight assigned to currency i .

P_{it} - represents an index of price relatives between Trinidad and Tobago and its i^{th} trading partners at time t. (Relative to the same base period as S_{it}).

The REER is constructed in such a way that any changes in the index can be decomposed into two effects. These are an *exchange rate effect* (ER) which is measured by the NEER index and *inflation effect* (IR), which is measured by the EIR index. An increase in the REER index represents an appreciation or a loss of competitiveness while the converse is true for a decrease in the index.

⁴ Currently, the base period is September 1990, (Sept. 90 = 100).

The Central Bank of Trinidad and Tobago uses two types of weights in the construction of the indices. One is based on total trade volumes (imports and exports) and the other is based on trade in exports only. The weights give rise to the trade-weighted REER which is the primary indicator of international competitiveness used by the Bank and the export-weighted REER. While the export-weighted REER shows the competitiveness of only Trinidad and Tobago’s exports, the trade-weighted REER measures the international competitiveness of Trinidad and Tobago (TT) exports, as well as TT’s non-exported goods that face competition in the domestic market from trading partner’s imports.

The table below shows the total trade weights of Trinidad and Tobago’s major trading partners. The United States has the largest trade weight of 48.2 parts per 100, while the weights of the CARICOM partners account for 12.2 parts per 100.

The major limitations of the REER measure of competitiveness arise from the choice of deflator used in calculating the index. The index utilises consumer price indices (CPIs) which measure the cost of a fixed basket of goods and services that are both tradable and non-tradable. Hence, there are some products included in the measurement, whose price movements have no impact on a country’s international competitiveness. Furthermore, CPIs are influenced by price control, indirect taxes and other distortions which tend to overstate or understate the actual price structure of a country.

In the case of the indices developed for Trinidad and Tobago, the base period is September 1990. Accordingly, the trade weights represent trade patterns of that year which differs from the pattern that exists presently. Despite this shortcoming, the results generated showed similar movements to those displayed by the IMF calculation using a base period, 2000 = 100. (See Chart 1A)

Table 1

Trinidad and Tobago's Major Trading Partners Bilateral Trade Weights	
Trading Partners	Weights

United States	48.2
United Kingdom	9.1
Canada	6.0
Venezuela	5.8
Jamaica	5.5
Barbados	4.0
Japan	4.0
Brazil	3.9
Germany	3.1
France	2.7
Belgium	2.0
Netherlands	1.7
St.Vincent & Gr.	1.4
Guyana	1.3
Taiwan	1.3
Total	100.0
<i>Of Which: Caricom</i>	12.2
<i>Euro</i>	9.5

3.2 Unit Labour Cost

The Central Bank has expanded the range of competitiveness indicators to include an index of unit labour cost for Trinidad and Tobago which will serve as a complement to the existing measures. Furthermore, this index of unit labour cost will become part of the Bank's statistical landscape and will be computed on a quarterly basis. The unit labour cost measure gives an indication of cost pressures in a given sector or economy. More specifically, unit labour cost can be defined as the ratio of labour compensation to labour productivity (output per man hour).

$$ULC_n = W_n / (Q / H)$$

Where

W_n represents the nominal wage rate,

Q represents domestic production

H denotes the number of hours worked

(Q / H) is equal to labour productivity (P)

Thus, ULC_n is directly related to the nominal wage rate and inversely related to labour productivity.

There are various combinations of W_n and P that would result in either an increase or decrease in ULC_n . The table below examines those combinations that lead to a decrease in ULC_n . The converse is true for an increase in ULC_n .

Table 2
A Decrease In Unit Labour Cost

Nominal Wage	Productivity
Decrease	Same
Same	Increase
Increase	Increase*

* At a faster rate than the increase in W_n .

The view is often expressed that in order to improve a country's international competitiveness, unit labour cost must be reduced as this can result in lower production cost and thus lower prices, assuming that all other costs of production remain fixed. This implicitly assumes that international prices will remain unchanged resulting in lower domestic prices relative to those of major trading partners.

Similarly, there exists a notion that unit labour cost refers specifically to a decrease in the nominal wage rate. While that view is correct to a certain extent, decreases in unit labour cost generally occur as a result of increased productivity. Nominal wages tend to rise over time due to inflation, so for ULC_n to fall, it must be that output per man hour increases at a faster rate than the increases in nominal wages.

3.2.1 Different Methods of calculating Unit Labour Costs

The ULC may be calculated using different indicators of wages and productivity. Firstly, the ULC can be computed as the *ratio of the index of average weekly earnings to the index of productivity*. These two indices are computed quarterly by the Central Statistical Office and currently have a base year equaled to the average of the four quarters of 1995 = 100. The index of average weekly earnings is a measure of nominal earnings while the index of productivity is derived by dividing an index of domestic production by an index of hours worked. Seeing that the productivity measure is in terms of hours, it would have been ideal to have an index of hourly compensation but such an index was not available.

Secondly, the ULC can be obtained by dividing an index of real average weekly earnings by an index of productivity. This method of calculating unit labour cost is similar to the first method except that it eliminates the effect of inflation from the index of average weekly earnings, which is a value index. By eliminating the effects of inflation, changes in unit labour cost can be attributed to changes in productivity and changes in real wages. After adjusting for inflation, if there is an increase in unit labour cost, this means that real labour compensation is growing faster than labour productivity. This situation can create inflationary pressures and lead to higher prices.

The third method which provides an alternative measure for labour compensation and productivity is the ratio of real compensation to real output. Real compensation was calculated by deflating nominal compensation to employees by the retail prices index. The value for nominal compensation to employee is generated from a Survey of Business Establishments (SBE) which is conducted annually by the Central Statistical Office. Unlike the first two methods which used output per man hour as the measure of productivity, this method used gross domestic product (GDP) at constant prices. In addition, this SBE survey captures data on compensation to employees by kind and by sector, as outlined in the Trinidad and Tobago System of National Accounts (SNA) 1993.

After some deliberations about which method should be used to calculate an ongoing index of unit labour cost for Trinidad and Tobago on a quarterly basis, the second method was selected, that is, an index of real average weekly earnings divided by an index of productivity). The resulting ULC index carries a base year of 1995, an average of the four quarters of 1995, (1995=100). Since the purpose of computing the ULC index is to gauge the competitiveness of locally produced goods, our focus was principally on the manufacturing sector excluding the energy sector. We also examined the development of historical wages and productivity of the other sectors in the economy on an annual basis using the third method, real compensation to real output.

3.3 Relative Unit Labour Cost

Using the movements in Trinidad and Tobago's ULC index to measure international competitiveness is limited in itself because competitiveness is a relative concept. As a result, we extended the ULC measure to include unit labour cost indices (manufacturing sector) of trading partners by also using the second method, an index of average weekly earnings divided by an index of productivity. This broader measure is called the Relative Unit Labour Cost (RULC), with a base period equaled to an average of the four quarters of 1995. An increase in the RULC index indicates a loss of international competitiveness relative to trading partners and the converse is true. For Trinidad and Tobago, the RULC index is calculated as a ratio of the unit labour cost index of Trinidad and Tobago to a weighted average of the unit labour cost indices of Trinidad and Tobago major trading partners.

$$RULC_{TTt} = \frac{ULC_{TTt}}{\prod_{j=1}^n ULC_{jt}^{w_j}}$$

where the numerator represents the unit labour cost index for Trinidad and Tobago at time t and the denominator represents a geometric weighted average of the unit labour cost indices of the j^{th} partners at time t. W_j is the trade weights assigned to the j^{th} trading partners. These weights are the same total trade weights used in the REER measure. Also, for better international comparison the unit labour cost indices for Trinidad and Tobago and the major trading partners were converted into a common currency, the US dollar, by means of an exchange rate index.

Data limitations in various forms presented several challenges in computing the RULC index. For some countries data was unavailable and in some instances, the data obtained was unreliable for the two components of the index. As such, these countries including our Caribbean trading partners were omitted in the computation of the index and the weighting scheme was adjusted accordingly.

Another hurdle was that some countries do not compute the indices of average weekly earnings, domestic production and man hour worked. In such cases, proxy variables for compensation and productivity were employed.

Additionally, the frequency of the data for some of the trading partners posed some challenges. Low frequency data (annual) was disaggregated into a higher (quarterly) frequency using the Lisman and Sandee technique, which created a synthetic quarterly series. This purely mathematical technique in itself has some limitations in that the quarterly values for the first and last years are unobtainable, thus for those two years each quarter was prorated equally. The results generated must however be treated with caution. Nevertheless, the application of the Lisman and Sandee method of temporal disaggregation was found to be simple and its results were plausible.

3.4 Terms-of-Trade

The term-of-trade is defined as the ratio of export prices to import prices, using the conventional definition of the net barter approach. Prices of export and imports for Trinidad and Tobago are not measured directly, so average unit value indices computed by the CSO are used as proxies. Hence, we calculate the terms of trade index by dividing an index of average unit values of exports by an index of average unit value of imports. Symbolically, this is represented in the equation below:-

$$\text{TOT}_t = \frac{P_t^x}{P_t^m} \times 100$$

Where P_t^x and P_t^m represent the index of average unit values of export and imports, respectively at time t and relative to a base year, (1995).

This ratio is interpreted such that an increase suggests an improvement in the terms of trade and can lead to a possible increase in international competitiveness. The converse is true for a decrease in the ratio.

The major shortcoming of the net barter approach is that it assumes that the impact of changing market conditions on a country's trade balance is influenced solely by prices and not by volume. The influence of changes in trade volume is captured by the income approach which multiplies the net barter terms of trade index by trade volumes.

Another shortcoming of the methodology is that trade in services is not included as it accounted for just a small portion of total trade in Trinidad and Tobago when the index was rebased from 1988 to 1995.

3.5 Composite Indices

In recent times numerous institutions and countries have been developing composite indices that allows for a much broader measurement of national competitiveness. Of the most popular and widely discussed are those constructed by the World Economic Forum (WEF) and published in the Global Competitiveness Report.

The WEF compiles two complementary composite indices which capture the profundity of national competitiveness, namely, the growth competitiveness index (GCI) and the microeconomic competitiveness index (MICI) or the current competitiveness index (CCI) or business competitive index (BCI)⁵. Such indices have been formulated for a few Caribbean countries, namely, Trinidad and Tobago, Jamaica, Dominican Republic and recently for Guyana and benchmark against other developing and developed countries globally (see Table 3 below). The GCI measures the capacity of the national economy to achieve sustained economic growth over the medium term. The overall aggregation of GCI comprises three main components that influence economic growth in the medium to long term; these are technological capacity, the quality of public institutions and quality of the macroeconomic environment. Further disaggregation of these indices is possible. The information used to compile these indices is sourced from both hard and survey data (collected through the Executive Opinion Survey).

The indicators used to formulate the technology index includes innovation (which covers areas like research and development spending, patents and tertiary enrollment), technology transfer (which covers foreign direct investment as a source of new technology) and information communication technology (covers school access to internet, enforcement of ICT related laws, mobile and fixed line telephones per capita and number of personal computers per capita).

⁵ The CCI was renamed MICI in the 2002-2003 report and was renamed the BCI in the 2003-2004 Report.

It is also interesting to note how the weightings were derived. The WEF grouped countries into two groups called the core innovators which consist of countries on the cutting edge of technology (innovators), while, the second group the non-core include those far away from the technology frontier which rely on transfer of technology from abroad. So that in compiling the technology index a higher weight is placed on innovation for countries within the core group than the non-core. For technology transfer a positive weight is given for those countries within the non-core and zero weight to those in the core grouping. Further, the three components making up the GCI were assigned different weights depending on if countries fell within the core or non-core innovators since the importance of the determinants of economic growth will differ between the two groups. Technology index is assigned a larger weight than public institutions index and macroeconomic environment index for the core innovators. For the non-core innovators equal weights are assigned.

The second index, the CCI/MICI/BCI was developed by Michael Porter and is based on his diamond framework on competitiveness. This index concentrates on the microeconomic fundamentals and attempts to measure the conditions that determine a nation's sustainable level of productivity. It is built on two sub-indices, namely company sophistication index and the quality of the business environment index. The information used to generate the index is obtained mainly from survey data collected from the Executive Opinion Survey, which is subjective. Many variables are used to determine the sub-indices and common factor analysis is used to compute the indices which are then averaged to estimate the overall BCI. The weights are determined using the coefficients of a multiple regression of the sub indices on GDP per capita.

The first national competitiveness study based on the WEF methodology was done in 1998 by the Tourism and Industrial Development Company (TIDCO). However, the first available benchmark indices are available from 2001 and is published by the WEF in the Global Competitiveness Report 2002-2003 and done in conjunction with the UWI –Institute of Business.

However, the formulation of these indices have been criticized on many fronts and Sanjaya Lall (January 2001) sums up his assessments in these words “The WEF definitions are too broad, the approach biased, the methodology flawed and inconsistent, and many measures vague, redundant or incorrectly calculated. Competitiveness indices have weak theoretical and empirical foundations and may be misleading for analytical and policy purposes.”

Despite these shortcomings these indices are found to be very useful for assessing the weaknesses in different sectors of the economy and formulating relevant policies to address these issues.

4. EMPIRICAL ANALYSIS

In general, both the REER and the RULC indicated that there was an improvement in the price and cost competitiveness of the T&T economy over the period 1988 to 2004. However, the results were mixed when compared for the period 2001 to mid 2005. The RULC indicated an improvement in cost competitiveness, while the REER reflected a decline in price competitiveness and the GCI a decline in the overall competitiveness of T&T economy.

4.1 Real Effective Exchange Rate

According to the trade-weighted REER index, Trinidad and Tobago’s international price competitiveness improved between 1988 and mid 2005, as the index depreciated by 2.1 per cent. This improvement was influenced significantly by the flotation of the Trinidad and Tobago (TT) dollar in April 1993 which resulted in an 11.9 per cent fall in the value of the index between 1992 and 1993, following the devaluation of the TT dollar.

An examination of the movement in the REER index prior to the flotation indicated an annual average rate of appreciation of 1.2 per cent between 1988 and 1992,

suggesting a loss of competitiveness for that period. This was due to the significant appreciation of the US dollar vis-à-vis the currencies of the country's major trading partners which resulted in an indirect negative exchange rate effect.

From 1993 to the second quarter of 2005, the value of the REER index appreciated by 6.3 per cent, despite the depreciating trend observed for the period 1993-1997 and 2002-2004. The first significant appreciation occurred in 1998 and that trend continued until 2002 with the highest rate of appreciation taking place in 2001, the year of the terrorist attack on the US economy. In 2001, the weighted average exchange rate for the TT dollar vis-à-vis the US dollar was 6.1997 compared with 6.2750 in 2000. This appreciation of the exchange rate was complemented by the widening inflation rate differential between Trinidad and Tobago and major trading partners. Movements in the export-weighted real effective exchange rate mimicked those of the trade-weighted index.

Chart 1: Trade-Weighted Real Effective Exchange Rate (Major Trading-Partners)

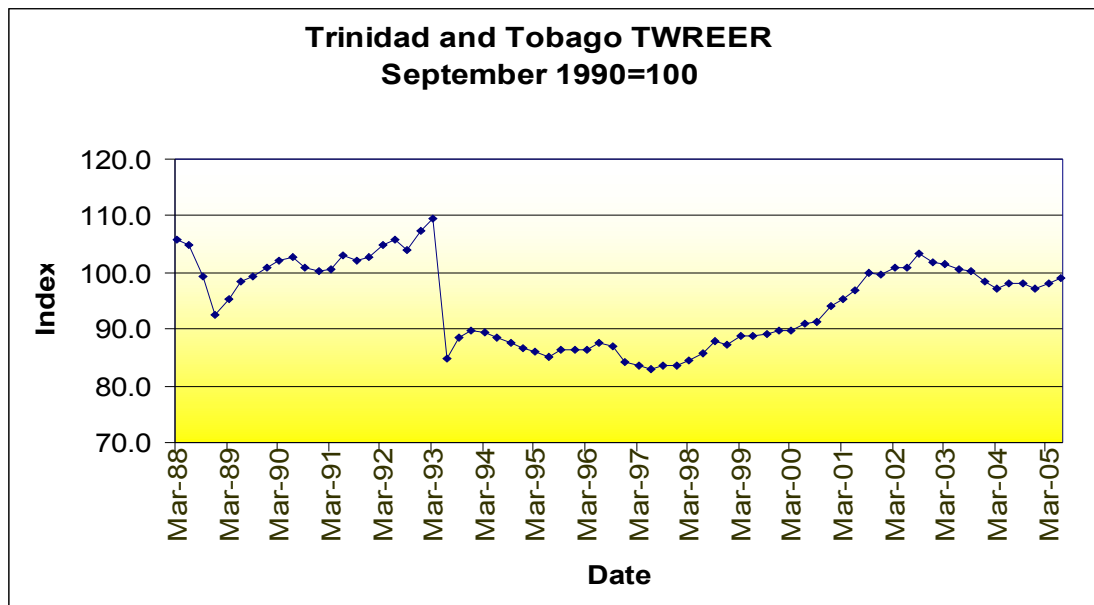
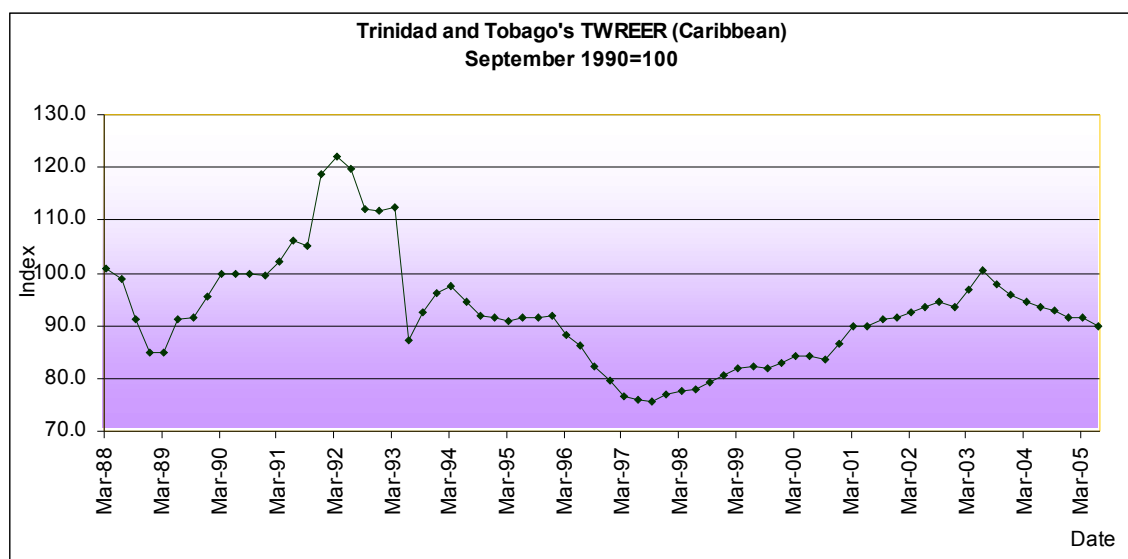


Chart 2 below displays the movements in the REER of T&T relative to its CARICOM trading partners only. The results are similar to those observed in the overall REER, where between the period 1988 to 2005 the depreciation of the REER reflected an improvement of competitiveness against CARICOM trading partners.

Chart 2: Trade-Weighted Real Effective Exchange Rate (CARICOM Partners)



4.2 Unit Labour Costs

Over the reporting period 1988 to 2004, Trinidad and Tobago unit labour cost index in manufacturing (the real measure) experienced a cumulative decline of 83.8 per cent. This fall occurred mainly as a result of the productivity index which increased six fold from the first quarter of 1988 to the end of 2004, and to a lesser extent, the real average weekly earnings which decreased by 15.2 per cent. Despite the continued decline in the ULC index in 2004, the rate of decline was somewhat slower than in previous years. Interestingly, the ULC index calculated using nominal AWE revealed an increase in ULC for 2004 (1.6 per cent), which marked the end of seven consecutive years of decline. This was contrary to the results generated when real AWE was used. (See Tables 1A and 2A).

Chart 3: Nominal Unit Labour Cost

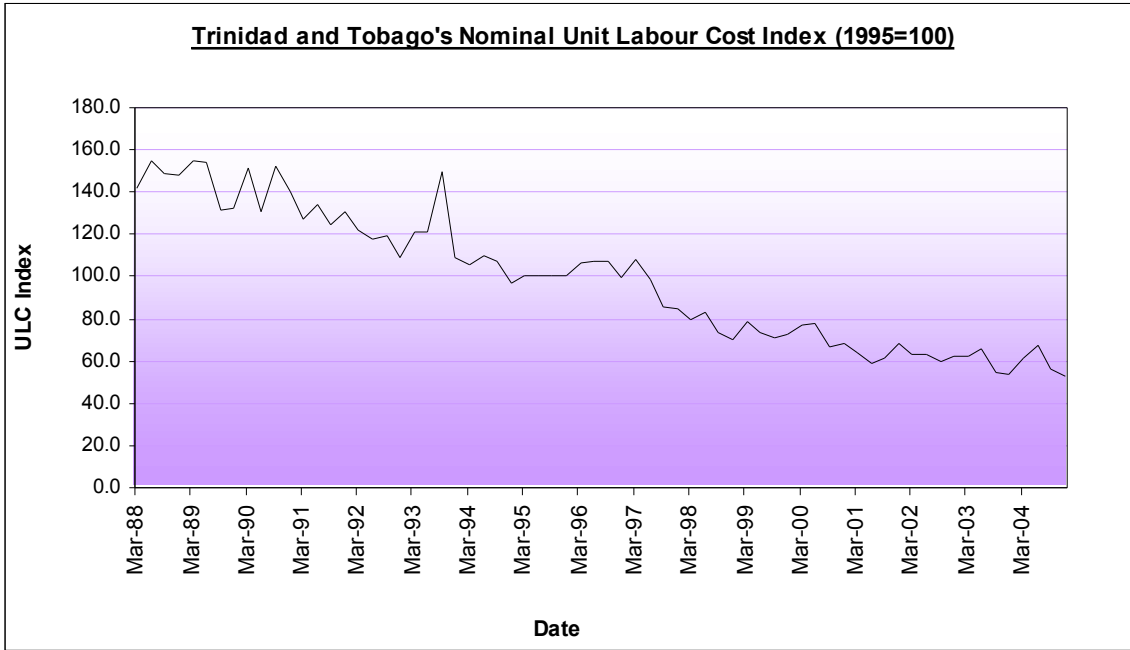
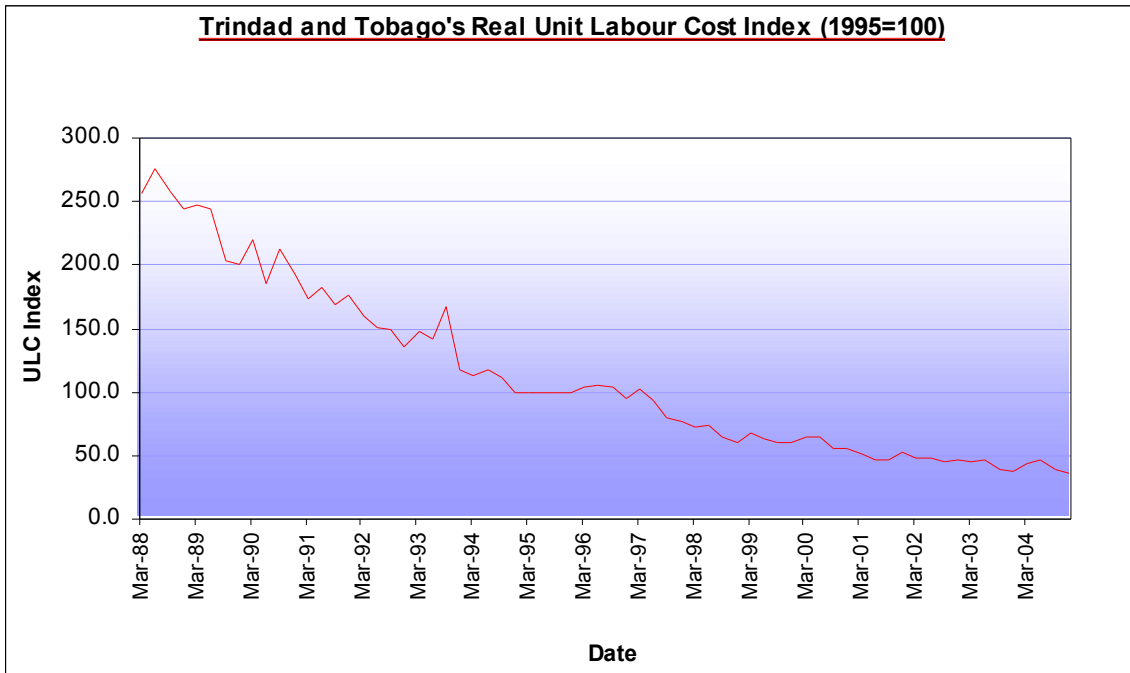


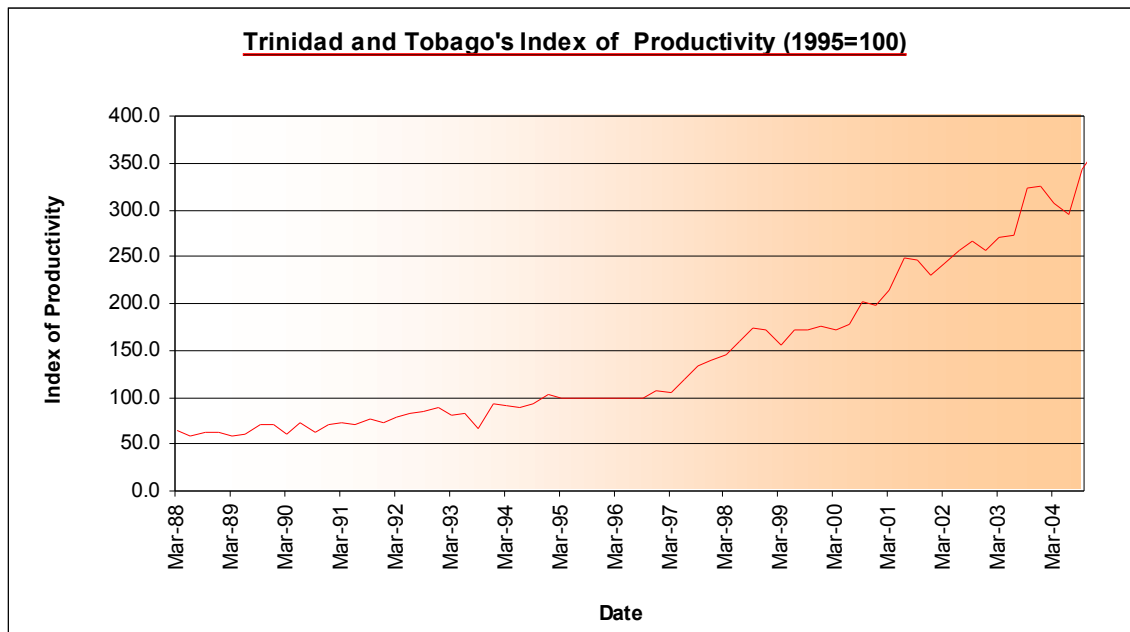
Chart 4: Real Unit Labour Cost



4.2.1 Productivity

The index of productivity for 2004 increased by about 5.3 times the value in 1988, an annual average of 11.3 per cent. With the exception of 1993, each year recorded an increase in productivity with the largest improvements occurring in 1997, 1998 and 2001 as there was substantial growth in domestic production. This is due to the fact that output has been growing at a much higher and faster rate than the number of hours worked. One possible explanation for the increase in output is that capital may have been substituted for labour in certain sectors like food and beverages and chemical and non-metallic products.

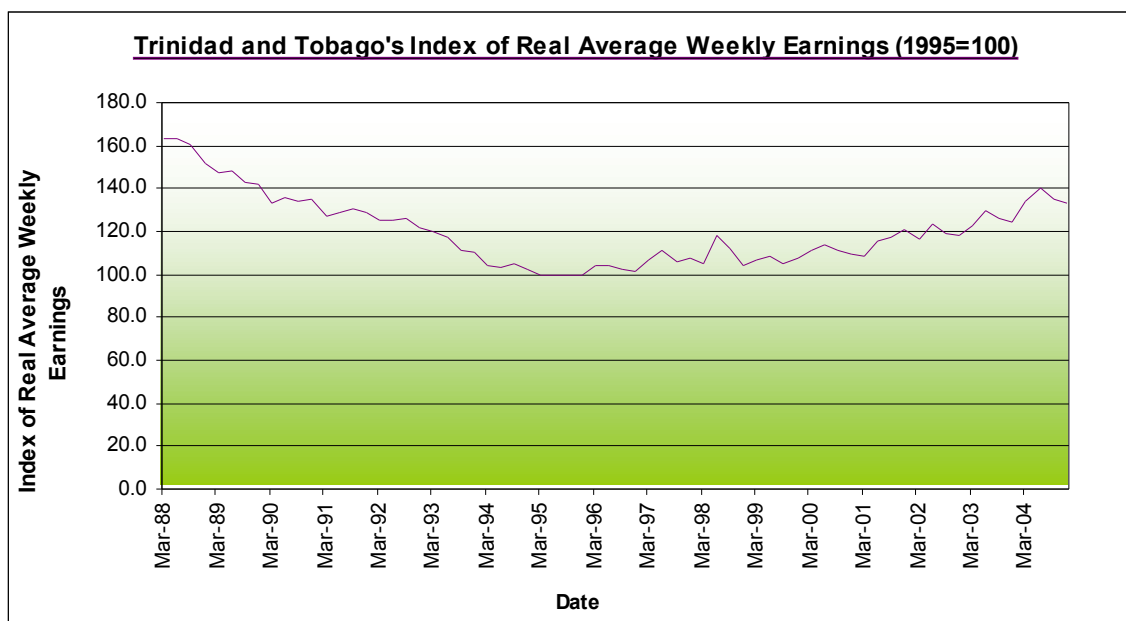
Chart 5: Index of Productivity



4.2.2 Average Weekly Earnings

During the late 1980's and early 1990's there was a fall in real earnings as depicted in Chart 6. An analysis of nominal wages showed that there was an increase for each year in the reference period with the exception for 1991 and 1994. However, the effects of inflation greatly outweighed the sluggish increase in nominal earnings leading to the fall in real earnings between 1988 and 1995. Subsequent to 1995, inflation rates have been somewhat subdued, so the higher increase in nominal wages also led to higher wages in real terms.

Chart 6: Index of Real Average Weekly Earnings



4.3 RULC National Currency

On average the index calculated in national currency fell by an annual rate of 5.8 per cent attributed mainly to the sizeable increase in Trinidad and Tobago's productivity relative to trading partners. The index of relative productivity has been trending upwards despite the declines that were experienced during some quarters. Meanwhile, the relative real average weekly earnings index showed a commensurate fall over the period in question. After 1995, the trend in relative average weekly earnings reversed from that observed between 1988 and 1994. However, the relative fall in real earnings has not been entirely eliminated by the recent increases that were experienced. (See Table 3A).

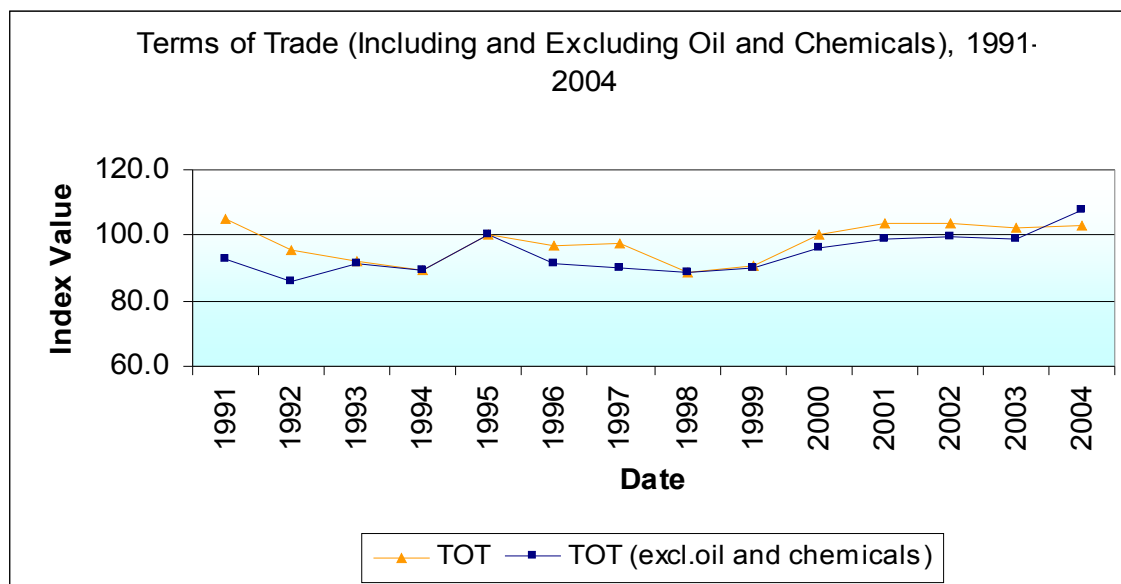
4.3.1 RULC US Currency Basis

Movements in the RULC index in US currency reflected changes in exchange rates, in addition to the relative productivity and relative real average weekly earnings. While the trend is similar to the index in national currency, the results have been somewhat magnified because of the exchange rate effect. Specifically, during the late 1980's and early 1990's when the exchange was remarkably lower than that in the base year (1995), the RULC index value almost doubled. This occurred on account of the Trinidad and Tobago's real average weekly earnings which increased significantly when

analysed in US dollars. After the devaluation of the exchange rate in 1993, there has been some convergence in the two indices of relative real average weekly earnings and thus the relative unit labour cost indices. (See Chart 5A).

4.4 Terms of Trade

Chart 7: Terms of Trade



There was a favourable movement in Trinidad and Tobago’s terms of trade (including and excluding oil and chemicals) indices between the period 1991 and 2004. To a great extent, the movements in the indices followed each other as they both declined between 1991 and 1992, increased from 1992 to 1995 before declining again over the period 1996 to 1999. Since 2000, the indices have been steadily trending upwards, with the index excluding oil and petrochemicals (chemicals) showing a sharper increase from the end of 2003.

4.5 Composite Indices

Table 3 below highlights the competitiveness ranking of Trinidad and Tobago’s economy vis-à-vis the rest of the world. These rankings have to be interpreted with caution since the number of countries participating each year increases and the

methodology is subject to revisions from time to time. According to the rankings in the GCR, Trinidad and Tobago's competitiveness has declined since 2001 to present in both its growth performance index and business competitiveness index. This fall in competitiveness is due in part to the increase in the number of countries joining the survey each year, as well as refinement to methodology. For instance, the decline of T&T GCI from the 49th position in 2003 to 51st position in 2004 was due mainly to the entrance of 3 new countries in to the survey. In fact if these three were omitted based on the 2003 ranking T&T would have increased in competitiveness by moving one position upward to 48th position due to the fact that El Salvador competitiveness ranking fell below Trinidad and Tobago's in 2004. In 2005 Trinidad and Tobago's ranking slipped further to 60th position this was due to a loss in competitiveness as the competitiveness score fell from 4.12 in 2004 to 3.81 in 2005, this was mainly as a result of a fall in the technology index and quality of public institutions index and not on account of the increase in the number of countries (15) joining. Of the fifteen new countries joining only two came in ahead of T&T, Qatar in 19th position and Kuwait in the 33rd position. Several countries moved up the rank ahead of T&T these were Poland, Columbia, El Salvador, Ghana, Egypt, India, and Bulgaria.

Table 3: Revised Rankings of Trinidad & Tobago due to Amendments to Methodology & Increase Country Participation

	GCI	<i>Technology Index</i>	<i>Public Institutions</i>	<i>Macroeconomic Environment</i>	BCI	<i>Company Sophistication</i>	<i>Business Environment</i>
2001 ⁶	38/75	52	35	25	31/75	27	38
2002	42/80	43	43	41	44/80	44	44
2003	49/102	47	56	47	53/102	54	53
2004	51/104	54	64	44	59/103	55	62
2005	60/117	62	83	40	65/116	62	63

Source: Global Competitiveness Report, Several Issues

The advantage of such benchmarking is that it enables a country to see its weaknesses and identifies areas for improvements over time. Despite the inconsistency in

⁶ Technology transfer subindex includes new survey evidence on the licensing of foreign technology as an important source of new technology. This evidence replaces a variable that was created to measure the extent of manufacturing technology in the export structure of non-core country.

the number of firms from year to year the indicators are very useful to T&T in developing policy to address various weaknesses across sectors. Many studies have used the detailed components of the indices in their research such as the document on the enabling of the business environment which is an initiative of the Vision 2020 and the document on building the competitive advantage of Trinidad and Tobago.

Table 4: Comparison of Rankings, 2005

Trading Partners	GCI	BCI
USA	2	1
Taiwan	5	14
Japan	12	8
UK	13	6
Canada	14	13
Trinidad & Tobago	60	65
Brazil	65	49
Jamaica	70	53
Venezuela	89	92
Dominican Republic	102	101
Guyana	115	110

As observed in Table 4 above, Trinidad and Tobago ranked highest in the GCI among the Caribbean countries, while Jamaica ranked highest in the BCI.

5. CONCLUSION

In conclusion no individual set of indicators is sufficient in explaining the competitiveness at the national level. Each of the methodologies highlighted above is fraught with weaknesses. However, each is crucial in explaining different aspects of competitiveness. Even though the WEF measures are based on many indicators and wider in scope, these are only available on an annual basis. Therefore, the single indicators that are narrower in measurement but available at much higher frequencies could fill the void in the interim. Based on our findings above, we submit the following recommendations.

First, the REER measure continues to be an important short-term indicator of a country's competitiveness despite its shortcomings. It is very easy to compute given the readily availability of the data on exchange rates and consumer price indices. However, in the case of Trinidad and Tobago, the accuracy of the measure could be improved since the base year (1990=100) of the index is outdated and needs to be updated to a more current period. Likewise, the basket of currencies should be reviewed and expanded.

Second, the development of the relative unit labour cost is a welcome addition to the stock of measures of competitiveness. However, there is need for further refinement with respect to obtaining data from other CARICOM countries and the use of enhanced statistical techniques to disaggregate low frequency data into higher frequency. For instance, the Chow-Lin method can be used instead of the Lisman & Sandee, which is a purely mathematical technique.

Third, a database should be developed housing different indicators to adequately gauge competitiveness from the various perspectives. There is a need to incorporate alternative measures such as those highlighted in the Technology and Information theory, the MECI, and indicators of market share.

Finally, given the increase in trade in services it is important that competitiveness indicators for measuring trade in services be developed in the medium term.

REFERENCES

- Asian Development Outlook. (2003). *Competitiveness in Developing Asia*.
- Balgobin, R. (2004). *Business Climate: An Overview of the Business Climate in Trinidad and Tobago, Draft Copy*. Institute of Business.
- Bennett, K. (2002). *Exchange Rate Regimes and International Competitiveness: The Caricom Experience*.
- Coker, K. (1998). *An Historical Review of the Terms of Trade, 1968-1998 for Trinidad and Tobago*. The Balance of Payments of Trinidad and Tobago, 1998.
- Colthrust, P. (1997). A New Effective Exchange Rate for Trinidad & Tobago. Mimeo.
- Ellis, L. (2001). *Measuring the Real Exchange Rate: Pitfalls and Practicalities*.
- Felipe, J. (2005). *A note on Competitiveness, Unit Labor Costs and Growth: Is “Kaldor’s paradox” A figment of Interpretation?* CAMA Working Paper 6/2005.
- Henry, C. (2001). *Measuring the Competitiveness of the Jamaican Economy*. Working Paper.
- International Labor Organization (ILO) (2004), *International Labor Statistics (ILS)*.
- International Monetary Fund (IMF) (2005), *International Financial Statistics (IFS)*.
- Keyder, N., Saglam, Y. and Ozturk, M. (2004). *International Competitiveness and Unit Labor Cost Based Competitiveness Index*.
- Krugman, P. (1994). *Competitiveness: A Dangerous Obsession*. Foreign Affairs, Vol. 73, No. 2.
- Lall, S. (2001). *Comparing National Competitive Performance: An Economic Analysis of World Economic Forum’s Competitiveness Index*. Working Paper No. 61.

National Competitiveness Council, (2004). *The Competitiveness Challenge*.

Nicholls J. (1997). *International Competitiveness: Bi-lateral Measures For Trinidad and Tobago*. Mimeo.

OTF Group, (2001). *Building the Competitive Advantages of Trinidad and Tobago*.
Porter, M. (1990). *The Competitive advantage of Nations*. The Free Press

Rao, S. and Tang, J. (2003). *Productivity and Competitiveness Challenges facing Canadian Industries*.

Samuel, W. and Mounsey, A. (2002). "Indicators of the Competitiveness of the Eastern Caribbean Currency Union."

The Global Competitiveness Report (Several Issues). World Economic Forum.

U.S. Department of Labor, BLS. (1999). *Unit Labor Cost for Selected Industries, 1987-1997*. Report 939.

Wagner, K. and Van Ark, B. (1996). *International Productivity Differences: Measurement and Explanations*. Elsevier Science B.V, Netherlands

Wignara, G. (2003). *Competitiveness Strategy in Developing Countries*. Routledge, London, 2003.

APPENDICES

Table 1A: Trinidad and Tobago Unit Labour Cost
(Manufacturing)- Nominal

Period	Index of Unit Labour Cost	Index of AWE	Index of Productivity
Index (1995=100)			
1988	148.35	91.85	61.96
1989	143.07	92.83	65.30
1990	143.65	95.79	66.99
1991	129.36	95.27	73.71
1992	116.99	97.87	83.81
1993	125.19	100.06	81.05
1994	104.93	98.57	94.19
1995	100.00	100.00	100.00
1996	105.18	106.50	101.36
1997	94.25	115.48	123.84
1998	76.66	124.13	162.42
1999	74.01	124.97	169.17
2000	72.50	135.03	187.09
2001	62.98	147.55	234.76
2002	62.21	159.02	255.78
2003	58.71	173.55	297.82
2004	59.66	193.65	327.08
2004 Q1	61.62	188.60	306.08
Q2	67.51	198.90	294.61
Q3	56.63	194.90	344.14
Q3	52.87	192.20	363.51
Year on Year (%)			
1989	-3.56	1.07	5.39
1990	0.40	3.18	2.59
1991	-9.95	-0.55	10.03
1992	-9.56	2.73	13.71
1993	7.01	2.24	-3.30
1994	-16.18	-1.49	16.21
1995	-4.70	1.45	6.17
1996	5.18	6.50	1.36
1997	-10.39	8.43	22.18
1998	-18.66	7.49	31.15
1999	-3.46	0.68	4.15
2000	-2.03	8.04	10.59
2001	-13.14	9.28	25.48
2002	-1.22	7.78	8.96
2003	-5.62	9.13	16.44
2004	1.61	11.58	9.83
2004 Q1	-0.48	12.87	13.42
Q2	3.13	11.43	8.05
Q3	4.64	11.24	6.31
Q4	-0.88	10.84	11.83

**Table 2A: Trinidad and Tobago Unit Labour Cost
(Manufacturing)- Real**

Period	Index of Unit Labour Cost	Index of Real AWE	Index of Productivity
Index (1995=100)			
1988	258.40	159.97	61.96
1989	223.92	145.04	65.30
1990	202.17	134.71	66.99
1991	175.16	129.00	73.71
1992	148.96	124.51	83.81
1993	143.56	114.76	81.05
1994	110.53	103.76	94.19
1995	100.00	100.00	100.00
1996	101.85	103.09	101.36
1997	88.12	107.84	123.84
1998	67.90	109.77	162.42
1999	63.28	106.84	169.17
2000	59.90	111.48	187.09
2001	49.25	115.38	234.76
2002	46.73	119.44	255.78
2003	42.51	125.56	297.82
2004	41.84	135.72	327.08
2004 Q1	43.90	134.4	306.08
Q2	47.47	139.9	294.61
Q3	39.30	135.3	344.14
Q4	36.69	133.4	363.51
Year on Year (%)			
1989	-13.34	-9.33	5.39
1990	-9.72	-7.12	2.59
1991	-13.36	-4.24	10.03
1992	-14.96	-3.48	13.71
1993	-3.63	-7.84	-3.30
1994	-23.01	-9.58	16.21
1995	-9.52	-3.63	6.17
1996	1.85	3.09	1.36
1997	-13.48	4.61	22.18
1998	-22.95	1.79	31.15
1999	-6.79	-2.68	4.15
2000	-5.35	4.35	10.59
2001	-17.77	3.49	25.48
2002	-5.12	3.52	8.96
2003	-9.04	5.12	16.44
2004	-1.57	8.09	9.83
2004 Q1	-3.56	8.69	11.83
Q2	0.04	7.49	7.45
Q3	0.83	6.72	5.94
Q4	-3.96	7.04	10.58

Source: Central Bank of Trinidad and Tobago

**Table 3A: Trinidad and Tobago Relative Unit
Labour Cost (Manufacturing)**

Period	Index of Relative Unit Labour Cost	Index of Relative Real AWE	Index of Relative Productivity	Index of Relative Unit Labour Cost	Index of Relative Real AWE
	National Currency	National Currency	National Currency	US Currency Basis	US Currency Basis
	Index (1995=100)				
1988	179.09	159.91	89.35	305.13	272.45
1989	167.22	145.93	87.68	243.71	212.74
1990	163.52	136.59	83.92	235.07	196.37
1991	152.15	131.61	86.58	219.39	189.77
1992	135.82	126.42	93.23	195.10	181.60
1993	135.29	116.03	86.82	158.21	135.93
1994	105.51	103.17	98.04	108.79	106.36
1995	100.00	100.00	100.00	100.00	100.00
1996	105.64	102.24	96.87	106.64	103.20
1997	93.38	105.38	114.04	93.73	105.81
1998	75.15	106.77	142.43	76.12	108.17
1999	73.63	102.98	140.02	73.94	103.41
2000	74.04	107.52	145.66	74.91	108.79
2001	66.41	111.66	168.60	68.33	114.88
2002	66.72	113.55	170.25	68.43	116.48
2003	65.04	118.76	183.76	64.10	116.98
2004 Q1	69.64	126.9	182.22	66.80	121.72
Q2	76.21	132.0	173.25	73.26	126.92
Q3	63.45	127.3	200.56	60.47	121.28
	Year on Year (%)				
1989	-6.63	-8.74	-1.87	-20.13	-21.92
1990	-2.21	-6.40	-4.29	-3.55	-7.69
1991	-6.95	-3.65	3.16	-6.67	-3.36
1992	-10.73	-3.94	7.69	-11.07	-4.31
1993	-0.39	-8.22	-6.88	-18.91	-25.15
1994	-22.02	-11.08	12.93	-31.24	-21.76
1995	-5.22	-3.07	2.00	-8.08	-5.98
1996	5.64	2.24	-3.13	6.64	3.20
1997	-11.60	3.07	17.72	-12.11	2.53
1998	-19.53	1.32	24.90	-18.78	2.23
1999	-2.02	-3.55	-1.69	-2.87	-4.40
2000	0.56	4.41	4.03	1.31	5.21
2001	-10.30	3.85	15.75	-8.79	5.59
2002	0.46	1.70	0.98	0.15	1.40
2003	-2.52	4.58	7.94	-6.33	0.43
2004 Q1	1.31	7.65	6.26	-2.65	3.44
Q2	4.96	7.32	2.24	2.29	4.59
Q3	5.62	6.81	1.13	2.21	3.37

Source: Central Bank of Trinidad and Tobago

Chart 1A: Comparison of the IMF and T&T REER measures

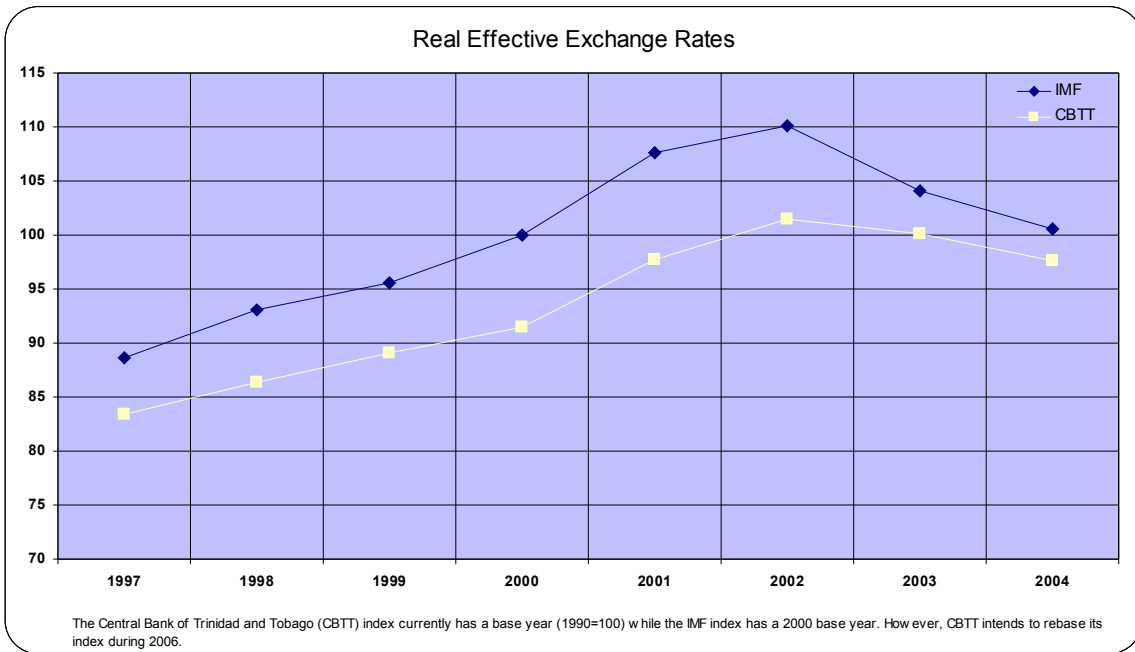


Chart 2A: Comparison of ULC across Selected Sectors of the Economy

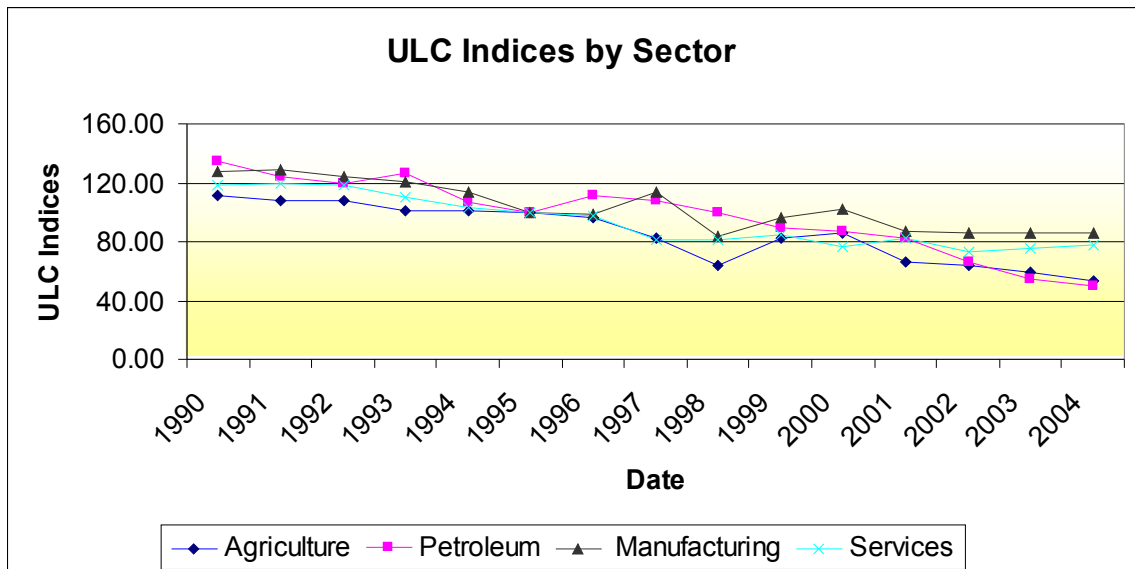


Chart 3A: Trend in Unit Labour Cost for the Economy

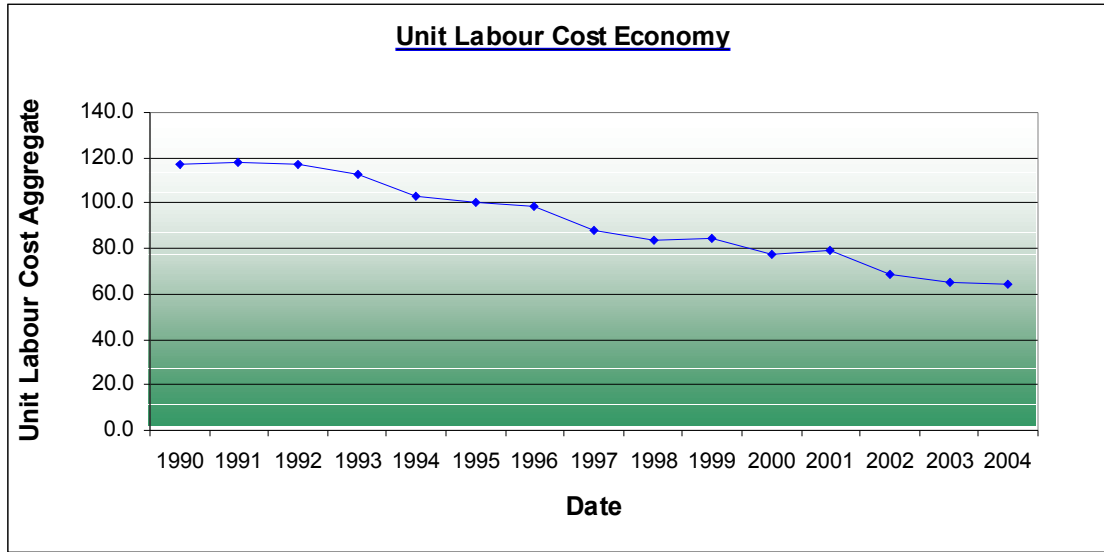


Chart 4A: Trinidad and Tobago RULC US Currency Basis

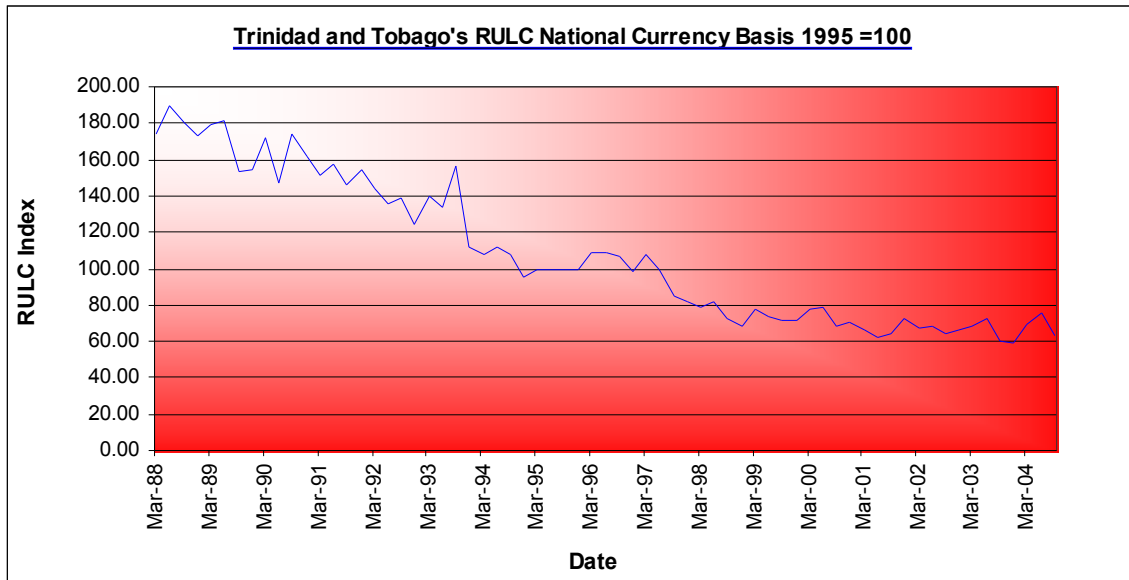


Chart 5A: Trinidad and Tobago RULC US Currency Basis

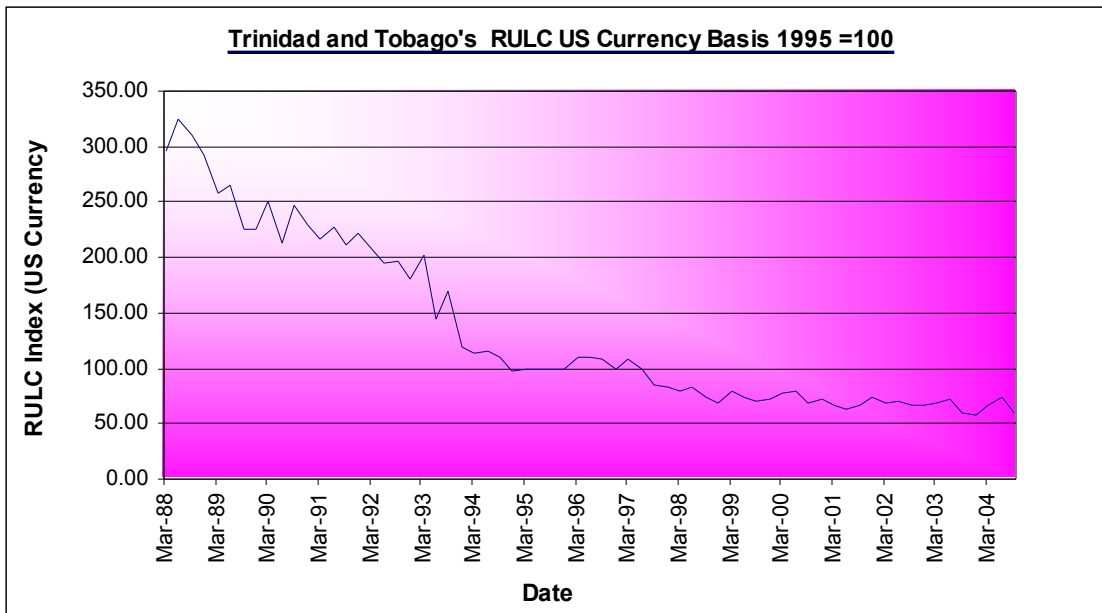


Chart 6A: T&T and US Bilateral REER

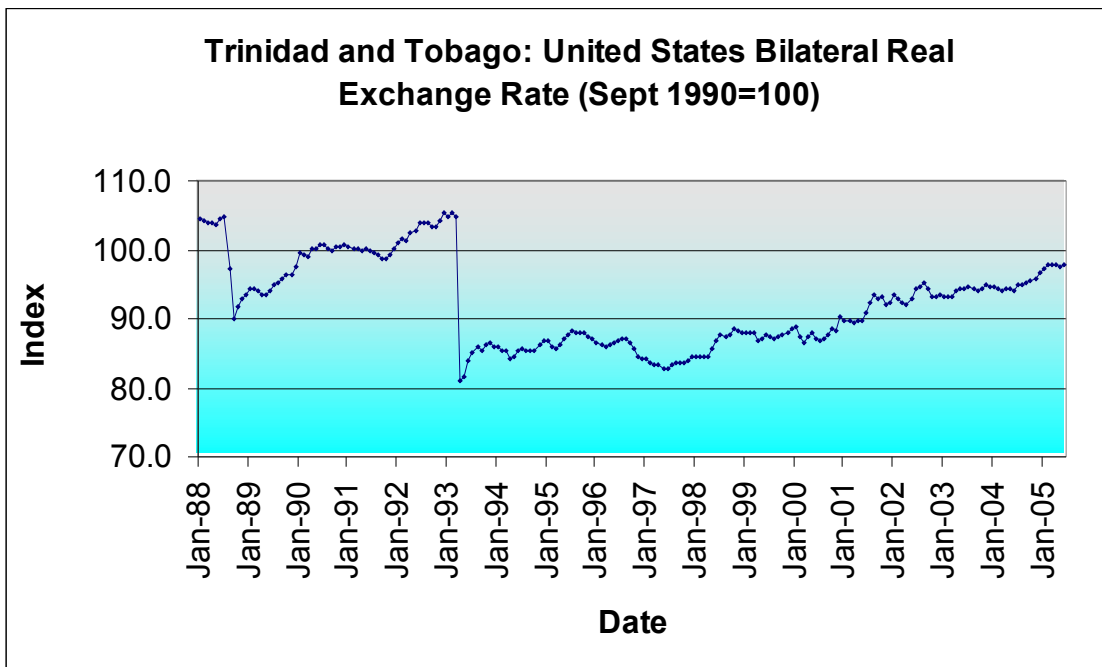


Chart 7A: T&T and St. Vincent & Grenadines Bilateral REER

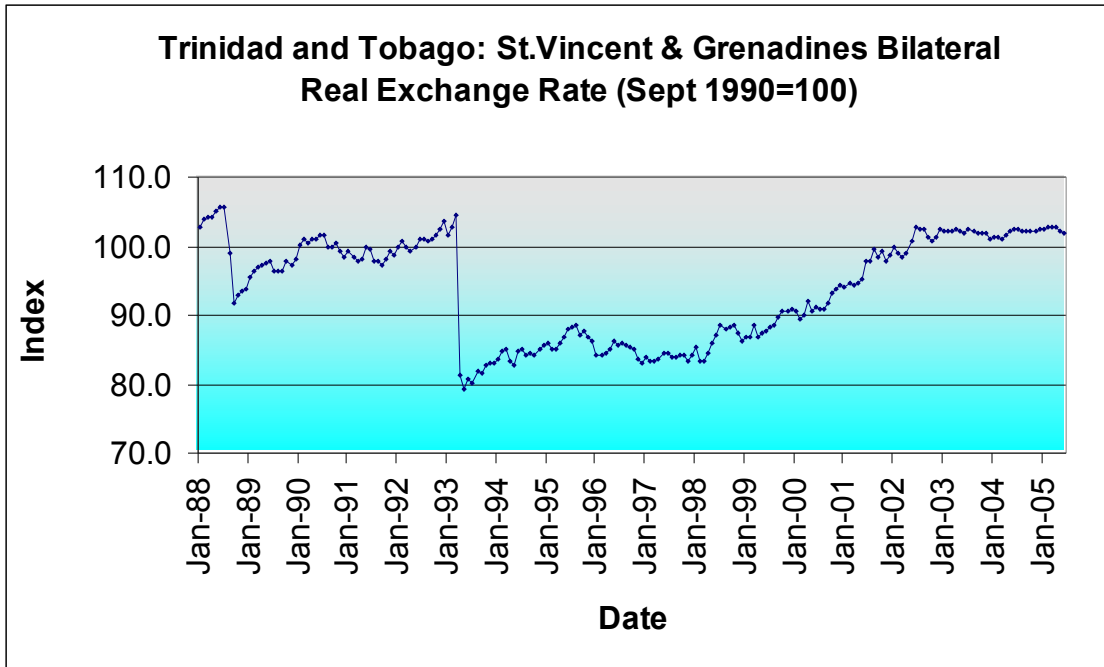


Chart 8A: T&T and Jamaica Bilateral REER

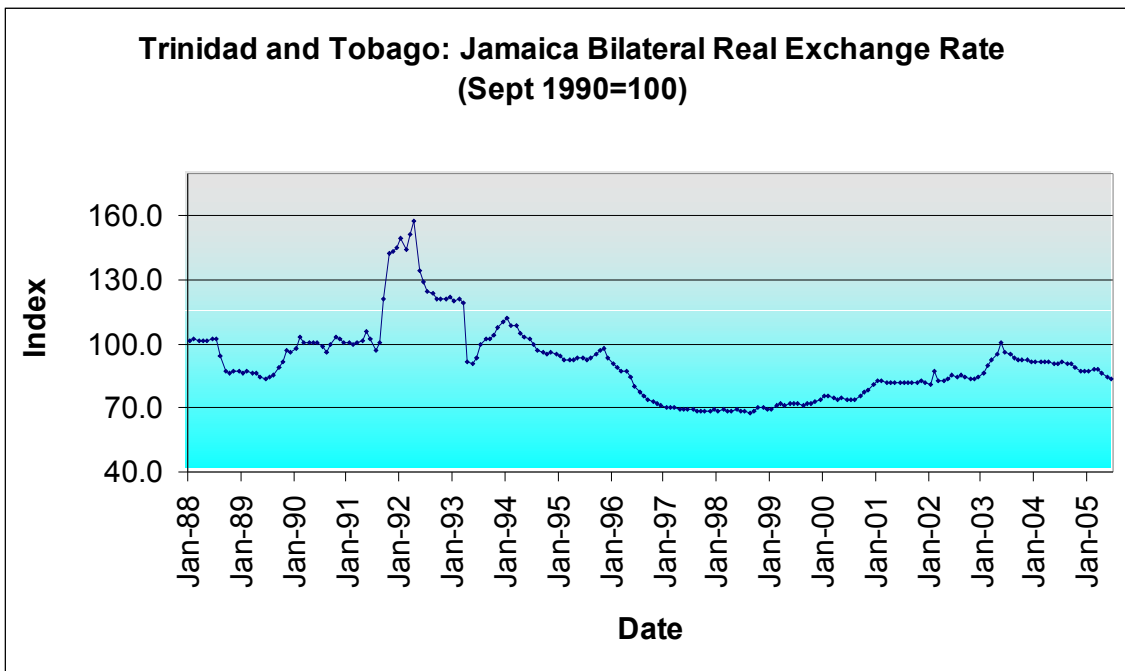


Chart 9A: T&T and Guyana Bilateral REER

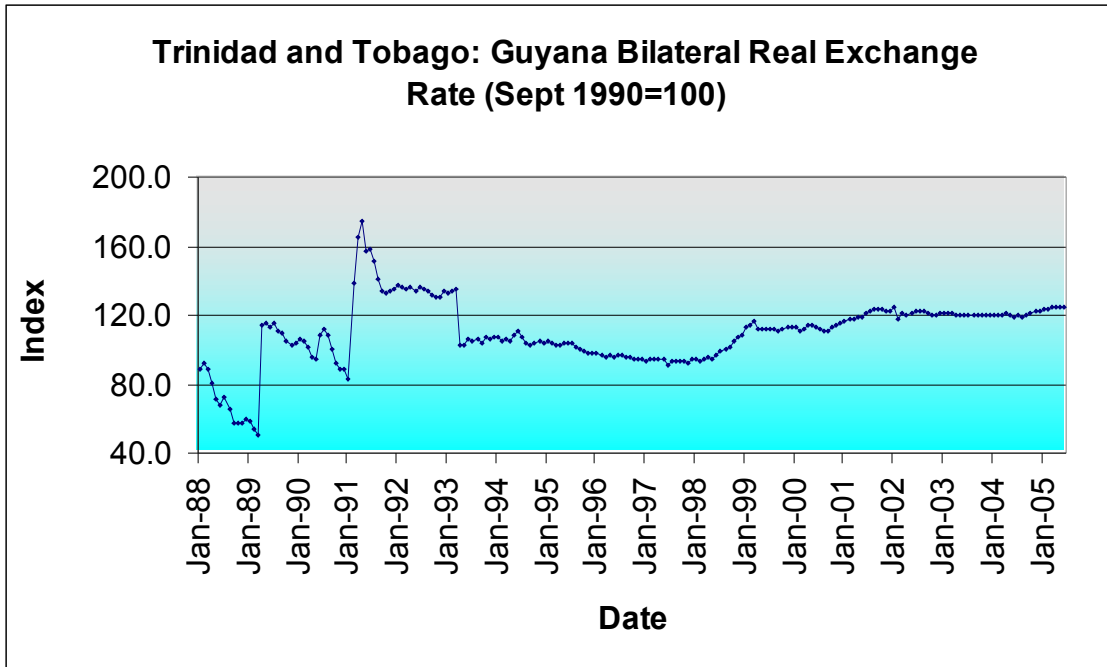


Chart 10A: T&T and Barbados Bilateral REER

