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Title: Caricom's Competitiveness Within The US Import Market For Speciality Crops: A Shift-Share Analysis

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CARICOM's COMPETITIVENESS WITHIN THE US IMPORT MARKET FOR SPECIALTY CROPS: A SHIFT-SHARE ANALYSIS

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Abstract

This paper is based on the premise that if CARICOM's agricultural sector in general, and more specifically the export sub-sector, is to thrive in the rapidly changing trade environment there has to be a continuous systematic assessment of market opportunities and competitiveness status. Such an assessment however, requires a clear understanding of the multifaceted concept of competitiveness and its major determinants. This paper seeks to contribute to the regional discussion of competitiveness, through the exploration of the theoretical and empirical dimensions of the concept within the context of CARICOM's export of specialty crops to the United States. The paper uses a methodology heavily based on the Module to Analyze the Growth of International Commerce (MAGIC) software program developed by the Economic Commission for Latin America and the Caribbean (ECLAC). This programming module uses a variation of the classical and modified shift share or constant market share (CMS) analyses. Findings suggest that CARICOM, over the period 1991-2004, has generally not been competitive in the US import market for fresh (non-processed) specialty crops. Only three crops (pepper, papaya, and coffee (not roasted) exhibited increased competitiveness. However, these crops held very low market shares and exhibited the highly transient nature of competitiveness. The challenge for the Region is how to effectively move these very low market shares to higher levels within the context of transient behavior and a fierce rivalry for the US import market.

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Key words: Competitiveness, Specialty Crops, CARICOM, Shift-Share Analysis, MAGIC

INTRODUCTION

For the small island economies of CARICOM, the agricultural sector has historically been an important component of overall economic activities. It is also true that the performance of the agricultural sector has been supported to a significant degree by the production of traditional export crops under protected market arrangements. The loss of preferential access to the European market with the termination of the Lomé convention, and the brokering of bilateral/plurilateral free trade agreements (FTAs) within the hemisphere, signify major changes in the agricultural trading environment. These changes indicate a transitioning from the existence of protected domestic and assured international agricultural markets, to participation in a competitive environment of liberalized trade.

This paper asserts that if CARICOM's agricultural sector, and more specifically the fresh produce export sub-sector, is to thrive in the changing trading environment, there has to be a continuous systematic evaluation of market opportunities and competitiveness status. Such an evaluation is seen as a prerequisite for the formulation of policies and programs geared towards improving the Region's competitive position. This approach however, requires a clear understanding of the multifaceted concept of competitiveness and the factors affecting it. The paper seeks to contribute to the regional discussion of the concept of competitiveness, through the exploration of the theoretical and empirical dimensions of the concept within the

context of CARICOM's export of specialty crops[1] to the United States.

The paper is divided into five sections. The first section provides an overview of agriculture in CARICOM economy and of the changes in its trading environment. This provides the context for the emergence of the issue of competitiveness in the Region. The second section attempts to define the concept of competitiveness and present its broad determinants, particularly as they relate to CARICOM. Section three outlines the empirical evaluative components of the modified shift share analysis and uses it to gauge the competitiveness status of CARICOM specialty crops within the US import market. It also discusses the database used in the evaluative exercise. Section four reports on the empirical results of this exercise and section five, the final section, gives the conclusions of the study and suggests some policy implications relating to issue of regional competitiveness.

BACKGROUND

The Importance of CARICOM's Agricultural Sector

CARICOM's agricultural export sub-sector, under historically protected markets, has played a vital role in the economy of member states. In stark contrast to developed economies where the contribution of agricultural sector to GDP ranges between 1 and 2 percent, the agricultural sector as a whole, contributes over 20% to the GDP for some CARICOM countries such as Belize, Guyana, and Haiti (See Table 1). The relatively low contribution of agriculture to GDP observed in the table can generally be attributed to the existence of a large tourism sub-sector which dominates the service sector. This observation is supported by the relatively large contribution of Services to GDP seen in countries such as Antigua & Barbuda, Barbados, St. Kitts and Nevis, and St. Lucia where the sectoral contribution is over seventy percent. In Trinidad and Tobago, the relatively low contribution of the agricultural sector to GDP (0.7%) can be attributed to the strong Industry and Service sectors fueled by the presence of petroleum and natural gas.

Generally, the contribution of agriculture to GDP tends to understate the importance of agriculture as it does not fully capture the dynamic economic linkages within the economy (IICA 2004). Of particular importance to CARICOM countries, the contribution to GDP does not convey the importance of agriculture with regards to employment generation and foreign exchange earnings. Within CARICOM, employment by the agricultural sector, expressed as a percentage of the total labor force, ranges from 9.5 percent in Trinidad and Tobago to 66 percent in Haiti (Table 2). This is comparatively higher than the 1 to 3 percent of the labor force employed by the agricultural sector in developed countries. Despite the differences in the data time periods, these statistics show that agriculture in general, plays a vital role in regional employment generation that may not be fully reflected in its contribution to GDP. This is exemplified by Haiti where, as shown in Table 1, the sector contributes 30% to GDP and provides employment for 66% of the country's labor force.

The small size (physically and economically) of CARICOM economies constrains their ability to produce a diverse range of products (Briguglio 1995) and as a result they typically tend to have high importation levels. Financing this high import level is dependent on the ability of exports to earn foreign exchange. The percentage of export earnings attributed to agriculture varies across the Region. This is evident from Table 3 where agricultural exports, as a percentage of total exports of goods, ranges from approximately 6 percent, in the case of Trinidad and Tobago, to approximately 40 percent in the case of Dominica. It was reported that, aside from the more diverse economies of Trinidad and Tobago, Barbados and Jamaica, agriculture has on the average provided over 50 percent of domestic export earnings (Blake 1998). In the short run the rapidly liberalizing trade environment facing CARICOM countries threatens the export earning gained from the traditionally protected agricultural sector.

The Changing Trade Environment

CARICOM faces a number of changes in the trading environment. These changes although

[1] Under the Technical Assistance for Specialty Crops Program by the United States Department of Agriculture (USDA), a specialty crop is defined as "all cultivated plants, or the products thereof, produced in the United States, except for wheat, feed grains, oilseeds, cotton, rice, peanuts, sugar, and tobacco. Specialty crops were chosen for this study because as non programmed crops they would be most susceptible to competition.

highly interrelated and interactive in nature can be categorized for convenience into two identifiable trade environments. The first relates to CARICOM's historically protected and preferential markets that were established in the pre-independence era. The second involves the rapid movement towards trade liberalization and regional integration within the western hemisphere. With respect to traditional protected and preferential markets, under the now defunct LOMÉ agreement, CARICOM, along with other Asian, Caribbean and Pacific (ACP) countries, enjoyed non-reciprocal trade benefits, including unlimited entry to the European Union (EU). According to the European Center for Development Policy Management (ECDPM) (2001) the formation of the World Trade Organization (WTO), with its "new" ideology of free trade, brought pressure on the non-reciprocal market benefits offered under the old Lomé convention to the ACP countries. Recognizing the inevitability of liberalized trade, the EU entered into negotiations with ACP countries to establish Economic Partnership Agreements (EPAs) which are designed to facilitate the transitioning of these nations from a paradigm of preferential access to liberalized trade. Many of the Lomé and post-Lomé provisions were challenged and deemed incompatible with new international rules agreed to through the WTO. The erosion of preferential access posed a challenge for exports to traditional European markets. Regional integration and bilateral and plurilateral trading agreements within the western hemisphere brought new challenges for exporting to regional markets.

In 1998, negotiations were formally launched to establish the Free Trade Area of the Americas (FTAA) by the latest December 2005 (FTAA Secretariat 2003). The specific goals included trade liberalization, elimination of investment restrictions, freer movement of specialized workers, tax and monetary policy harmonization, and the creation of a supra-regional institution with administrative oversight thus transcending traditional reciprocity between trading partners (Davis, et al. 2001). If successful, this would be the largest integration scheme linking disparate economies.

From the perusal of the Free Trade Area of the Americas (FTAA) third draft agreement on General and Institutional Issues (FTAA Secretariat 2003) it is clear that, despite the breadth of issues covered, liberalized trade was its driving force. Since 2003 very little progress has been made towards the establishment of the FTAA. Nonetheless, hemispheric trade liberalization has continued through bilateral and plurilateral negotiations between member/ groups of the proposed FTAA and the United States of America (US). The implication for CARICOM is that it will have to participate in a competitive environment of liberalized trade. This environment hosts both large and small countries (physically and economically) producing similar goods and competing in the same markets. Given the challenges ahead it is not surprising to see the heightened levels of concern relating to the survivability of small economies. It is within this rapidly changing environment that CARICOM is seeking to strategically reposition itself. It is seeking to do so by the formation of the regional entity, the CARICOM Single Market and Economy (CSME). Towards meeting these challenges of trade liberalization, the notion of "increasing competitiveness" is receiving attention as a necessary trade policy component within the regional integration framework. However, as Krugman (1991) pointed out, despite its apparent importance there is very little coherent discussion, not to mention understanding on the meaning of competitiveness. This is a gap that this paper seeks to fill.

COMPETITIVENESS

Towards an Understanding of Competitiveness

A common perception accompanying discussions of globalization is that of countries competing against each other in the global marketplace. Proponents of this view argue that a country's competitiveness in the world market will determine its economic well-being, as it relates to the attractiveness of its goods and services and its ability to attract investment (Fagaberg 1988, Garelli 2003). Outsourcing of services, the relocation of industries among countries, and changes in the balance of payments are all viewed as a function of a country's competitiveness. Opponents firmly hold that it is firms and not countries that compete (Krugman 1994, Porter 1990). The latter position asserts that under competitive forces, countries unlike businesses, do not fold and drop out of the international market.

Krugman (1994) did note however, that these forces could exclude or drive a country from an industry. The second notion which explicitly recognize that industries are aggregation of firms, places the platform of competitiveness assessment at the industry level. This paper subscribes to the firm/industry notion of competitiveness assessment and proposes it as an appropriate and dynamic way of evaluating CARICOM's position with respect to specialty crops within the US market.

The simplest definition of competitiveness is the ability to compete. This definition implies the existence of an environment of rivalry with winners and losers. It can be inferred that at any point in time the ability to compete is a condition that can be assessed based on the extent to which one is winning or losing. Within an economic context, this "environment of rivalry" describes the market where suppliers vie against each other to provide goods and services to consumers. The ability of an industry to capture or maintain market share between two discrete periods of time is a direct indication of its ability to compete within the market. A decline in market share would be an indication of a decline in its ability to keep up or compete with other suppliers and conversely an increase in market share is indicative of an increase in its ability to compete. Therefore increasing or decreasing market share is indicative of increasing or decreasing competitiveness.

Within the literature a succinct and common definition of competitiveness that can be applied at the industry level is "the ability of a firm or nation to profitably gain and maintain market shares" (Salvacruz 1996, p. 81). As indicated by Martin, et al. (1991), this definition provides the measurable concepts of both profit and market share in that they are observable phenomena within industry activities. This definition, unlike others (Clapp 1995), also omits growth of both profits and the sector as a necessary aspect of competitiveness. The focus is on the ability to garner market share and points to the fact that growth of the sector and growth in profits may not result in growth in market share. The definition used by Salvacruz however, inherently adds a time continuum by saying that the industry has to not only gain but maintain market share. Maintaining market share is dependent on the process of maintaining the ability to compete. This is in fact maintaining or sustaining competitiveness. Salvacruz's definition then explicitly defines "sustained competitiveness", not competitiveness per se. This notion is insightful to the understanding of the concept since it turns, not only on the condition but also on the nature of deviations around the condition. It also brings into play the issue of the ephemerality of the condition. This issue is undoubtedly associated with the dynamic nature of market forces to which suppliers must constantly adjust. In this regard, factors which influence competitiveness such as profitability would come into play.

Conventional wisdom states that firms which are not profitable will eventually fall out of the market. Thus, for a firm to remain viable in a market it must realize some level of profit. Profitability therefore is indicative of the ability to remain in a market. It must be noted that while profitability has implications for the sustainability of a firm/industry it does not measure the ability to compete. Market share therefore, measures competitiveness through market performance, while profitability gives an indication of its sustainability.

Factors Affecting Competitiveness

Efforts to change competitiveness status require a full understanding of the concept as well as full understanding of key determinants of the condition and their dynamics. Kennedy (2000) grouped the determinants of competitiveness into two broad categories. The first are those that influenced the firms' cost of production, and thereby affected the ability of firms/industries to compete based on price. These include technological change, particularly as it related to increased productivity, economies of scale, and changes in factor prices. The second category consists of factors such as product differentiation and promotion, which affected the quality or perceived quality of the product. Kennedy (2000) also recognizes the influence of government policy on the competitiveness of firms/industries.

Porter (1990) constructed the Diamond model (see Fig. 1), as a framework to analyze the competitiveness of a group of firms within a specific nation. With this model, he outlined four determinants and the interactions required to engender competitiveness of firms/ industries/ sectors of a nation. The four determinants are identified as follows:

1. Factor conditions – the quantity and quality of human, physical and capital resources along with the knowledge base and infrastructure that are needed to compete in a particular market

2. Demand conditions – the composition, size and pattern of home demand growth and its linkage with the foreign market as it influences the ability of the industry to anticipate and react to demand changes, including generating innovation

3. Firm strategy, structure and rivalry – conditions governing the formation, organization, and management and the nature of the rivalry within industries/sectors as it affects firms efficiency, ability to innovate and flexibility to adjust

4. Related and supporting industries – The presence of internationally competitive suppliers can be advantageous for domestic producers

Along with the above four main components, Porter (1990) also recognized the influence of government policy and chance, as factors affecting competitiveness. Porter's diamond model thus encompasses the two broad sources of competitiveness postulated by Kennedy (2000) and shows their interrelatedness. Another perspective on the determinants of competitiveness can be gained by superimposing the factors affecting competitiveness on a general product chain paradigm. This brings into sharp relief the notion that competitiveness, as a condition, is affected along every step of the product chain, from factors impacting production activities to factors impacting the target market.

Within the context of CARICOM countries, it should be recognized that that the size variable impacts the Region's ability to compete. The small size of the domestic markets cannot support large numbers of firms producing similar products (Briguglio, 1995). Within the context of the Porter (1990) model, it affects firm strategy, structure and rivalry. This could lead to the existence of market imperfections and the absence or weakness of institutions required for functioning in a competitive market environment. This could in turn affect the linkages with the external targeted market and the honing of the ability to anticipate and react to changes in such a market. Size also constrains the ability to exploit economies of scale and a consequence of this is higher per unit cost of production. This constraint also results in a dependence on a narrow range of products, since small size restricts the ability to diversify. Briguglio (1995) also points out that smallness in size places a constraint on the available human resources needed for public administration. This can be expanded to include the availability of specialists needed for the provision of supporting services in the flow of goods and services from the point of production to final consumption.

In determining competitiveness many studies have tended to focus on the nature of one or a few factors considered on an a priori basis to be key determinants of the condition. Depending on the orientation of the researcher, the focus tend to vary as illustrated by such approaches as Nominal Protective Coefficient (NPC), Effective Protective Coefficient (EPC), Domestic Resource Cost Coefficient (DRC), Total Factor Productivity, to name a few. By far the most commonly used evaluating variables are those that are cost based. Sharples (1990) points out that cost of production comparisons are not sufficient to establish competitiveness since they exclude, among other things, costs associated with marketing. Indeed as pointed out earlier, with the complexity of factors at work, the exclusion of other factors other than cost can lead to erroneous conclusions. This observation lends support to the notion that competitiveness can best be assessed by observing firm/industry performance in a specified market. It is our assertion that market share is a robust and measurable condition that explicitly and implicitly captures a large constellation of factors affecting competitiveness. As noted by Frohberg and Hartman (1997), this measure simultaneously takes into account demand and supply responses, as well as marketing and transportation costs. From our perspective there is a compelling case for the market share approach to ascertain competitiveness.

APPLICATION OF A SHIFT SHARE PROCEDURE TO ANALYSIS OF COMPETITIVENESS OF CARICOM'S SPECIALTY CROPS IN THE US IMPORT MARKET

The Shift Share Approach

Using market share as the measure of competitiveness, this study examined the status of CARICOM produced specialty crops within the US import market. The methodology was heavily based on the Module to Analyze the Growth of International Commerce (MAGIC) software program developed by the Economic Commission for Latin America and the Caribbean (ECLAC) (Piva and Perez, 2003). This programming module uses a variation of the classical and modified shift share or constant market share (CMS) analyses for which a comprehensive review can be found in Loveridge and Selting, (1998). In this approach, change in the import level of a commodity (ΔM) in a specified market, which in this case is the United States, was decomposed into a demand effect (DE), a share effect (SE), and an interaction effect (IE). Decomposed effects can be designated as below.

Given:

M^t = total value of US imports time t where t = o for the base year and 1 for the final year

M_i^t = total value of US imports of commodity i at time t

M_{ij}^t = total value of US imports, of commodity i from country j at time t

Then the CMS equation is expressed as:

$$M_{ij}^1 - M_{ij}^0 = \underbrace{\left(M_i^1 - M_i^0\right)\frac{M_{ij}^0}{M_i^0}}_{D} + \underbrace{\left(\frac{M_{ij}^1}{M_i^1} - \frac{M_{ij}^0}{M_i^0}\right)M_i^0}_{S} + \underbrace{\left(M_i^1 - M_i^0\right)\left(\frac{M_{ij}^1}{M_i^1} - \frac{M_{ij}^0}{M_i^0}\right)}_{I}$$

The DE was further decomposed into a global demand effect (GDE) and a structural effect of demand (SED). Where:

$$\text{GDE} = \left(M^1 - M^0\right)\frac{M_{ij}^0}{M_i^0} \bullet \frac{M_i^0}{M^0} = M_{ij}^0\left(\frac{M^1}{M^0} - 1\right)$$

$$\text{SED} = \left(\frac{M_i^1}{M^1} - \frac{M_i^0}{M^0}\right) \bullet \frac{M_{ij}^0}{M_i^0} M^1 = M_{ij}^0 \bullet \left(\frac{M_i^1}{M_i^0} - \frac{M^1}{M^0}\right)$$

Using the SED, the overall product dynamics within the US market, and the SE, the effect of changing market share, the commodities/commodity groups were classified as:

- Rising Star (RS) - commodities for which the share effect (SE) and the structural effect of demand (SED) was positive.
- Declining Star (DS) - commodities for which the SE was positive while the SED was negative.
- Missed Opportunity (MO) - commodities for which the SE was negative while the SED was positive.
- Retreat (RT) - commodities for which both the SE and the SED were negative.

With this type of analytical procedure, there were cases where categories were indefinable due to missing data. In such instances, the classification was listed as "not defined". Of the four classifications, the stars (rising and declining) were the ones of interest as they both displayed increasing market share, which, in this framework, is indicative of increased competitiveness.

Database and Manipulation

The analysis was carried out for the period 1991 to 2004 using trade data obtained from the United Nations (UN) Commodity Trade (COMTRADE) database (UNSD 2005). The commodities were categorized according to the harmonized standard (HS) code chapters which were Ornamentals, Vegetables, Fruits and Nuts, and Coffee, Tea, Mate and Spices. The analysis to determine the competitiveness classification for individual commodities/commodity groups within the four categories was carried out at the six digit level of the HS code. Data collected and used for the shift-share analysis outlined in the preceding section were (1) the total value of imports by the US (M^t_i), (2) the total value of imports for each commodities/commodity group imported by the US from CARICOM (M^t_{ij}), and (3) the total US imports, by value (M^t). Value was mainly used because a unit volume of total US imports, an aggregate of all commodities imported by the US, was not available. All Values reported are in $US.

EMPIRICAL FINDINGS

Table 4 shows a summary classification matrix for the number of commodity groups imported by the US from CARICOM under the categories (1) Ornamentals, (2) Vegetables, (3) Fruit and Nuts, and (4) Coffee, Tea, Mate and Spices, and their competitiveness classification. Out of the thirteen commodity groups in the Ornamentals category there were only two stars (declining stars). Of the sixty-four commodities groups in vegetables, there were also two stars, one rising star and one declining. Among the category Fruits and Nuts, there was only one rising star out of the forty-nine commodities in this group. Within the category Coffee, Tea, Mate, and Spices, there were thirty-three groups, of which there were two rising stars and three declining stars. Out of one hundred and fifty nine commodity groups only ten were classified as stars (four rising and six declining). What this clearly shows is that over the period 1991 to 2004 very few of the Region's selected commodity groups displayed increased competitiveness, as measured by positive market shares, within the US import market.

Table 5 shows the actual commodity groups which displayed increased competitiveness over the 1991 – 2004 period. For ornamentals the two "star" groups were "Cut flowers and flower buds for bouquets, dried" (HS 060390) and "Foliage, branches, for bouquets - except fresh (HS 060499)". Within vegetables, "Fruits of the Genus Capsicum (Peppers) or of The Genus Pimenta" (HS 070960) was classified as a rising star. On the other hand "Salad Beets (Salad Beetroot), Salsify, Celeriac, Radishes and Edible Roots, Nesoi, Fresh or Chilled" was identified as a declining star. For fruits and nuts, Papaws (papayas) (HS 080720) was the sole commodity showing increased competitiveness. Within the category Coffee, Tea, Mate and Spices, the two rising stars were Tea, green (unfermented)" (HS 090210) and "Curry" (HS 091050). The three declining stars were "Coffee (not roasted)" (HS 090111), "Coffee, roasted, decaffeinated" (HS 090122), and Nutmeg (HS 090810).

Of the commodities displayed in Table 5, only three were identified as specialty crops (unprocessed) (see Table 6). They were Peppers, Papaya and Coffee. Table 6 presents the competitiveness classification of these crops along with other related characteristics. It shows that the US imported these crops from only a few CARICOM countries. For Peppers, the majority of imports by the US from CARICOM in 2004 came from Trinidad and Tobago, Jamaica, St. Lucia, Belize, Dominica, and Guyana with Trinidad as the main supplier. For Papaya, the only CARICOM suppliers were Belize and Jamaica. For coffee, Jamaica and Haiti were the only suppliers.

Based on the application of the modified shift share analysis to the UN data, very few identifiable unprocessed specialty crops produced within CARICOM displayed increased competitiveness between 1991 and 2004. As designated by "star" characteristics (rising or declining stars) these were Peppers, Papaya, and Coffee (not roasted). Also there were very few CARICOM countries from which the US imported these crops.

Examination of these commodities based on annual changes in competitiveness status (see Table 7), as opposed to the classification based on change over the entire 1991 – 2004 study period, shows the dynamic nature of competitiveness status as alluded to in the literature review. Though Peppers, Papaya, and Coffee were classified as stars (rising or declining) Table 7 clearly shows that these commodities, though deemed generally competitive, moved through all classifications from the competitive "stars" to the less competitive "retreats" and "missed opportunities". An interesting result was that for the latter three years (two for papaya) the commodities were classified as missed opportunities or retreats. Though they showed an overall increase in competitiveness between 1991 and 1994 there was a decline over the last three years for coffee and Peppers and the last two years for papaya. The transient or ephemeral nature of competitiveness is captured in the market share movements depicted in Figures 2, 3, and 4. It should be noted that this propensity for transiency was associated with low market shares at the beginning, midpoint, and the end points of the 1991-2004 period for all three crops. Specifically, the CARICOM market share for peppers rose from 0.13% in 1991 to 0.23% in 2004. The change for papayas was from 15.9% to 16.8% and that of coffee (unroasted), from 0.07% to 0.14%. What this translates into as a challenge for the region, is how to effectively move these very low market shares to higher levels within the context of

transincy behavior and a fierce rivalry for the US import market.

CONCLUSIONS AND IMPLICATIONS

This paper asserts that if CARICOM's agricultural sector, and more specifically the fresh produce export sub-sector, is to thrive in the changing trading environment, there has to be a continuous systematic evaluation of market opportunities and competitiveness status. Such an evaluation is seen as a prerequisite for the formulation of policies and programs geared towards improving the Region's competitive position. This approach however, requires a clear understanding of the multifaceted concept of competitiveness and the factors affecting it.

Within the literature there is a lack of clarity in the definition of competitiveness and a discontinuity between its definition and measurement. Simply defined, competitiveness is the ability to compete. This ability is a condition that is best captured through some performance criterion. In determining competitiveness, many studies have tended to focus on in the nature of one or a few factors considered on an a priori basis to be key determinants of the condition. By far the most commonly used are cost based factors. With the complexity of factors at work, the exclusion of other factors can lead to erroneous conclusions. Market share is proposed as a robust and measurable performance criterion that simultaneously takes into account demand and supply responses reflecting the influence of price factors, and non-price factors affecting competitiveness and along with the impact of the action of rivals within the market.

The results from a modified shift-share analysis revealed that with respect to the US import market for fresh specialty crops, there were few fresh commodities that showed increased competitiveness over the study period and only a small number of CARICOM nations supplied those crops to the US market. The specific crops were, (1) peppers, (2) papaya, and (3) coffee (unroasted). The results also revealed the transient nature of competitiveness. The limited number of competitive commodities identified in our analysis was not surprising given the overall constraints faced by the small economies of CARICOM. These constraints also pose a major challenge in addressing the goal of increasing competitiveness. Given the myriad of factors affecting competitiveness and the limited resources (human, physical, and technological) available to the Region it is crucial that resources dedicated to increase competitiveness be targeted to high pay off activities. One way to ensure this is to ensure that such efforts are primarily market driven. This may give some credence to the policy direction of "value-added".

Caution has to be exercised in the use of empirical studies that measure competitiveness as a condition by focusing on factors that are in reality determinants of the condition. The danger lies in creating a misinformed and inward looking approach to the goal of increasing competitiveness. This could result in a misallocation of resources to areas that, though important, may not prove at that point in time to have a significant impact on competitiveness. For example, studies that base competitiveness solely on price and productivity may form the basis for the design of policy and strategies addressing production issues, such as cost minimization and or increasing efficiency. While these factors are important to competitiveness and should not be ignored, an understanding of the concept and its determinants would make it clear that it is the effect on increasing the ability of the final product to compete in the export market that is of paramount importance. Such performance will be stymied if there are insufficiencies or bottlenecks in the marketing channel or if there are other factors within the final market which hinder entry of the commodity. Similarly, studies that exclude market conditions and the actions of rivals can also misinform policy and strategy.

What this paper has proposed is a simple methodology which can be used for the continuous monitoring of competitiveness status of commodities. More effort has to be focused on empirical work linking factors affecting competitiveness with the actual measurement of competitiveness. The utility of such studies is in their contribution to the understanding of the dynamics of CARICOM competitiveness within specific industries and markets, and in their ability to better inform policy and strategy geared towards improving competitiveness.

REFERENCES

Blake, B. (1998). "Contribution of Agriculture to Caribbean Economic Development". Agriculture in The Caribbean: Issues

and Challenges (UWI Ag. 50), Republic of Trinidad and Tobago, The UWI Faculty of Agriculture and Natural Sciences - CEPAT.

Briguglio, L. (1995). "Small Island Developing States and Their Economic Vulnerability." World Development **23**(9): 1615-1632.

Central Intelligence Agency (CIA) (2006). The World Factbook 2005, www.odci.gov/cia/publications/factbook.**2006**.

Clapp, R. A. (1995). "Creating Competitive Advantage: Forest Policy as Industrial Policy in Chile." Economic Geography **71**(3): 273-296.

Davis, C., Ballayram, E. Evans.and C. Thomas, (2001). "Trade Liberalization and Small Economies in the Americas: The Case of the Caribbean Community". Agricultural Globalization, Trade, and the Environment. C. Moss, G. Rausser, A. Schmitz, T. Taylor and D. Zilberman. Norwell, MA, Kluwer Academic Publishers.

European Center for Development Policy Management (ECDPM) (2001). Cotonou Infokit: History and Evolution os ACP-EU Coopeation (3), Maastrich: ECDPM.

Fagerberg, J. (1988). "International Competitiveness." The Economic Journal **98**(391): 355-374.

Frohberg, K. and M. Hartman (1997). "Comparing Measures of Competitiveness." Discussion Paper No. 2: Institute of Agricultural Development in Central and Eastern Europe.

FTAA Secretariat (2003). Free trade Area of the Americas - Third Draft Agreement, www.ftaa-alca.org. **2004**.

Garelli, S. (2003). "Competitiveness of Nations: The Fundamentals". World Competitiveness Yearbook 2003. Lausanne, IMD.

Inter-American Institute for Cooperation on Agriculture (IICA) (2004). More Than Food on the Table: Agriculture's True Contribution to the Economy. Costa Rica, IICA

Kennedy, P. L. (2000). "Agricultural Competitiveness Issues and Concepts". Competition in Agriculture: The United States in the World Market. D. Colyer, P. L. Kennedy, W. A. Amponsah, S. M. Fletcher and C. M. Jolly. New York, Food Products Press.

Krugman, P. (1991). "Myths and Realities of US Competitiveness." Science, New Series **254**(5033): 811-815.

Krugman, P. (1994). "Competitiveness: A Dangerous Obsession." Foreign Affairs **73**(2): 28-44.

Loveridge, S. and A. C. Selting (1998). "A Review and Comparison of Shift-Share Identities." International Regional Science Review **21**(1): 37-58.

Martin, L., R. Westgren, E. Van Duren. (1991). "Agribusiness Competitiveness Across National Borders." American Journal of Agricultural Economics **73**(5): 1456-1464.

Piva, J. M. M. and Perez, E. (2003). The Quality of International Insertion and Competitiveness in the Greater Caribbean Applying ECLAC Instruments in Assessing Competitiveness. Seminar-Workshop: The Greater Caribbean in International Trade Negotiations.

Porter, M. E. (1990). The Competitive Advantage of Nations. New York, The free Press.

Salvacruz, J. C. (1996). "Competitiveness of the United States and the ASEAN in the International Agricultural Market." Journal of Food and Distributional Research: 81 -89.

Sharples, J. A. (1990). "Cost of Production and Productivity in Analyzing Trade and Competitiveness." American Journal of Agricultural Economics 72(5): 1278-1282.

United Nations Statistic Division (UNSD), "United Nations Comtrade Database, DESA/UNSD", retrieved 2005, from http://unstats.un.org/unsd/comtrade/default.aspx

United Nations Conference on Trade and Development (UNCTAD) (2003). Handbook of Statistics Online http://stats.unctad.org

Table 1: Economic Composition by Sector for CARICOM Countries, Selected Periods (% GDP)

	Agriculture	Industry	Services
Antigua and Barbuda (2002)	3.9	19.2	76.8

Barbados (2000)	6.0	16.0	78.0
Belize (2004)	22.5	23.0	54.5
Dominica (2002)	18.0	24.0	58.0
Grenada (2000)	7.7	23.9	68.4
Guyana (2005 est.)	36.8	20.2	43.0
Haiti (2001)	30.0	20.0	50.0
Jamaica (2005 est.)	4.9	33.8	61.3
St Kitts & Nevis (2001)	3.5	25.8	70.7
St. Lucia (2002)	7.0	20.0	73.0
St. Vincent & The Grenadines (2001)	10.0	26.0	64.0
Suriname (2001 est.)	13.0	22.0	65.0
Trinidad & Tobago (2005 est.)	0.7	57.0	42.3

Source CIA World Factbook 2006

Table 2: Employment by Sector for CARICOM Countries, Selected Periods (% Labor Force)

	Agriculture	Industry	Services
Antigua and Barbuda (1983)	7.0	11.0	82.0
Barbados (1996)	10.0	15.0	75.0
Belize (2001)	27.0	18.0	55.0
Dominica (2002)	40.0	32.0	28.0
Grenada (1999)	24.0	14.0	62.0
Guyana	Na	na	Na
Haiti (2001)	66.0	9.0	25.0
Jamaica (2003)	20.1	16.6	63.4
St Kitts & Nevis	Na	Na	Na
St. Lucia (2002)	21.7	24.7	53.6
St. Vincent & The Grenadines (1980)	26.0	17.0	57.0
Suriname	Na	Na	Na
Trinidad & Tobago (1997)	9.5	14.0	64.1

Na = data not available
Source CIA World Factbook 2006

Table 3: Export of Goods (US$'000) for Selected CARICOM Countries (2000)

COUNTRY	Total Export of Goods	All Food Items Exports	Agricultural Raw Materials Exports	Total Agricultural Exports	% of Total Exports of Goods
Barbados	190,154	70,666	300	70,966	37.3
Dominica	50,937	20,074	40	20,114	39.5
Jamaica	1,267,840	287,084	2,092	289,176	22.8
Suriname	481,121	63,552	3,460	67,012	13.9
Trinidad & Tobago	4,273,455	241,633	3,351	244,984	5.7

Source: UNCTAD 2003

Table 4: Summary Matrix Showing Number of Commodity Groups Imported by the US from CARICOM (1991 -2004) by Category and by Competitiveness Classification

	Categories based on HS code chapters	

Classification	Ornamentals	Vegetables	Fruit and Nuts	Coffee, Tea, Mate & Spices	Total
Rising Star (RS)	0	1	1	2	4
Declining Star (DS)	2	1	0	3	6
Retreat (RT)	2	4	4	5	15
Missed Opportunity (MO)	3	7	13	4	27
Not Defined	6	51	31	19	107
Total Commodity groups	13	64	49	33	159

Table 5: Commodities/Commodity Groups Imported by the US from CARICOM (1991 -2004) That Displayed Increased Competitiveness

Category	HS Code	Commodity/Commodity group	Classification
Ornamentals	060390	Cut flowers and flower buds for bouquets, dried, etc.	DS
Ornamentals	060499	Foliage,branches, for bouquets, etc. - except fresh	DS
Vegetables	070690	Salad beets (salad beetroot), salsify, celeriac, radishes and edible roots, nesoi, fresh or chilled()	DS
Vegetables	070960	Fruits of the genus capsicum (peppers) or of the genus pimenta (e.g., allspice), fresh or chilled()	RS
Fruits	080720	Papaws (papayas), fresh	RS
Coff., Spices	090111	Coffee, not roasted, not decaffeinated	DS
Coff., Spices	090122	Coffee, roasted, decaffeinated	DS
Coff., Spices	090210	Tea, green (unfermented)	RS
Coff., Spices	090810	Nutmeg	DS
Coff., Spices	091050	Curry	RS

Table 6: Number of Identified Specialty Crops Imported by the US From CARICOM over the 1991-2004 Period by Category and Competitiveness Classification

Classification	Categories Based on HS Code Chapters											
	Vegetables				Fruits and Nuts				Coffee, Tea, Mates & Spices			
	No. of Commodity	Name	Origin	Share[a]	No. of Commodity	Name	Origin	Share	No. of Commodity	Name	Origin	Share
RS	1	Peppers	Trinidad and Tobago	78.3%	1	Papaya	Jamaica	10.6	0	--	--	--
			Jamaica	9.8%			Belize	89.4				
			St. Lucia	4.7%								
			Belize	3.2%								
			Dominica	3.0%								
			Guyana	1.1%								
DS	0	--	--	--	0	--	--	--	1	Coffee (non-Roasted)	Jamaica	92.80%
											Haiti	7.20%
Total Commodity Groups	1				1				1			

a – Share represents the value share of US imports of that commodity from CARICOM at 2004. The shares at the 2004 end point would not necessarily represent the shares at intervals over the 1991-2004 period Due to rounding errors shares may not sum to 100%

Table 7: Annual Classification for Selected Commodities

Peppers				Papayas			Coffee, not roasted, not decaffeinated		
Year	SE	SED	Class	SE	SED	Class	SE	SED	Class
1991									
1992	+	-	DS	+	+	RS	-	-	RT
1993	-	+	MO	+	+	RS	+	-	DS
1994	-	-	RT	-	+	MO	-	+	MO
1995	+	+	RS	-	+	MO	+	+	RS
1996	+	-	DS	-	+	MO	-	-	RT
1997	+	+	RS	+	-	DS	+	+	RS
1998	-	+	MO	+	-	DS	-	-	RT
1999	+	-	DS	-	+	MO	+	-	DS
2000	+	+	RS	+	-	DS	+	-	DS
2001	+	+	RS	-	+	MO	+	-	DS
2002	-	-	RT	+	+	RS	-	-	RT
2003	-	+	MO	-	-	RT	-	+	MO

2004	-	+	MO	-	+	MO	-	-	RT

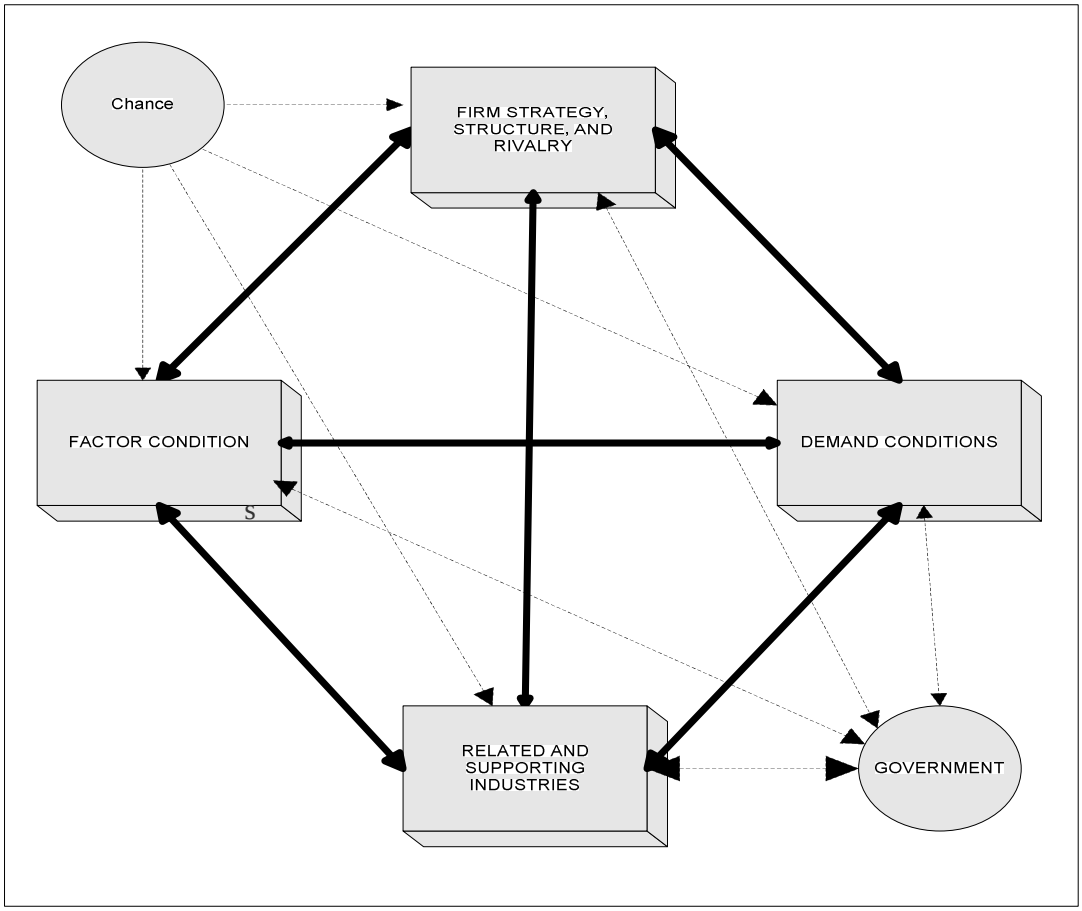

Figure 1: Porter's Diamond Model Factors Affecting Competitiveness (Porter 1990)

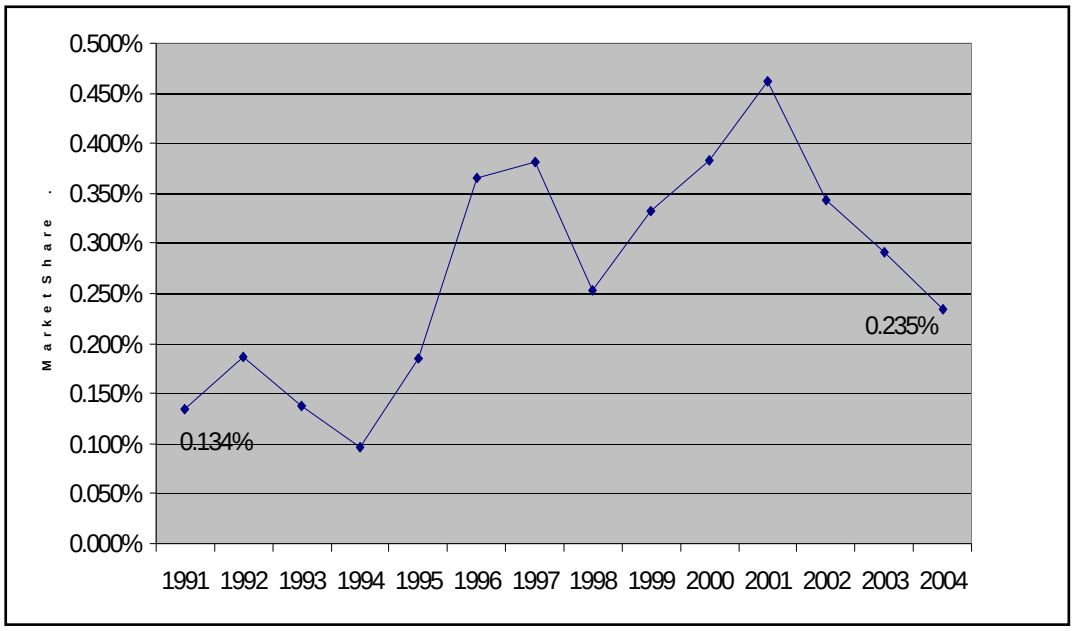

Figure 2: CARICOM Market Share Fluctuations for Pepper in the US Import Market 1991-2004

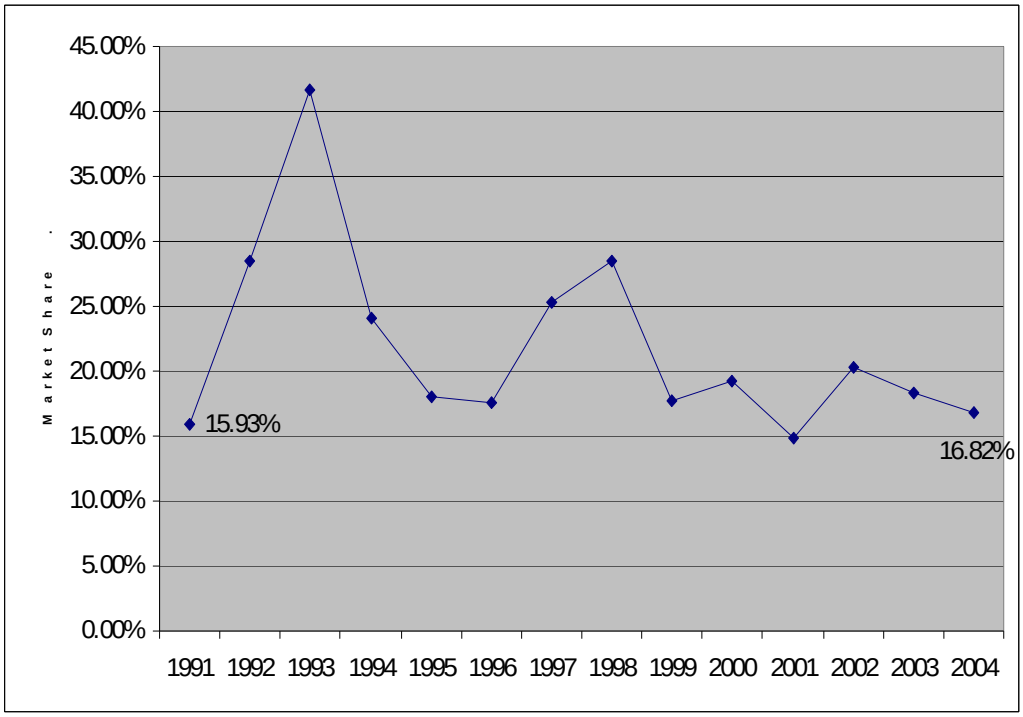

Figure 3: CARICOM Market Share Fluctuations for Papaya in the US Import Market 1991-2004

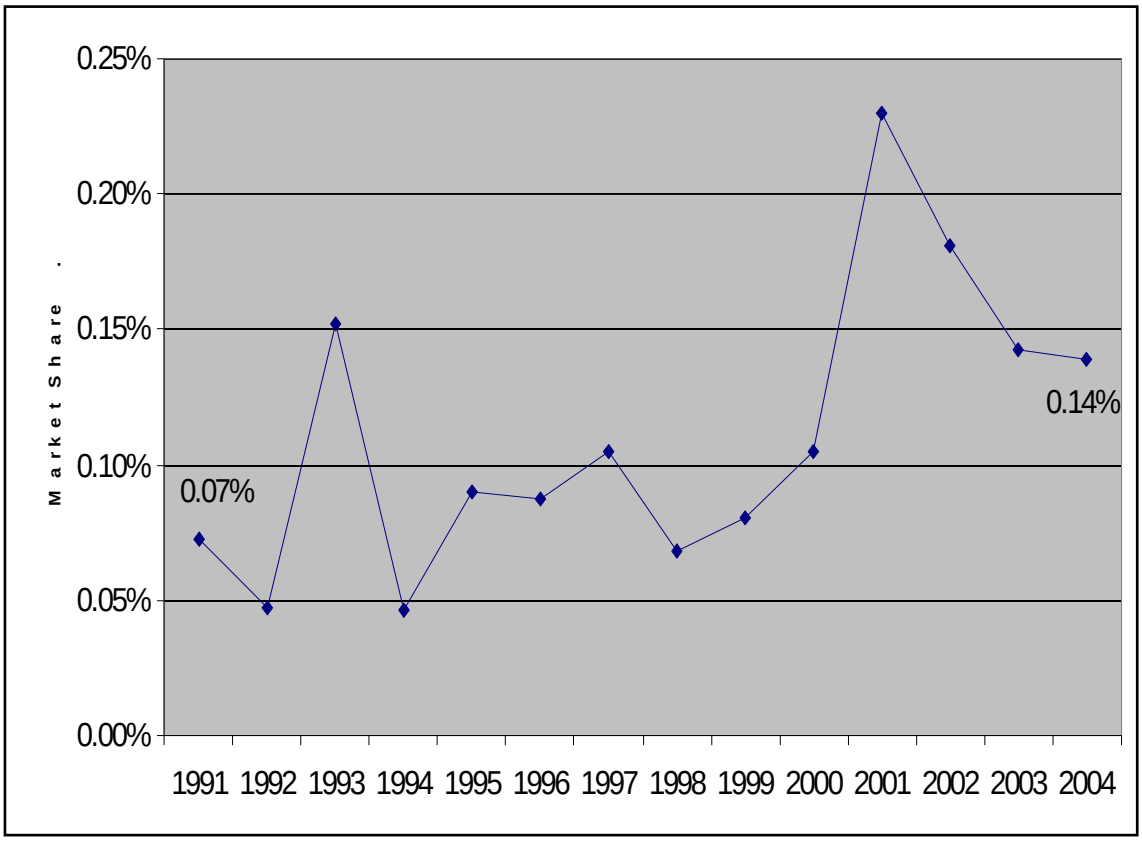

Figure 4 CARICOM Market Share Fluctuations for Coffee in the US Import Market 1991-20