

# Determinants of Trade Patterns and Comparative Advantage of Tanzania Trade 1981-2009

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## Abstract

This study analyses the determinants of Tanzania's trade and comparative advantage. The results show that most of the commodities with comparative advantage (CA), expressed in terms of symmetric Revealed Comparative Advantage (SRCA), are the agricultural products. In addition, the empirical trade analysis (ETA) reveals that the commodities with CA are primary intensive, resource intensive, and unskilled labor intensive commodities. The gravity model demonstrates that, the economic size of the partners' country (GDP<sub>j</sub>), and per capita income together with the Tanzania's per capita income, regional integration dummy, and exchange rates determines Tanzania's trade flows in all levels, when total trade, export, export of agricultural products and export of manufactured products volume of trade are considered. However, Tanzania's economic size as well as the cost of trading growth, expressed as distance, impedes the trade flows.

**Keywords:** Gravity model, Comparative Advantage; factor intensity; export oriented economy; Regional Trade Agreements; production's specialization and competitiveness

## 1. Introduction

Economic decline of Tanzania in the 1970s and a financial crisis in the early 1980s led to the adoption of an economic recovery program in 1986. The economic slowdown was due to international trade contraction which eroded revenue and significantly changed its structure share of import duties in total budgetary revenue which felled from 22% in 1969/70 to 11% in 1979/80 (Kannan, 2000). The main objective of the recovery program was to dismantle socialist economic control and encourage more participation of the private sector in the economy. Comprehensively, the program included a package of policies which reduced the budget deficit and improved monetary control, substantially depreciated the overvalued exchange rate, liberalized the trade regime, removed most of price controls, eased restriction on the marketing of food crops, freed interest rates and initiated a restricting of the financial sector.

The programme aimed at utilizing the benefits of trade liberation. Reduction of trade barriers creates competitive pressures and the potential for technology transfer, which in turn increase productivity gains and restructuring of an economy toward its Comparative Advantage (CA). The importance of trade in open economy facilitates manufacturing activities which enjoy scale economies; access to external markets also promotes their full exploitation. Outward orientation also permits use of external capital for development without problem of servicing external debt. Inability to expand the export base and maintain a fast rate of export growth can become an impediment to overall economic growth.

In ensuring trade liberalization, the 1986 programme was later followed by different strategies. The most noted ones are like privatization policy which reformed the economy from state owned to private sector oriented economy through it many of the Parastatal formally owned by the Government were privatized. The Vision 2025 embedded in the National Strategy for Growth and Reduction of poverty (NSGRP) matched the demand of the country to realize the millennium development goals; reducing poverty, hunger, diseases, illiteracy, environmental degradation, and effective participation of civil society, private sector development and fruitful local and internal external partnerships in development. In additional the country has adopted the Big Results Now strategy focusing on energy, transport, revenue collection, agriculture, water and Education as the key areas for inclusive economic growth. Despite all the strategies, the country still faces non inclusive economic growth, food insecurity, poverty, unemployment and poor living standard.

Industrialization is the real demand for development progress and it is referred to be one of the most important for agricultural and natural resources dependent economy to progress into manufacturing type of economy. Picking queue from Southeast Asia, countries using industrialization as the main development strategy have been pushing exports of manufactures to increase the contribution of manufactured items to Gross Domestic Product (GDP) though countries using the export route to industrialization are likely to encounter a less accommodating international environment with more exacting markets and formidable rules of game relative to those in place.

For Southeast Asia example, success in exporting was instrumental in sorting out performers from non-performers, thereby opening channels for selectively extending credit and foreign exchange (Stiglitz, 1996). Therefore, this study will benefit the policymakers in understanding what factors are vital in determining trade in Tanzania. The composition of commodities expressed by Balassa index and ETA analysis services as the key to production and competitive policies.

## 2.0 Literature Review

Regional or cross-country differences in a hypothetical pre-trade environment or region known as autarky can be reflected by comparative advantage (CA). Autarky is the condition where equilibrium prices are unaffected by influences external to an economy (Houk, 1986). True CA in autarky cannot directly be observed because in reality all countries engage in some level of international trade. The notion of Revealed Comparative Advantage introduced by Balassa (1965) is the way to approximate CA in autarky.

According to Balassa, the concept of revealed comparative advantage (RCA) pertains to the relative trade performances of individual countries' particular commodities. The assumption behind that is "the commodity's pattern of trade reflects inter-country differences in relative costs as well as in non-price factors". Barring production or export subsidies, the stronger a nation's relative trade performance in a certain commodity, the greater the CA in the production of that commodity (Balassa, 1977).

Several studies have been undertaken using the concept of RCA. A majority of these studies use data on export shares. Balassa (1977) has undertaken an analysis of the pattern of CA of industrial countries for the period 1953 to 1971. The evidence Balassa provided supports the available evidence on trade in research intensive products, indicating the continuous renewal of the product cycle, with the US maintaining its ever increasing technological lead. Based on the standard deviation of the RCA indices for different countries an association is also seen to hold between size and diversification of exports. Balassa's results show that while, the extent of export diversification tends to increase with the degree of technological development a reversal takes place at higher levels.

Yeats (1997) studies the possible distortions in trade patterns on account of discriminatory trade barriers that are characteristic of the RTAs (Regional Trade Agreements), using the index of RCA in conjunction with the changes in the regional orientation of exports to identify any apparent inefficiency in trade patterns for the Mercusor countries. Richardson and Zhang (1999) have used the Balassa index of RCA for the U.S to analyze the patterns of variation across time, sectors and regions. The study found that patterns differ across different parts of the world over time along with different levels of aggregation of the export data. Differentials are accounted for by factors such as geographical proximity of trading partners and per capita income.

Yue (2001) uses the RCA index to demonstrate the fact that China has changed its export pattern to coincide with its CA, and that there are distinct differences in export patterns between the coastal regions and the interiors in China. Bender and Li (2002) examine the structural performance and shift of exports and RCA of the East Asian and Latin American regions over the period 1981-1997. The study examines whether or not there is a relation between changes in export patterns among different regions and shifts in comparative advantage between regions. Fert and Hubbard (2002) assess the competitiveness of Hungarian agriculture vis-à-vis EU agriculture using four indices of RCA

In addition, the trade literature has emphasized that factor endowment differences can lead not only to cross-industry specialization but also within-product specialization. For example, using import data from the United States, Rodrik (2006) and Schott (2006) have shown that China's export may be relatively more and less sophisticated compared to exports of other countries with similar factor endowments, depending on the metric used to compare export sophistication. Branstetter and Lardy (2006) argue that the evidence of relatively high sophistication of Chinese exports, like in Rodrik (2006), does not take into account that China imports high-value-added parts and components, suggesting that after controlling for the structure of intermediate inputs, China's export structure reflects low cost of labor-intensive assembly.

The factor endowment differences also suggest that developed and developing countries may compete on terms other than price. Theoretically, such competition may help insulate workers in developed economies from relatively low wages earned by workers in developing economies (Schott, 2006). Because each firm can sell its goods in both home and foreign markets, consumers will select one good from the home firm or foreign firms, depending on their tastes for quality (Niem and Kim, 2009).

The role of demand on international trade of goods can be found in different literatures; Linder (1961), Flam and Helpman (1987), and Niem and Kim (2009) emphasize that, trade of products that can be ranked according to differences in quality in the same industry are called vertical intra-industry trade (Greenaway et al., Fontagne' et al., 1996)' and differences in countries exports within the very narrow product classifications also reflect a more subtle phenomenon- vertical differentiation: Japan and China might both produce and export high definition watches, but the Japanese watch might employ more sophisticated technology, be of much higher quality than one exported by China. These vertical differences should manifest in prices, where by Japanese product will fetch a much higher price in the market than the product of China due to consumers' willingness to pay for them. The

existence of these price differences which are influenced by quality as well as their increase over time in the world market is substantial for competition.

The trend of pattern of trade of a country can be seen from CA. Factor endowment differences can lead not only to cross-industry specialization but also within-product specialization but despite all the theories emphasizing trade, nonetheless, one cannot rule out the fact that, “Outwardly oriented countries tend to grow faster than others”. Statistical evidence reveals a strong positive association between export development especially for manufactures and accelerated growth in incomes which lead to further attractions to an outward orientation stance. As the market grows, there are domestic spill-over effects particularly associated with exports of manufacturing. Moreover, increased trade diversification emanating from manufacturing exports has a stabilizing effect on the economy since earnings from manufactured exports also offer better support for stable growth relative to primary exports (Helleiner, 1995). Access to foreign markets also allows countries to gain from economies of scale for domestic markets become larger through the inclusion of an international component. Also the focus and support on producers increase the out flow and production in a country. The self-selection and export-led growth arguments led to the conclusion that non-exporters are less efficient than exporters. For instance, many initial manufacturing export activities, in the fast growing countries of East Asia and Latin America, have depended extensively on female labor, not only increasing employment but also creating financial and trade opportunities for female. This has important distribution and welfare effects (Roberts and Tybout 1997; Graner and Isaksson 1998). Models of CA, however, focus on the mapping from factor proportions to trade patterns rather than the impact of efficiency on production. If the predictions of the CA model are more appropriate, then enterprises that produce commodities using the country’s abundant factors more intensively should have greater inclination to export relative to enterprises showing more intensive use of the scarce factors.

### 2.1 Data Source

Trade data is obtained from the UNCOMTRADE for export and import classified at the SITC three digit levels. The GDPs are obtained from the World Development Indicators. Consideration is done to total export of Tanzania to and import from different countries in the world from the year 1981 to 2009. If specialization matters for trade, it is more relevant for products in which the country is abundant in a certain factor of production (labor, land, capital or technology). Thus, analysis focuses on both primary sector and manufacturing sectors so as to identify the trends of Tanzania’s trade and changes in CA and competitiveness in the World market. Throughout this study, we refer to a product as a three and one-digit level category. For each product we have data of product code (SITC Rev.2), country code (PC), import value (IM), export (EX) and Revealed Comparative Advantages (RCA). We also have GDP and per capita GDP purchasing power parity (PPP), the distance of a partner country from Tanzania (DIST), and the dummy variable to show the Free or Regional Trade Agreements (FTAs).

### 3. Trends and Patterns of Trade in Tanzania

Tanzania’s export and import value has been increasing throughout the selected period of this study. Export value rose from 0.5 (US billion dollar) in 1981 to 3.1 (US billion dollar) in 2009, representing an annual average growth rate of 6 percent but the value of import rose from 1.25 (US billion dollars) in 1981 to 6.3 (US billion dollars) in 2009, representing an annual average growth rate of 5.9 percent. This analysis explains that since the two sides of Tanzania’s trade have almost the same growth rate, then, import still dominates in Tanzania’s trade, representing a deficit in trade oriented economy (Note 1: Insert figure 1).

Tanzania’s export share to the total world export has decreased over time (figure 2). The export share’s annual average growth rate is -0.63 percent, representing a fall of export share from 3 percent to 2.5 percent. When grouped in ten years’ time, the trend of export and import from 1999 to 2009, however, shows a different face. For instance, when compared in terms of grouped years, 1981- 1998 and 1999 to 2009, the export share of 1981-1998 year periods, has an annual average growth rate of 0.09 percent, compared to 17.14 percent of the 1999-2009 year period. Import has an annual average growth rate of 1 percent, compared to 13.6 percent respectively, and Tanzania’s import share to the world total export had an annual average growth rate of -5.5 percent in 1981-1998 year period, while having 9 percent in 1999-2009 period group (figure 4). This implies that in the first phase (1981-1998) Tanzania import was less as compared to the second phase (1999-2009), though the share shows no progress than recovery (Note 2: *Insert figure 2*)

Considering the agricultural and manufacturing sectors, the study employed a share analysis to the aggregated industrial data of export and import.<sup>1</sup> The results shows that the export and import share profiles at the sector level reveal that Tanzania export is concentrated on primary/agricultural products, while the import part is more concentrated on manufactured items (figure 3). The export share of primary products to Tanzania’s total export (EPRI) has an annual average growth rate of -1.7 percent, representing a fall in its share between the years 1981-

<sup>1</sup> SITC1- digit level classifies STIC 0-4 as primary products and SITC 5-6 as manufactured items ; For industries classifications, see also Appendix 1

2009. The import share of primary products (IPRI) has an annual growth rate of 1.12 percent (Note 3: *Insert figure 3*)

#### 4.0 Revealed Comparative Advantage and Factor Intensive Analysis

Before going for the econometrical analysis, the study carries two analyses, comparative advantage, and factor analysis for competitiveness analysis of Tanzania in trading its products. One of the indications of whether a country has the ability to compete in international markets is through the export share of products from that country relative to share of the same product traded globally. There are various measures that use the share to compare country's performance. In this paper we use the Balassa's revealed comparative advantage (RCA) to assess the commodities that Tanzania has comparative advantage with the rest of the World. This index is very popular as it shows products or sectors where a country has comparative advantage. In the case of SADC countries, this should show some potential of individual countries<sup>1</sup>. The factor intensive analysis signifies much what kind of commodities does have the comparative advantage.

##### 4.1 Revealed Comparative advantage

Using Balassa's (1965) , measure of relative export performance by country and industry/commodity, which is defined as a country's share of world exports of a commodity divided by its share of total world exports. The index for country i and commodity j is calculated as follows;

$$RCA_{ij} = \frac{\frac{X_{ij}}{X_{wj}}}{\frac{X_i}{X_w}} \dots\dots\dots(1)$$

Where;  $X_{ij}$  is the ith country's export of commodity j,  $X_{wj}$  is the world export of commodity j,  $X_i$  is the total export of country i and  $X_w$  is the total world exports

The interpretation of the index of revealed comparative advantage ( $RCA_{ij}$ ) has a relatively simple interpretation. If it takes a value greater than unity, the country has a RCA in that product (i.e. the country is said to be specialized in that commodity or sector) and vice versa where ( $RCA_{ij}$ ) is below 1. Using this index implies the consideration of intrinsic advantages of a particular export commodity and is consistent with changes in the economy's relative factor endowment and productivity. The disadvantage, however, is that it cannot distinguish improvement in factor endowments and pursuit of appropriate trade policies by country j. Since  $RCA_{ij}$  turns out to produce an output which cannot be compared on both sides, index ranges from zero to one, if a country is said not to be specialized in a given sector, while the value of the index ranges from one to infinity if a country is said to be specialized in given commodity or sector, then it is vital to consider the symmetric measure of the index which can be obtained as  $(RCA_{ij}-1)/(RCA_{ij}+1)$ ; this has a range measure from -1 to +1. The measure is labeled 'symmetric revealed comparative advantage' (SRCA).

Undertaking the RCA analysis at commodity level using SITC 3-digit level and accumulating the commodities with RCA by finding their export share to the world's total exports, the export share of Tanzania's trade for the commodities with comparative advantage and Disadvantage groups shows the following trend; CA group has export share annual average growth rate of -4.35 percent, representing a fall in Tanzania's export share per world share per commodities in the world market. Despite the increase in the number of commodities in this group, with an annual growth rate of 3.2 percent, still its competitiveness is low. The CDA group has an export share annual average growth rate of 1.2 percent signifying that there is an increase of the produced commodities which are CDA (figure 4). The number of commodities with comparative disadvantage shows an annual growth rate of 1.6 percent but it share is too low in the world's export ratio (Note 4: *Insert figure 4*).

Analyzing in the context of Tanzania export, CA group contributes much to Tanzania total export. Additionally, the SRCA values of this group are higher and the number of commodities in this group is not as much as that one found in the CDA group. For instance, CA group had 22 varieties of commodities (NCA) in 1981 but its export share to total Tanzania's export was 96 percent (SCA) and its average SRCA (CA) value was 0.75, while CDA group has 109 varieties (NCDA) of commodities with only 3.7 percent of the total export share (SCDA) and a SRCA (SCDA) value of -0.87 (figure 4 (a,b,c) ). Therefore, comparative advantage analysis shows that specialization (few varieties of commodities) attributes to the mass export (higher value of export) of a certain type of commodity which in turn increases the countries market share in the world market (Balassa, 1965) (Note 5: *Insert figure 5*)

Using SRCA values of each commodity at SITC 3-digit level we find that, trade specialization was too low in 1981 where a large number of commodities revealed comparative disadvantage and few of them shows CA

<sup>1</sup> More than 30 years ago Bela Balassa published a paper (Balassa, 1965), using for the first time, the measure of 'revealed comparative advantage' (RCA). Since then the measure has been applied in numerous reports (e.g. UNIDO, 1986; World Bank, 1994) and academic publications (e.g. Aquino, 1981; Crafts and Thomas, 1986; van Hultst et al., 1991; Lim, 1997), as a measure of international trade specialization

(figure 6 (a)). In 2009, the SRCA values of commodities and the number of these commodities changed. There was an increase of commodities in the trade environment. Figure 6 (b) shows a large area of commodities with CA in 2009 than in 1981. Some of the commodities gained comparative advantage in 2009 and some remained in the CDA group. The number of commodities with CDA is higher, reveals that much of the trade in Tanzania comprises of commodities which are CDA (Figure 6 (c)). By ranking the value of SRCA without commodities match as in figure 6 (c), figures 6 (d) shows that in 2009, the graph increases gently as compared to the sharp increase in 1981. There are more commodities in 2009 than in 1981, but both of the graphs show that Tanzania's exports are characterized by commodities with CDA. In addition to that, most of the commodities with comparative advantage are primary products ranging from SITC 001 to 400 at three digits level. This trend also shows that in 1981 Tanzania was producing more manufactured products than does in 2009 (Note 6: *Insert figure 6*)

#### 4.2 Factor Intensity Analysis

The notion of CA is largely derived from the propositions on opportunity cost and labor specialization. Smith (1976) and Mill (1826) first advanced the concept of absolute advantage, claiming that a nation will export an item when it's the lowest cost producer of that item. Ricardo (1918) refined the idea of CA by recognizing that a nation tends to allocate its resources to their most productive use. A nation will therefore import a good even when it is the lowest cost producer of that good. More recently, Eli Heckscher and Bertil Ohlin revolutionized trade theory by emphasizing international differences in resource (or factor) endowments.

In this study the factor intensive of Tanzania's export goods will be analyzed to see which types of goods are exported. The theory in hand is the (H-O) model, where it is expected that Tanzania will export more primary or agricultural goods and resource intensive products. Empirical trade analysis (ETA) was used for the analysis. the commodities are organized into six groups namely, Primary products (PRI), Natural-Resource intensive products (RES), Unskilled- labor (LIT) intensive products, Technology intensive products (TIT), Human- capital intensive products (HUC) and others (OTH).

Accumulating the exports shares and SRCA's weighted average of each factor group into five years interval (YR1=1981-1985, 1986-1990, ... 2006-2009), Table 1 shows that primary intensive products have the highest export share and SRCA weighted average (WSRCA), followed by resource and labor intensive products. Technology and human-capital intensive products have negative WSRCA values representing comparative disadvantage. The last category OTH has negative WSRCA in the years 1981- 1995 but positive from 1996 to 2009. Therefore the factor analysis reveals that Tanzania's export is characterized by primary intensive products, resource and labor intensive. Our finds is similar to other studies which support the H-O model, that is to say a land- abundant country will export land intensive goods and a capital-abundant country will export capital intensive goods. The purview of the H-O model has been subsequently extended through the work of Wassily Leontief, Paul Samuelson, Jaroslav Vanek, and Others (Memedovic, 1994) (Note 7: *Insert table 1*)

#### 5.0 Determinants of Trade of Tanzania with the rest of the World

Most of the trade theories concern a qualitative question of identifying the trade patterns namely, which countries trade what goods? However, important concerns of how much of those goods are trades give a quantitative need, which is important in trade. Understanding the determining factors of bilateral trade volume of a country is a practical empirical task, as it opens up an additional horizon for the country's trade policies. The gravity model as it deals with the bilateral flows, clearly rule out how country's volume of trade can be done. As it copies the equation of gravity theory in Newtonian physics, the model explains that bilateral trade volume (physical gravitation force) increases with the product of economic size (physical masses) and decreases with geographical distance (physical distance). The gravity model has remained one of the greater successes in empirical economics. A number of gravity analyses are used to evaluate various trade policy issues such as the effect of protections (wall 1999) and openness (Harrigan 1996), the analysis of regionalization trends (Saxonhouse 1993), the merits of proposed regional trade agreements (Frankel 1997) and effect on non- member countries (Wakasugi and van Wincoop 2003).

Therefore, the model to be estimated is as follows;

$$T_{ij} = \alpha + \beta_1 LGDP_j + \beta_2 LPCI_j + \beta_3 LDIST_j + \beta_4 LGDP_i + \beta_5 LPCI_i + \beta_6 LRER + \beta_7 FTAs + \mu_j$$

$T_{ij}$  = Tanzania's Trade value (import plus export) from and to country j.

GDP<sub>j</sub> = GDP\_PPP importer country j,

GDP<sub>i</sub> = GDP\_PPP of exporter (Tanzania)

PC<sub>ij</sub> = Per Capita income\_PPP of importer country j,

PCII = Per Capita income\_PPP of exporter (Tanzania)

DIST= Distance of country j from Tanzania

RER= Real exchange rate

RTAs= Regional Trade Agreements and adjacent countries.

The GDP serves as a proxy for the two countries' economic size, both in terms of production capacity and the size of the market. Bergstrand (1989), combining economic geography and factor proportion theory, derived the gravity equation at the industry level which predict that the exports of a good in bilateral trade depend on income and per capita income as well, assuming a constant elasticity of transformation of supplies among different markets. Thus, it is recommended to include the per capita GDP variable to avoid the specification problem in the empirical application of the gravity model. The distance variable is a trade resistance factor that represents trade barriers such as transport costs, time, cultural unfamiliarity and market access barriers. The distance used in this study is the great circles distance between the capital city of Tanzania and its trading partner. The dummy variable FTAs is included so as to analyze the impact of Regional or Free trade agreements in trade. These include countries in EA and COMESA where Tanzania is a member. The dummy variable varies from 1 for countries in the same regional or free trade agreement and 0 for countries out of the regional corporation blocs.

We checked multi-collinearity in the model by conducting the simple correlation test that reveals the coefficients between the explanatory variables. It is demonstrated that the values of the correlation coefficients between explanatory variables are lower than 0.80. Following Studenmund (2001) who argues that below such a threshold the model is fine, we concluded that there is no serious problem. The paper estimates the models using panel data for the period of 1981-2009 with 20 numbers of cross sections and 108 time series length. The tables report the inclusive of the individual effects of variables. We apply the random effect because it is appropriate when estimating typical trade flows between randomly drawn samples of trading partners from a larger population. On the other hand, the fixed effect model would be a better choice than random effect when one is interested in estimating typical trade flows between an ex ant predetermined selection of nations (Egger, 2000; Eita, 2007). The only problem faced with FEM is that we cannot directly estimate variables that do not change over time because the inherent transformation wipes out such variables (Note 8: *Insert table 2*)

The results from table above explain that importer's economic size is very important for Tanzania's exports. The coefficients of this variable have a significant positive sign when Tanzania's total trade, total export, total export of agricultural, and manufactured products are regressed in with the importer's GDP. The results reveals that increasing the importer's GDP by 10 percent will lead to 9.8 percent increase in total trade, 11.7 per cent in total export, 11.5 percent in total export of agricultural products and 12.15 per cent in total manufactured products. However, Tanzania's economic size has a significant negative impact on Tanzania's trade, such that a 10 percent increase would lead to 32.3 percent cut on total trade, 48.12 per cent cut on total export, 34.67 percent cut on total agricultural export, and 89.89 percent cut on export of manufactured goods.

The per capita income of the importers shows no significant negative impact on Tanzania's trade for all the four categories whilst Tanzania's per capita income significantly impact trade positively. The study demonstrates that an increase in the exporter's income have significant (>4 percent) relationship with Tanzania's exports. The possible explanation is that higher income leads to higher capacity in investing and production to the extent that changes in income are the main determinants of changes in poverty. The study reveals that a 10 percent increases in Tanzania's per capital income leads to at more than 50 percent on total trade, 77 percent on total export, 50 percent on agricultural export and 144 percent on export of manufactured goods.

The distance has a negative coefficient which is consistent with a prior expectation. The distance to Tanzania's export partner negatively impact the amount exported. This variable is significant when total trade and export of agricultural products are considered. The coefficient for this to dependent variables reveals that a 10 percent increase in distance leads to 10.6 percent decrease on total trade, and 15. 6 percent decrease in exports of agricultural products. In the literature, distance is one of the factors that express multilateral resistance terms.

The study further analyses the impact of exchange rate in trade. The results from the regression reports when movement in exchange rate is considered estimates the coefficients for exchange rate to be positive for Tanzania. The result signifies that, price competition is important. Export quantity and value for Tanzania has being favored by her lower exchange rate. However, the impact is not so big because when exchange rate changes by 10 percent leads on to 1.23 percent increase in total trade, 1.7 percent increase in total export, 1.5 percent

increase in agricultural export, and 2.8 percent increase in export of manufactured products. Price competition also adds the trade barriers to trade.

Regional blocs expressed as FTAs dummy variable has positive coefficient implies a positive and significant impact on Tanzania's trade. The results explain that a ten percent increase in harmonizing trade barriers through regional or trade agreement, EAC and COMESA at this level, leads to 10.92 percent increase in total trade, 19.83 percent increase in total exports, 7.7 percent increase in total export of agricultural products, and 20.98 percent increase in total export of manufactured goods. The possible explanations for this effect can be associated with the intention of establishing these blocs. For instance the EAC aims at the following; mainly it objects to attain economic, social and political integration in East Africa. The Customs Union (CU) protocol highlights the commitment of Partner States to support export promotion schemes in the community to accelerate development, promote and facilitate export oriented investments, produce export competitive goods, promote export schemes and attract foreign direct investment. The removal of tariffs on intra-regional trade also referred to as Internal Tariffs (IT) and the efforts to reduce Non-Tariff Barriers (NTBs) and improvement in trade facilitation are among the on-going initiatives to boost intra-EAC trade. Ideally, formation of a CU should increase intra-trade within the EAC implying that Tanzania's trade with the EAC partner states should increase both proportionally and in value terms

## 6.0 Conclusions and Policy Recommendations

This paper analyzes the patterns of Tanzania's trade by using highly detailed data of imports and export between the years 1981 and 2009. In this study the mass export (Higher Export Value) of a certain type of commodity is attributed to specialization (few varieties of commodities) the comparative advantage analysis shows, this in turn increases the countries' export share in the world market. Using ETA factor analysis, it reveals that Tanzania's export is characterized by primary intensive products, resource and labor intensive products. This finding is similar to other studies which support the H-O model, that land-abundant country will export land intensive products and a capital-abundant country will export capital intensive goods. The pattern of trade in goods depends on inter-country differences in endowments of immobile factors.

Tanzania's trade is characterized by a trade deficit and a lack of diversification in export and import markets (see appendix 2 and 3). There are few countries to which Tanzania exports and few countries from which Tanzania imports. The increase of commodities in the trade environment shows no increase in competition because the number of commodities with comparative disadvantage is higher than those with comparative advantage, revealing that much of the trade in Tanzania comprises of commodities which are at comparative disadvantage. Commodities categorized as primary products have the higher contribution in Tanzania's export share in the world followed by resource-intensive products category. The emerging of higher export share from group OTH signifies that there is an increase in the products produced which may be categorized as products which fail to capture international classification. The gravity model results support regional integration agreements, hence for the government to curb trade deficit, product market and competitions it should support regional integration for export's sustainability.

The gravity model also expressed the importance of partners' economic size, and per capita income such that Tanzania should target market in response to the economic size of a partner. Furthermore, much should be done to improve quality of her products to be able to capture the advantage of the per capita of trading partners. Investing on how a country can improve its per capita income much should be emphasized for investment to lead to more trade particularly export, research and development and strong internal economy according to these findings it is possible for the country to export manufactured goods if and only if the per capita income is enriched. The impact of growing economic size (GDP) should be done simultaneously with the industrialization strategy because the more the GDP grows the less exported goods will be. This will cause losses on the advantage of international trade like foreign currency, specialization, and low prices.

Therefore, Tanzania should target regional destinations for the country's exports; given the composition of the commodities exported the country should attract and channel investment in natural resources for inclusive economic growth, and production of high technology products. This will lead to more exports which is beneficial to the country. It has to be noted that increased trade diversification emanating from manufacturing exports has a stabilizing effect on the economy since earnings from manufactured exports also offer better support for stable growth relative to primary exports (Helleiner, 1995). Access to foreign markets also allows countries to gain from economies of scale since domestic markets become larger through the inclusion of an international component. Also the focus and support on producers increase the out flow and production in a country.

Deliberate government involvement and attraction of strategic foreign direct investment, actualizing education,

skills, technology development strategies in the National Development Strategy to increase the stock of skills while working hard to improve infrastructure such as roads railways to reduce transport costs and improve on trade facilitation to boost trade are the key to development. In fact, Tanzania has the higher percentage or likelihood of improving the economy through agricultural sector given the arable land, growing population, demand for food in the World, and growth in both urbanization centers and the demand of agriculture product to the rest of the world. The sector engages many people in rural areas which also have a higher possibility of linkage effects to other sectors of the economy. And to be bold revamping the railway system for the whole country could serve a lot on sustainable trade and economic growth.

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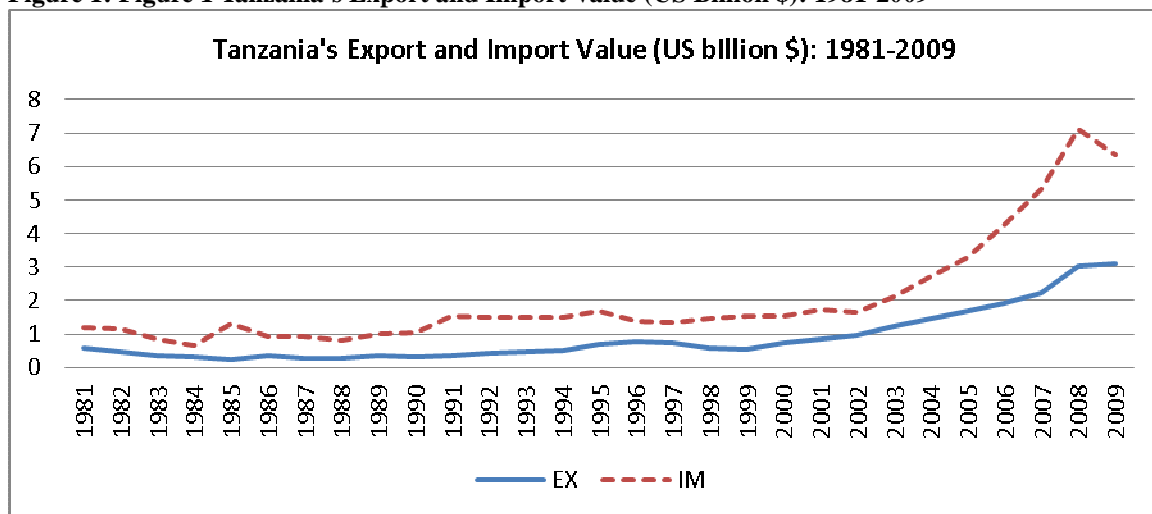
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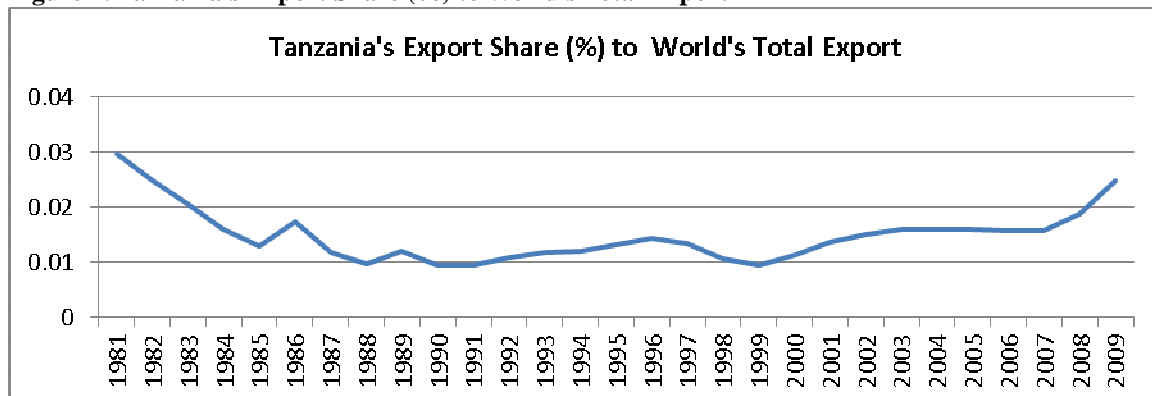
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**Notes**

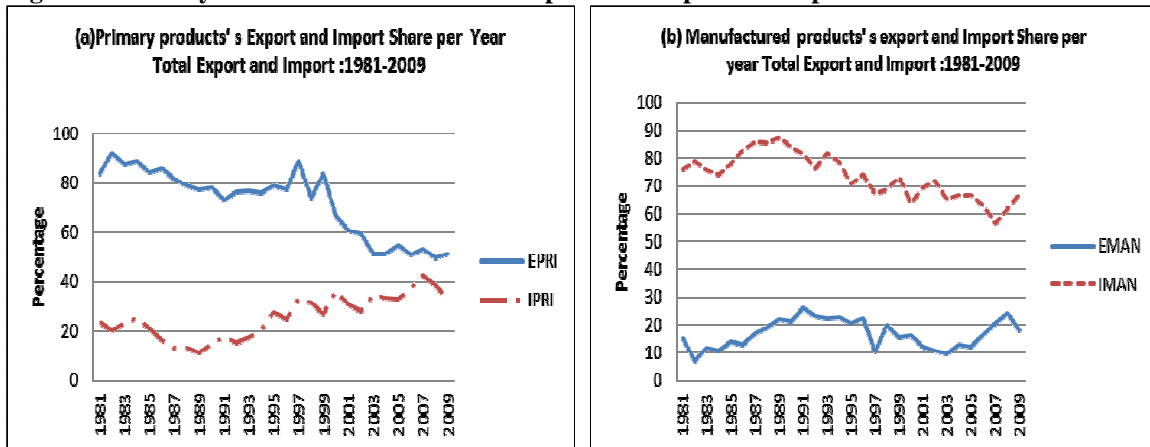
**Figure 1: Figure 1 Tanzania’s Export and Import Value (US Billion \$): 1981-2009**



**Figure 2: Tanzania’s Export Share (%) to World’s Total Export**



**Figure 3: Primary and Manufactured items' Export and Import Share per Year**



**Figure 4: Tanzania's Export Share to World's Total Export in CA, CDA and AVG groups**

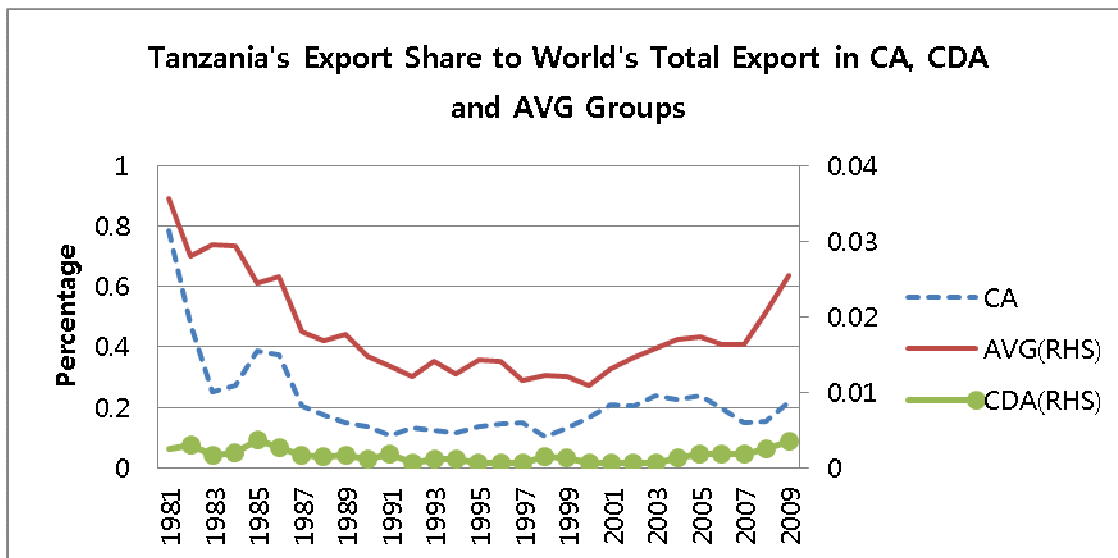


Figure 5:

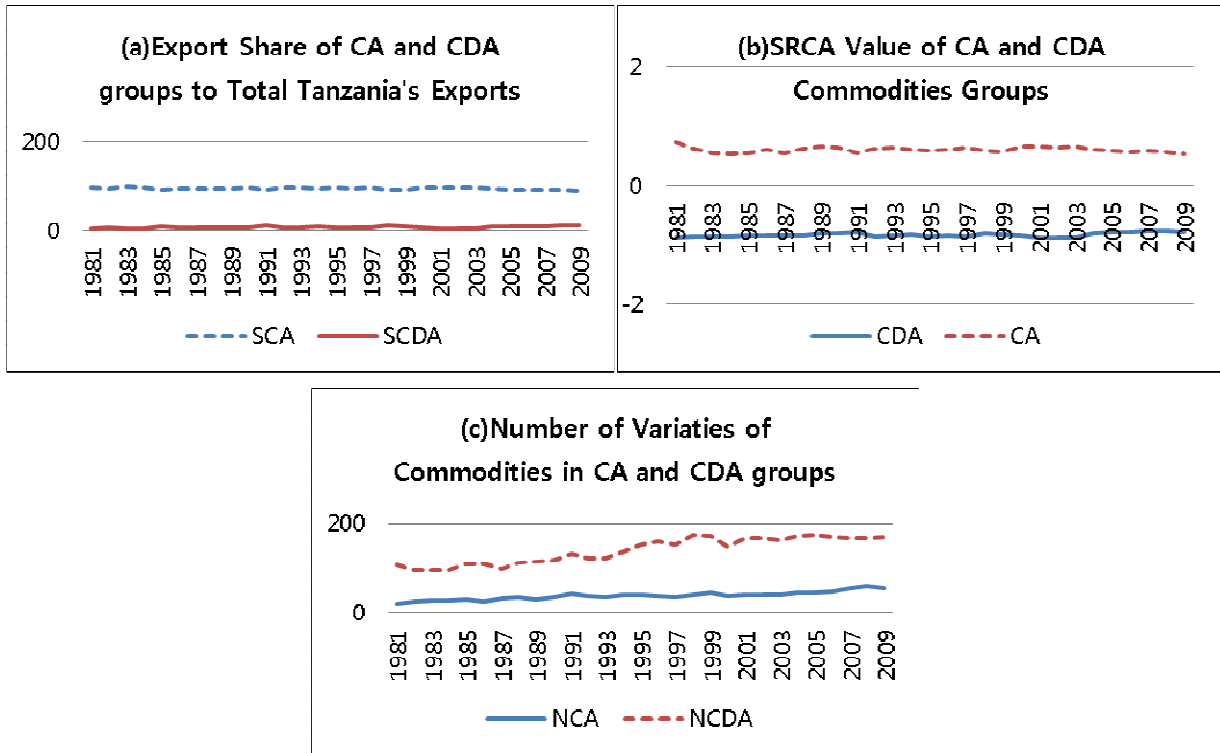


Figure 6: Change in commodities' comparative advantages (SRCA Values)

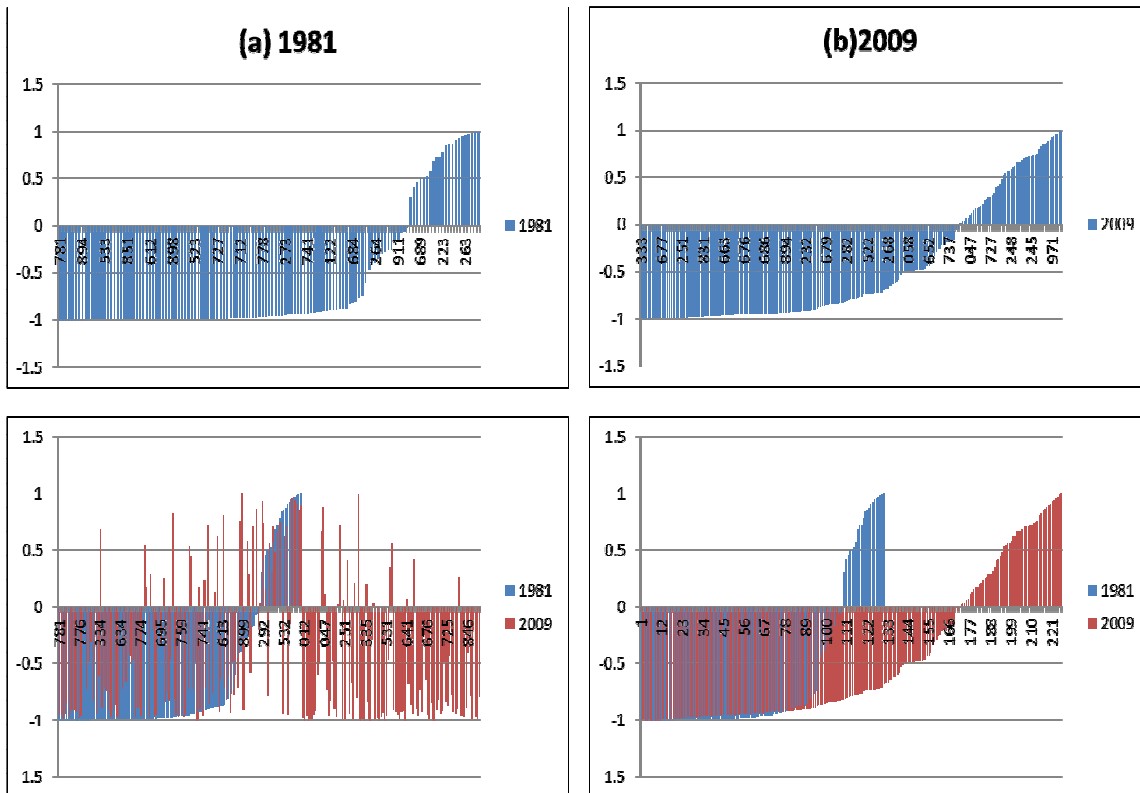


Table 1: Accumulated SRCA and Tanzania's Export Share Grouped in Factor Intensity

WRSA						
YR	PRI	RES	LIT	TIT	HUC	OTH
1981-1985	0.76	0.04	0.02	0.00	0.00	0.00
1986-1990	0.71	0.06	0.02	-0.01	0.00	0.00
1991-1995	0.66	0.07	0.03	-0.01	0.00	0.00
1996-2000	0.69	0.05	0.01	-0.01	-0.01	0.04
2001-2005	0.47	0.02	0.00	-0.01	-0.01	0.32
2006-2009	0.42	0.01	0.01	0.00	-0.01	0.25
EXPORT SHARE TO TOTAL TANZANIA EXPORT FOR THE INTENSIVE GROUPS						
YR	PRI	RES	LIT	TIT	HUC	OTH
1981-1985	87.86	6.75	3.05	1.40	1.11	0.90
1986-1990	85.30	9.96	5.25	1.71	2.12	0.91
1991-1995	76.78	10.61	7.64	2.47	2.65	0.55
1996-2000	78.27	7.63	3.81	2.86	3.09	5.05
2001-2005	55.63	4.72	3.31	1.36	2.14	32.97
2006-2009	51.34	3.59	4.30	7.76	4.11	28.92

Table 2: Random effect Regression Results

Explanatory variables	Dep. Variable (Log TT)	Dep. Variable (Log TE Export)	Dep. Variable (Log TEA)	Dep. Variable (Log TEM)
	RE Coefficients	RE Coefficients	RE Coefficients	RE Coefficients
Constant	38.158***(11.204)	59.474***(13.370)	47.016** (15.293)	116.17***(26.028)
LGDP_PPPj	0.988***(0.166)	1.173*** (0.239)	1.155*** (0.251)	1.215*** (0.299)
LGDP_PPPi	-3.230*** (0.733)	-4.812*** (0.817)	-3.467*** (0.964)	-8.989***(1.795)
LGDPCC_PPPj	-0.095 (0.217)	-0.444 (0.309)	-0.115 (0.333)	-0.603 (0.399)
LGDPCC_PPPi	5.779 ***(1.105)	7.7238***(1.192)	4.967***(1.417)	14.407***(2.764)
Distance	-1.0623* (0.560)	-1.068 (0.806)	-1.557* (0.842)	-1.535 (1.01)
Real E. Rate	0.123** (0.040)	0.168*** (0.040)	0.145** (0.047)	0.278** (0.106)
FTAs	1.092** (0.348)	1.983*** (0.485)	0.771 (0.571)	2.098** (0.682)
R-Squared	0.23	0.17	0.08	0.07
SSE	652.48	1253.38	1786.32	2540.23
Hausman Test	17.25***	18.85***	12.48**	13.00**

Key: \*\*\* implies Significant at 1%, \*\* at 5% and \* at 10%, ( ) means t-value at fixed effect. TT= Total Trade (import +export), TE= Total Export, TEA= Total export of Agricultural products, TEM= Total Export of manufactured good.

## Appendices

### Appendix 1: Industries Classification

SITC- 1 digit Level	Industry Classification
0	Food and live animals chiefly for food
1	Beverages and tobacco
2	Crude materials, inedible, except fuels
3	Mineral fuels, lubricants and related materials
4	Animal and vegetable oils, fats and waxes
5	Chemicals and related products, nes
6	Manufactured goods classified chiefly by materials
7	Machinery and transport equipment
8	Miscellaneous manufactured articles
9	Commodities and transactions not classified elsewhere in the SITC

## Appendix 2: Industries' Export and Import Share

Years interval	Industry Classification SITC1	Total Years	Average Share of Export	Average Share of Import	Rank of Export	Rank of Import
1981-1990	0	10	59.43	8.05	1	4
1981-1990	2	10	17.81	2.05	2	8
1981-1990	6	10	12.40	18.42	3	2
1981-1990	1	10	3.89	0.33	4	10
1981-1990	3	10	2.45	5.69	5	6
1981-1990	7	10	1.25	43.82	6	1
1981-1990	9	10	1.15	1.08	7	9
1981-1990	5	10	0.75	12.51	8	3
1981-1990	8	10	0.65	6.01	9	5
1981-1990	4	10	0.23	2.05	10	7
1991-2000	0	10	48.48	8.86	1	4
1991-2000	2	10	20.45	2.81	2	8
1991-2000	6	10	13.42	16.58	3	2
1991-2000	1	10	6.85	2.13	4	9
1991-2000	9	10	2.99	1.49	5	10
1991-2000	7	10	2.85	37.90	6	1
1991-2000	8	10	2.66	8.67	7	5
1991-2000	3	10	1.02	7.64	8	6
1991-2000	5	10	0.94	10.38	9	3
1991-2000	4	10	0.34	3.54	10	7
2001-2009	9	9	31.20	0.14	1	10
2001-2009	0	9	27.60	7.68	2	5
2001-2009	2	9	19.05	1.73	3	8
2001-2009	6	9	8.66	15.66	4	3
2001-2009	1	9	5.44	0.56	5	9
2001-2009	7	9	2.72	31.85	6	1
2001-2009	5	9	1.94	12.53	7	4
2001-2009	8	9	1.80	5.29	8	6
2001-2009	3	9	0.96	20.93	9	2
2001-2009	4	9	0.62	3.62	10	7

Appendix 3: Countries' Export and Import Share

Years	NAT	NAT NAME	Total Years	Share of Export	Share of Import	Rank of Export	Rank of Import
1981-1990	LBY	Libya	3		3.92		8
1981-1990	DEU	German	10	18.82	9.61	1	3
1981-1990	GBR	United Kingdom	10	11.47	16.44	2	1
1981-1990	IND	India	10	7.85	2.60	3	13
1981-1990	ITA	Italy	10	6.37	9.08	4	4
1981-1990	NLD	Netherlands	10	5.29	4.56	5	7
1981-1990	SGP	Singapore	10	5.22	2.04	6	18
1981-1990	USA	USA	10	4.95	5.34	7	5
1981-1990	JPN	Japan	10	4.93	12.01	8	2
1981-1990	FRA	France	10	3.76	3.34	9	9
1981-1990	PRT	Portugal	10	3.27	0.15	10	41
1981-1990	DNK	Denmark	10	1.35	3.10	17	10
1981-1990	SWE	Sweden	10	0.68	4.62	23	6
1991-2000	IND	India	10	13.11	5.62	1	5
1991-2000	DEU	German	10	10.73	5.13	2	6
1991-2000	GBR	United Kingdom	10	10.16	9.71	3	1
1991-2000	JPN	Japan	10	7.72	8.38	4	3
1991-2000	NLD	Netherlands	10	5.69	3.23	5	11
1991-2000	BEL	Belgium	10	4.53	2.57	6	12
1991-2000	PRT	Portugal	10	3.52	0.17	7	51
1991-2000	KEN	Kenya	10	3.34	8.94	8	2
1991-2000	USA	USA	10	2.89	4.06	9	10
1991-2000	IDN	India	10	2.62	1.33	10	25
1991-2000	ITA	Italy	10	2.01	4.56	14	7
1991-2000	ZAF	South Africa	9	1.35	7.33	20	4
1991-2000	NULL	Areas, nes	4	1.33	4.35	21	9
1991-2000	CHN	China	10	0.79	4.39	32	8
2001-2009	GBR	United Kingdom	9	13.27	4.07	1	8
2001-2009	CHE	Switzerland	9	10.29	1.58	2	18
2001-2009	ZAF	South Africa	9	7.93	11.64	3	1
2001-2009	IND	India	9	6.14	7.80	4	3
2001-2009	JPN	Japan	9	6.06	6.62	5	5
2001-2009	KEN	Kenya	9	5.95	4.86	6	7
2001-2009	NLD	Netherlands	9	5.64	1.84	7	16
2001-2009	CHN	China	9	5.36	6.80	8	4
2001-2009	FRA	France	9	5.16	1.96	9	14
2001-2009	DEU	German	9	3.63	3.19	10	10
2001-2009	ARE	United Arab Emir	9	2.23	8.73	12	2
2001-2009	USA	USA	9	1.58	3.29	16	9
2001-2009	BHR	Bahrain	9	0.02	5.54	82	6

APPENDIX 4: Commodities' Export and Import Share

Years Interval	Commodities Classification SITC3	Total Years	Average Share of Export	Average Share of Import	Rank of Export	Rank of Import	Commodity's Name
1981-1990	071	10	34.93	0.01	1	197	Coffee and coffee substitutes
1981-1990	263	10	11.45	0.00	2	217	Cotton
1981-1990	075	10	7.16	0.01	3	196	spices
1981-1990	057	10	5.18	0.02	4	187	Fruit and nuts, fresh, dried
1981-1990	682	10	5.06	0.08	5	139	Copper
1981-1990	333	7	5.02	3.02	6	6	Crude petroleum and oils obtained from bituminous minerals
1981-1990	074	10	4.85	0.01	7	206	Tea and mate
1981-1990	121	10	3.85	0.01	8	195	Tobacco unmanufactured; tobacco refuse
1981-1990	054	10	2.60	0.09	9	132	Vegetables, fresh or simply preserved; roots and tubers, nes
1981-1990	657	10	2.29	0.42	10	71	Special textile fabrics and related products
1981-1990	334	10	1.94	3.22	11	4	Petroleum products, refined
1981-1990	784	10	0.07	4.11	60	2	Motor vehicle parts and accessories, nes
1981-1990	591	10	0.02	3.12	85	5	Pesticides, disinfectants
1981-1990	541	10	0.01	2.47	97	8	Medicinal and pharmaceutical products
1981-1990	781	10	0.01	3.55	107	3	Passenger motor vehicles (excluding buses)
1981-1990	782	10	0.01	4.98	109	1	Lorries and special purposes motor vehicles
1981-1990	728	10	0.01	2.41	121	9	Other machinery, equipment, for specialized industries; parts nes
1981-1990	042	10	0.01	2.67	132	7	Rice
1981-1990	724	10	0.00	2.15	153	10	Textile and leather machinery, and parts thereof, nes
1991-2000	071	10	18.00	0.08	1	150	Coffee and coffee substitutes
1991-2000	263	10	12.89	0.02	2	194	Cotton
1991-2000	057	10	11.28	0.02	3	191	Fruit and nuts, fresh, dried
1991-2000	121	10	6.53	0.08	4	149	Tobacco unmanufactured; tobacco refuse
1991-2000	034	10	5.49	0.01	5	215	Fish, fresh, chilled or frozen
1991-2000	074	10	4.04	0.05	6	168	Tea and mate
1991-2000	682	10	3.88	0.24	7	98	Copper
1991-2000	971	8	3.49	0.01	8	198	Gold, non-monetary (excluding gold ores and concentrates)
1991-2000	667	10	3.20	0.15	9	122	Pearl, precious and semi-precious stones, unworked or worked
1991-2000	054	10	2.69	0.38	10	76	Vegetables, fresh or simply preserved; roots and tubers, nes
1991-2000	061	10	1.34	2.00	16	6	Sugar and honey
1991-2000	334	10	0.98	5.79	19	1	Petroleum products, refined
1991-2000	931	8	0.34	1.75	34	10	Special transactions, commodity not classified according to class
1991-2000	782	10	0.32	4.20	36	3	Lorries and special purposes motor vehicles
1991-2000	781	10	0.29	4.54	39	2	Passenger motor vehicles (excluding buses)
1991-2000	723	10	0.18	1.82	51	9	Civil engineering, contractors' plant and equipment and parts, nes
1991-2000	764	10	0.09	1.99	68	7	Television receivers
1991-2000	269	10	0.08	1.88	74	8	Old clothing and other old textile articles; rags
1991-2000	784	10	0.06	3.46	81	4	Motor vehicle parts and accessories, nes
1991-2000	541	10	0.04	2.37	96	5	Medicinal and pharmaceutical products
2001-2009	971	9	30.57	0.00	1	235	Gold, non-monetary (excluding gold ores and concentrates)
2001-2009	289	9	8.87	0.00	2	236	Ores and concentrates of precious metals, waste, scrap
2001-2009	034	9	8.03	0.02	3	176	Fish, fresh, chilled or frozen
2001-2009	121	9	5.00	0.13	4	115	Tobacco unmanufactured; tobacco refuse
2001-2009	071	9	4.57	0.00	5	204	Coffee and coffee substitutes
2001-2009	263	9	4.23	0.01	6	187	Cotton
2001-2009	057	9	3.84	0.03	7	165	Fruit and nuts, fresh, dried
2001-2009	667	9	3.15	0.01	8	200	Pearl, precious and semi-precious stones, unworked or worked
2001-2009	054	9	2.26	0.17	9	99	Vegetables, fresh or simply preserved; roots and tubers, nes
2001-2009	074	9	2.23	0.00	10	218	Tea and mate
2001-2009	041	9	0.82	3.32	15	3	Wheat and meslin, unmilled
2001-2009	334	9	0.76	20.38	18	1	Petroleum products, refined
2001-2009	424	9	0.38	3.20	31	6	Other fixed vegetable oils, fluid or solid, crude, refined
2001-2009	723	9	0.24	3.14	43	7	Civil engineering, contractors' plant and equipment and parts, nes
2001-2009	782	9	0.17	3.30	51	4	Lorries and special purposes motor vehicles
2001-2009	583	9	0.17	2.72	55	8	Polymerization and copolymerization products
2001-2009	541	9	0.12	2.44	71	9	Medicinal and pharmaceutical products
2001-2009	764	9	0.08	3.24	78	5	Television receivers
2001-2009	672	9	0.07	2.04	84	10	Special textile fabrics and related products
2001-2009	781	9	0.06	3.37	90	2	Passenger motor vehicles (excluding buses)

Appendix 5: ETA Factor Intensity Classification

<b>Primary Products</b>	<b>SITC 3- Digit Level</b>
	001, 011, 012, 014, 022, 023, 024, 025, 034, 035, 036, 037, 041, 042, 043, 044, 045, 046, 047, 048, 054, 056, 057, 058, 061,062,071, 072, 073, 074, 075, 081, 091, 098, 111, 112, 121, 122, 211, 212, 222, 223, 232, 233, 244, 245, 246, 247, 248, 251, 261, 263, 264, 265, 266, 267, 268, 269, 271, 273, 274, 277, 278, 281, 282, 286, 287,288, 289, 291, 292, 322, 323, 333, 334, 335, 341, 351, 411, 423, 424,431
<b>Natural- Resource intensive Products</b>	512, 513, 514, 515, 516, 522, 523, 524, 525, 531, 532, 533, 541, 542, 551, 553, 554, 562, 571, 572, 573
<b>Unskilled- Labor Intensive Products</b>	575, 579, 581, 582, 583, 584, 585, 591, 592, 593, 597, 598, 611, 612, 613, 621, 625, 628, 629, 633, 634, 635, 641, 642,651
<b>Technology- Intensive Products</b>	664, 652, 653, 654, 655, 656, 657, 658, 659, 661, 662, 663, 679, 665, 666, 667, 671, 672, 673, 674, 675, 676, 677, 678, 693, 681, 682, 683, 684, 685, 686, 687, 688, 689, 691, 692, 721, 694, 695, 696, 697, 699, 711, 712, 713, 714, 716, 718, 737, 722, 723, 724, 725, 726, 727, 728, 731, 733, 735, 736,741,742
<b>Human- Capital Intensive Products</b>	743, 744, 745, 746, 747, 748, 749, 751, 752, 759, 761, 762, 763, 764, 771, 772, 773, 774, 775, 776, 778, 781, 782, 783, 784, 785, 786, 791, 792, 793, 811, 812, 813, 821, 831, 841, 842, 843, 844, 845, 846, 847, 848
<b>OTHERS</b>	851, 871, 872, 873, 874, 881, 882, 883, 884, 885, 891, 892, 893, 894, 895, 896, 897, 898, 899, 911, 931, 941, 951, 961, 971, 999