THE EU-ACP ECONOMIC PARTNERSHIP AGREEMENTS (EPA) FOR MALAWI: TRADE EFFECTS AND FISCAL IMPACTS FOR ALTERNATIVE POLICY OPTIONS

By

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To my late mother, I dedicate this piece of work with great humility as I reflect on her untiring efforts to see me educated even in the face of glaring challenges within an apparently harsh environment as she ploughed on to see me through the journey that not even herself knew the destination. How much I long to have had her alive this day to witness the fruits of her diligence and commitment to a cause noble enough as I bare testimony today. May Her Soul Rest In Eternal Peace!!

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LIST OF ABBREVIATIONS

ACP	African, Pacific and Caribbean
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
CACM	Central American Common Market
CARICOM	Caribbean Community and Common Market
CER	Closer Economic Relations
CGE	Computable General Equilibrium (models)
CIF	Cost, Insurance and Freight
DPRU	Development and Policy Research Unit
EBA	Everything But Arms
EC	European Commission
ECOWAS	Economic Community of West African States
EFTA	European Free Trade Association
EPA	Economic Partnership Agreement
ERP	Effective Rates of Protection
ESA	Eastern and Southern Africa
EU	European Union
FTA	Free Trade Area
FTAA	Free Trade Area of the Americas
GATT	General Agreement for Tariffs and Trade
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product

GNP	Gross National Product
GTAP	Global Trade Analysis Project
GSP	Generalized System of Preferences
HS	Harmonized System
IADB	Inter-American Development Bank
ISI	Import Substitution Industrialization
LAFTA	Latin America Free Trade Area
LAIA	Latin America Integration Association
LDC	Least Developed Countries
MERCOSUR	Mercado Común del Sur, Mercado Comúm do Sul (Southern Common Market (of America)
MK	Malawi Kwacha
NAFTA	North American Free Trade Area
NBER	National Bureau of Economic Research
NSO	National Statistical Office
OECS	Organization of Eastern Caribbean States
PE	Partial Equilibrium
PTA	Preferential Trade Area
RTA	Regional Trade Area
SADC	Southern Africa Development Cooperation
SPARTECA	South Pacific Regional Trade and Economic Cooperation Agreement
TC	Trade Creation
TD	Trade Diversion
UEMOA	West African Economic and Monetary Union

USAID	United States Aid for International Development
US$	United States Dollar
WTO	World Trade Organization

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Malawi has, since 1975, been enjoying non-reciprocal trade preferences from the EU bloc along with all other ACP countries pursuant to the successive Lomé Convention Agreements. This framework was not consistent with the existing World Trade Organization (WTO) rules and regulations. As such, the EU and ACP were pressured to come up with new World Trade Organization (WTO) compatible trading arrangements. To this effect, the Cotonou Agreement was conceived by the two parties and signed in June, 2000. Under the Cotonou Agreement, the non-reciprocal preferential market access for ACP economies was scheduled to be replaced by a string of Economic Partnership Agreements (EPAs) meant to progressively liberalize trade in a reciprocal way, leading to the establishment of free trade areas (FTAs) between the EU & ACP regional groups in accordance with the relevant WTO rules. The glaring reality for the ACP countries in general, and Malawi in particular, of opening their markets to EU imports has created debate on the anticipated implications.

This research employed the partial equilibrium model to quantify the trade effects and fiscal impacts for Malawi of an EPA with the EU, compared to those obtainable in a contemplated broader liberalization scenario that included implementation of the EPA with the

EU concurrently with the formation of the regional Free Trade Area (FTA) among the Southern Africa Development Cooperation (SADC) group of countries.

Results from the study demonstrate that Malawi stands to benefit more from a broader liberalization framework than one restricted to the EU. The results also provide useful insight into the types of product categories that would be most hit by the policy change. In particular, trade and fiscal effects to the three key agricultural products of tea, sugar and tobacco were found to be insignificant.

CHAPTER 1
INTRODUCTION

The post World War II period saw the rejuvenation of efforts aimed at promoting multilateral trade liberalization among countries. The climax of this effort was in 1947, when the General Agreement on Tariffs and Trade (GATT) was established with a view to promoting free trade through elimination and/or reduction of trade barriers among countries. Following the classical arguments of Adam Smith and David Ricardo, free trade is considered to be welfare improving as each country tends to allocate their productive resources in areas that they have the most comparative advantage. As such, trade liberalization is considered a desirable vehicle towards the attainment of sustainable economic growth and development, leading to improvement in living standards for the populace.

Parallel to the movement towards multilateral trade liberalization, was the emergence and proliferation of the concept of regional trading arrangements. These were (and still are) configured through various forms and names depending on the varying degree and/or stage of economic integration, such as free trade area, customs union, common market, economic union, and complete economic integration. This feature of the global economy stimulated a lot of debate and theorization among economists during the entire second half of the twentieth century on the desirability and relationship of regionalism vis-à-vis multilateralism as an approach to free trade. One of the offshoots from this debate has been the development of the theory of second best, referring to regional trade arrangements as opposed to the superior case of multilateral trade liberalization. It is worth noting though that the proliferation of the regional free trade arrangements is not without legal basis in the international trade rules and regulations as Article XXIV of the GATT sanctions their formation.

At the heart of these multilateral and regional trade arrangements has been the feature of preferential treatment, usually sought by the developing countries, which calls for special considerations and exemptions from reciprocal trade liberalization measures. This *fair treatment* plea falls within the larger body of arguments by some against equal treatment of developed and developing countries in the pursuit of open trade policies on account of the notion that smallness of the economies for the later makes them more vulnerable to external shocks. The proponents of this paradigm have advanced the argument that openness and liberalization do have significant negative effects on poverty, unemployment and a host of other issues (Weisbrot and Baker 2002; Grunbaum 2007). Free trade proponents dispute this and argue that these small and low income countries need not be treated differently if they are to realize significant positive economic impacts from trade.

These arguments and counter-arguments for open trade are reflective of the generally observed fact that trade liberalization does not only create challenges to the country undertaking such policy but also offers them opportunities to attain superior levels of growth and prosperity through improved competitiveness and enhanced efficiencies (Grunbaum 2007). This is exactly the situation in which the African, Caribbean and Pacific (ACP) group of countries find themselves now as they face the glaring reality of opening their borders to imports from the European Union countries under the 2000 Cotonou Agreement between the EU on the one side and ACP countries on the other. Malawi is an integral member of this group of countries, itself being within the African countries sub-group. With an estimated annual gross domestic product (GDP) level of about US$ 4,268 million in 2008, the country is categorized as one of the least developed countries (LDC). As an LDC, Malawi benefits significantly from the EU trade preferences under the previous trading arrangement as well as the on-going EU unilaterally

determined Everything But Arms (EBA) arrangement. The country's major export commodity under the EBA arrangement is sugar, which is sold at an EU predetermined high price in pursuit of subsidizing sugar production within the EU farming realm.

Problematic Situation

The ACP countries have benefited from preferential treatment from the EU since 1975, when the Lomé I Convention was signed in Lomé, Togo. Under this agreement, the ACP countries were accorded non-reciprocal preferential market access to the European Union countries. The period that ensued saw successive renewal of the initial Lomé I Convention, through Lomé II in 1979; Lomé III in 1984; and Lomé IV in 1989 that remained in force for the entire decade until 1999. All trade preferences, articles of trade and development aid schemes under these renewals were characterized by the same non-reciprocal principle. At the dawn of the twenty-first century, the wave of globalization and the associated efforts to strengthen the multilateral approach to trade and economic processes warranted the need for adapting the EU-ACP trade arrangements to ensure their compatibility with contemporary WTO rules and regulations. Besides, the section of developing countries that falls outside the ACP group had not been supportive of the discriminatory EU-ACP preferential trade agreements under the Lomé Conventions. As such, the WTO accorded a final waiver to the EU and ACP countries running only up to December 2007, after which the requisite trade cooperation was required to be made WTO compatible. To this end, the two parties commenced negotiations in September 1998 that culminated into the new ACP-EU Partnership Agreement, signed in Cotonou, Benin on 23rd June 2000.

One of the major innovations of the new ACP-EU Partnership Agreement, commonly known as the *Cotonou Agreement*, was the introduction of new fundamental principles with respect to trade between the European Union and the ACP countries relative to the Lomé

Convention. In particular, the non-reciprocal preferential market access for ACP economies was scheduled to be replaced by a string of Economic Partnership Agreements (EPAs) meant to progressively liberalize trade in a reciprocal manner. In fact, Article 36.1 of the Cotonou Agreement empowers parties to the Agreement "to conclude new World Trade Organization (WTO) compatible trading arrangements, removing progressively barriers to trade between them and enhancing cooperation in all areas of trade" (The Cotonou Agreement 2000, Article 36.1). It was envisaged that the progressive removal of barriers to trade would result in the establishment of Free Trade Agreements (FTAs) between the EU and ACP regional groups in accordance with the relevant WTO rules and help to enhance the existing regional integration efforts among the ACP. The EPAs were to be negotiated from September 2002 to 31st December 2007 to enable the new trading arrangements to enter into force by 1st January 2008 (The Cotonou Agreement 2000, Article 37.1). However, this deadline was not met and to date, only the Caribbean sub-group and a couple of African countries have managed to sign a fully complete EPA. Since the substantive issues under this process were discussed within seven configured regional groupings, Malawi together with fifteen other countries formed the Eastern and Southern Africa (ESA)[1] configuration and launched the EPA negotiations with the EC on 7th February, 2004. The ESA group identified six clusters of issues to negotiate an EPA with the EC, which includes the following; Development Issues, Agriculture, Market Access, Fisheries, Trade in Services, and Trade-Related Issues.

The formation of EPAs and elimination of EU's long cherished trade preferences for ACP will obviously have far reaching implications on development strategies followed by these countries. In essence, these ACP countries have for a long time tailored their productive efforts

[1] Other group members are: Burundi, Comoros, DR Congo, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Mauritius, Seychelles, Rwanda, Sudan, Uganda, Zambia and Zimbabwe

towards sectors favored by the preferences, thereby creating a potential for distortions in resource allocation. It is clear that the anticipated change in the trade framework, which would invariably result in a Free Trade Area (FTA) will necessitate some appropriate restructuring of the development strategies for the ACP so that concentration is placed on areas for which each one of these countries has the most competitive advantage. This restructuring process, otherwise known as a rationalization process, involves costs that the ACP countries need to be prepared to incur. The process will practically mean transferring resources, including laying off workers, from sectors deemed inefficient to those for which the country has comparative advantages. It is generally feared that these changes may bring about increased unemployment, provoke heightened economic insecurity and political instability (Keck and Piermartini 2005). There is also a very clear sense of despair among ACP countries with respect to the level of competition that domestic producers will be subjected to after the FTA. While competition is lauded as a positive phenomenon in that it promotes efficiency in allocation of productive resources, commentators in ACP countries have expressed concerns over the level of EU production subsidies in the agricultural sector and argue that such competition will invariably be unfair.

Problem Statement

The delay by ACP countries in finalizing the EPA regional frameworks and the consequential formation of the FTAs between the EU and ACP countries is clear testimony of the significant concerns among ACP countries with the proposed reciprocal trading arrangement. While the nature of concerns is similar for most of the ACP countries, it is undeniable that the extent of the envisaged impacts, both positive and negative, will vary from country to country. In this regard, country-specific analyses of the potential impacts of the proposed FTA with the EU are of colossal importance because outcomes from such work are bound to help the concerned country to chart the best way forward as regards its national development strategies vis-à-vis

trade policy. This is precisely the type of research that this thesis was formulated to carry out for Malawi.

The fact has already been alluded to above that trade policy is usually analyzed on the basis of the link it has to economic growth and development for the country. A large body of literature on the analysis of economic integration and its shallower forms such as the proposed Free Trade Area (FTA) suggest that their formation tends to breed various economic effects, particularly relating to the direction of trade which is largely influenced by the underlying advantages for countries involved. "An expansion in trade can be had when less efficient domestic production is substituted by imports from a more efficient member of the agreement" (Grunbaum 2007, p.19). A further expansion in trade flows can be expected as the domestic country imports more products from member countries at preferential terms at the expense of excluding imports, which in fact can be less costly, from non-member countries (Viner 1950; Pomfret 1988; Grunbaum 2007).

The trade liberalization argument can not be complete without consideration of the fiscal impacts associated with the immediate loss of tariff revenue. This loss directly affects the ability of the liberalizing government to deliver public services to its citizenry and negate on-going efforts towards economic growth, development and poverty alleviation. The situation tends to be more serious for countries where the proportion of revenue from import tariffs is higher than where it is lower. The situation for ACP countries is such that in most countries, revenue derived from import tariffs constitutes a substantial portion of government revenue. In fact for Malawi, the Development Policy Research Unit of the University of Cape Town (DPRU) estimates the contribution of tariff to total government revenue as standing at about 22 percent (DPRU Policy Brief No. 01/P8, 2001). The situation currently ruling presents us a rare opportunity to carry out

research that will enable us to get quantitative estimates of the potential trade effects and associated fiscal impacts of the proposed EU-EPA for Malawi. For Malawi, trade in three key agricultural products is of paramount importance. Exports of tobacco, tea and sugar together account for over 70 percent of the country's total annual exports. As such, it will be interesting in this study to move a step further and isolate the potential impacts that the EPA with EU will have on sectors involved in the production and processing of these three key products.

Research Objectives

The move towards EPA and FTA poses a huge challenge for ACP countries such as Malawi. The consideration of potential benefits of improved and more secure access to EU markets by Malawian exports is blurred with the recognition of expected loss in revenue from customs duty and increased competition for the domestic industries. As debate on the likely effects continues and time for implementing the EPAs is already surpassed, very few country-specific quantitative analyses of the situation have been undertaken, *ex ante*. This study is precisely aimed at addressing this apparent gap for one particular country, Malawi. As such, the overall objective of this research is to evaluate the potential trade effects and fiscal impacts of an EPA trade arrangement regime for Malawi.

Specifically, the proposed research is aimed at attaining the following objectives;

- Conduct a quantitative analysis of the potential trade and fiscal effects for Malawi of the proposed EPA and/or FTA with the EU. Trade creation, trade diversion and fiscal impacts will all be estimated.
- Identify commodity categories that show highest trade effects, particularly investigating the trade effects to imports in the three key agricultural products of tobacco, tea, and sugar.
- Based on outcomes from above analyses, provide alternative policy options for the government and stakeholders on what course of action should be pursued in respect of the upcoming EPA/FTA.

CHAPTER 2
LITERATURE REVIEW

The essence of the argument for international trade is with respect to its presumed link to economic growth and development. Classical trade theory suggests a positive relationship between increased open trade and superior economic performance and that protectionism is inversely related to economic growth and development. Freer trade regimes result in more rapid economic growth through direct effects of trade that operate via dynamic advantages of increased capacity utilization and more efficient investment projects as well as indirect effects through accelerated export growth (Edwards 1993). On the other hand, there are some researchers who object to this proposition and argue that empirical evidence does not strongly support the classical view. They also question the validity of the direction of the casual relationship between export growth and economic development as insinuated in the classical argument.

As stated in the first chapter, the formation and proliferation of preferential trade agreements and/or regional trade agreements has become an important feature of the global economy. This feature has been considered by some as a catalyst for attainment of the more desired multilateral free trade regime, yet others see it as an obstacle to the same. This chapter starts by providing a review of the theoretical and empirical literature on the link between trade and economic performance. We further endeavor to provide the foundations of the development and growth of the theory of preferential trade agreements before reviewing its empirical literature. We end the chapter with a presentation of the major analytical methodologies that have been used in the empirical analysis of preferential trade agreements, including citation of the empirical studies on which those methodologies have been applied.

Liberalization versus Protectionism and Economic Performance[1]

The notion that freer international trade stimulates growth and development dates back to the days of Adam Smith. A host of later economists worked to augment and popularize the free trade notion in the two centuries that followed. Nonetheless, the post World War II decades of 1950s, 1960s, and 1970s saw increased emphasis on the pursuit of protectionist development strategies, especially among developing countries. A major impetus for such an orientation in the developing world was the policy of *Import Substitution Industrialization* (ISI), embraced by many of these countries in Latin America, Africa and East Asia. The urge to develop and sustain their manufacturing sectors provided for the pursuit of the ISI strategy which promoted protectionism in line with the *infant industry* argument for industrialization. It was believed that successful economic development would be attained through rapid development of the local industry to ensure self-sufficiency and insulate the domestic economy from external vulnerability. One of the major consequences of the ISI euphoria was the preoccupation by most of the development economists of the time with the design of planning models based on ISI. In spite of the apparent dominance of the protectionist paradigm, "a small group of academics embarked, independently, on major empirical investigations aimed at assessing the consequences of alternative trade regimes" (Edwards 1993, p.1359). The pioneer work to this effect was undertaken by Little, Scitovsky, and Scott (1970) and Balassa (1971), who calculated effective rates of protection (ERP) in a score of developing countries and linked these to the countries' overall economic structure and performance[2].

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[1] This section draws heavily on the work of Edwards (1993) who provides an excellent synthesis of the studies undertaken earlier by various authors on empirical analysis of the link between outward looking and inward looking trade policies with economic performance

[2] An excellent review of these studies is provided by Edwards (1993) and summarized and cited by Grunbaum (1997)

The pursuit of ISI by the developing countries was criticized for its disregard of fundamental economic principles such as that of comparative advantage in determining what to produce. As a consequence of this disregard, some fundamental distortions in resource allocation were argued to have been identified by some authors. For instance, the Little, Scitovsky, and Scott (1970) study concludes "that the policies followed in most of the developing world after World War II had excessively encouraged industrialization at the cost of reducing the incentives for expanding agriculture and exports" (Edwards 1993, p. 1362). As a consequence of these inward looking policies, those developing countries experienced a ray of economic problems including "a worsening income distribution, a reduction in savings, an increase in the rate of unemployment and a very low rate of capacity utilization" (Edwards 1993, p.1362).

African countries were a major segment of the LDCs that pursued inward looking trade policies in the hope of achieving positive economic growth and self-reliance. However, instead of attaining these positive socio-economic benefits, implementation of these protectionists policies only resulted in severe crises for most of the African countries as "market incentives were seriously distorted, food production plummeted, GNP per capita fell by almost one percent per year during the 1970s, corruption became rampant, and shortages were generalized" (Edwards 1993, p. 1370). This appears to suggest that adoption of liberalized trade policies would have helped these countries to improve their economic performance. As such, in its 1981 report, the World Bank recommended that these countries undertake the implementation of reforms to their economic systems to make them more liberal and more open to international trade.

Notwithstanding their novel pioneering work on the empirical link between trade policy orientation and economic performance, the policy recommendation for more open trade in the

developing countries by Little, Scitovsky, and Scott (1970) and Balassa (1971) was heavily criticized by Paul Streeten (1971) for lack of additivity and inconsistency in their arguments for freer trade. Edwards (1993) also pointed out that the authors only used single-period snapshots of the protection levels in the specific countries to derive their conclusions other than attempting to estimate evolving protection levels which could have permitted them to analyze liberalization episodes over time and the link between alternative protection levels and growth in those particular historical settings. Edwards (1993) further identifies a computational weakness in the two studies, that while using the same technique, the Little, Scitovsky, and Scott (1970) study calculated a 49 percent effective rate of protection to the manufacturing sector for the Philippines in 1965 while the Balassa (1971) study arrived at a rate of 61 percent for the same sector in the same country during the same year.

In a manner that served to address the second weakness in the above studies, one of the classic works was undertaken by Anne Krueger (1978) and Jagdish Bhagwati (1978). In the NBER study that they co-directed, Krueger (1978) and Bhagwati (1978) formally derived a trade liberalization index based on the degree of bias against exports. With the help of this index, countries could be determined to be at varying stages of liberalization, starting from a scale of I as the most protected to V as the most liberalized. Assigning dummy variables for these stages, and using country-specific pooled data for traditional and non-traditional exports, Krueger (1978) undertook a formal econometric analysis of the link between trade liberalization and economic growth. She estimated two equations, one for exports and the other for real GNP for each one of the ten countries in the sample. The first was dependent on the real effective exchange rate, dummy variables for the trade liberalization regime, and time trend variable while the later was dependent on the exports index, trade liberalization regime dummy and a time trend

variable. The results showed significant positive effects on export growth for the coefficient on the dummy variable for phases four and five of the liberalization ladder, while no direct significant effects were discerned from the same phases of liberalization on GNP growth. The model did produce a significant positive effect on GNP growth for the export coefficient. This suggests existence of an indirect as opposed to the theoretically surmised direct positive link between trade liberalization and economic growth.

Krueger's finding of lack of direct effect of trade liberalization on economic performance did not go without challenge from other researchers. Balassa (1982) in his study concluded that countries with intense trade liberalization policies displayed high rates of economic performance. In the Balassa (1982) study, both quantitative restrictions to trade and tariff barriers were incorporated into the methodology used to categorize the country's trade regime. This was done to address what Balassa (1982) pointed out as one of the shortfalls of the Krueger (1978) study i.e. that use of quantitative restrictions alone in her study to determine trade regimes was in fact leaving out a major component of bias against exports inflicted by high tariff rates. Balassa (1982) used export growth rates as a proxy for trade regime, which turned out to be one of the sources of criticisms leveled against his study. As Edwards (1993) puts it, "it is not clear whether it is exports growth that causes output expansion" (p.1373), or that output expansion spurs exports growth.

In the years that followed, in the 1990s, a number of influential studies were undertaken to establish the link between trade openness and economic performance. The approach for these later studies had been different and quite flexible in searching for alternative ways of liberalization and establishing their impact of economic performance. As Grunbaum (2007) observes that "while early empirical studies related to the role of exports and growth, more

recent studies on trade policy and economic performance have searched for alternative measures of openness and their relationship to economic outcomes" (Grunbaum 2007, p. 61). Grunbaum cites the works of such authors as Dollar (1992); Sachs and Warner (1995); Harrison (1996); Edwards (1998); Frankel and Romer (1999) as some of the most influential in undertaking cross-country econometric studies on the subject. In most of these studies, the results have tended to suggest the existence of a positive link between more open trade and higher rates of economic growth.

Notwithstanding the foregoing, the view that trade liberalization is directly linked to higher levels of economic growth has also been criticized by a number of authors who refute it and argue that there is no firm empirical evidence establishing such a direct link.
The work of Jeffrey Sachs (1978), and Deepak Lal and Sarath Rajapatirana (1987) stand out in literature as some of the leading representatives of this criticism. Most recently, Rodriguez and Rodrik (2001) carried out a critical review of some of the works of earlier authors which supported the positive link between open trade and economic performance. By using original data sets, Rodriguez and Rodrik (2001) were able to "replicate and analyze the measures of openness used, disaggregated these into tariff and non-tariff components to test statistical significance, extended and modified the empirical models to obtain additional results" (Grunbaum 2007, p. 61). Their findings suggest that those results in the original studies had been greatly over-stated and that the purported link was in fact very weak.

Authors have acknowledged existence of a couple of challenges associated with these cross-country econometric studies, which make generalization of results tricky. These include "poor data, inappropriate methodology and a weak theoretical framework lacking the ability to establish clear relationships between variables" (Grunbaum 2007, p.61).

Notwithstanding the quandary portrayed in the literature reviewed above about the significance of the link between trade liberalization and economic performance, it is important to recognize that a more open trade regime brings with it elements that promote economic growth and development. Whether that happens directly or indirectly is beside the point. "Trade imposes rigorous competition on domestic producers thereby enhancing competitiveness, fosters foreign direct investment, alters the political economy by reducing rent seeking behavior, constrains government's ability to manipulate macroeconomic policies and subjects and binds economic actors to the discipline of international markets and the international environment" (Grunbaum 2007, p.62). In addition, trade liberalization allows for feedback mechanisms to evaluate the performance and effects of policies (Berg and Krueger 2003; Grunbaum 2007).

Development and Growth of the Theory of Preferential Trade Agreements

After the Second World War, the international community agreed on a set of rules and principles aimed at promoting multilateral trade under what was known as the new international economic order, under the regulation of the GATT. However, it soon became apparent that attaining free trade at that level was slow and difficult. As such, a number of countries started forming smaller groups, configured on the basis of either geographical vicinity or political and/or historical perspectives to pursue regional economic integration in a preferential manner. This feature of global economy has come to be known as regionalism, with its peak at development experienced in the 1950s and the 1990s. As such, Bhagwati and Panagariya (1996) have termed the two stages as the old regionalism of the fifties and the new regionalism of the nineties. The proliferation of these regional trade agreements and/or customs unions in the period after the 1950s spurred a lot of interest and debate on their desirability and relationship to the multilateral trade agenda. Some free trade proponents argued that regionalism was a necessary stepping stone

to attainment of the most desirable multilateral trade agreement while others abhorred the feature for its tight grip at restrictions to trade against non-members to the agreement. At the same time, some protectionists liked the regional trade agreements for increasing the degree of preference for favored countries and maintaining restrictions against non-member countries while others disliked them for dismantling protection accorded to domestic producers against suppliers from favored countries.

The work of Jacob Viner (1950) stands out as the earliest and most influential on this topic, laying out the primary theoretical basis for the analysis of regional and/or preferential trade arrangements. The most significant contribution of Viner's work was his observation that welfare effects from any form of regional economic integration are not unambiguous a priori. As such, no general conclusion is possible on whether such economic integration arrangements are welfare enhancing or damaging. Central to the development of his theoretical framework was the formulation of the concepts of *trade creation* and *trade diversion*. Viner's original definitions for these two concepts have been refined over time by various subsequent researchers. Thus, we define trade creation as the substitution of domestic production with cheaper imports from a member country while trade diversion is the substitution of cheaper imports from non-member countries with more costly goods from a member country (El-Agraa 1997; Gordon 2007). As such, "trade creation reflects a shift from an inefficient to an efficient source of supply while trade diversion is movement from an efficient supplier to an inefficient one" (Gordon 2007, p.34). In his refinement of the definition, Robson (1980) distinguished between two components of trade creation. The first one of these is "a production effect reflecting savings from the reduction of domestically produced goods and second, a consumption effect reflecting the gains in consumer surplus as high cost consumption goods were substituted for lower cost goods"

(Grunbaum 2007, p.65). Similarly, Grunbaum (2007) summarizes that trade diversion reflects to a shift in the source of imports from a non-union low cost producer to a more costly union member.

The theoretical framework[3] developed by Jacob Viner and all refinements made thereafter provided a fertile basis for the empirical analysis of regional economic integration. With this tool in hand, one would proceed to estimate the trade effects and welfare outcomes of a preferential trade agreement simply by estimating the extent and comparing the size of trade creation and trade diversion. The agreement is regarded as welfare enhancing and therefore advantageous in the event that trade creation exceeds trade diversion (Grunbaum 2007). Since only a sub-set of the country's trading partners is included in the preferential trade agreement, a three country construct, involving the first country, member countries in the agreement and non-member countries in the same becomes necessary. It is in this setting that the analysis proceeds to simulate and/or evaluate the trade flows and production and consumption effects. The economic integration agreement so being evaluated would have predictable impacts on resource allocation, economies of scale, terms of trade, factor productivity, economic growth and stability, and the distribution of income (Robson 1980; Grunbaum 2007). Nonetheless, this analysis is based on a number of restrictive assumptions that include the following[4]; perfectly elastic supply for imports; perfect competition for factor and product markets; factor mobility within countries but not among countries; zero transportation costs; tariffs as the only available policy tool; prices accurately reflecting requisite opportunity costs; balanced trade; and full employment of resources.

[3] This section draws heavily from the work of Grunbaum (2007), who provides an excellent synthesis of the Vinerian theoretical framework and assumptions thereof, as refined by Robson (1980).

[4] This list of the Vinerian assumptions was summarized by Robson (1980) and cited by Grunbaum (2007).

Apart from the later work of Robson (1980) cited above, previous authors such as R.G. Lipsey (1960); Harry G. Johnson (1960); and C.A. Cooper and B.F. Massell (1965) also helped to advance the Vinerian framework with their respective refinements to his original ideas. In his influential survey article that aimed at further refining Viner's trade creation and trade diversion concepts, Lipsey (1960) observed that Viner assigned a positive value to trade creation and a negative value to trade diversion. As such, Lipsey (1960) maintains that the suggested inclusion of the consumption effects in their definitions would invalidate such a motive by Viner.

Viner's influential insights uncovered what came to be known in literature as the theory of second best, literally referring to partially liberalized regimes characterizing preferential trade arrangements. At the same time, the Vinerian theory and all literature from subsequent authors in the 1960s seemed to have failed to explain the motive behind these regional and/or preferential trade agreements. As Pomfret (2003) observes literature of the 1960s "failed to explain why countries would form a customs union, when they could realize all the trade creation benefits and avoid any trade diversion costs by reducing tariffs in a non-preferential manner". Johnson (1960); and Cooper-Massell (1965) separately provided a formal treatment of this question and suggested that formation of the preferential trading arrangements is largely motivated by political other than economic reasons since their regimes can not breed superior economic effects to unilateral trade liberalization. They cited the pursuit of ISI in Latin America and Africa, and maintenance of peace and harmony between France and Germany in the EU case as two examples of such political reasons for PTAs formation. Technically, Johnson (1960) "advocated that the measurement of trade creation and trade diversion should include production and consumption effects as changes in import demands were a consequence of the formation of a customs union and the tariff reduction or elimination" (Grunbaum 2007, p. 67). Cooper-Massell

(1965) on the other hand observed that measurement of the welfare effects from a customs union has to include the impacts of a tariff reduction which results in consumer surplus gains and not just those of the pure trade diversion. This means that if the former effect is larger than the later, then the regime is beneficial to the country. Notwithstanding this inclusion, Cooper-Massell (1965) maintained that a negative welfare effect would be had from these preferential trade arrangements.

Meade (1965); Mundell (1964) and Corden (1972) also provided influential augmentations to the Vinerian framework[5]. The initial theoretical framework developed by Jacob Viner had a number of gaps that he himself knew would come up later and be addressed by other researchers. As Grunbaum (2007) observes "Although Viner was aware that economies of scale, imperfect competition, and terms of trade issues would arise, he left them unattended" (p. 66). Indeed Meade (1965) led the task by providing a critique of Viner's model and extending the same in a general equilibrium framework. He assumed existence of infinite supply elasticities and demand elasticities of zero, providing an allowance for multi-product production in all countries. "Meade's work provided a general static framework of analysis for integration agreements that admitted substitution of goods both in demand and supply and allowed for simultaneous adjustments in related factor and goods markets in trading countries" (Grunbaum 2007, p.67). Using a three country model, Mundell (1964) addressed the dynamics that arise in measuring welfare effects by accounting for changes in the terms of trade that come with the formation of preferential trade arrangements through changes in tariffs and relative prices. Investigating the relevance of the notions of trade creation and trade diversion in the face of scale economies, Corden (1972) did maintain their relevance. However, he suggested that such

[5] Grunbaum (2007) excellently synthesizes the contributions from these authors and this brief discussion draws from his work.

analyses should incorporate cost reduction and trade suppression effects that do emerge from scale economies resulting from the regime.

Methodologies for the Empirical Analysis of the Impacts of Preferential Trade Agreements

Literature cites three major quantitative analytical techniques that researchers use to empirically evaluate the effects of entering some form of an economic integration by countries. These include the gravity models, computable general equilibrium (CGE) models and the partial equilibrium (PE) models. Naturally, each one of these methods has its respective merits and demerits such that choice of the appropriate methodology has to be informed by consideration of the costs and benefits to the researcher based on the specific situation at hand, including data requirements considerations. This tends to help in balancing the inherent trade offs. It is also clear though that gravity models are employed to carry out ex-post analyses of the economic integration agreements while CGE and PE models are used to conduct ex-ante analyses that simulate "how today's economy will look in future as a consequence of a specified set of policy changes" (Piermartini and Teh 2005, p.1). The one general thing is that in all cases, the analysis undertakes to quantify the sizes of trade creation and trade diversion as a result of the policy changes thus implemented, such as formation of a PTA.

Gravity Models

The gravity models in trade policy derive their name from the 1687 Newtonian Law of Universal Gravitation[6] which held that the attractive force between two objects is positively related to their mass and inversely related to the distance between them. Economists have used the same concept to develop an analogous functional relationship of the gravity trade model. As such, bilateral flows are considered to be positively related to the size of the countries'

[6] This section draws on the work of Keith Head (2003), Piermartini and Teh (2005) and an excellent synthesis of the model evolution and structure by Grunbaum (2007).

economies and inversely related to the distance between them (Head 2003; Grunbaum 2007). This formulation was first proposed by Tinbergen (1962). As Piermartini and Teh (2005) observe that "the first empirical study of trade using the gravity model was probably Tinbergen's[7] (1962), although there was no explanation for the use of the model nor for showing how it was related to theoretical explanations of international trade" (p.38). Thus, Grunbaum (2007) summarizes the basic Tinbergen gravity model as follows;

$$T_{ij} = M_i^{\beta 1} M_j^{\beta 2} D_{ij}^{\beta 3} \varepsilon_{ij} \tag{2-1}$$

where

T_{ij} = bilateral trade flow between country i and country j,

M_i = economic mass interpreted as GDP of country i,

M_j = economic mass of country j,

D_{ij} = distance between countries i and j,

ε_{ij} = the standard error term.

The above formulation is usually transformed into its requisite logarithmic form to estimate the following;

$$\text{In}T_{ij} = \beta_0 + \beta_1 \text{In}M_i + \beta_2 \text{In}M_j - \beta_3 D_{ij} + \varepsilon_{ij} \tag{2-2}$$

Literature suggests that GDP, GDP per capita or population size can all be used to capture economic mass measured by M_i and M_j in this model while Head (2003) observes that distance is almost always measured using the "great circle" formula, which approximates the shape of the earth as a sphere and calculates the minimum distance along the surface. Thus using this formula, the distance between the capitals or commercial cities of the two economies is

[7] Other authors such as Head (2003) and Grunbaum (2007) makes a similar observation. However, Grunbaum cites the work of Sandberg (2003), who observes that Poyhonen (1963) was simultaneously working on a similar type of the model.

calculated and used in the D_{ij} variable in the model. Grunbaum (2007) explains that economic size determines the ability of the country to engage in trade as trade flows between countries is largely a function of supply conditions in the country of origin and demand conditions in the country of destination. Head (2003) gives a number of reasons to justify use of distance in the model. These include the fact that distance serves well as a proxy for transport costs that include freight and marine insurance; it indicates the time required for shipment which is crucial, especially for perishable goods; it is a proxy for communication costs which involves personal contacts between managers and customers to exchange information on the exchange to be made. Distance also captures synchronization costs involving time of delivery of inputs into the production process; it may also be a good proxy for the transactions cost of doing business; and the fact that more distant areas are likely to be more culturally different suggests that trade between such areas may be lower compared to geographically close areas/countries.

As noted above, the original gravity model was criticized for its lack of touch with the standard theoretical bases for international trade as posited in the famous Ricardian and Heckscher-Ohlin models. The former emphasized differences in comparative advantages among countries to explain trade flows and pattern while the later dwelt on the variations in factor endowment among countries. This criticism became one of the major bases for further refinements of the standard gravity model as proposed by Tinbergen. Piermartini and Teh (2005) observe that Anderson (1979) was probably the first author to establish the theoretical basis for the gravity models. They observe that Anderson (1979) did this by constructing a model "where goods were differentiated by country of origin and where consumers have preferences defined over all the differentiated products" (Piermartini and Teh 2005, p. 38).

While the standard gravity model has been lauded to have performed significantly well in explaining trade, Head (2003) notes that "there is a huge amount of variation in trade" (p.9) that these models cannot explain. As such, researchers have chosen to include a number of extra variables that have been observed to be relevant in explaining trade flows. Some of these variables include; dummies to capture the effects of country adjacency, whether a country is landlocked or not, whether two countries speak the same language or share some colonial history, whether the country is a member of some PTA or RTA, customs union, whether they share the same currency and so on. As Head (2003) observes, authors include these variables, albeit there is weak theoretical justification for doing so. The fact that the two major variables in the standard gravity model, GDP and distance tends to fit the data well, increases the temptation to include any of these seemingly relevant variables. It is important though that choice of which variables to include in the model must be guided by the specific issue at hand. As Piermartini and Teh (2005) observe that one needs to proceed carefully in analyzing the theoretical questions at hand which should guide the choice of appropriate regressors to be used in the empirical estimation method.

Empirical Application of the Gravity Model

As alluded to above, gravity models have been extensively used to evaluate the effects of preferential trading arrangements (PTA), simply by adding an intra-bloc and an extra-bloc[8] dummy variable to capture such effects in the standard model. The analysis proceeds on the presumption that the "normal trade volume" between countries is explained by two variables, economic size of the trading partners and distance between them, such that any significant effects from the PTA will manifest in either increased (trade creation) or reduced (trade

[8] This nomenclature, intra-bloc and extra-bloc, draws from Piermartini el at (2005) usage

diversion) volumes between these partners as compared to the "normal volume". Thus, trade creation is captured by a significant positive coefficient for the intra-bloc dummy while trade diversion is captured by a significant negative extra-bloc dummy variable coefficient.

Frankel (1997) applied the traditional log-linear gravity model on levels of variables to study the trade effects of a number of RTAs, including EC, NAFTA, EFTA, Adean, ASEAN, and MERCOSUR. Using total trade as the dependent variable, the model was augmented by two dummies for intra-bloc and extra-bloc trade. The study established the existence of net trade creation effects for EC, MERCOSUR and Adean, and significant trade diversion for NAFTA and EFTA. Furthermore, the intra-bloc dummies were found to have no significant effects for Adean, NAFTA and EFTA. A similar model was used by Soloaga and Winters (2001) - but with two extra-bloc dummies, one for imports and the other for exports - to study the trade effects of EC, NAFTA, EFTA, Adean, ASEAN, CACM, MERCOSUR and other blocs. The results of the model on levels showed existence of negative intra-bloc dummies for the EU, EFTA and ASEAN; and positive intra-bloc trade impacts for CACM, ANDEAN and MERCOSUR. The intra-bloc dummy for NAFTA was not statistically significant. The estimates on the first differences of the variables showed that EU and EFTA were net trade diverting, while MERCOSUR and CACM were net trade creating. Dee and Gali (2003) used the model with the augmentation similar to the one by Soloaga and Winters (2001) to study the impacts of Andean, APEC, EFTA, EC, GCC, LAFTA/LAIA, MERCOSUR, SPARTECA, CER, AFTA and a set of bilateral agreements. However, Dee and Gali (2003) constructed what they called a Member Liberalization index (an index of the coverage of the RTA), such that the three dummies would take the value of this index whenever the RTA was in force. Results from their analysis found

that nearly all RTAs studied were found to have net trade diverting effects, while net trade creating results were found only for Andean, LAFTA/LAIA, US-Israel and SPARTECA[9].

Nilsson's (2002) study on the effects of the preferences accorded by the EU to ACP countries under the Lomé Convention compared to the EU GSP arrangements provides a good example of how the gravity model can be augmented to captured a ray of other variables than those in the standard model. Dummies were included to capture the effects of cultural and historical ties and the significance of colonial linkage between former colonies and their European colonizers. The study found that exports for developing countries were significant and larger under the Lomé Convention as compared to the EU GSP arrangement and that historic ties significantly explain trade linkages for selected European countries and their former colonies.

Computable General Equilibrium Models (CGE)[10]

CGE trade models exploit the computer capability to construct a rigorous analytical framework that takes into account all market linkages, retains optimization assumptions thereby preserving its consistency with the hallmarks of the general equilibrium theory of the economy (Grunbaum 2007). Apart from their theoretical consistency, the ability of the CGE models in arriving at precise numerical estimates has also been cited in literature as one of the model strengths. This is easily attained by CGE models since "the workings of an economy and the changes that would follow specific policy implementation can be simulated, as CGE models act to emulate the functions of laboratory experiments" (Piermartini et al (2005).

It is the ability of CGE models to capture the overall picture of the changes that emanate from requisite policy changes that elevates their importance in ex-ante analyses of trade policies

[9] Piermartini et al (2005) provide a summary of these and more such studies in their work

[10] This section draws from the work of Busse et al (2005); Piermartini and Teh (2005) and Grunbaum (2007)

such as enforcement of RTAs and PTAs. As Grunbaum (2007) observes, "overall aggregate trade, terms of trade effects, factor prices, trade creation and trade diversion within an economy-wide model can be estimated; as can be obtained estimates of inter-sectoral linkages, prices, wages, and exchange rates that lead to equilibrium in product and factor markets, as well as balance of trade figures" (p. 79). As such, alternative scenarios of the specific policy change can be conjectured and their requisite potential parametric outcomes simulated.

While CGE models may be more suitable to analyze the overall trade and welfare effects of changes in trade policy, their data requirements are significant and can be a major hurdle for studies involving developing countries. These models require what is known as the "social accounting matrix", which involves input and output data for the entire economy and their requisite inter-sectoral linkages plus their associated contributions to output; government fiscal and/or budget accounts, disaggregated into consumption, investment, government expenditures, balance of payments; as well as data on the volumes and values of imports and exports disaggregated by their requisite composition, origin and destination (Grunbaum 2007). Besides, these data matrices must be appropriately arranged into revenues and expenditures, balanced and standardized (Piermartini and Teh 2005; Grunbaum 2007). Apart from the social accounting matrix construct, CGE models require exogenous variables that capture the behavior and response of producers and consumers to any changes in incomes and relative prices resulting from the policy changes thus effected. The parameters most often needed are: elasticities of substitution related to the responsiveness of producers to changes in relative prices of factors of production; consumer demand and income elasticities; and Armington elasticities, which determine the substitutability between domestic and imported products. Usually such elasticities are borrowed from previous econometric studies and may be adapted into the current model

(Grunbaum 2007). This considerable amount of good quality data can be rarely obtainable in developing countries, let alone the availability of prior econometric studies in those countries from which the stated elasticities could be borrowed. Otherwise, the persistence to applying the model in studies involving those countries may result in use of dubious quality data.

As indicated above, the nature of the data employed by the CGE model is significantly aggregated. This level of aggregation has been criticized as a potential source of loss of detail in fundamental relationships that may be obtained. Indeed as Grunbaum argues, "complex simulation models where large amounts of data inputs produce precise outputs can be deceiving as precise sources of certain results are not clearly identifiable" (Grunbaum 2007, p 81). Pundits further attack users of the model for their tendency to choose values of the requisite elasticities arbitrarily and the Armington elasticities from outdated studies. In view of these concerns, some have suggested that systematic validation of CGE simulations through ex-post evaluation is necessary to enhance the confidence and the predictive potential of the analytical results derived from the initial studies (Piermartini and Teh 2005).

Application of CGE Models in Empirical Work

In spite of the limitations cited above, CGE models have been used quite extensively to analyze the trade effects of not only RTAs but also multilateral trade agreements, such as the Uruguay and Doha rounds of trade agreements under the WTO. In fact, CGE models have the ability to isolate the trade creation and trade diversion effects from such policy changes by sector which allows computation of sectoral welfare effects other than aggregate.

Grunbaum (2007) cites the work of Kerkala, Niemi, and Vaittinen (2000) who used a multiregional general equilibrium model to examine the consequences for African ACP countries of a post-Lomé world. Their work simulates the effects of entering into force of WTO compatible trading arrangements under the proposed EPA as compared to the ones obtainable

under the EU GSP system. The authors employed the Global Trade Analysis Project (GTAP) model to simulate the potential outcomes which suggested negative welfare effects for requisite African countries. Results also showed increased trade volumes under the EPA and declining volumes under the EU GSP system. Grunbaum summarizes that "in both cases world welfare increased, however, positive effects were limited to the EU while they were absent in ACP countries" (Grunbaum 2007).

Another study on the potential effects of reciprocal trade liberalization under the Cotonou Agreement for the West African Economic and Monetary Union (UEMOA) against the EU was conducted by Wolf (2002). Wolf (2002) employed the CGE tool to quantify the gains from this policy change and compare them to the losses in tariff revenue that would likely follow to these UEMOA countries. The results from this study showed that liberalization under the Cotonou Agreement would have significant negative effects on tariff revenue generated by the UEMOA countries.

Keck and Piermartini (2005) used an applied general equilibrium model covering 15 regions and 9 sectors to simulate the impact of signing EPAs with the EU for the Southern African Development Community (SADC) countries. The standard GTAP model was extended to include the elimination of textile quotas, EU enlargement to 25 members as well as tax revenue sharing and a common external tariff among SADC countries. Simulation of outcomes for various liberalization scenarios was undertaken. The issue of tariff revenue loss was also tackled in their study, including calculation of requisite tax replacement values. The results demonstrated that EPAs with the EU are welfare-enhancing for SADC overall, leading also to substantive increases in real GDP. They also found that, for most countries, further gains could arise from intra-SADC liberalization. While the possibility of the EU entering an FTA with

other countries, such as MERCOSUR, was found to reduce estimated gains, these gains still remained positive. In terms of sectoral level effects, the largest expansions in SADC economies was found in the animal agriculture and processed food sectors, with less attractive levels in the manufacturing following EU-SADC liberalization.

Piermartini and Teh (2005) summarize a number of studies that used CGE models to simulate the potential benefits from trade liberalization under the Uruguay and Doha Trade Agreements, noting their numeric benefits in dollars to world welfare[11].

Partial Equilibrium Model (PE)[12]

By their nature, PE models focus on a detailed analysis of only one particular market or sector, holding all other factors that can affect the same constant. In trade policy analysis, PE models have been used extensively to evaluate the effects of discriminatory tariff modification such as that which would occur under the EU-ACP EPA arrangement. In his quest to quantify trade effects of the then newly established European Community, Petrus J. Verdoorn (1960) developed a partial equilibrium model based on the Vinerian theoretical framework that remains significantly influential even today. Verdoorn's original model has been modified by a number of researchers. Grunbaum (2007) observes that two basic types of PE models have so far been used in the analysis of preferential trade liberalization arrangements. Of these, the first one assumes trade in a homogenous commodity while the second assumes trade in a differentiated product and existence of infinite supply elasticities. Grunbaum (2007) explains that under the first scenario, a reduction in tariff tends to spur expansion of trade flows, only to be limited by the corresponding supply elasticities. This implies that some significant growth in trade flows

[11] These studies are not covered here since our focus is on regional trade arrangements.

[12] This section draws heavily on the work of Grunbaum (2007); Piermartini (2005) and Busse et al (2004). However, we only provide a brief overview of the Verdoorn model in this section, leaving a detailed derivation in the next chapter

can be observed if the supply elasticity of a beneficiary country such as the EU bloc in our case is high. Under the second scenario, it is the degree of substitutability among goods that limit trade flows expansion. As such, "a high elasticity of substitution leads to a substantial increase in trade flows and likewise a low elasticity of substitution leads to a small increase in trade flows" (Grunbaum 2007, p. 84).

Overview of the Verdoorn Model

The Verdoorn model follows the second of the two types of PE models stated above such that product differentiation between supplying countries is assumed and that these products are imperfect substitutes in use. Busse, et al (2004) argues that "this assumption seems reasonable for African countries, since the majority of African imports consist of manufactured goods" (p. 17). The model further inherits the usual partial equilibrium analysis assumptions including the following: no repercussions on exchange rates or incomes as a result of changes in trade flows, iso-elastic import-demand functions, and existence of infinite supply elasticities (Busse, et al 2004). Besides these assumptions, "the model requires knowledge of import demand elasticities and the elasticities of substitution between preferred and non-preferred imports" (Grunbaum 2007, p.84). As such, trade creation[13] is captured as follows;

$$TC = M_P \, \varepsilon \, [\Delta t/(1+t)] \qquad (2\text{-}3)$$

where

TC = Trade Creation

M_P =Imports from preferences beneficiary

ε = Import demand elasticity

t = tariff

[13] This follows Grunbaum (2007) specification of the same

In this formulation, it is further assumed that "the substitutability between imports from preferred sources and domestic production is equal to the substitutability of all imports and domestic production" (Grunbaum 2007, p.85). On the other hand, trade diversion is formulated as follows;

$$TD = M_P\ \alpha_2\ (\sigma - \varepsilon)[\Delta t/(1+t)] \qquad (2\text{-}4)$$

where

TD = Trade Diversion

M*P* =Imports from preferences beneficiary

α_2 =Share of imports from non-preference beneficiary

σ =Elasticity of substitution

ε = Import demand elasticity

t = tariff

One of the major variants to the original Verdoorn (1960) model is that developed by Baldwin and Murray (1977)[14], which utilizes data for domestic production on top of data on imports from non-preferred suppliers. Thus, while the trade creation formulation is similar to the Verdoorn model, the Baldwin and Murray model does have a different trade diversion framework, which is captured as follows;

$$TD = M_P\ \varepsilon[\Delta t\ /\ (1+t)]\ [M_N / M_D] \qquad (2\text{-}5)$$

where

TD= Trade Diversion

M*P*=Imports from Preferences Beneficiary

M*N*=Imports form Non-Preferred country

M*D*=Domestic Production

ε = Import Demand Elasticity

[14] This section is a synthesis of Grunbaum's (2007) work, which identifies the Baldwin and Murray (1977) model as the major variant of the original Verdoorn model

t= Tariff

In this formulation, the authors assumed that the substitutability between imports from a preference beneficiary source and those from a non-beneficiary source was equal to the substitutability between imports from a preference beneficiary source and domestic production (Sawyer and Sprinkle 1989; Grunbaum 2007).

Despite their detail, PE models have been criticized for a number of reasons. One such matter at issue relates to the choice of elasticities used in the model. As Grunbaum (2007) observes, "the values for the elasticities used are chosen arbitrarily on the basis of estimates often considered unreliable" (Grunbaum 2007, p.87). Secondly, any change in trade flows is bound to result in repercussions in all other sectors of the economy. As such, the *ceteris paribus* assumption used in PE models tends to be considerably unrealistic. Pundits criticize PE models for failure to take into account these resultant inter-sectoral linkages and factor markets dynamics. As alluded to before, PE models have the advantage at being detailed in their analyses. These models permit researchers to conduct analyses at highly disaggregated levels, thus allowing for detailed analysis even by tariff line (Grunbaum 2007). This level of detail allows analysts to be able to pin-point those specific products and trading partners that may show significant effects of the alternative policy simulations. As such, PE models have been used extensively in empirical analyses of discriminatory trading arrangements.

Empirical Application of PE Models

Busse et al (2004) applied the Verdoorn model to estimate the trade and budget effects of the EPA on ECOWAS countries and Mauritania. Their study was aimed at addressing the fears among African countries of entering the proposed EPAs without clear understanding of the associated costs and benefits from the same. The results showed that imports from the EU in the ECOWAS countries were expected to increase in the range running from 5.2 percent for Guinea-

Bissau to 20.8 percent for Nigeria. Importantly, Busse et al (2004) further reports that "Trade creation exceeds trade diversion (in absolute levels) in all scenarios and for all West African countries" (p.26). However, the budgetary effects were found to be very severe for some of the West African countries. Cape Verde and Gambia were cited as the two countries to be severely impacted by the impending tariff revenue decline. The authors went a step further to identify those product categories that were found to have highest budgetary effects as well as trade creation and trade diversion effects for each of the West African countries covered. This, they sorted out by both absolute and relative changes.

Max Grunbaum (2007) used the Verdoorn version of the PE model to project the effects of trade liberalization in the Organization of Eastern Caribbean States (OECS) countries along the EU-ACP proposed EPAs which are essentially geared to create an FTA between these two trading blocs. He undertook to quantify trade creation, trade diversion and fiscal impacts for three alternative liberalization scenarios. The alternative scenarios were contemplated dependent on scope of discrimination to other trading partners as EPAs come into force. The results demonstrated that trade liberalization results in small to modest positive trade and negative fiscal impacts. The other importantly indication from the results was that they "provided empirical support to theoretical arguments and policy suggestions that, for small countries such as the OECS, broader trade liberalization is superior to limited regional trade agreements" (Grunbaum 2007, p.12).

Analysis of Fiscal Impacts

As we pointed out in the first chapter, the issue of tariff revenue loss stands out as one of the major fears related to trade liberalization, especially among the developing countries. It is more of an issue among these countries since tariff revenue accounts for a significant proportion of total government revenue. The concern is that loss of such a significant proportion of revenue

may suffocate the government's ability to deliver services to the citizenry and increase impediments towards economic development. This fear is exacerbated by consideration of a myriad of other short-term adjustment costs associated with liberalization such as "increased unemployment, reduction in national output, elimination of certain domestic industries and possible macroeconomic instability" (Grunbaum 2007, p.91. It is such fears as these that have inspired interest among researchers on carrying out empirical studies on the anticipated levels of tariff revenue loss resulting from liberalization and derive comparisons with the anticipated levels of benefits from the same to establish an overall net position.

A survey of literature on this subject reveals two distinguished themes along which discussion and research has dealt with this issue in the past. While the first of these has focused on the measurement and evaluation of the relative importance of tariff revenues as a proportion of aggregate government revenue, the second theme has aimed at exploring alternative tax systems and/or fiscal reforms that could help compensate for tariff revenue losses (Grunbaum 2007). To understand the fiscal effects of tariff reduction in pursuit of trade liberalization, one has to understand the ways through which such a policy change impacts tariff revenue. Grunbaum (2007) reviewed the 2004 Report of the Inter-American Development Bank (IADB) and summarizes five ways through which tariff reduction affects tariff revenue. These include; direct effects or losses due to the reduction of a given tariff line; indirect effects or revenue decline from taxes imposed on CIF plus tariffs that are forgone due to the tariff rate decline; elasticity effects which affect the revenues depending on whether they cause an increase or decrease in the volume of trade of certain products; substitution effects which result in trade diversion from the displacement of imports from partners not facing tariffs; and induced effects that are changes in total tax revenues resultant from consumption and production patterns borne

of economic structures post liberalization (Grunbaum 2007). Appreciation of these five channels demonstrates how complex the resultant net outcome from trade policy change can be. As literature shows, trade liberalization can in fact result in increased tariff revenue generated by the government depending on a given situation. A host of factors do affect the net impact from trade policy change for a country. Some of these factors include the initial conditions such as tariff structures and general restrictiveness to trade, domestic tax including reforms to quantitative restrictions, reduction in the number of tariff levels, and exchange rates and exchange rate regimes. In general, the more restrictive the initial conditions, the more the losses in tariff revenue, and the tighter the government is on the exchange rate regime the higher the costs from liberalization.

The level of development for the country is found to be more important in determining the country's ability to offset loss of tariff revenue due to liberalization. The work of Khattry and Rao (2002) was central at establishing this perplexing phenomenon. They argued that structural limitations characterizing low-income countries make the gradual substitution of trade taxes by domestic sources of revenue very difficult (Grunbaum 2007, p.93). The low levels of development among these countries tend to impact negatively on the breadth and levels of domestic tax revenue collections. As such, the potential for these governments to offset lost revenue from tariff with domestic collections is very minimal.

CHAPTER 3
MODEL DEVELOPMENT

This study intends to utilize the partial equilibrium (PE) model to simulate the trade effects and fiscal impacts of trade liberalization for Malawi under the EPA arrangement with the EU. The Verdoorn (1960) version of the PE model, initially introduced in chapter two above will be used to undertake this empirical work. The choice of this model has been dictated by data considerations and the ex-ante nature of the analysis. As insinuated in the previous chapter, ex-ante analyses can be conducted by either using the computable general equilibrium (CGE) or PE models. However, the enormous data requirements for the CGE models - aspects of some of these data do not seem readily available for Malawi - has left us with the appropriate PE model. Notwithstanding their simplicity as compared to CGE models, PE models have been extensively used for analyses of this type, from which progressive policy recommendations have emanated.

Specification of the Empirical Model[1]: The Verdoorn model is based on a couple of restrictive assumptions. First, the model applies the Armington assumption of product differentiation such that imported products from different countries are assumed to be imperfect substitutes in use. For Malawi, we find this assumption to be reasonable as the majority of the country's imports are manufactured goods. The Verdoorn model is based on the partial equilibrium analysis and therefore makes the following other assumptions; trade flows changes do not have any repercussions on the incomes and exchange rates; iso-elastic import demand elasticities; and infinite supply elasticities. The last assumption seems particularly appropriate in the case of Malawi vis-à-vis the EU as the latter's exports to the former must account for a significantly small proportion of its total exports. On the other hand, exports from other smaller

[1] The empirical model in this section is developed based on the one specified by Busse et al (2004) and Grunbaum (2007).

Southern African Development Corporation (SADC) countries to Malawi may not support this assumption. However, we are captivated to maintain the assumption on the understanding that exports to Malawi from these small SADC countries do not constitute significant proportions of their total production. Nonetheless, we do recognize that those elasticities are less than infinite.

To conduct an ex-ante analysis of trade effects, one would consider a particular category of commodities, say M, and proceed to model the consumer's behavior in the importing country. Following this reasoning; the utility function the consumer is assumed to maximize can be specified as follows;

$$U = f\,[f_p(M_P, M_N), M_D] \tag{3-1}$$

where

f_p = denotes a separable homogenous branch of the aggregate utility function

M_P = Imports of commodity M from preference beneficiary sources

M_N = Imports of commodity M from non-preference beneficiary sources

M_D = Domestic production of commodity M

The assumption of homogeneity in the specification is quite consequential in that it implies that total imports of M, given by $[M_P+M_N]$ are substituted equally for domestic production. The formal implication of this separability of the utility function is that the Verdoorn model differentiates between the sources of imports, those from preference beneficiaries and those from non-beneficiaries, labeled herein as M_P and M_N (Grunbaum 2007).

There are two other crucial assumptions based on which the Verdoorn model is developed. First, that the demand function for the preference donor, Malawi in our case, for a single category of products such as M, is given by the following specification;

$$M_P + M_N = \beta P_P^{\varepsilon\alpha_P} P_N^{\varepsilon\alpha_N} \tag{3-2}$$

where

P_P = the price of imports of M from the preference beneficiary sources

P_N = price of imports of M from the non-beneficiary sources

ε = elasticity of import demand

$\alpha_P = M_P/(M_P + M_N)$ = Share coefficient of preferred imports

$\alpha_N = M_N/(M_P + M_N)$ = Share coefficient of non-preferred imports

$\alpha_P + \alpha_N = 1$

Second, the definition of the elasticity of substitution (σ) between preferred and non-preferred imports can be given as follows;

$$\frac{M_P}{M_N} = \gamma \left(\frac{P_P}{P_N}\right)^{\sigma} \quad \text{; where } \gamma \text{ is a parameter} \tag{3-3}$$

As Malawi strikes off tariffs (t) under the EPA arrangement, only imports from the preference beneficiary countries will be affected, thus reducing their price P_P while leaving the price for non-preferred imports unchanged, such that $\delta P_N = 0$. We proceed to differentiate Equation 3-3, divide the result by Equation 3-3 and using $\delta P_N = 0$, we derive the following;

$$\frac{\delta\left(\frac{M_P}{M_N}\right)}{\frac{M_P}{M_N}} = \frac{\delta M_P}{M_P} - \frac{\delta M_N}{M_N} = \sigma \frac{\delta P_P}{P_P} \tag{3-4}$$

After totally differentiating Equation 3-2 and dividing the result by Equation 3-2, we derive;

$$\frac{\delta M_P + \delta M_N}{M_P + M_N} = \varepsilon \alpha_P \frac{\delta P_P}{P_P} + \varepsilon(\log P_P - \log P_N)\delta\alpha_P \tag{3-5}$$

Substituting definitions for α_P and α_N following Equation 3-2 into Equation 3-5, we obtain the following;

$$\alpha_P \frac{\delta M_P}{M_P} + (1-\alpha_P)\frac{\delta M_N}{M_N} = \varepsilon\alpha_P \frac{\delta P_P}{P_P} + \varepsilon \log P \delta \alpha_P \tag{3-6}$$

By using Equation 3-4, we proceed to rearrange Equation 3-6 to obtain the expression for the derivative of α_P as follows;

$$\delta\alpha_P = \alpha_P(1-\alpha_P)\sigma \frac{\delta P_P}{P_P} \tag{3-7}$$

We next eliminate $\frac{\delta M_N}{M_N}$ from Equation 3-4 by multiplying with $(1-\alpha_P)$ and rearranging the equation to obtain the following;

$$\frac{\delta M_P}{M_P}(1-\alpha_P) - \frac{\delta M_N}{M_N}(1-\alpha_P) = \sigma\frac{\delta P_P}{P_P}(1-\alpha_P) \tag{3-8}$$

$$\frac{\delta M_N}{M_N}(1-\alpha_P) = \left(\frac{\delta M_P}{M_P} - \sigma\frac{P_P}{P_P}\right)(1-\alpha_P) \tag{3-9}$$

Next, we insert Equation 3-9 into Equation 3-6 and use Equation 3-7 to substitute the $\delta\alpha_P$ and obtain,

$$\frac{\delta M_P}{M_P} = [\sigma(1-\alpha_P) + \varepsilon\alpha_P + \log P_P\, \alpha_P(1-\alpha_P)\sigma]\frac{\delta P_P}{1+P_P} \tag{3-10}$$

Since *log P* is close to zero, if $P_P \approx P_N$, then Equation 3-10 can be expressed as follows;

$$\frac{\delta M_P}{M_P} = [\sigma(1-\alpha_P) + \varepsilon\alpha_P]\left(\frac{\delta P_P}{P_P}\right) \tag{3-11}$$

Now, the price for preferred imports can also be expressed in terms of export prices as follows;

$$P_P = P_X(1+t) \tag{3-12}$$

Where P_X is the export price exclusive of the tariff (*t*). The total derivative of Equation 3-12 gives the following;

$$\delta P_p = \delta P_X(1+t) + P_X \delta t \tag{3-13}$$

We divide Equation 3-13 by Equation 3-12 to obtain the change in preferred import prices as follows;

$$\frac{\delta P_P}{P_P} = \frac{\delta P_X}{P_X} + \frac{\delta t}{1+t} \tag{3-14}$$

By considering that $\delta P_X = 0$ and assuming infinite supply elasticities, Equation 3-14 culminates into;

$$\frac{\delta P_P}{P_P} = \frac{\delta t}{1+t} \tag{3-15}$$

We now utilize Equation 3-11 and Equation 3-15 to obtain the expression for the total expansion in imports from the preferred sources resulting from preferential liberalization as follows

$$\frac{\delta M_P}{M_P} = (\sigma(1-\alpha_p) + \varepsilon\alpha_p)\left(\frac{\delta t}{1+t}\right) \tag{3-16}$$

Since $\alpha_N = (1 - \alpha_p)$, the total expansion in imports above can be re-written as

$$\frac{\delta M_P}{M_P} = \left(\varepsilon + \alpha_N(\sigma - \varepsilon)\right)\left(\frac{\delta t}{1+t}\right) \tag{3-17}$$

As indicated in chapter two above, the total change in imports given by Equation 3-17 comprises the trade creation (TC) and trade diversion (TD) components. The former refers to the change in trade flow between the preference donor and preference beneficiary as consumers in the importing country substitute cheap imports for domestic production while the later concept captures the amount of preferred imports substituting those imports coming from non-preference beneficiary sources (Grunbaum 2007). We therefore separate Equation 3-17 into these two components as follows;

$$TC = M_p \varepsilon \left(\frac{\delta t}{1+t}\right) \quad (3\text{-}18)$$

And;

$$TD = M_p \alpha_N (\sigma - \varepsilon) \left(\frac{\delta t}{1+t}\right) \quad (3\text{-}19)$$

We finally deal with the expected change in tariff revenue resulting from preferential trade liberalization of the sort we are concerned with. This change is given by the sum of the following: i) preferred imports multiplied by the preferential tariff rate, and ii) the amount of non-preferred imports multiplied by the tariff rate applicable to imports from non-beneficiary sources (Grunbaum 2007). Thus, we express the change in import duty revenue (δID) as follows;

$$\delta ID = M_p t_p + TD t_N \quad (3\text{-}20)$$

where

ID = import duties

t_p = tariff rate applicable on preferred imports

t_N = tariff rate applicable on non-preferred imports

In this study, Equation 3-18, Equation 3-19 and Equation 3-20 will be utilized to estimate the trade effects and tariff revenue impacts of trade liberalization under the EPA/PTA arrangement for Malawi vis-à-vis the EU.

CHAPTER 4
DATA REQUIREMENTS, SOURCES AND TREATMENT

The simulation and evaluation of the impacts of Malawi entering the EU-ACP Economic Partnership Agreement will be carried out using the Verdoorn's (1960) Partial Equilibrium model. As indicated in the previous chapter, use of the import demand elasticities *(ε)* allows us to employ import data without relying on domestic production data. These domestic production data, if were to be used, have to be captured at a highly disaggregated level such as the eight-digit level of aggregation (i.e.; HS-8) which is being used in this study. As is the case with most other developing countries, such type of data were not readily available for Malawi so that use of import data was particularly necessary in this study. At the eight-digit level of data aggregation, the simulations permitted us to assess the effects of liberalization at product level and identify those products most impacted by the contemplated trade policy changes. To this effect, we managed to collect the national eight-digit HS tariff and trade schedules from the Malawi National Statistical Office (NSO)[1]. These data were obtained for the baseline year of 2006[2].

The raw data obtained from the NSO indicated that in 2006, Malawi imported goods and services from the 27 EU countries using 1,602 tariff lines compared to the total number of 3,956 lines utilized during the same year at the HS eight-digit level of aggregation.

Malawi has three major trade-related taxes, of which import duties are just one type. The other two types include excise duties and import surtaxes. At every eight-digit tariff line utilized

[1] These data are initially captured by the Malawi Revenue Authority, a Government Agency mandated to collect taxes. However, it is the National Statistical Office that has the legal right to process and disseminate all statistical information for the country. As such, the NSO obtains these data sets from the MRA on a monthly basis

[2] The choice of this year was based on the planned deadline for EPA effectiveness which was initially scheduled to start in January, 2008. As such, the capture data were the most recent years for which the NSO had complete data sets as required by the study prior to the EPA signing deadline.

during the baseline year for which data was obtained, the requisite CIF[3] import value was captured along with its import duty, excise duty and the import surtax that were levied by the Malawi Revenue Authority. These data sets were obtained in the local currency, the Malawi Kwacha. As such, we converted all the Malawi Kwacha values into United States Dollars using the official average annual exchange rate as reported by the NSO and the Reserve Bank of Malawi. The rate reported and applied in this study was MK139.34 to US$ 1.00 for the baseline year of 2006.

In line with the spirit of the study, two different scenarios of the scope of liberalization were contemplated, with each scenario changing the definition of which (or how many) countries constitute the "preferred source" of imports compared to the rest of the world. First, we assumed a scenario whereby Malawi enters into an EPA arrangement with the EU without any ancillary agreements with other trading partners outside the EU realm. For this scenario, the trade and tariff data were organized in such a manner that at every tariff line, imports from all the 27 EU countries were categorized as *preferred imports* as distinguished from those coming from elsewhere. Secondly, we built on the first scenario by contemplating a situation whereby Malawi correspondingly removes tariff barriers on imports from fifteen (15) other countries from the Southern Africa Development Corporation (SADC) region[4]. This is not a far-fetched assumption as negotiations for trade liberalization within this region have been on-going since the early 1990s. To capture this scenario, we added all imports from these fifteen (15) member states into the basket of *preferred imports* from the EU. The significance of the second scenario can be well appreciated if one considers the fact that a significantly higher proportion of Malawi's trade is

[3] Cost, Insurance and Freight aggregate value

[4] The fifteen Member States of SADC include; Angola, Botswana, Democratic Republic of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe.

conducted within the SADC region. In fact, during the baseline year, Malawi's imports from SADC accounted for about 58.2 percent of total imports.

The debate on whether Malawi must move forward and implement the EPA agreement with EU is of little value at this point because such a decision was already made at an ACP level, even though the country has not moved forward with the implementation of the agreement. Meanwhile, Malawi's trade with EU countries utilizes the Everything But Arms (EBA) trading arrangement which is 100 percent unilateral such that the EU can decide to terminate it anytime that they want to force Malawi along with other ACP least developed countries to migrate to the EPA arrangement. In such an event, Malawi would be left with just two options, enforcing the EPA or start utilizing the Generalized System of Preferences (GSP) framework. However, the preferences under the EPA agreement are far more rewarding to Malawi than those offered under GSP framework. To this extent, our interest in the current study was to explore alternative ways through which Malawi could migrate to the EPA framework in the most rewarding manner. As such, analysis of the import tariff removal along the two broad liberalization options explained above was intended to provide us with vital information regarding the costs and benefits of a more encompassing liberalization framework for the country as compared to a lean targeted liberalization scenario. To this effect, trade creation, trade diversion and fiscal impacts for both of the two contemplated liberalization scenarios were computed. It was envisaged that based on such results, the study will derive and describe alternative trade policy options for the government.

The last bit of data as per the applicable model in this study was with respect to two crucial variables for the elasticity of import demand and the elasticity of substitution. Knowledge of these elasticities is an important ingredient in ex-ante analyses of trade policy reforms.

Unfortunately, realistic figures for these two variables at the eight-digit level of data aggregation are non-existent for most of the developing countries, let alone Malawi. As such, strong assumptions about the levels of these elasticities were made. First, an extensive survey of the empirical studies of import demand elasticities was made and one current such study was the one conducted by Sebastian Vollmer, et al (2009)[5]. In their study, Vollmer and colleagues employed empirical trade imports data to estimate the values of import demand elasticities for nine African countries[6]. The same data was used to simulate the trade effects of an EPA for each one of the nine countries. However, the calculations were neither done at each tariff line nor at each HS chapter but rather blocked into two major product categories including Non-manufactured goods (HS chapters 01 to 24) and manufactured goods (HS chapters 25 to 97). In this study, we analyzed the socio-economic realities and trade structure of Malawi vis-à-vis each one of the said countries. It was concluded that among the nine, Mozambique shares the most similarities with Malawi. Uganda was found to be next to Mozambique in being similar to Malawi as compared to the rest of the countries. As such, the import demand elasticities calculated by Vollmer and friends for Mozambique were adapted for use in this study. The adaptation was largely with respect to the assumed values of elasticities for the non-manufacturing category, which were adjusted upwards by 39 percent to take into account the move from the HS-0 to HS-2 category of the level of aggregation to the HS-3 to HS-8 category of the level of aggregation[7]. The basis for the 39 percent adjustment follows the empirical work of Kee, Nicita, and Olarreaga (2004) who estimated elasticities for different countries at the three and six digit level and found that on

[5] Vollmer, et al (2009); EU-ACP Economic Partnership Agreements: *Empirical Evidence for Sub-Saharan Africa*

[6] These Includes the following: Botswana, Cameroon, Cote d'Ivoire, Ghana, Kenya, Mozambique, Namibia, Tanzania, and Uganda.

[7] Vollmer et all (2009) categorized the levels into these two and only calculated the elasticity of Import Demand for the Non-Manufacturing at the HS 0 to HS 2 levels.

average, the latter estimates were 39 percent higher than the former. The same principle was applied by Grunbaum (2007) in his dissertation research. A single (and not two) adjustment was made in line with Vollmer et al's categorization of the HS chapters in their calculations. For sensitivity analysis, we used both of the values calculated by Vollmer and colleagues, i.e.; the one for Mozambique and that for Uganda. The major results reported in this study are based on the Mozambique elasticity value since Malawi is far more similar to Mozambique than Uganda in terms of their GDP per capita as well as import structure. For the same reason, we included the mid-level value of import demand elasticity employed by Grunbaum's study.

Since Vollmer et al (2009) did not calculate the levels of elasticity of substitution, we employed those levels used in Grunbaum's study. This may at first sight appear to be a strong assumption, but as Vollmer et al (2009) observe, "many of the elasticity estimates across import categories and across these developing countries have very similar magnitudes"[8]. We also employed three levels of magnitudes for this variable to provide useful insights on the sensitivity of the simulations with respect to such changes. As such, the assumed values of elasticities employed in this study are as detailed in Table 4-1 below.

Table 4-1. Assumed values of elasticities

Product category	Elasticity of Import Demand		Elasticity of Substitution			
	Vollmer study based		Grunbaum study based	Grunbaum Study Based		
	Mozambique basis	Uganda basis	Grunbaum - Mid	Low	Mid	High
Agricultural goods (01 - 24)	-1.65271	-0.72558	-0.97	1.39	2.78	4.17
Manufactured & Semi-Man goods (25 - 97)	-1.005	-0.684	-1.53	2.50	4.17	4.17

[8] Vollmer et al (2009): EU-ACP Economic Partnership Agreements: *Empirical Evidence for Sub-Saharan Africa*; pg 14. World Development Report: Background Paper. University of Gottingen, Germany. pg 14

CHAPTER 5
EMPIRICAL RESULTS

Utilizing the model developed in chapter three and the data described in the previous chapter, we simulated trade effects and fiscal impacts under two broad liberalization scenarios. The first of these reflects the outcome of Malawi's possible EPA with the EU while the second builds on the first by including an FTA with the rest of SADC member states. One major assumption that has to be pointed out from the onset is with respect to interpretation of the results vis-à-vis what would realistically be obtainable. Under normal circumstances, the actual implementation of the proposed EPA between Malawi and the EU would be expected to be phased out over some considerable time period such that parties to the agreement would be reducing tariffs on imports on a gradual basis. It is not unusual for this period to take ten years or more. Besides, even full implementation of such agreements does not necessarily result into 100 percent reduction of existing tariffs on all products as parties tend to retain some level of protection for some strategic commodities. An examination conducted by the WTO's Committee on Regional Trade Agreements suggests that FTAs typically cover between 80 and 95 per cent of the trade between FTA members (WTO 2002; Busse et al 2004). As such, trade effects and fiscal impacts are also expected to be gradual in that the full impact is only felt after complete elimination of tariff on imports is attained. The outcome of the simulations in this study assumes full and immediate elimination of import tariffs by Malawi during the first year of implementation. The results therefore capture an end-period and/or long term static effect of complete tariff liberalization through the implementation of the EPA and/or SADC FTA by Malawi.

Trade Effects

Simulation results indicating the trade effects for the two broad scenarios are presented in Table 5-1 and Table 5-2 below. As discussed in the previous chapters, values for trade creation, trade diversion and total trade effects were calculated within the realms of each one of the two contemplated trade liberalization frameworks. In particular, Table 5-1 presents the trade effects of an EPA with the EU while maintaining the status quo on all other trading partners. As highlighted in Table 5-1, the simulated net trade creation values were negative, and significantly so, for all assumed elasticity levels. This implies that an EPA with the EU alone would result in significant levels of trade diversion for Malawi, shifting the structure of imports source away from non-EU trading partners and towards EU member states. The simulations further illustrate that implementation of the EPA would result in significant increases in EU imports into Malawi, with the least projected increase of 16.5 percent for the lowest elasticity value and 26.9 percent for the mid-range of the most favored elasticity value[9] in this study. These huge increases are largely reflective of the significantly high pre-simulation tariff rates on EU imports. As compared to the baseline total imports value, the simulations demonstrated that *ex-post* imports from the EU would increase by percentage levels in the range of 2.4 to 4.7 percent, with an increase of about 4 percent based on the most favored elasticity value in this study.

Table 5-2 presents the trade effects of implementing a broader trade liberalization policy, which includes SADC member states by way of implementing a SADC FTA concurrently with the implementation of the EPA with the EU. As indicated in the table, the absolute values of simulated trade effects were much higher in this case as compared to the first scenario. Most

[9] As indicated in chapter 4, the elasticity values based on Mozambique figures as calculated in the Vollmer, et al study are recommended in this study. Other values provide useful insights into deducing the sensitivity of the simulations to changes in elasticity values.

importantly though is the fact that for all but two elasticity scenario sets, trade creation values were significantly higher than trade diversion figures. As such, for all but those two scenarios, trade effect simulations resulted in substantially higher positive net trade creation values that ranged from about US$ 20 million for the low Ugandan based elasticity scenario case to US$ 85 million for the low-case of the Grunbaum elasticity scenario level. The total net trade creation value for the mid-case of the most favored elasticity value in this study was US$ 27 million. In terms of *ex post* trade flow effects, the simulations showed that imports from the EU and SADC region would increase by about 20.2 percent from the baseline year value, based on the mid scenario case of the study preferred elasticity value. Variation of the elasticity value along the other scenarios demonstrated that imports would increase in the range of 12.7 to 25.7 percent as compared to the baseline year import value. As the table further demonstrates, the increases in imports ranged from about 9.4 percent to 18.9 percent vis-à-vis total imports obtainable during the baseline year. It is worth noting that large increases in imports were simulated under this trade liberalization scenario as compared to the case where only EU imports benefited from a preferential tariff regime. This is largely because of the fact that about half of Malawi imports come from within the SADC region such that inclusion of the same in tariff liberalization was found to have significantly encouraged increased intra-region trade.

As insinuated in the previous chapters, economists view trade creation as welfare improving since consumers in the importing country tend to substitute more costly domestically produced goods with low cost imports from the beneficiary country. On the other hand, trade diversion entails displacement of the low cost imports from non-beneficiary trading partners by the expensive imports from beneficiary countries, which would be EU in our case. As such, and on the basis of the simulation results describe above, it was noted that an EPA with the EU alone

Table 5- 1. Trade effects from tariff elimination by Malawi on EU imports only

Basis of Import Demand Elasticity	Scenario setting for the level of Elasticity of Substitution	Trade creation in US$ (TC)	Trade diversion in US$ (TD)	Net trade creation in US$ (TC – TD)	Total trade effects in US$ (TC +TD)	Total trade effects as a percentage of preferred imports	Total trade effects as a percentage of total imports
Mozambique based	Low	12,501,056.99	23,686,280.19	(11,185,223.20)	36,187,337.18	20.51	3.04
	Mid	12,501,056.99	34,934,612.13	(22,433,555.14)	47,435,669.12	26.89	3.98
	High	12,501,056.99	35,802,198.19	(23,301,141.20)	48,303,255.19	27.38	4.05
Uganda based	Low	8,000,182.30	21,112,259.31	(13,112,077.02)	29,112,441.61	16.50	2.44
	Mid	8,000,182.30	32,360,591.25	(24,360,408.95)	40,360,773.55	22.88	3.39
	High	8,000,182.30	33,228,177.31	(25,227,995.02)	41,228,359.61	23.37	3.46
Grunbaum based	Low	17,064,266.00	26,523,566.25	(9,459,300.25)	43,587,832.25	24.71	3.66
	Mid	17,064,266.00	37,771,898.18	(20,707,632.18)	54,836,164.19	31.08	4.60
	High	17,064,266.00	38,639,484.25	(21,575,218.25)	55,703,750.26	31.58	4.68

Table 5- 2. Trade effects from tariff elimination by Malawi on imports from EU and SADC member states

Basis of Import Demand Elasticity	Scenario setting for the level of Elasticity of Substitution	Trade creation in US$ (TC)	Trade diversion in US$ (TD)	Net trade creation in US$ (TC – TD)	Total trade effects in US$ (TC +TD)	Total trade effects as a percentage of preferred imports	Total trade effects as a percentage of total imports
Mozambique based	Low	102,763,870.98	51,600,199.21	51,163,671.77	154,364,070.18	17.46	12.84
	Mid	102,763,870.98	76,106,790.11	26,657,080.87	178,870,661.09	20.23	14.88
	High	102,763,870.98	77,943,951.09	24,819,919.89	180,707,822.07	20.44	15.03
Uganda based	Low	66,416,462.37	46,017,395.46	20,399,066.91	112,433,857.84	12.72	9.35
	Mid	66,416,462.37	70,523,986.37	(4,107,523.99)	136,940,448.74	15.49	11.39
	High	66,416,462.37	72,361,147.35	(5,944,684.97)	138,777,609.72	15.69	11.54
Grunbaum based	Low	142,798,799.74	57,824,479.58	84,974,320.15	200,623,279.32	22.69	16.69
	Mid	142,798,799.74	82,331,070.49	60,467,729.25	225,129,870.22	25.46	18.73
	High	142,798,799.74	84,168,231.47	58,630,568.27	226,967,031.20	25.67	18.88

would result in net welfare losses since trade diversion was greater in all scenarios than the welfare improving trade creation values. Conversely, an EPA with the EU that is implemented together with a FTA with the SADC region was seen to be welfare improving in all but two cases of mid and high assumed elasticity values based on the Ugandan figures as calculated by Vollmer and colleagues. The significant positive net trade creation simulation results obtained under the second liberalization framework would lead to increased overall welfare in Malawi.

Fiscal Impacts

Table 5-3 below captures the contribution of trade taxes in general and import duties in particular towards total government revenue in Malawi. As indicated, the contribution of revenue from trade taxes towards total government revenue was about 36.6 percent, inclusive of grants and 40.2 percent excluding grants in the year 2006. During the same year, import duties accounted for 11.2 percent and 12.5 percent of total government revenue, including grants and excluding grants, respectively. As such, elimination of tariff barriers on imports from the EU and/or EU and SADC at the same time is bound to have a significant impact on government revenue.

Using equation 3-20 developed in chapter three above, fiscal impacts of the two trade liberalization scenarios were calculated. It is important to point out that simulation results in this study only quantified the direct and/or static levels of changes in ex-post revenue as a result of lost revenues due to tariff elimination under the two scenarios. This part of fiscal impact is clearly outlined as reported in Table 5-4 below. As indicated in Table 5-4, loss of tariff revenue under the EPA arrangement with the EU alone is significantly lower compared to the scenario that includes an FTA arrangement with

SADC. The revenue losses under the EU EPA were simulated to range from 11.2 percent to 12.1 percent of the baseline total tariff revenue. In terms of comparison to total government revenue, the highest of these values was only 4.8 percent of total government revenue excluding grants and 5.2 percent of total government revenue including grants for the baseline year.

Table 5- 3. Baseline levels of import duties and impact on government revenue

Total government revenue excluding grants (US$)	489,708,626.38
Total government revenue including grants (US$)	537,861,346.35
Total trade taxes levied	196,594,338.65
Trade taxes as percentage of government revenue excluding grants	40.15
Trade taxes as percentage of government revenue including grants	36.55
Total import duties levied (US$)	61,299,189.69
Import duties as percentage of government revenue excluding grants	12.52
Import duties as percentage of government revenue including grants	11.19

The fiscal impact results tend to increase substantially when the SADC FTA arrangement is included in the liberalization framework, with percentage reductions of up to 30.5 percent of total revenue during the baseline year. The fact that imports from SADC form about half of the total imports for the country helps to explain these drastic changes in revenue.

It is important to point out that trade creation brings with it other revenue in form of other trade taxes that are not affected by the tariff elimination policy. Considering the large values of trade creation under the EU plus SADC FTA tier as described above, one would expect to get extra revenue that would work towards offsetting the static figures reported above. As such, the total changes in end-period levels of revenue would be significantly lower than those reported in Table 5-4 above because of the extra revenue expected from other trade taxes.

Table 5- 4. Summary of static fiscal impacts

Elasticity scenario setting	Tariff elimination to EU imports only		Tariff elimination to EU and SADC imports	
	Change (US$) in tariff revenue	As a percent of baseline level	Change (US$) in tariff revenue	As a percent of baseline level
Mid Mozambique	- 24,610,959.11	- 11.6	- 161,921,417.70	- 30.1
Mid Uganda	- 23,748,488.89	- 11.2	- 159,549,735.08	- 29.7
Mid Grunbaum	- 25,624,080.19	- 12.1	- 164,123,067.17	- 30.5

Commodities Most Affected by the Contemplated Changes in Trade Policy

One of the major advantages of the Partial Equilibrium Model for simulating the likely trade effects and fiscal impacts of an EPA and/or an FTA using highly disaggregated data such as the HS-eight digit utilized in this study is that it allows identification of commodity categories most affected by the contemplated trade policy change. Knowledge of such information would be crucial for those engaged in trade negotiations as it would provide necessary guidance on which product categories are more sensitive to warrant special treatment during implementation of the EPA framework. In this study, an effort was made to capture the simulated trade and tariff effects at each individual tariff line along with their associated HS-code and descriptions. The results column was thereafter sorted a descending order to identify those product categories most affected by the contemplated trade policy changes. This permitted us to isolated twenty commodity categories most affected by the policy change under the two liberalization scenarios were identified. Tables A-1 through A-4 in Appendix A present results of these commodity categories along with their simulated values for trade effects and tariff revenue changes.

Table A-1 and Table A-2 present lists of the most sensitive commodities to an impending EPA with the EU by Malawi in terms of the trade effects and fiscal impacts, respectively. As indicated, simulation results demonstrated that some of the most sensitive

products include the following; clothing materials, four-wheel drive motor vehicles, solid milk and cream products, various iron sheet materials, electrical appliances and telephony and telegraphic apparatus. The tables further detail the associated values of estimated trade effects (Table A-1) and those for the estimated changes in tariff revenue (Table A-2). It is important to note that most of the commodities that were found to have high trade effects levels were also identified to have high absolute tariff revenue changes.

The other two tables, Table A-3 and Table A-4 present the same information as the one in Tables A-1 and Table A-2 but for the second liberalization scenario that includes a FTA with the rest of the SADC member states. Under this second scenario, some of the product categories with highest trade effects include; distillates and other fuels, four wheel drive motor vehicles, rubber tires used on busses and lorries, worn clothing materials, flat-rolled iron and steel products, crude soybean oil, cement clinkers and tobacco cigarettes. Associated values of trade effects are detailed in the tables.

Three Earmarked Agricultural Products

One of the major objectives of this study was to look at the trade effects and fiscal impacts of the EPA with EU on key agricultural commodities. The three agricultural products of tobacco, tea and sugar were earmarked for such a close evaluation of the extent to which trade policy change affects their ex-post trade flow levels and tariff revenues. Table 5-5 presents the impact of an EPA with EU on tea, sugar and tobacco trade flows and tariff revenue contributions. Table 5-6 presents the same information for a broader liberalization scenario that includes the SADC FTA. For each liberalization scenario, all the disaggregated trade and fiscal effects at every individual tariff line relating to each one of the three targeted agricultural products were isolated and aggregated into a product total effect as captured in Table 5-5 below. These simulations utilized the same elasticities that

were employed in the entire study for all tariff lines relating to agricultural products from HS- chapters 01 through 24. The ideal way was to use product specific elasticities of import demand and substitution. These were however not available for Malawi, forcing us to employ the sector wide elasticities.

Table 5- 5. Impacts under the EU liberalization on three key agricultural commodities

Commodity	Tariff revenue change (US$)	As percent of total	Avg trade effects (US$)	As percent of total
Tea	- 69,497	- 0.28	125,806	0.26
Sugar	- 8,882	- 0.04	27,498	0.06
Tobacco	0	N/A	0	N/A

The basis for the choice of these products was two-fold. First, pundits in most of the ACP countries in general and Malawi in particular have argued that an EPA with the EU would invariably lead to suffocation of the agricultural sectors in the ACP countries which is the major source of livelihood and economic development in these countries. Second, the three agricultural commodities form the bulk of Malawi exports, with tobacco exports accounting for over 60 percent of export earnings. As such, investigating the sensitivity of these products to policy changes was deemed crucial.

Table 5- 6. Impacts under the EU & SADC liberalization on three key agricultural commodities

Commodity	Tariff revenue change (US$)	As percent of total	Avg trade effects (US$)	As percent of total
Tea	- 324,160	- 0.20	365,706	0.20
Sugar	- 312,977	- 0.19	709,613	0.40
Tobacco	- 2,642,279	- 1.63	2,361,947	1.32

As it turns out, simulation results demonstrate that trade effects and fiscal impacts on tea and sugar were found to be quite insignificant under both liberalization frameworks. Tobacco was found to have some modestly high trade effects and revenue changes only under the second liberalization framework. Under the EPA arrangement with EU, no

effects were found. Zero effects were estimated under the EPA arrangement because all of the tobacco imports into Malawi come from non-EU countries of Mozambique, Zimbabwe, Zambia, Kenya, Mauritius and the United Arab Emirates.

The empirical results presented above do not support the long-standing fear among policy makers and trade specialists in ACP countries that an EPA with the EU is bound to stifle the local agricultural sector with an influx of cheap EU competing agricultural imports. In fact, of the twenty commodities identified to be most affected by the EU EPA, only the two product categories of milk and cream in solid form (both HS 04021000 and HS 04022100) were part of the list, being projected to increase in *ex-post* imports from the EU by 2.7 and 2.3 percent, respectively, vis-à-vis baseline levels. Under the EPA plus SADC FTA framework, crude soybean oil (HS-15071000), milk and cream in solid form (HS 04022100), crude palm oil (HS-15111000) were the only agricultural products within the list of most affected product categories in terms of projected increases in imports.

CHAPTER 6
SUMMARY AND CONCLUSIONS

Summary

Malawi has been party to the EU-ACP trade agreements since the first Lomé Agreement in 1975. Meanwhile, these ACP countries are expected to implement the 2000 Cotonou Agreement that calls for migration away from the non-reciprocal trading framework to a reciprocal trading arrangement between the two parties. As such, Malawi along with other ACP group of countries is expected to liberalize their trade through elimination of tariffs on EU imports. This has spurred concerns among ACP countries who fear that such an arrangement will subject domestic producers to unfair competition from the highly subsidized agricultural imports from the EU for instance. As such, it is generally feared that these changes may bring about increased unemployment, provoke heightened economic insecurity and political instability. In most cases, these fears have not been substantiated with empirical evidence as very limited empirical country-specific studies have so far been done to quantify the potential effects.

It is on the basis of the foregoing that the major objective of this research was to conduct a quantitative analysis of the likely trade effects and fiscal impacts of an EPA trade arrangement regime with Malawi. It was deemed crucial to quantify potential levels of trade creation, trade diversion and fiscal impacts to the country emanating from an EPA with the EU. Ancillary to this effort was the need to explore alternative trade policy arrangements, particularly the broadening of the liberalization framework. We further undertook to identify those commodities that would be most affected by the contemplated policy changes in trade.

In order to enrich our basis for the empirical study, an extensive survey of the requisite literature on the theoretical and empirical works related to the subject matter was conducted. It was noted that classical trade theory argues for a positive correlation between free trade policy and increased economic growth and development through direct dynamic advantages of increased capacity utilization and more efficient investment projects as well as indirect effects of accelerated export growth. It was observed however that other researchers object to the classical perspective and argue that empirical evidence does not strongly support such a view. These researchers also question the validity of the direction of the casual relationship between export growth and economic development as purported by the classical theorists. In spite of the arguments and counter-arguments among researchers on the existence and/or strength of the direct link between open trade and positive economic development, it was observed that open trade does bring with it elements that spur competition among producers and imposes rationality in productive resource allocation, thereby increasing economic growth and development. On the other hand however, unambiguous evidence of poor economic performance in closed regimes was observed and noted.

The evolution of the notion of preferential trading agreements was noted to have emanated from the frustration during the 1990s by many countries to attain multilateral free trade. As such, countries started configuring themselves into regional groupings to pursue regional free trade policies. This influenced economists, led by Jacob Viner (1950) to start studying and laying the earliest basis on the theory of regional free trade agreements. Viner (1950) observed that welfare effects from any form of regional economic integration are not unambiguous a priori. He further developed the concepts of trade creation and trade

diversion associated with the formation of free trade areas. In this study, these two concepts were central to the analyses and conclusions to be made. Viner's work spurred a lot of theoretical as well as empirical work on the study of free trade areas.

Literature identifies three major quantitative analytical techniques that researchers employ to conduct empirical analyses of the effects of entering some form of an economic integration by countries. These include the gravity models, computable general equilibrium (CGE) models and the partial equilibrium (PE) models. Strengths and weaknesses for each one of these models were highlighted. This thesis utilized the Verdoorn (1960) version of the PE model to quantify the trade effects and fiscal impacts of the EU EPA with Malawi.

Central to the fears among developing countries to enter into free trade regimes are the fiscal implications of such policies. Most of these countries fear that through elimination of import tariffs, the government would experience huge revenue losses and compromise the delivery of vital services to the populace. Consideration of several short term policy migration costs to the local economies such as increased unemployment, reduction in national output, elimination of certain domestic industries and possible macroeconomic instability was observed to have exacerbated these fears. Research into this aspect has been centered on two themes, including the evaluation of the relative importance of tariff revenue with respect to total government revenue and exploration of the fiscal reforms and alternative tax schemes that could offset tariff revenue losses.

Conclusions

The Verdoorn (1960) version of the partial equilibrium models was employed to estimate and evaluate the trade effects and fiscal impacts of an EU EPA on the Malawi economy. This model is based on an array of rather restrictive assumptions such as the Armington assumption of product differentiation, and those applicable to most partial

equilibrium analyses including; non-existence of repercussions on the incomes and exchange rates from changes in trade flows; existence of iso-elastic import demand elasticities; and infinite supply elasticities. Notwithstanding these restrictive assumptions, it was noted that this model has been extensively applied in similar works by various researchers and academicians alike. In this study, highly disaggregated trade data at HS-eight digit were utilized to conduct the analyses.

The major conclusion that was drawn from this study is that Malawi stands to benefit more from trade if a broader liberalization framework is adopted along with the EPA enforcement. As reported above, trade liberalization of tariffs towards EU and SADC result in significantly high positive net trade creation levels for all but two elasticity values. On the other hand, liberalization that is restricted to EU imports results in negative net trade creation values. This conclusion stands firm even when one considers the major weakness of this study, namely; that the values of elasticities employed were quite arbitrary. This is the case because even as we varied the magnitude of the elasticity values, a broader liberalization framework resulted in higher positive levels of net trade creation values as compared to the negative net trade creation values obtained under the liberalization framework restricted to the EU EPA. The breadth of liberalization need not necessarily be restricted to EU and SADC countries. There are increasingly high levels of imports from the eastern countries of Japan, China and India. Inclusion of these countries in the tariff liberalization framework is bound to result in increased values of trade creation. While not supporting the conventional fears about trade liberalization in most of the developing world, the results from this research do conform to the theoretical arguments for broader liberalization even for small countries like Malawi.

Similar results were obtained by Grunbaum (2007) who found that when liberalization by the Organization of Eastern Caribbean States (OECS) with the EU alone was considered, trade diversion exceeded trade creation in all cases and overall trade effects and fiscal impacts were very small. When the larger Caribbean, the North American Free Trade Area (NAFTA), and the Free Trade Area of the Americas (FTAA) were all included in the liberalization framework, net trade effects were positive and larger, as were the fiscal impacts.

Our results also agree with those obtained by Keck and Piermartini (2005) who used an applied general equilibrium model covering 15 regions and 9 sectors to simulate the impact of signing EPAs with the EU for the SADC countries under various liberalization scenarios. The results demonstrated that EPAs with the EU were welfare-enhancing for SADC overall, and that for most countries, further gains could arise from intra-SADC liberalization.

Greenway and Milner (2003) also found comparable results when they analyzed the impact of EPA formation for CARICOM countries. Employing two-digit level of data aggregation, Greenway and Milner (2003) contemplated three liberalization frameworks in their study including the one restricted to the EU, the second combining the EU and the United States and the last one being full multilateral liberalization. Their results concluded that the EPA formation with the EU resulted into net welfare losses by the CARICOM countries involved where as the one under the last two scenarios resulted in positive welfare gains with the full multilateral liberalization resulting in the highest welfare gains.

The other major conclusion of this study is with respect to the effects of EPA formation on the domestic agricultural sector, mostly the fear of an influx of cheap EU

imports. Against these conventional fears, results from this research demonstrate that very minimal effects on agricultural imports from the EU would be felt, save for imports of milk and cream in solid form. There were particularly no major effects on imports of tea, sugar and tobacco, which are currently the major agricultural export commodities for Malawi.

The fiscal impacts from trade liberalization do seem be significant if considered in isolation. However, the simulation results only capture static effects at 100 percent tariff elimination scenario. With the high positive trade creation values obtained from the simulation results, one would expect a significant offsetting effect if dynamic effects of extra revenue from increased trade are included. Besides, policy makers may consider exploring other tax systems that will help to broaden the country's tax base. In fact this subject has been at the centre of discussions within the country, considering the high levels of dependence on trade taxes for government revenue under the current system.

This research has laid down a very useful foundation into research on trade effects and fiscal impacts of trade liberalization at a country specific level that employs disaggregated data at the level utilized herein. Until this work, we do not know of any effort directed towards empirical quantification of such effects in the country. The results from this thesis will provide useful guidance to the on-going debate with respect to the pros and cons of the EU-EPA formation. The identification of products most affected by the policy change will exonerate fears of unfair competition from EU agricultural imports while alerting those engaged in the most affected products to explore remedial measures.

Study Weaknesses and Suggestions for Further Research

One of the major weaknesses of the Partial Equilibrium models and particularly the one carried over into this thesis is with respect to the choice of elasticities of import demand and substitution. These are very crucial variables in the Verdoorn (1960) model

and yet were strong assumptions were made in the process of determining their values since they were not available at any disaggregated level. The values chosen were quite reasonable considering that most of the previous researchers have not employed similarly adapted values. Nonetheless, the ideal scenario is to use the study data to estimate elasticity values at the same level of data aggregation, preferably every tariff line or HS chapter applicable. Through this rigorous process one would get empirically deduced product specific elasticity values to employ in the analysis of trade and fiscal effects of any form of trade liberalization that might be contemplated. Notwithstanding its enormous financial and technical demands, such research is highly recommended for Malawi as the results from the same would help solidify the foundation laid in this research. In particular, the levels of trade and fiscal effects simulated for each product category such as those relating to the three agricultural products of tea, sugar and tobacco reported above would be much more realistic if one employs such product specific elasticities. In terms of data availability, the country's National Statistical Office has made significant strides in building requisite databases. It would also be important to build in these studies an aspect of dynamic effects of liberalization by way of employing the computable general equilibrium models, which would take into account economy-wide repercussions of the policy shift and adjust the trade and fiscal effects accordingly.

APPENDIX

MOST AFFECTED PRODUCTS BY TRADE AND TARIFF REVENUE IMPACTS

Table A- 1. List of commodities with the highest trade effects as a result of tariff elimination on EU imports

Number	HS code	Item description	Average trade effects (US$)	As percent of total
1	63090000	Worn Clothing and Other Worn Articles	2,559,500.98	5.82
2	85175000	Apparatus for Carrier-Current line System or for Digital line	1,429,916.75	3.25
3	87032310	Other Motor Vehicle Four Wheel Drive	1,366,699.75	3.11
4	72104900	Flatrolled Iron/Steel, Width >=600MM,Zinc Plated/Coated(EXC.ELECT	1,359,846.10	3.09
5	04021000	Milk and Cream in Solid Forms Of =<1.5% FAT	1,179,355.59	2.68
6	85173000	Telephonic or Telegraphic Switching Apparatus	1,046,776.36	2.38
7	04022100	Milk and Cream in Solid Forms OF >1.5% FAT, Unsweetened	997,329.54	2.27
8	87033390	Other (Four-Wheel Drives)	994,556.33	2.26
9	34012000	Soap in Other Forms, NES	943,934.71	2.15
10	63079000	Made up Articles (INCL. Dress Patterns), NES	760,917.67	1.73
11	49119990	Other Printed Matter N.E.S	633,467.28	1.44
12	85252090	Other Transmission Apparatus	628,227.38	1.43
13	87033310	Four-Wheel Drive Vehicle With Diesel Engine Of CC >=2500CC	569,137.68	1.29
14	87032331	Other Vehicles With Compression-Ignition Internal Combusion DI	558,099.76	1.27
15	85252020	Communication Transmitters, Transceivers and Ancillary Apparatus	489,950.36	1.11
16	87033210	Other Vehicles Of Cylinder Capacity Not Exceeding 2000CC Four	480,025.02	1.09
17	85178000	Electrical Apparatus For Line Telephony or Line Telegraphy, NE	457,214.30	1.04
18	87089990	Other Specialized Parts For Tractors	415,642.43	0.95
19	87032321	Four-Wheel Drive Vehicle with Spark-Ignition Engine Of CC 1500-3000CC	394,068.76	0.90
20	85042100	Liquid Dielectric Transformers, Power Handling Capacity =<650K	393,063.54	0.89

Table A- 2. List and levels of commodities with highest tariff revenue changes as a result of tariff elimination on EU imports

Number	HS code	Item description	Change in tariff revenue (US$)	As percent of total
1	63090000	Worn Clothing and Other Worn Articles	2,473,559.29	10.05
2	87032310	Other Motor Vehicle Four Wheel Drive	1,456,770.59	5.92
3	85175000	Apparatus for Carrier-Current line System or for Digital line	1,393,168.88	5.66
4	04022100	Milk and Cream in Solid Forms OF >1.5% FAT, Unsweetened	1,073,772.67	4.36
5	49119990	Other Printed Matter N.E.S	798,375.10	3.24
6	87033390	Other (Four-Wheel Drives)	713,339.23	2.90
7	72104900	Flatrolled Iron/Steel,Wid.>=600MM,Zinc Plated/Coated(EXC.ELECT	692,189.40	2.81
8	87032331	Other Vehicles With Compression-Ignition Internal Combusion DI	543,359.65	2.21
9	87033210	Other Vehicles Of Cylinder Capacity Not Exceeding 2000CC Four	499,694.83	2.03
10	34012000	Soap in Other Forms, NES	485,323.56	1.97
11	85252090	Other Transmission Apparatus	455,135.26	1.85
12	84729000	Office Machines, NES(INCL. Coin-Sorting/Counting/Wrapping Mach	447,812.58	1.82
13	87089990	Other Specialised Parts for Tractors	375,652.93	1.53
14	87032321	Four-Wheel Drive Vehicles with Spark-Ignition Engine Of CC 1500-3000CC	365,959.29	1.49
15	87032400	Vehicles with Spark-Ignition Engine of Cylinder Capacity >=300	360,275.74	1.46
16	21021000	Active Yeasts	338,056.80	1.37
17	87033310	Four-Wheel Drive Vehicle with Diesel Engine Of CC >=2500CC	335,065.24	1.36
18	85252020	Communication Transmitters, Transceivers and Ancillary Apparatus	326,255.29	1.33
19	48115100	Bleached Weighing More Than 150g/m2	290,088.29	1.18
20	85021100	Generating Sets with Compression - Ignition Engines, =<75 KVA	286,270.84	1.16

Table A- 3. List of commodities with the highest trade effects as a result of tariff elimination on imports from EU & SADC countires

Number	HS code	Item description	Average trade effects (US$)	As percent of total
1	27101199	Distillates and other fuels nes(including diesel oils,gas oil	19,329,820.98	11.28
2	87033310	Four-Wheel Drive Vehicles with Diesel Engine Of CC >=2500CC	5,138,646.05	3.00
3	40112000	New Pneumatic Tyres, Of Rubber Of a Kind Used on Buses or Lorries	4,024,071.99	2.35
4	63090000	Worn Clothing and Other Worn Articles	3,654,699.51	2.13
5	72104900	Flatrolled Iron/Steel, WID.>=600MM,Zinc Plated/Coated(EXC.ELECT	3,320,894.25	1.94
6	87032310	Other Motor Vehicles Four Wheel Drive	3,317,019.91	1.94
7	87033210	Other Vehicles Of Cylinder Capacity Not Exceeding 2000CC FOUR	3,219,850.34	1.88
8	15071000	Crude Soya-Bean Oil	2,984,694.08	1.74
9	25231000	Cement Clinkers	2,274,888.34	1.33
10	87042110	GVW Not Exceeding 2.99 Tonnes	2,241,255.55	1.31
11	27101919	Gases and Lubricating Oils	2,126,549.46	1.24
12	39011000	Polyethylene Having a Specific Gravity <0.94, In Primary Forms	2,066,537.93	1.21
13	24022000	Cigarettes Containing Tobacco	1,928,517.27	1.13
14	34012000	Soap In Other Forms, NES	1,728,086.55	1.01
15	04022100	Milk and Cream in Solid Forms Of >1.5% FAT, Unsweetened	1,712,645.59	1.00
16	85252090	Other Transmission Apparatus	1,662,007.39	0.97
17	15111000	Crude Palm Oil	1,650,016.29	0.96
18	87029020	Other Motor Vehicles for the Transport of Ten or More Persons	1,644,461.20	0.96
19	85175000	Apparatus for Carrier-Current Line Systems or For Digital Line	1,598,042.62	0.93
20	87033390	Other (Four-Wheel Drives)	1,426,783.77	0.83

Table A- 4. List and levels of commodities with highest tariff revenue changes as a result of tariff elimination on imports from EU & SADC countries

Number	HS Code	Item Description	Change in tariff revenue (US$)	As percent of total
1	27101199	Distillates and other fuels nes(including diesel oils, gas oil	26,528,783.18	16.38
2	87033310	Four-Wheel Drive Vehicles with Diesel Engine Of CC >=2500CC	8,203,313.08	5.07
3	87033210	Other Vehicles with Cylinder Capacity Not Exceeding 2000CC FOUR	3,545,208.91	2.19
4	87032310	Other Motor Vehicles Four Wheel Drive	3,478,076.27	2.15
5	40112000	New Pneumatic Tyres, Of Rubber of a Kind Used on Buses or Lorries	2,970,721.26	1.83
6	63090000	Worn Clothing and Other Worn Articles	2,700,024.24	1.67
7	25231000	Cement Clinkers	2,659,825.23	1.64
8	27101919	Gases and Lubricating Oils	2,550,591.47	1.58
9	24022000	Cigarettes Containing Tobacco	2,348,131.82	1.45
10	15071000	Crude Soya- Bean Oil	2,089,339.84	1.29
11	87042110	GVW Not Exceeding 2.99 TONNES	2,007,778.07	1.24
12	55142100	Dyed Plain Weave Fabrics, <85% Polyester Fibres + Cotton, >170	1,882,079.78	1.16
13	72104900	Flatrolled Iron/Steel,WID.>=600MM,Zinc Plated/Coated(EXC.ELECT	1,784,902.09	1.10
14	87032321	Four-Wheel Drive Vehicles with Spark-Ignition Engine Of CC 1500-3000CC	1,735,524.63	1.07
15	85175000	Apparatus for Carrier-Current Line Systems or for Digital Line	1,630,463.53	1.01
16	87033390	Other (Four-Wheel Drives)	1,469,126.14	0.91
17	52093200	Dyed 3 or 4 - Thread Twill (Inc. Cross Twill), With >=85% COTTON	1,449,647.51	0.90
18	27101159	Other Kerosene	1,402,972.46	0.87
19	87029020	Other Motor Vehicles for the Transport of Ten or More Persons	1,309,333.56	0.81
20	33021000	Mixtures/With Basis of/Odorifer's Substitutes Incl. Alcohol Solutions	1,286,655.85	0.79

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BIOGRAPHICAL SKETCH

Innocent Lwafyo Thindwa was born in Karonga, Malawi on 4th August, 1977. He received a Bachelor of Social Science, majoring in economics, from the University of Malawi, Chancellor College in 2003. In that same year, Innocent joined the Malawi Government's Economic Common Service, working as an Economist. In March 2007, he was promoted to the position of Senior Economist before a further promotion to the position of Principal Economist in June, 2007.

In August 2008, he joined the Food and Resources Economics Department of the University of Florida to pursue a Master of Science degree program under the sponsorship of the United States Agency for International Development (USAID). He completed his degree in August 2010.