The European Union's and United States of America's Non–Tariff Measures: Impacts on African Exports

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About the Authors

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Abstract

There are differentials in the conclusion of scholars as to what undermines Africa's export flows to the European Union (EU) and United State of America (USA). While the impact of tariffs has been reduced due to the unilateral preferential tariffs granted to Africa by these countries, empirical studies have shown that the frequencies of the incidences of non-tariff measures have increased. However, most of these studies examine only price-related trade restrictions without considering the non–tariff (non-price) measures. In addition, these studies' conclusions are based on data limited to Africa south of the Sahara. This study fills these gaps by evaluating the impact of non-tariff measures in the EU and USA on African exports. The study covers exports from 25 African countries, spread across three sectors, using a gravity model based on data from 1990 to 2011, which were obtained from World Integrated Trade Solution (WITS). To mitigate the potential endogeneity and heteroscedasticity problems, the generalized method of moments was used in the analysis. This study finds that tariffs are not the cause of Africa's inability to access export markets in the EU and USA, but that the incidence of the use of non-tariff measures, such as technical barriers to trade, sanitary and phytosanitary measures, etc., have inhibited Africa's export flows to these markets, such that non-tariff barriers have larger magnitudes and significant in both markets.

Résumé

Les opinions des spécialistes divergent quant à ce qui pénalise les flux d'exportation de l'Afrique vers l'Union européenne (UE) et les Etats-Unis d'Amérique (USA). Bien que l'impact des barrières tarifaires ait été continuellement réduit en raison des tarifs préférentiels unilatéraux accordés à l'Afrique, les études empiriques ont montré que la prépondérance de l'incidence des obstacles non tarifaires a augmenté. Cependant, la plupart des études portaient seulement la taxe (restrictions commerciales liées) sans tenir compte des barrières non - tarifaires (hors prix). Par ailleurs, les conclusions de ces études ont été basées sur des données limitées à l'Afrique sub - saharienne. Ces lacunes ont été comblées dans cette étude en évaluant essentiellement l'impact des barrières non - tarifaires dans l'UE et aux Etats-Unis sur les exportations de l'Afrique. L'étude a porté sur les exportations de 25 pays africains couvrant trois secteurs, en utilisant un modèle de gravité sur les données de 1990 à 2011, qui ont été obtenus à partir de World Integrated Trade Solution (WITS). Pour atténuer les problèmes potentiels d'endogénéité et d'hétéroscédasticité, la méthode des moments généralisés a été utilisée dans l'analyse. Cette étude conclut que les tarifs ne sont pas la cause du faible accès de l'Afrique à ces marchés, mais les incidences de l'utilisation de barrières non tarifaires, tels que les obstacles techniques au commerce, les mesures sanitaires et phytosanitaires, etc. Les exportations de l'Afrique sont principalement handicapées vers marchés, et les barrières non tarifaires ont des effets plus importants et significatifs sur les deux marchés.

1. Introduction

Poor countries' integration into the global market offers the opportunity and potential for rapid economic growth and poverty reduction (Martinez and Poole, 2004), and trade has been recognized as a valuable channel through which countries can interact economically. Generally, trade has been acknowledged by many theorists to be beneficial, based on the premise that there will be trade flows among participating countries (Kareem, 2011). However, in reality, this is often not the case, as there are various trade barriers in place that limit both exports and imports. As a result of these trade policies, Africa in particular has found it difficult to take full advantage of the opportunities provided by global trade. The most recently acknowledged trade policies that inhibit trade flows are non-tariff measures (NTMs). These non-tariff barriers can take different forms depending on the wish of the trading country in line with the World Trade Organization (WTO) requirements. Recent studies have shown the importance of non – tariff measures in global trade (UNCTAD, 2013; Fugazza, 2013; Fontagne et al, 2010; Staiger, 2011; Kareem, 2016a), and the incidence of non-tariff barriers are said to be on the rise (Martinez and Poole, 2004; Carrere and De Melo, 2009; Kareem, 2010; World Bank, 2012; Kareem, 2016b; Kareem, 2014a). The increasing frequency of the use of these barriers could greatly influence the flow of goods and services around the world.

The trade policies of Africa's trading partners, particularly tariffs and non-tariff barriers, are particularly important for market access for African exports. However, trade policy studies have shown that the magnitude of the impact of tariffs is declining due to preferential trade arrangements. Thus, the main restriction now to Africa's exports to developed and developing countries' markets are non-tariff barriers. Most of Africa's exports do not meet the required standards set by importing markets, largely because Africa often does not have the technical capacity to produce products that meet international product standard requirements. The imposition of these market access conditions on exports, especially those for which African countries have comparative advantage, has hindered the extent to which Africa's export sector contributes to the region's overall income and stimulates growth in other sectors through the expansion of goods and services. These export requirements have also restricted the degree to which earnings on agricultural exports could be used to reduce poverty, hunger, and overall malnutrition levels in the continent.

Much of the literature modelling actual distortions to trade due to trade barriers have focused more on the impact of tariff barrier son trade between developing and developed countries, i.e. south–north trade, with capital and consumer products flowing in one direction and primary products in the other. There are very few studies that have examined the effects of non-tariff barriers on trade flows between these countries. In addition, there are few specific studies that determine the impact of non-tariff barriers on Africa's sectoral exports, despite the importance of this issue. To fill this gap, this research seeks to determine the effects of

non-tariff barriers in European Union (EU) and United States of America (USA) on Africa's exports, as well as to determine which sector(s) in Africa is most affected. The study proffers answers to the following questions: To what extent have non-tariff barriers impacted Africa's exports? Are there differences in the sectoral impact of NTMs? What is the nature of market access in each of the selected import markets?

1.1 Motivation

Generally, many studies on trade policy focus on the effects of trade restrictions in developing countries' exports; in addition, some of these studies face shortcomings in terms of their coverage and methodology. Ianchovichina, Mattoo, and Olarreaga (2001) assess the impact of unrestricted market access on exports from Africa south of the Sahara (SSA), using a simple partial model that assumes perfect factor mobility between sectors. However, in reality, there is no perfect factor mobility; in addition, the study does not consider all of Africa's exports. Yeats (1994) examines the exact worth of trade preferences granted by the Organization of Economic Cooperation and Development (OECD) to SSA countries but does not sufficiently consider the effects of NTBs on Africa's exports. The study of Amjadi, Reinke and Yeats (1996) uses a cross-sectional analysis to examine whether external barriers cause the marginalization of SSA in world trade; however, the study has limited period coverage and provides inadequate justification for its scientific inferences. While this latter study also classifies African countries in terms of the preferences granted to them, a different classification is adopted in this present study, based on African countries' export structure. Another similar study is the one carried out by Jabati (2003) in which he examines market access for agricultural products for Africa's least developed countries; however, the study's methodological and analytical basis was not presented. Hammouda et al. (2005) evaluate the unrestricted global market access for least developed countries, but use data only for 2001; post-2001 changes could create the need for an update. Ajakaiye and Oyejide (2005) carry out a study on ways to remove impediments to Africa's exports. However, this study only examines the supply-side of market access. Ogunkola and Oyejide (2001) evaluate the effects of changes in the EU's import policies on Nigeria's exports, measuring the effect of trade restrictions and preferential treatment on Nigeria's exports to EU markets. However, this study is only limited to Nigeria (exporter) and the European Union (importer) and uses only data from 1992 and 1996 in its analysis. The market share model that was used could only be applied to analysis of a country's performance in the import market of another country, which makes the analysis restricted in coverage. Thus, the model can only distinguish between the two main components of changes in imports over two periods.

Specifically, empirical studies on trade restrictions (see Mayer and Zignago, 2005; Sanguinetti, Traistaru, and Martincus; 2004; Hammouda et al. 2005; etc.) mostly estimate the extent to which developing countries have gained from tariff preferences. Studies modelling actual distortions to trade due to non-tariff barriers

have focused more on trade flows, mostly between developed and developing (see Shepherd and Wilson, 2010;Dean et al., 2009; Fugazza and Maur, 2006), while only a very few of them have concentrated on Africa south of the Sahara. World Bank (2012) conducted a study on de-fragmenting Africa through a deepening of regional integration in goods and services; it examines the issue of trade policies in intra-African trade, specifically among the East African Community (EAC). The findings show that while tariff barriers have been reduced within the sub-region, non-tariff barriers (NTBs) are still critically inhibiting regional trade. The World Bank study covers only intra-African trade, however, and does not look at Africa's trade with its foreign trade partners. The report of the Pacific Economic Cooperation Council (2000) on non-tariff measures (NTMs) in goods and services trade shows that the effects of NTMs are based on their definition. Narrowly defined measures would not pose much problem, but broadly defined measures would continue to be a problem for trade in the region. A survey was carried out to examine different definitions and scopes of NTMs; this survey discovered that the most important barriers are the ones that are more difficult to define, such as product standards, conformance assessment procedure, SPS measures, customs procedures, rules of origin, etc. However, the study did not examine NTMs in terms of their effects on exports.

Dean et al. (2009) estimates the price effects of NTBs for more than 60 countries, cutting across 47 consumer products in 2001. They use cross-sectional data in different products to capture the imperfect substitutability between products. The model is estimated using an instrumental variables approach in order to incorporate the endogeneity of NTBs. However, this study only covers select developing countries for a single year, and the classification of product is not based on the structure of each country's exports. In addition, the study considers price effects rather than export effects. The study of Fugazza and Maur (2006) focuses on NTBs in a non-tariff world by providing a quantification of the effects of liberalization of NTBs at the global level using data from World Bank and UNCTAD. However, their study mainly focuses on methodological questions related to the treatment of NTBs in a CGE model (specifically the GTAP model). The study does not examine the export effects of NTBs. Saqib and Taneja (2005) examine the effects of ASEAN's and Sri Lanka's NTBs on India's exports and discover that the incidence of NTBs has been increasing and have inhibited India's exports to these trade partners. Although this study looks at the impact of NTBs on exports, it does not cover Africa; in addition, the survey data collected is analysed using a qualitative descriptive analysis.

Thus, despite the importance of the issues of NTMs to Africa's trade with its major trading partners, a perusal of the literature shows that scant studies exist regarding non-tariff measures, especially at the sectoral level using the incidence of NTBs in importing countries. This gap could be due to the dearth of data on NTMs for most countries and regions, but some more recent data has become available. NTBs can almost double the effects of trade barriers imposed by tariffs for some products (Moise and Le Bris, 2013).

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Fugazza (2013) finds that about 30 percent of product lines are affected by technical barriers to trade, while 15 percent of trade, particularly in developed countries, is affected by sanitary and phytosanitary measures. It is against this background that this study aims to fill the gaps in the literature by determining the effects of NTBs in the EU and USA on African exports.

2. Non-Tariff Barriers in the EU and USA

The incidence of non-tariff barriers, especially the use of anti-dumping measures by the USA, has been varied but has declined in recent years. The number of anti-dumping investigations initiated and imposed in the country from 1980 to 1990 was 418, while from 1991 to 2001, these measures rose to 492. The use of anti-dumping measures on products exported to the USA fell from 35 in 2002 to 26 in 2004 and later dropped to 7 in 2006 (WTO, 2008). However, by 2011, anti-dumping investigations and measures again increased to 15 due to the USA's efforts to protect its domestic economy (see Table 1).

Table 1: Anti-dumping Investigations and Measures Imposed

	1980-90	1991-01	2002	2004	2006	2008	2010	2011
Investigations	418	492	35	26	7	16	3	15
Preliminary injury determinations, affirmative	336	410	15	25	7	15	3	4
Final dumping determinations	283	355	14	21	5	94	100	-

Source: WTO (2008) Secretariat based on U.S. Department of Commerce; USITC; and notifications.
..   Not available.
n.a.   Not applicable.
a   Number of AD orders continued or revoked as a result of sunset reviews.
Note: Figures refer to the year in which the investigation was initiated.

Table 2: Countervailing Duty Investigations and Measures Imposed

	1980-90	1991-01	2002	2004	2006	2008	2010	2011
Investigation	240	89	4	3	3	6	3	9
Final countervailing duty determinations	176	71	3	1	0	6	3	0-
Final injury determinations, of which	..	..	2	0	0	6	3	-

Source: WTO (2008) based on U.S. Department of Commerce, USITC and notifications information.
..   Not available.
Note: Figures refers to the year in which the investigation was initiated.

The USA's imposition of countervailing measures has been declining over recent years, as seen in Table 2. The number of countervailing duty investigations and measures were imposed on imported products to the USA during the period 1980 to 1990 was 240. However, the period 1991 to 2001 saw just 89 countervailing measures; this number dropped to just 4 in 2002, fell again to 3 in 2006, and later rose to 9 in 2007.

Table 3 evaluates the incidence of non-tariff barrier measures used in the EU; it shows that between 1995 and 1999, 37 initiations of anti-dumping investigation were carried out in order to protect the EU's domestic economies, while 31 was initiated in 2000. Anti-dumping investigations dropped to 20 in 2001 and fell to its lowest point in 2003 with just 73 investigations. A sudden rise in anti-dumping initiations, to 24, was witnessed in 2006 due to the influx of goods to the EU; this later fell again to 17 in 2011. The EU's number of definitive measures was 21 between 1995 and 1999; this figure rose to 40 in 2000 and later dropped to its lowest point in 2003 with 3 measures. By 2006, that number rose again to 11 before declining to 10 in 2011. The countervailing measures of the EU have been at a moderate level over the years. Between the year 2000 and 2006, an average of 2 measures were used to protect EU domestic economies from the influx of foreign goods. Further, the use of safeguard measures was at its minimum during this period, with the highest number safeguard initiations (2 investigations) occurring in 2003 and 2005.

Table 3: Contingency Measures Notified by the EU

	Average 1995-99	2000	2002	2003	2004	2005	2006	2008	2010	2011
Anti-Dumping										
Investigations	37	31	20	7	29	24	24	18	15	17
Definitive measures	21	40	25	3	9	19	11	5	9	10
Countervailing										
Investigations	6	0	3	1	0	2	0	2	3	4
Definitive measures	1	11	3	2	2	0	0	0	3	2
Safeguards										
Investigations	0	0	1	2	1	2	0	0	0	0
Definitive measures	0	0	1	0	1	1	0	0	0	0

Source: WTO (2007) Committees on Anti-Dumping Practices, Subsidies and Countervailing Measures, and Safeguards.
a   To 30th September 2006.

3. Africa's Export Performance

The performance of Africa's exports has not been consistent over the past three decades, and it has varied all through the period understudy. This was due to political and macroeconomic instability in most of the countries in the region, as well as to internationally induced instability due to fluctuations in commodities prices and the global economic crisis. Tables 4and5 show Africa's exports to the rest of the world in percentage share and growth terms between 1980 and 2011. Africa's share of world exports is relatively low. In 1980, African countries exported about US$119 billion worth of commodities, representing about 6 percent of world exports in that year. However, in 1990, the value of exports dropped to about US$107 billion, or down to 3 percent of the world exports, which means that Africa's share of global exports dropped by half compared to the previous decade. The continent's exports regained an upward trend in 1995,

recording over US$112 billion; however, against a background of growing world trade, this represented just 2 percent of world exports. Africa's exports value increased to US$231billion in 2004 and later rose to US$397.4 billion in 2007, which is 2.5 percent and 3.0% percent, respectively, of global exports. Surprisingly, in spite of the recent global economic crisis, Africa's share of global export rose to about 3.3 percent in 2010 and remained the same in 2011. Thus, the share of Africa's exports in global exports is not only very low, it also depicts an unstable trend.

The continent's exports have also only grown haphazardly over time. It can be observed that Africa recorded negative growth in 1990 (8.47 percent). In 2000, it recorded a positive growth of about 31 percent compared to the preceding years. The continent recorded a negative growth rate of over 5 percent in 2001. However, periods after 2001 again recorded a positive growth rate, except for 2009 due to the global economic crisis; in 2010, exports grew at a rate of more than 25 percent but then later dropped to 16 percent in 2011. Thus, these growth rates have been oscillating over the years, meaning that in absolute terms, Africa's export value has been growing at a decreasing rate.

Table 4: Share of Exports by Region (%)

Region	1980	1985	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
World	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Developed Countries	65.3	66.4	72.1	69.8	65.6	66.2	65.5	64.9	62.8	60.3	59.1	58.6	56.57	56.39	54.15	52.70
Developing Countries	29.4	25.4	24.2	27.6	31.7	31.0	31.7	32.0	33.7	35.9	36.8	37.5	38.67	39.78	41.78	42.75
Africa	5.9	4.2	3.1	2.1	2.3	2.2	2.3	2.4	2.5	2.9	3.0	2.9	3.45	3.09	3.25	3.24

Source: Author's Compilation from UNCTAD Handbook of Statistics (Several Issues)

Table 5: Growth Rate of Exports by Region (%)

Region	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
World	71.2	48.6	24.7	-4.1	4.8	16.3	21.8	13.9	14.8	14.4	15.86	-22.9	21.3	19.4
Developed Countries	88.8	43.9	17.3	-3.2	3.5	15.3	18.0	9.2	12.6	13.7	11.80	-21.8	16.5	16.6
Developing Countries	41.1	69.3	43.3	-6.6	7.4	17.5	28.2	21.4	17.6	15.2	19.42	-22.6	27.4	21.5
Africa	-8.5	5.1	30.8	-5.8	5.7	21.8	29.7	28.8	11.7	10.7	34.14	-32.4	25.4	16.2

Source: Author's Compilation from UNCTAD Handbook of Statistics (Several Issues)

The trend in African exports to the EU and USA is presented in Figures 1 and 2. The first figure indicates that in 1990, Africa exported over US$36 billion worth of commodities to the EU. Due to the crises that engulfed most African countries in the 1990s, Africa's exports to the EU dropped to about US$31 billion in 1993; however, by the year 2000, exports to the EU had again risen to about US$54 billion. This upward trend continued and nine years later, Africa's recorded exports to the EU reached around US$98 billion. Ascan be seen from the figure, Africa's to the EU dropped sharply in 2009 due to the global economic meltdown but later picked up in 2010 to $120 billion and reached over $148 billion in 2012. Figure 1 also shows that there has been negative balance of trade in Africa's trade with the EU. This means that the continent is a net importer in this trade relationship, despite the preferential tariffs granted by the EU. Reasons for this trade balance include the region's inadequate export base, poor infrastructure, and political instability (Kareem, 2010).

Figure 1
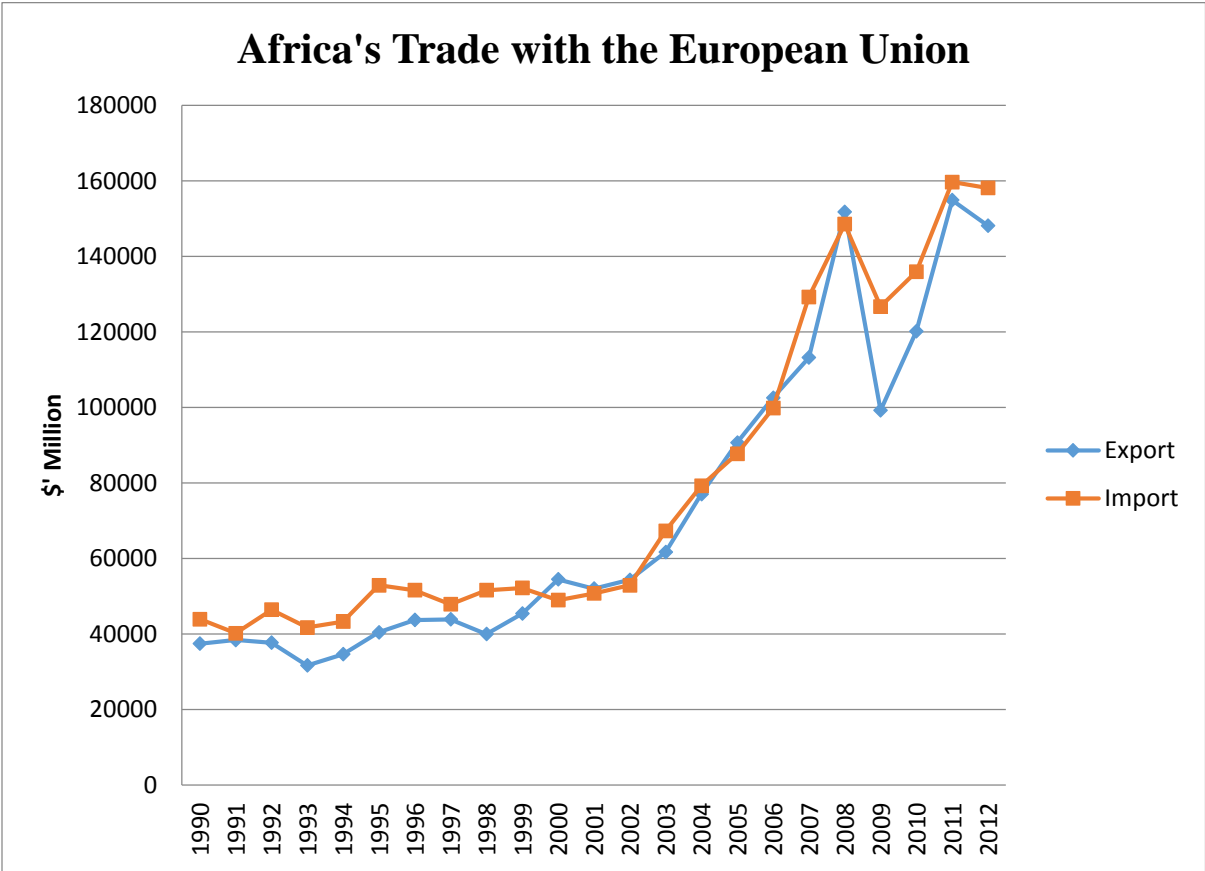
Source: IMF Direction of Trade Statistics Database (Assessed in September, 2013)

Figure 2

Africa's Trade with the United States
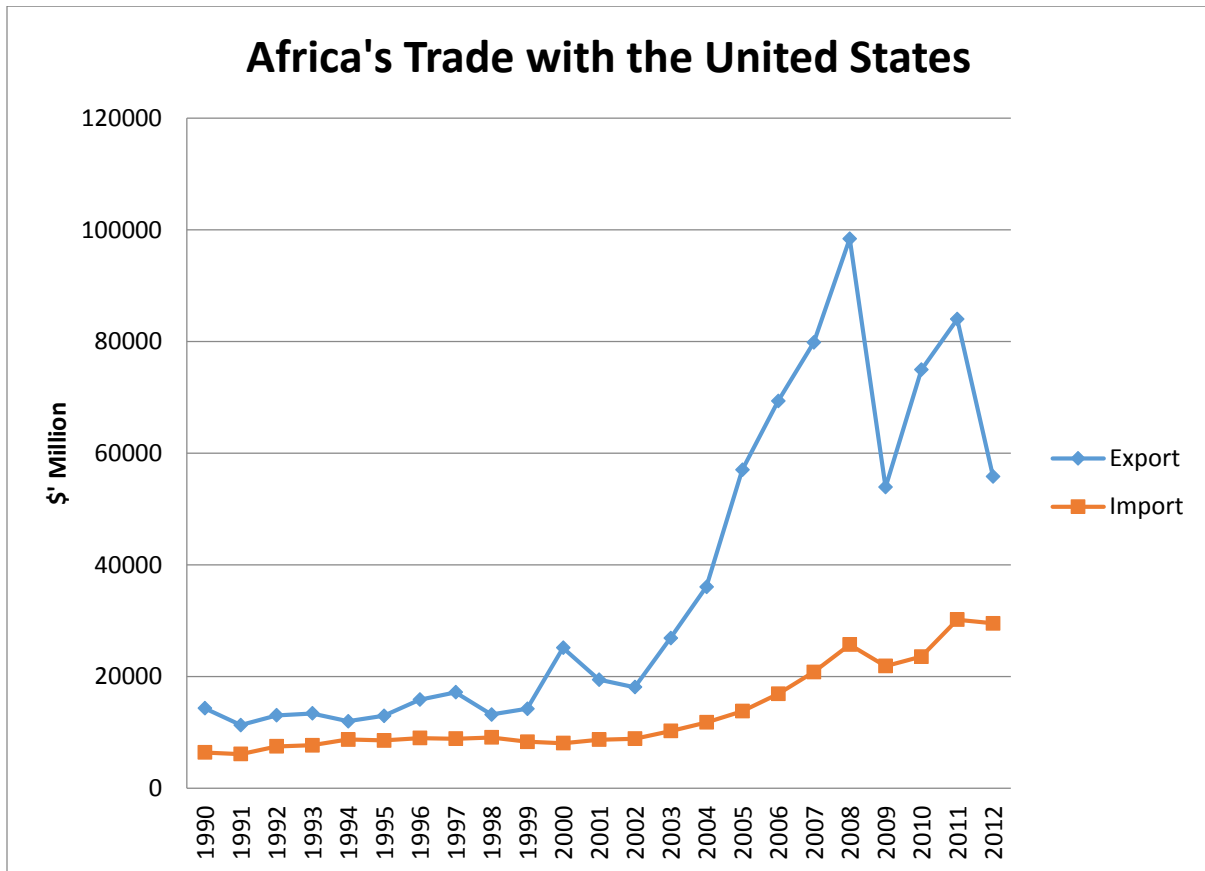
Source: IMF Direction of Trade Statistics (Assessed in September, 2013)

In terms of Africa's trade with the USA, Figure 2 shows that the total value of African exports was $14 billion in 1990; this later dropped to about $13 billion in 1993 due to political instability in some African countries. However, by 2000, Africa's exports to the USA increased to about $23 billion due to relative political and macroeconomic stability in many of these countries. Although Africa's exports to USA fell to $18 billion in 2002, they picked up immediately in the following year (2003) to about $27 billion. This number consistently increased until 2008, where it reached $99 billion before falling to $54 billion due to the global economic meltdown in 2009. The rate later rose to about $84 billion in 2011 and then declined again in 2012 to about $56 billion due to the reduction in USA demand of Africa's exports, particularly crude oil. The continent recorded a positive trade balance with the USA all through the study years, which means that Africa is a net exporter of goods and services to the USA. The positive trade balance will not be too far from the various preferential trade treatments granted to the continent, especially the Africa Growth and Opportunity Act (AGOA).

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4. Methodology

Mayer and Zignago (2005) model market access in global and regional trade through a border-effect methodology. The empirical work in this study has modified their work by including regional trade agreements, colonial affiliation, and language. The border effects methodology is used to measure the impact of borders inside each regional trade agreement (RTA) and thus characterizes the extent of integration of the zone/continent compared to trade taking place in the rest of the region. This micro-founded type of gravity model of trade patterns is often used to estimate the impact of national borders on revealed access to northern markets for southern producers. The border effect method investigates trade flows within countries and among countries, as well as comparing 'imports' from domestic producers in order to have a benchmark based on a situation of the best possible market access (that faced by national producers). This study identifies the part to be associated with observed direct protection (e.g. tariffs and NTBs). Thus, the border effect offers a more intuitive benchmark of integration than the traditional gravity model by capturing all impediments to trade related to the existence of national borders, through their impact on trade flows. Also, it is more informative in the study of the evolution of trade barriers. For instance, the traditional gravity model cannot separate trade creation from trade diversion effects, as in the case of the border effects. Therefore, this study uses the border effects method that combine international and intra-regional trade flows in a gravity-type equation.

The theoretical framework for this model is derived from the new trade theory that made provision for economies of scale and imperfect markets. Bergstrand (1990) provides a description of the link between the gravity equation and bilateral trade patterns in a monopolistic competition framework of the new trade theory. Tinbergan (1962), Poyhonen (1963), and Linnemann (1966) first applied gravity model to the analysis of global trade flows. The name of the model was derived from its passing similarity to Newtonian physics, which indicates that large economic entities such as countries or cities are said to exert pulling power on people (Migration Model) or their goods (trade models) or capital (FDI model).

The simplest form of the international trade gravity model assumes that the volume of trade between any two trading partners is an increasing function of their national incomes and populations and a decreasing function of the distance between them (see Kareem and Kareem, 2014b). In the model, it is common to use dummy variables to capture geographical effects (such as signaling whether the two countries share a border or if a country has access to the sea), cultural and historical similarities (such as if two countries share a language or were linked by past colonial ties), and regional integration (such as whether countries belong to a free trade agreement or share a common currency), as well as other macroeconomic policy variables (such as bilateral exchange rate volatility). Anderson (1979), Bergstrand (1985), and Helpman and Krugman (1985) derive gravity equations from trade models based on product differentiation and increasing returns to scale. Linnemann and Verbruggen (1991) explicitly study the impact of tariffs on bilateral trade patterns

using a gravity model framework. However, it is Estevadeordal and Robertson (2002) that explicitly study the incorporation of preferential tariff rates in a gravity model.

4.1 The Model

As stated previously, this study's model is adopted from the empirical work of Mayer and Zignago (2005) with little modification. Let us assume that consumers in country i are assumed to have a two-level utility function in which the upper level is a Cobb-Douglas with expenditure parameter u_i, which gives rise to a fixed expenditure share out of the income, y_i. The lower level utility function, on the other hand, is a constant elasticity of substitution (CES) aggregate of differentiated varieties produced in the considered industry, with σ representing an inverse index of product differentiation.

$$U_i = \left(\sum_{j=1}^{N} \sum_{h=1}^{N_j} \left(a_{ij} c_{ijh} \right)^{\frac{\sigma-1}{\sigma}} \right)^{\frac{\sigma}{\sigma-1}}$$

(1)

The CES structure usually indicates a love for variety, based on the fact that the consumers are willing to consume all available varieties. Our study shall deal with a situation in which consumers have different preferences for varieties depending on bias. The consumers' preference parameter in country i for varieties produced in j is denoted a_{ij}.

Given the fact that most of these varieties are produced in foreign countries, there is need to model trade cost, τ_{ij} that ought to be *ad valorem*, and incurred by the consumer when the good is transported from country j to country i. The delivered price p_{ij} faced by consumers in i for products from j is therefore the product of the mill price (cost of production) p_j and the trade cost. The trade costs include all transaction costs associated with the movement of goods across the space and natural borders. The demand for a representative variety produced in j is denoted as $c_{ij,}$ which the demand function derived from this system gives the bilateral total imports by country i from country j for a given industry.

$$M_{ij} = \eta_j P_{ij} C_{ij} = \eta_j \alpha_{ij}^{\sigma-1} P_j^{1-\sigma} \tau_{ij}^{1-\sigma} \mu_i Y_i P_i^{\sigma-1}$$

(2)

where $P_i = \left(\sum_\kappa \eta_\kappa a_{i\kappa}^{\sigma-1} P_\kappa^{1-\sigma} \tau_{i\kappa}^{1-\sigma} \right)^{1/(1-\sigma)}$ is the "price index" in each location. From equation (2), one could see that trade costs influence demand when there is a high elasticity of substitution, σ. Based on Head and Mayer (2000), we take the ratio of m_{ij} over m_{ii}, country $i's$ imports from itself; the $\mu_i y_i p_i^{\sigma-1}$ term then drops and we are left with relative numbers of firms, relative preferences, and relative costs in country i and j.

$$\frac{m_{ij}}{m_{ii}} = \left(\frac{n_j}{n_i} \right) \left(\frac{a_{ij}}{a_{ii}} \right)^{\sigma-1} \left(\frac{P_j}{P_i} \right)^{1-\sigma} \left(\frac{T_{ij}}{T_{ii}} \right)^{\sigma\sigma-1}$$

(3)

In order to estimate equation (3), the model must be fully specified by adopting the supply-side features of the monopolistic competition model. Hence, the firms producing q_j in country j employ l_j workers in an IRS production function $l_j = F + rq_j$, where F is a fixed (labor) costs, and r is the inverse productivity of firms. The profits are $\hat{\lambda}_j = p_j q_j - w_j(F + rq_j)$, where w_j is the wage rate in country j. Thus, the equilibrium output of each representative firm is $q_j = \dfrac{F(\sigma - 1)}{r}$. We assume an identical technology that is $q_j \equiv q, v_j = 1 \cdots N$, while V_j is the value of production for the considered industry in country j, $v_j = qp_j n_j$, from equation (3):

$$\frac{n_j}{n_i} = \frac{v_j}{v_i} \frac{p_i}{p_j}$$

(4)

The functional forms of trade cost (τ_{ij}) and preferences (a_{ij}) also have to be specified in order to get an estimable equation. The trade costs are a function of distance (d_{ij}, which proxies for transport cost) and "border-related costs" that consist of tariffs and non-tariffs barriers (these include quantitative restrictions, administrative burden, sanitary measures, etc.). The *ad valorem* equivalent of all border-related costs brc_{ij} is given as:

$$\tau_{ij} \equiv d_{ij}^{\delta}\left(1 + brc_{ij}\right)$$

(5)

Let us allow the border-related costs to be flexible in this study, since our aim is to assess a possible North-South divide in market access; we then need to allow for different levels of broadly defined protection in each direction (North-South and South-South). Also of importance is the issue of the effect of regionalism, which we are going to control for in the assessment of Southern exporters' access to Northern markets. Further, we observe some of the actual protection that is taking place between importing and exporting countries (tariffs and NTBs). We shall include measures of market access initiatives in order to determine the extent to which these initiatives would impact African exports.

Generally, we assume the following structure for border-related costs that vary across country pairs and depend on the direction of the flow of a given pair:

$$1 + brc_{ij} \equiv \left(1 + t_{ij}\right)\left(1 + ntb_{ij}\right)\left(\exp\left[\eta E_{ij} + \theta RTA_{ij} + \vartheta NS_{ij} + \varphi SN_{ij}\right]\right)$$

(6)

From this specification, t_{ij} denotes the *ad valorem* bilateral tariffs and ntb_{ij} is a frequency index of NTBs. Trade Agreements, RTA_{ij}, is a dummy variable set equal to 1 when $i(\neq_j)$ and j belongs to a regional

integration agreement. We expect $\theta > 0$ to be the lowest of those parameters, which will be true if all national borders impose transaction costs, with the minimum burden of those costs being between RTA members. The preferences have a random component e_{ij} and a systemic preference component for goods produced in the home country, β. The home bias is assumed to be mitigated by the share of a common language.

$$a_{ij} \equiv \exp\left[e_{ij} - \left(\beta - \lambda L_{ij} \right)\left(E_{ij} + NS_{ij} + SN_{ij} \right) \right] \tag{7}$$

L_{ij} is set equal to 1 when two different countries share the same language. When L_{ij} switches from 0 to 1, the home bias changes from β to $\beta - \lambda$.

Thus, from the equations above, we obtain an estimable equation with respect to Africa's trade relations with its major trade partners from the monopolistic competitive equation of Krugman (1980):

$$In\left(\frac{m_{ij}}{m_{ii}} \right) = -(\sigma-1)[\beta+\eta] + In\left(\frac{\upsilon_j}{\upsilon_i} \right) - \sigma In\left(\frac{P_j}{P_i} \right) - (\sigma-1) In\left(1+t_{ij}\right) - (\sigma-1) In\left(1+ntb_{ij}\right) - (\sigma-1)\delta$$

$$In\left(\frac{d_{ij}}{d_{ii}} \right) - (\sigma-1)[\theta_1 - \eta_1] RTA_{ij} + \in_{ij} \tag{8}$$

where $\in_{ij} = (\sigma-1)\left(e_{ij} - e_{ii}\right)$

$\left(-(\sigma-1)[\beta+\eta] \right)$ is the constant of equation (2) and it gives the border effect of the international trade for countries that belong to the same group (for instance, African countries). If the coefficient is positive, then it is trade creation; otherwise it is trade diversion. This includes both the level of protection of the importing country (η) and the domestic bias of consumers (β). The coefficient RTA measures the effects that the regional trade agreements have on African exports. This study covers 25 African countries (comprising SSA and North Africa countries) that trade with the EU and USA in products that spread across the agricultural, industrial, and petroleum sectors from 1990 to 2011[1].

4.2 Estimation Techniques

The generalized method of moment was used to estimate the panel data. This method allows us to estimate our regression equations for the whole of Africa. The panel data technique in the gravity model has several benefits, as identified by Hsiao (1985, 1986), Klevmarken (1989) and Solon (1989). It can be used to control for individual heterogeneity, and it provides more informative data, more variability, less collinearity among

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[1] See the Appendix for the description of data and their sources as well as the classification of African countries into the sectors.

the chosen variables, more degree of freedom, and more efficiency[2]. Also, the panel data technique is a better option when one intends to study the dynamics of adjustment and duration of economic states like poverty and employment; if these panels are long enough, they can shed light on the speed of adjustments to economic policy changes. Panels are necessary for the estimation of inter-temporal relations, life-cycles, and intergenerational models and they can easily relate individuals' experiences and behaviors at another point in time. Finally, they are better able to identify and measure effects that are simply not detectable in cross-section or time-series data, such as in the ordinary least square (OLS) method.

The basic class of specification of these models is given as:

$$Y_{it} = f\left(X_{it}, \beta\right) + \delta_i + \gamma_t + \in_{it} \tag{9}$$

This leading case involves a linear conditional mean specification, so that we have:

$$Y_{it} = \alpha + X_{it}\beta_{it} + \delta_i + \gamma_t + \in_{it} \tag{10}$$

where Y_{it} stands for the dependent variable, X_{it} is a K – vector of regressors, and $\in_{it}$ are the error terms for $i = 1, 2, \ldots, M$ cross-sectional units observed for dated periods $t = 1, 2, \ldots, T$. The α represents the constant of the model, while the δ_i and γ_t represent the fixed and random effects, respectively. Identification obviously requires that the β coefficients have restrictions placed upon them. They may be divided into sets of common (cross-section and periods), cross-section-specific, and period-specific regressor parameters.

Prior to estimating our model of African market access, we would expect an inverse relationship between relative price and Africa's exports due to the problem of imported inflation that might arise in the economies of Africa's trading partners. Relative output is expected to have a direct relationship with Africa's exports; that is, as output increases, there will be more to export. Tariffs and non-tariff barriers are expected to have an inverse relationship with Africa's exports. This means that as more market conditions are imposed on Africa's exports, there will be restriction in the access of Africa's exports; if Africa's exports do eventually make it into the trading partners' market, they cannot compete favorably with similar products.

This panel estimation technique will enable us to estimate panel equations using linear or non-linear squares or instrumental variables (system of equations), with correction for the fixed or random effects in both the cross-section and period dimensions; in addition, the generalized method of moment (GMM) will be used to estimate the specification with various system weighting matrices.

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[2] The estimations are done at the intensive margin of trade, which indicates that only positive (the volume/value) trade is considered.

5. Research Findings

The estimates of the panel gravity model are done through generalized method of moments (GMM). We decided to estimate the random effect based on the fact that the model specified is a gravity type, which includes some dummy variables. According to Baltagi (2001) and Greene(2003), fixed effects, also known as least squares dummy variables (LSDV), suffer from a large loss of degree of freedom, which, when it involves estimating $(N - 1)$ extra parameters and too many dummy variables, aggravates the problem of multicollinearity among the regressors. Also, the fixed effect estimator cannot estimate the effect of any time-invariant variable like sex, race, language, religious, colonial links, schooling etc. because these variables will be wiped out by the Q transformation, the deviations from means transformation. Thus, any regression attempting to use this estimator will fail. It is on this basis that we have used the random effect estimator in this study.

5.1 Industrial Sector

The results show that the industrial sector's output in Africa is directly related to the sector's imports in the EU and USA. This means that importers in both markets will increase their import of industrial products from Africa as the industrial output tends to rise. This result is statistically significant for the two markets, which means that the relative output of Africa's industrial sector is highly vital and relevant to the extent to which the sector's imports will be demanded. For every 100 percent decline in industrial output in Africa, there is over a 10 percent and about a 19 percent reduction in imports to the USA and EU markets, respectively. Further, it can be seen from this result that EU imports will be more depleted than USA imports, which means that in terms of supply response of Africa's industrial products, the EU will be more affected by a decline in the supply of a products than the US. This could be seen from the magnitude of their relative outputs coefficients. This result confirms the findings of Mayer and Zignago (2005).

The relative prices are inversely related to industrial imports in both markets, which indicates that a higher price for Africa's industrial products/exports will be met with a reduction in the sector's imports into the EU and USA markets. However, theoretically, we expect such a relationship between price and demand for imports from the industrial sector. The result shows that for every 100 percent rise in Africa's industrial sector's export prices, there will be a 0.004 percent and a 0.0003 percent drop in the demand for the sector's imports in the USA and EU, respectively. It should be noted, though, that this result is statistically significant in the USA but not in the EU.

Table 6: Generalized Method Moment (GMM) Random Effect Result

Variable	INDUSTRIAL		AGRICULTURE		PETROLEUM	
	USA	EU	USA	EU	USA	EU
Constant	-3.48E-06 (0.29)	4.03E-05 (0.72)	9.89E-06 (0.46)	0.0008 (0.00)[a]	9.62E-05 (0.00)[a]	0.00008 (0.02)[b]
Routput	0.1038 (0.00)[a]	0.1891 (0.00)[a]	0.0249 (0.00)[a]	0.1796 (0.00)[a]	0.0236 (0.00)[a]	0.1431 (0.00)[a]
Rprice	4.06E-05 (0.03)[b]	-3.19E-06 (0.73)	-2.62E-06 (0.25)	-2.80E-05 (0.03)[b]	1.24E-05 (0.00)[a]	-3.67E-05 (0.03)[b]
RTA	0.0013 (0.00)[a]	0.0003 (0.00)[a]	-6.98E-05 (0.00)[a]	-0.0002 (0.25)	-8.32E-05 (0.07)[c]	-0.0003 (0.45)
Pretarr	-0.0032 (0.00)[a]	-0.0041 (0.01)[a]	-0.0047 (0.05)[b]	-0.0051 (0.00)[a]	-0.0063 (0.02)[b]	-0.0024 (0.00)[a]
NTB	-0.0705 (0.02)[b]	-0.0491 (0.01)[a]	-0.0705 (0.00)[a]	-0.0405 (0.00)[a]	-0.0650 (0.05)[b]	-0.0506 (0.00)[a]
Distance	-1.07E-05 (0.00)[a]	-5.83E-06 (0.00)[a]	5.31E-06 (0.00)[a]	-9.57E-08 (0.00)[a]	3.75E-07 (0.35)	-8.07E-06 (0.03)[b]
R2	0.41	0.63	0.73	0.38	0.66	0.53
Std. Error	0.0003	0.0003	3.79E-05	0.0005	7.59E-05	0.0005
J.Statistic	248.37	304.05	290.91	146.10	94.2450	59.80

Source: Computed
Note: The figures in parentheses are the probabilities of the t-statistic. The superscripts a, b and c indicate 1%, 5% and 10% level of significant, respectively.

The trade agreements that Africa has with the USA and the EU have contributed positively to the industrial sector's imports into these two markets. For every additional trade agreement made, there will be a 0.13 percent and a 0.03 percent rise in the USA and EU imports of Africa's industrial products, respectively. However, it should be noted that trade agreements have contributed more to Africa's access to the USA's industrial import market than the EU market.

Tariffs, measures of trade policy, have the theoretically required signs for the two markets. That is, there were inverse relationships between tariff imposition and industrial imports in both markets, which means that as more preferential tariffs are granted in both markets, there is an increase in Africa's industrial product imports into these markets. In the USA, the results show that for every 100 percent reduction in tariffs on Africa's industrial imports, there will be a significant rise in the import of these products, to the tune of 0.3 in the USA and 0.4 percent in the EU.

Non-tariff measures (NTMs), which are this study's focus variable, also indicate an inverse relationship with the import of African industrial products by the USA and EU. The implication is that any incidence of NTB on Africa's industrial sector's imports in both markets will serve as hindrances to Africa's export of industrial products; at the same time, this finding shows the extent to which these markets protect their domestic economies from foreign product invasion. Thus, for every additional incidence of NTMs, there will be a 7 percent and about a 5 percent reduction in USA and EU imports of Africa's industrial products,

respectively. It should be noted that the magnitudes of the reduction in the industrial sector's imports in these markets due to the use of NTBs are far higher than that of tariffs. This implies that NTBs have greater effects on Africa's exports to these markets and depicts the restrictiveness of these trade policy instruments (see UNCTAD, 2012).

Distance has an inverse relationship with industrial imports to the USA and EU. That is, the farther the distance between Africa and these trading partners, the lower the imports of Africa's industrial products into these markets. This indicates that higher trade costs, including distance, inhibit the flow of Africa's industrial export to these markets. This result is expected theoretically and is statistically significant.

5.2 Agricultural Sector

The results for the agricultural sector indicate that relative output has a positive relationship with the agricultural sector's imports into both the USA and the EU markets. This means that as the output of agricultural products in Africa increases, there will be rise in the USA and EU import of these products, such that for every 100 percent increase in output, there will be about a 2.5 percent and a 1.8 percent rise in USA and EU imports, respectively. Thus, if African could increase its productivity in the agricultural sector, the absorptive capacity of its trading partners' markets is relatively high.

In terms of the degree of association between relative prices and import of agricultural products, the result shows that there are inverse relationships. This means that the price of agricultural products' imports into these markets is indirectly related to their imports. That is, if prices are reduced, the demand for African agricultural products will improve in these markets, such that if the prices are reduce by 100 percent, there will be a 0.0002 percent and a 0.003 percent rise in agricultural products' import demand in the USA and EU, respectively. The relative price is statistically significant in the EU models, while it is insignificant in the USA model.

Africa's trade agreements with the USA and EU have not contributed to additional market access for Africa's agricultural products in these markets. The implication of this is that there are some levels of non-compliance with these agreements, which has led to ineffective implementation that could not facilitate enhanced market access for African agricultural products. The increase in the frequency of NTB usage by the USA and the EU also contributed to this development, since many of the agreements did not necessary consider the issue of NTBs in these countries' trade relations.

The preferential tariff rates on agricultural products in the USA and EU enhances the access of African agricultural product to the two markets. This indicates that tariff impositions could either act as a hindrance or an enhancement to Africa's agricultural access depending on the direction of the imposition. In other words, an inverse relationship exists between tariffs and agricultural products imports such that for every 100 percent rise in preferential tariffs, there will be a 0.04 percent and a 0.05 percent increase in the US and

EU imports of African agricultural products, respectively. The result also indicates that Africa's agricultural products respond more to a reduction in tariffs through the preferential tariffs granted in the EU than in the USA because USA markets tend to be more restrictive than the EU.

Non-tariff barriers also present an inverse relationship with agricultural imports to the USA and EU. The results show that agricultural products from Africa are very sensitive to the various incidences of NTBs in these markets, such that if there are increases in the incidences of NTBs (for example, countervailing, standards, technical regulations, rule of origin, etc.), agricultural products from Africa cannot stand the test of these measures and thereby the products will be restricted from gaining access to these markets. The implication here is that African agricultural products' standards and qualities need to be enhanced in order to facilitate their access to these markets. Any additional incidence of NTBs will lead to about a 7 percent and a 4 percent reduction in Africa's agricultural products imports from the USA and EU, respectively. Thus, NTBs are more trade restrictive than tariffs in both markets.

Distance, a measure of trade cost, is inversely related to Africa's agricultural imports to the EU, meaning that the farther the distance between Africa and the EU, the lower the amount of agricultural imports from Africa that reach the EU. This degree of association is statistically significant. However, in trade relations between African and the USA, distance is not a barrier to trade, as it has a direct relationship with the level of agricultural imports to the US.

5.3 Petroleum Sector

Analysis of the results from the petroleum sector indicates that relative output has the expected sign of a positive relationship with the sector's imports into the USA and EU. This suggests that as petroleum output increases, there will be more access into these markets, such that for every 100 percent rise in petroleum output, there will be over a 2.3 percent and a 14 percent increase in USA and EU imports, respectively. The EU will import more African petroleum products than the USA, which confirms the a priori expectation of this study.

The relative price of petroleum products from Africa is inversely related to the EU import of these products, which means that as petroleum prices rise in the EU market, there will be drop in the consumption of petroleum products by EU consumers. This result shows that the EU has an alternative source of energy to which they could easily shift if there is a rise in petroleum prices. For every 100 percent rise in Africa's petroleum product prices, there will be a 0.004 percent drop in the EU import of these products. However, this finding does not hold for USA imports of African petroleum products; in this case, Africa's petroleum prices are directly related to the USA import of those products. This means that the higher the prices of the products, the higher the USA import of petroleum products, such that for every 100 percent rise in price, there will be a 0.001 percent increase in their imports. The implication is that the USA has not found an

appropriate substitute to petroleum products, although the magnitude of the change demands indistinguishable from zero.

The trade agreements that Africa has with the USA and EU do not improve Africa's export access to these markets for petroleum products. This is due to the influence of the Organisation of Petroleum Exporting Countries on all its members and is reflected in the sign of the coefficient of trade agreements in both the USA and EU estimates. However, these coefficients are statistically insignificant for the two markets. The implication is that Africa's petroleum sector is vital and that, irrespective of any trade agreements between Africa and its trading partners, the sector's output will be needed by many markets all over the world.

Tariffs, a measure of market access conditions, are inversely related to Africa's petroleum product imports to the USA and EU. This shows that an increase in the rate of preferential tariffs in these markets will lead to a rise in the level of importation of Africa's petroleum products. Put differently, if the governments of the US and EU decided to raise revenue and protect their economies through the imposition of higher tariffs on petroleum products from Africa, this would lead to a reduction in petroleum product imports. Thus, for every 100 percent rise in preferential tariff rates, there will be a 0.6 percent and a 0.2 percent increase in the USA and EU imports of petroleum products. The effect of tariffs on petroleum products is very minimal in the USA compared to in the EU.

Non-tariff barriers, another measure of market access conditions, have an inverse relationship with petroleum product imports. This means that whenever there is increase in the incidence of NTMs in the economies of these trading partners, there will be a reduction in Africa's petroleum product imports due to the fact that most of these petroleum products might not be able to pass the test of these NTMs. However, if the products do pass the standards and other tests, they will not be able to scale through the contingency measures such as countervailing and safeguard measures if protectively applied. Thus, for every 100 percent increase in the incidence of NTMs, there will be a 6.5 percent and a 5 percent decrease in the USA and EU imports of Africa's petroleum products, respectively. This result depicts the fact that the effect of incidence(s) of NTBs on Africa's petroleum products is felt more in the EU than in the USA.

Distance, a measure of trade costs, shows that it does not hinder Africa's petroleum imports to the USA. However, distance does inhibit the free flow of Africa's petroleum products to the EU, such that for any additional trade cost incurred in exporting to the EU, there will be a statistically significant 0.0008 percent reduction in EU imports, which is indistinguishable from zero. The implication of this result is that trade cost as measured by the distance must be considered before embarking on the export of petroleum products to EU markets, although the magnitude indicates that it is negligible. This also indicates that EU members that are relatively far from Africa will export a relatively low number of African petroleum products compared to countries that are closer.

Conclusion and Recommendations

This study has determined the effects of non-tariff barriers on Africa's exports to the USA and the EU. The results of the sectoral analyses show that inadequate output of industrial products has reduced the level of African exports to the EU and USA, while an increase in the price of Africa's industrial products will reduce the consumption of these products and therefore reduce exports. Trade agreements between Africa and these trade partners have contributed positively to the access of Africa's industrial products to these markets. Preferential tariffs granted to African countries have enhanced the flow of Africa's industrial products to these markets, while the incidence of non-tariff barriers imposed by these trade partners tends to reduce access to these markets for Africa's industrial products. Distance serves as a barrier to the trade between Africa and both markets.

In the agricultural sector, the results show that the low supply response (output) of African countries has led to a decline in market access to USA and EU markets. The high prices of agricultural commodities, due to inefficient production processes and subsequent high production costs, leads to the decline in the consumption of these products in USA and EU markets. Most of the trade agreements between these countries were not adhered to, meaning that these agreements have little impact on African agricultural access to the EU and USA markets. Preferential agricultural tariffs granted to African countries tend to accelerate market access for these products to the EU and USA, while the rise in the incidence of non-tariff barriers often restricts agricultural exports flow to these trade partners. Distance did not restrict Africa's agricultural exports to the USA, but it did for exports to the EU.

In the petroleum sector analysis, the increased supply response of petroleum products tends to enhance or improve market access for the products in both markets. The increase in the price of petroleum products did not reduce the demand of these products in the USA because of the importance and necessity of these products to consumers in this country. However, in the EU, any rise in this petroleum product prices will reduce the consumption of these products and therefore reduce exports. The results also indicate that trade agreements did not contribute to the flow of petroleum products in these two markets. The reductions in tariffs through preferential tariffs accelerate the export of petroleum products to these markets. However, the incidence of non-tariff barrier measures restrict the flow of these products to both the EU and the USA. In the EU, distance is an inhibiting factor for African exports of petroleum products, while in the USA, distance did not restrict African exports.

Thus, this study concludes that tariffs imposed by the EU and USA markets have not hindered African exports to these markets, but non-tariff barriers have done so. In addition, these NTBs retarded Africa's export supply such that the continent cannot keep up with demand in these trade partners' markets. Trade agreements could be used to propel Africa's exports in all products except petroleum products, because

exports of these products goes beyond trade agreements and involves Organisation of Petroleum Exporting Countries (OPEC) quota arrangements. The study concludes that products of relevance to African countries are confronted with higher NTBs in the EU than in the USA.

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Appendix

Table A: Variable Definitions and Sources

Variable	Description	Source
P_j/P_i = Ratio of Prices (Rprices)	This is the ratio of prices between Africa and her trading partners (measured by CPI and also known as relative prices).	IFS
V_j/V_i= Ratio of Outputs (Routputs)	The ratio of output/production between Africa and the selected trade partners (Measured by their GDP and this stands for the supply capacity).	IFS
dis = distance	The distance from the capital of í (trade partners) to the capital of j (selected African countries). This is a measure of transport cost.	www.timeanddate.com
t_{ij} = Tariffs	Weighted average of Ad-valorem tariffs	UNCTAD (WITS)
NTB = Non-tariff barriers	Non-tariff barriers measured by the incidence of non-tariff measures in the EU and USA that is used to distort trade.	WTO (WITS)
RTA = regional Trade Agreements	Regional trade agreement is given one when both partners belong to this arrangement, otherwise zero.	Dummy
M_{ij}/M_{ii} = Ratio of Imports (Rimports)	This is the ratio of imports between Africa and her trading partners.	IMF DOT

Table B: Classification of African Countries into Product and Sectoral Groups

EU – Sector	Country
Agriculture	Algeria, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central Africa Republic, Congo D.R., Cote d'Ivoire, Egypt, Ghana, Guinea, Kenya, Mauritius, Morocco, Niger, Nigeria, Senegal, South Africa, Swaziland, Tanzania, Tunisia and Uganda.
Industrial	Algeria, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central Africa Republic, Congo D.R., Cote d'Ivoire, Egypt, Gabon, Ghana, Guinea, Kenya, Mauritius, Morocco, Niger, Nigeria, Senegal, South Africa, Swaziland, Tanzania, Tunisia and Uganda.
Petroleum	Angola, Cameroon, Congo D.R., Egypt, Ghana, Morocco, South Africa, Tunisia.
The United States of America Classification	
USA – Sector	Country
Agriculture	Algeria, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central Africa Republic, Congo D.R., Cote d'Ivoire, Egypt, Ghana, Guinea, Kenya, Mauritius, Morocco, Niger, Senegal, South Africa, Swaziland, Tanzania, Tunisia and Uganda.
Industrial	Algeria, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central Africa Republic, Congo D.R., Cote d'Ivoire, Egypt, Gabon, Ghana, Guinea, Kenya, Mauritius, Morocco, Niger, Nigeria, Senegal, South Africa, Swaziland, Tanzania, Tunisia and Uganda.
Petroleum	Angola, Cameroon, Congo D.R., Cote d'Ivoire, Egypt, Ghana, Morocco, Nigeria, South Africa and Tunisia.

Note: This classification is based on individual country exports to the EU and USA as captured by World Integrated Trade Solution (WITS)

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