

UNIVERSITY OF CAPE COAST

EFFECTS OF THE AFRICA GROWTH AND OPPORTUNITY ACT ON  
EXPORTS OF MEMBER STATES OF WEST AFRICA MONETARY ZONE  
TO THE UNITED STATES

BY

EVANS KULU

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Coast, in partial fulfilment of the requirement for the Award of Master of  
Philosophy Degree in Economics.

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## **DECLARATION**

### **Candidate's Declaration**

I hereby declare that this thesis is the result of my own original work and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature: ..... Date: .....

Name: Evans Kulu

### **Supervisors' Declaration**

We hereby declare that the preparation and presentation of this thesis were supervised in accordance with the guidance on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature: ..... Date: .....

Name: Dr. Isaac Bentum-Ennim

Co-Supervisor's Signature: ..... Date: .....

Name: Dr. Peter B. Aglobitse

## ABSTRACT

In the quest to improve the economic fortunes of developing countries, varieties of trade preferences have been introduced. This mechanism appears to be in support of the ‘trade not aid’ campaign. The AGOA trade preference enacted by the US in the year 2000 is one that has received much recognition in Sub Saharan Africa as a means of boosting export hence economic development. The importance of trade, especially in the developing countries calls for the need to study the effects of such a trade preference. This study is motivated by the relatively limited literature investigating the effects of trade preferences on regions and respective countries as well. Since results for a region might not be true for the individual countries this study focuses on how AGOA has affected exports of the zone and individual WAMZ member states to the US. Using gravity covariates and other export determinants for the period 1980 to 2016 sourced from IMF DOTS, WDI and CEPII, the study employs the gravity model and the fixed and random effects estimation techniques. After correcting for heteroscedasticity and a possible serial correlation, the study reveals that the AGOA trade preference has a negative effect on the exports of the WAMZ to the US. It also shows that exports from Ghana, Guinea and Liberia to the US have significantly reduced while exports from Nigeria and Sierra Leone to the US have increased significantly under AGOA. It is therefore suggested that WAMZ states renegotiate for relaxation of rules of origin and as well expansion of product coverage to include products in which the WAMZ member states have comparative advantage.

## **KEY WORDS**

African Growth and Opportunity Act

Gravity

Rules of Origin

Trade Preference

West Africa Monetary Zone

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## **DEDICATION**

In memory of my late father Mr. Anthony Kulu and my brother James Kulu.

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## LIST OF ABBREVIATIONS

ADF	Augmented Dicky-Fuller
AGOA	Africa Growth and Opportunity Act
AIPO	Assistant Industrial Promotion Officer
ATPA	Andean Trade Preference Act
BAP	Banjul Action Plan
CAEMU	Central Africa Economic and Monetary Union
CAP	Common Agricultural Policy
CBEBRA	Caribbean Basin Economic Recovery Act
CBTPA	Caribbean Trade Partnership Act
CES	Constant Elasticity of Substitution
CET	Common External Tariff
DFQF	Duty-Free Quota-Free
EBA	Everything But Arms
ECOWAS	Economic Community of West Africa States
EGLS	Estimated Generalized Least Square
ETLS	ECOWAS Trade Liberalization Scheme
EU-ACP	European Union-Africa, Caribbean, Pacific
FDI	Foreign Direct Investment

FGLS	Feasible Generalized Least Square
GATT	General Agreement on Tariff and Trade
GDP	Gross Domestic Product
GLS	Generalized Least Squares
GMM	Generalized Method of Moment
GNP	Gross National Product
GSP	Generalized System of Preferences
HO	Heckscher-Ohlin
HOPE	Haitian Opportunity through Partnership Encouragement
IMF	International Monetary Fund
LDC	Least Developed Countries
LM	Lagrange Multiplier
LSDV	Least Square Dummy Variable
MFN	Most Favoured Nations
MoTI	Ministry of Trade and Industry
MRT	Multilateral Resistance Term
MSE	Mean Square Errors
NAIC	National AGOA Implementation Committee



NEPAD	New Partnership for Africa's Development
NRPTA	Non-Reciprocal Preferential Trade Agreements
NTR	Non Trade Relation
OLS	Ordinary Least Squared
PP	Phillip Perron
PPP	Purchasing Power Parity
PTA	Preferential Trade Agreement
RoO	Rules of Origin
RTA	Regional Trade Agreement
RTGS	Real Time Gross Settlement
SCF	Stabilization and Cooperation Fund
SRMSE	Square Root of Mean Square Errors
SSA	Sub -Saharan Africa
SSE	Sum of Square Errors
TRQs	Tariff rate quotas
UEMOA	Union Économique et Monétaire Ouest- Africaine
USD	United States Dollar

WACB	West African Central Bank
WAEMU	West African Economic and Monetary Union
WAMI	West African Monetary Institute
WAMZ	West African Monetary Zone
WDI	World Development Indicators
WTO	World Trade Organization

## **CHAPTER ONE**

### **INTRODUCTION**

This chapter considers the background to the study, statement of the problem, objectives of the study, and research hypotheses. It further covers the significance of the study and how the chapters are organized.

#### **Background to the Study**

Development appears to be a bigger challenge in the Africa continent. In recent times, several mechanisms have been put in place by most nations to address the impediments to development. Among the many external factors hindering the development of Africa as well as other low-income countries is the trade barriers introduced by high-income countries on the imports of commodities (Frazer & Biesebroeck, 2010). However, Collier and Gunning (1999) identified that the external factors are sometimes less important as compared to the factors originating from within the low-income countries themselves. Africa's poor economic performance is also attributed to inadequate social and capital infrastructure, distorted product and credit market as well as the poor public service (Collier & Gunning, 1999). Leaders around the world have highlighted the relevance of development in Africa leading to the introduction of a variety of policy statements and initiatives ranging from the debt relief, New Partnership for Africa's Development (NEPAD) and other trade related initiatives (Frazer & Biesebroeck, 2010).

As indicated by Didia, Nica and Yu (2015), trade is a major catalyst to economic development, leading to its massive adoption by many regions of the

world. In Sub Saharan Africa, regardless of the many economic reforms implemented to enable trade, growth and development are hindered by the policy choices that limit trade (Arieff, 2010). Most policy analysts as well as development economists attributed the sluggishness of growth in Sub Saharan Africa to poor governance, difficult geographic conditions, political instability and the effects of colonization (Jones & Williams, 2012). The inadequacy of appropriate economic policies is also identified as a cause of the slow economic growth in Sub Saharan Africa (Duru, 2012). Jones and Williams (2012), further explained that the slow movement in gathering both physical and human capital is backed by the relaxed economic growth and stagnation.

In the work of Arieff (2010), it is stated that Africa is second to South Asia in the ranking of the world's most -restrictive region. The trade restrictions include export duties or tariffs, higher imports tariffs and complex import licensing procedures. Thus, per the International Monetary Fund (IMF) Restrictiveness Index of 2010 for instance, as compared to the 13.8% in most Asian countries (excluding the fast growing), 7.2% in the Asian (fast growing) and 5.4% in the industrialized countries, Sub Saharan Africa has an average of 19.2%. According to Zenebe (2013), SSA averagely displays “the worst rankings in the business environment, logistics, governance and other trade facilitation”. According to Zenebe (2013), the region is also characterized by the dominance in the export of primary commodities specifically, agricultural products, oil and mineral hence the importance of commodity prices for its trade and economic development. Thus within the region, little is derived from trade though, about a third of GDP from Sub Saharan Africa countries originates from trade (Zenebe, 2013).

The backing of developed regions (mostly the United States and European Union) through Non-Reciprocal Preferential Trade Agreements (NRPTA) appears to be the most common tool used in promoting exports hence trade of the developing nations. An NRPTA is a concession granted by a developed country to developing countries on a unilateral basis, that is without reciprocal preferences for the donor's exports" (Agostino, Aiello and Cardamone, 2007). EU-ACP and AGOA are some current NRPTAs introduced by the EU and the United States respectively. Nilsson (2007), explained that the largest importers of goods from developing countries have been the EU and the United States and have also introduced a series of trade agreements. The General System of Preferences (GSP) is the first NRPTA implemented with the motive of giving preferential treatment to each and every developing country (Baah, 2015). Income threshold was characteristically used in setting the eligibility criteria for the GSP in the developing countries (Frazer & Biesebroeck, 2010). Among the many conditions as criteria, there existed the fact that the beneficiary country in question may not be a communist, unless such a country is a member of World Trade Organization (WTO), International Monetary Fund (IMF) and also receives a Non Trade Relation (NTR) treatment and as well not controlled by international communism. There is also the condition that the beneficiary country should be a country who may not afford preferential treatment to commodities of a developed country that has or very possible to have a substantial adverse effect on the commerce of the United States.

AGOA was however introduced in the year 2000 as a unilateral effort by the Administration of the United States under President Bill Clinton and since went then through renewal by the Administration of President George Bush. As an

improvement in the United States Generalized System of Preferences (GSP), AGOA offers further 1800 tariff lines to those within the GSP and as well provides a more flexible requirement for eligibility (Opoku, 2015). This flexibility has led to an increase in the number of the AGOA eligible countries. Thus SSA countries participation under AGOA is not automatic. There exist definite eligibility conditions that must be met and continued; if not a country will be banned from enrolling in the agreement (Didia, et al, 2015). The office of the United States Trade Representative provides a list of eligibility conditions which include: respect for the rule of law, continuous progress towards the adoption of a market-based economy, intellectual property rights protection and globally recognized rights of worker and policies to minimize poverty, efforts in fighting corruption. In addition, beneficiary countries must not be a party in any activity that challenges the US national security or foreign policy interest and must have implemented a policy in the quest to eliminate child labour.

According to Candau and Jean (2005), developing countries see trade preferences including AGOA, as a means of getting trade opportunities. This makes it possible to enhance their productive capacity adequately to be in a good position for competition from highly industrialized countries. With the appropriate environment for trade, SSA countries are likely to improve the volume of their export via the AGOA trade preference (Collier & Venables, 2007). It is worth mentioning that the privilege of exporting under a preferential trade scheme has the possibility of reinforcing or declining the overall exports of the beneficiary countries. Thus an increase in export will be recorded if exporting under AGOA presents a positive spillover effect on overall exports. On the other hand, overall

exports fall if there is a reallocation of inputs from traditional exports to the AGOA divisions (Nouve, 2005). This explains that exporting under a trade preference is not always accompanied by positive news. The overall effects mostly depend on the products type that is being exported and the value they command.

An article by Adibe (2017), indicates that though the AGOA preference requires beneficiary countries to remove barriers to the US, it is never shocking that the possible trade balance strongly comes out in the favour of the US.

Member States of the West Africa Monetary Union (WAMZ); Ghana, Guinea, Gambia, Liberia, Sierra Leone and Nigeria within the SSA have satisfied the eligibility conditions of the AGOA trade preference and aim at tapping its benefits.

Table 1- *WAMZ Member States and their Dates of AGOA Eligibility*

<b>Name of Country</b>	<b>Date of Agoa Eligibility</b>	<b>First AGOA Export</b>
Ghana	2 <sup>nd</sup> October, 2000	2001
Guinea	25 <sup>th</sup> October, 2011(restored)	2007
The Gambia	31 <sup>st</sup> December, 2002	2010
Liberia	29 <sup>th</sup> December, 2006	N/A
Sierra Leone	23 <sup>rd</sup> October, 2002	2004
Nigeria	2 <sup>nd</sup> October, 2000	2001

*Source:* International Trade Administration, 2015

Economic integration of this nature (WAMZ) is encouraged because it remains a vibrant path through which growth and development can be achieved

(Bentum- Ennin, 2013). Bentum-Ennin (2013) defined monetary integration as an important dimension of economic integration which involves the establishment of a central monetary authority, a single currency, a unified monetary policy, or a mechanism by which all the national currencies are made convertible to one another. Thus in the quest to accelerate the ECOWAS integration program, a declaration to form a second Monetary Zone was signed by the heads of state of the aforementioned countries on April 20, 2000.

Studying the effect of a trade preference on a monetary zone such as the WAMZ is appropriate since deviations in results will be minimized according to the Optimum Currency Area (OCA) theory. The traditional OCA theory explains that one of the fundamental stances on which a country will be considered to join a single currency area is that the country in question must have a similar, although diversified, production, the structure of demand and exports lines in relation to the existing member states (Baldwin, 2008). This notion leads to the conclusion that Member States of the WAMZ have similarities regarding the demand structures, production and export lines.

In February 2002, the treaty of Accra was also signed as a follow up to endorse the single West African market by way of advocating for the removal of trade barriers so as to increase integration by using a common currency to be known as ECO to replace the various national currencies (Ofori-Abrebrese, 2006).

The objective of having removal of trade barriers appears to be in line with the structure of AGOA trade preference. This therefore, leads to its endorsement in the monetary zone.



## **Problem Statement**

Increasing the export capacity of developing countries to the markets of the industrialized nations has long been considered as an important tool for promoting sustainable development, reducing poverty and reaping the benefits of potential globalization for the developing world (Gil-Pareja, Llorca-Vivero & Martinez-Serrano, 2014).

The introduction of AGOA in the year 2000 by the United States of America is a step to improve the economic fortunes of developing countries through trade. AGOA is basically aimed at increasing trade and investment between the US and eligible countries of SSA (Zenebe, 2013).

It is worth mentioning that several researchers over the years have made attempts to reveal the impacts of trade preferences on receiving regions (SSA, ECOWAS, CAEMU etc.). It may however be misleading when results from grouped beneficiaries are used to inform policy directions for the respective countries because of the presence of noise introduced by some influential countries within the region. For instance, in the work of Didia, et al. (2015), a strong positive effect of AGOA was recorded when a total of 36 SSA countries were used. Subsequently, three oil intense exporting countries (Angola, Gabon and Nigeria) were dropped to observe how the impact will be without these influential countries. For the remaining 33 SSA countries, a less significant effect was recorded. This therefore provides a proof of how misleading results on regional blocs can be when generalized for all countries within the region.

In addition, owing to differences in post AGOA year data (after 2000) used by different researchers, most research works investigating the effects of the AGOA

trade preference on exports of beneficiary countries have found mixed results. For instance, while Frazer and Biesebroeck (2010), found a positive and statistically significant effect of AGOA on export of SSA countries, Tadesse and Fayissa (2008) and Seyoum (2007) found a negative effect of the AGOA trade preference on exports of SSA countries. As this study is directed towards addressing the possible flaws (misleading results) when results from regional blocs are generalized, it will provide a more reliable result since it does country-specific estimations and employs a more current and extended pre and post AGOA (1980 to 2016) year period data.

### **Research Objectives**

The main objective of this study is to investigate the effects of the AGOA trade preference on exports of member states of the WAMZ (Ghana, Gambia, Guinea, Liberia, Nigeria and Sierra Leone) to the United States. The eligibility of these Member States put them in a position to liberally export to the United States of America. In achieving the principal objective, the study was guided by the following specific objectives:

1. To determine the effect of AGOA on the exports of WAMZ as a whole to the US.
2. To determine the effect of AGOA on exports of each WAMZ member state to the US.

## **Hypotheses**

1.  $H_0$ : AGOA does not have any effect on exports of WAMZ as a whole to the US.

$H_1$ : AGOA has an effect on exports of WAMZ as a whole to the US.

2.  $H_0$ : AGOA does not have any effect on exports of each WAMZ member state to the US.

$H_1$ : AGOA has an effect on exports of each WAMZ member state to the US.

## **Significance of the Study**

In spite of the numerous research works on AGOA and the whole of SSA region, a serious attempt to look critically at the effect of a trade preference on a monetary zone (such as the WAMZ) to best of my knowledge have not yet been done. The study will therefore contribute to the debate on the effects of AGOA on exports of beneficiary countries. The results of the study will inform policy in the respective beneficiary countries as to whether to take more advantage of the AGOA program to export more to the US or otherwise. Thus if the results are seen to be positive then it will help open up more domestic opportunities for export promotion and modification that will put the country in question in a position to reap more benefits from the preference. It will also help to identify the possible reviews in the preference that can be done through negotiations by beneficiaries so that its motive of improving Africans economic fortunes can be met.

The study will further add to existing literature for future research works around this area.

### **Delimitation**

The study covers the period 1980 to 2016. Again, it considers only member states of the West Africa Monetary Zone (WAMZ) thus Ghana, Guinea, Liberia, Gambia, Sierra Leone and Nigeria.

### **Limitation**

There were missing values in some variables for some countries. This possibly limits the study because the presence of those values may influence the outcome. Notwithstanding the above this, the results of this study are still valid.

### **Organization of the Study**

The study is structured in six chapters. The second chapter presents information on the establishment of the WAMZ, the overview of trade in the ECOWAS hence WAMZ before and after the AGOA trade preference. The third chapter reviews literature on models of international trade preferences available to less developed countries and empirical literature relating to the effect or how the AGOA trade preference have influenced the exports of the beneficiary countries to the United States. Chapter four covers the research design, the model and the methods employed in the study. Description of data and their sources are also covered in this chapter. In the fifth chapter, descriptive statistics and results of the estimations regarding the study are presented. Chapter six concludes the study with a summary of the key findings, conclusions and recommendations. It also presents directions for future research.

## **CHAPTER TWO**

### **OVERVIEW OF THE WEST AFRICA MONETARY ZONE (WAMZ)**

#### **Introduction**

This chapter introduces the West Africa Monetary zone. It brings to light details on the establishment of the zone, some of the agreements and as well a theory regarding a monetary zone. It also presents an overview of trade in the WAMZ.

#### **The Establishment and Mission of West African Monetary Institute (WAMI)**

In January 2001, the West African Monetary Institute (WAMI) was set up in Accra. However, the operations of the institution started in March 2001. The West African Monetary Institute is obligated to assume technical arrangement in the quest to establish a common West African Central Bank and also launch a common currency for the West African Monetary Zone (WAMZ).

There is the need for the member states of a monetary union to have or converge at a particular qualitative and quantitative benchmark so as to help reduce the effects of asymmetric shocks. Over the years, the institution has been extended to undertaking procedures that will facilitate trade, integrate the financial sector, statistical harmonization and developing the payment system notwithstanding the monitoring of the quantitative convergence criteria.

The Institution in the quest to fulfil its obligations presently organizes a bi-annual onsite and monthly offsite multilateral surveillance missions just to monitor the compliance of member states regarding both the quantitative and qualitative benchmarks.

## **The West African Monetary Zone (WAMZ)**

On the 20<sup>th</sup> of April 2000, the Heads of States of the six countries (Ghana, Guinea, Gambia, Liberia, Sierra Leone and Nigeria) decided in Accra to institute second monetary zone to be known as the West African Monetary Zone (WAMZ) by the year 2003 as part of the fast-track approach to integration. The ‘Accra Declaration’ which contained the objectives of this zone was signed by these six countries. It also contained an action plan and institutional arrangement to ensure that the decision has been promptly implemented. The working language for the West African Monetary Zone is English and French.

The West African Monetary Zone is predicted to undergo merging with the West African Economic and Monetary Union (WAEMU) to have a common monetary zone in West Africa. On the 15<sup>th</sup> of December, 2000, the second summit of Heads of States and Governments of the monetary zone was held in Bamako the capital of Mali. Five countries namely; Ghana, Gambia, Nigeria, Sierra Leone and Guinea adopted a list of significant documents regarding the administrative, institutional, and legal framework for the establishment of the Zone. These include:

- The Agreement of the West African Monetary Zone (WAMZ)
- The Statute of the West African Central Bank (WACB)
- The Statute of the West African Monetary Institute (WAMI) and
- The Provision on the Stabilization and Cooperation Fund (SCF)

Cape Verde and Liberia are two countries who had observer status for this monetary zone. In February 2010, Liberia which remained an observer for approximately a decade, gave its compliance and became a full member of the Union. Initially, the single currency was slated to be launched on the 1<sup>st</sup> of January

2003 but it was later postponed to the 1<sup>st</sup> of July, 2005. This was due to the fact that member states were unable to give compliance to all the four criteria simultaneously and on a sustainable basis. Thus the countries in question were unable to attain the four primary and six secondary criteria relating to convergence.

Again, the zone had two postponements of the dates for launching, thus in 2005 and on the 1<sup>st</sup> of December, 2009. The new date slated for the launching of the single currency is however on or before the 1<sup>st</sup> of January, 2015.

### **The Strategic Pillars of WAMZ**

Through the Banjul Declaration of May 6, 2005, the Authority of Heads of State and Government of the WAMZ suspended the inauguration of the monetary union in the WAMZ to December 2009. There was an approval of an expanded work program by the Authority for the WAMI to enable the emergence of the monetary union as slated. Directions were given to the WAMI and the Zonal Experts Working Groups in the provision of a detailed Action Plan for the implementation of the new WAMZ work program, which has resulted in what is now known as the Banjul Action Plan (BAP).

There was an expansion in the WAMZ program to capture benchmarks and structural measures. Financial markets liberalization including capital account as well as the establishment of a customs union by the WAMZ are some significant elements contained in the structural measures. An effective transformation of the WAMZ program occurred thus a movement from one of monetary union to a complete economic and monetary integration program after the presence of these structural measures. A specification of a minimum requirement for the various

aspects of the program was made by the Banjul Action Plan (BAP) to be satisfied prior to the launch of the union. These have to do with the compliance with the four basic macroeconomic convergence criteria. They include the establishment of the RTGS in Guinea, Sierra Leone and The Gambia; CPI harmonization; statistical harmonization and database development with a focus on national accounts and ratification of the WAMZ legal instrument.

A strong focus on targets and actions relevant for the achievement of the objectives of WAMZ was provided within the time-frame extended and for the effective monitoring of the progress in achieving the stated objectives. The components, objectives, activities as well as the time frame for each aspect of the program was identified by the BAP and also the responsibilities regarding its implementation. Thus the following sections contain an overview of the Banjul Action Plan (BAP). The identified five strategic pillars are:

- Pillar I: Macroeconomic Convergence and Statistical Harmonization
- Pillar II: Trade and Regional Integration
- Pillar III: Financial Integration
- Pillar IV: Payments Systems Infrastructure
- Pillar V: Institutional and Capacity Building

### **The Economy of WAMZ**

The member states of WAMZ have diverse levels of Gross Domestic Product and population. Members that share a common border are Liberia and Guinea. The member states depend on very little export goods although they are



open. The zone is made up of a total population of about 194.7 million people which represent 77.3 percent and 20.6 percent of the total population of the Economic Community of West Africa States (ECOWAS) and Africa respectively. The zone also covers a total land area of 1.60 million kilometers square.

Having a total population of about 76.5 percent of the zone and with a Gross Domestic Product (GDP) of 85.6 percent of the zone, Nigeria remains the leading economy in the WAMZ. Nigeria is an oil intense exporting country. The oil sector contributes approximately 80 percent of total revenue, 90 percent of foreign exchange earnings and 20 percent to the GDP of the economy. Ghana is the second biggest which contributes to 9.2 percent of the GDP of the zone. The two smallest economies of the zone are the Gambia and Liberia contributing to 0.6 and 0.4 percent of the zones GDP respectively.

The combined GDP of the WAMZ economy is \$390.6 billion (PPP), which representing a total 73.3 percent and 19.1 percent of Economic Community of West African State (ECOWAS) and Africa respectively. The WAMZ remains a relatively small open economy globally despite occupying a relatively space within the ECOWAS sub-region. Thus the zone accounts for not up to one percent of the world's GDP. This stands to mean that even when a full economic integration is done for the region (WAMZ), it will still be tagged as a small open economy. Thus one with a strong likelihood of having imported inflation and implications for the conduct of monetary policy and the instruments as well as the target choice within the union.

The availability of natural resources, the structure of the economy and the demand in the domestic economy determines the trend of trade of the member states

and this varies across the countries. There exist variations in the tastes and preferences across the zone and however witness the uneven distribution of the available natural resources.

Agricultural products have since been the major exports followed by manufacturers of countries in the zone like Ghana, Gambia and Sierra Leone. Thus intra-industry have been a major trade trend in the WAMZ countries. Other products who represent a minor proportion of the total exports of the WAMZ region include agricultural raw materials, ore, metals and fuel.

Crude oil however accounts for above 97 percent of export in Nigeria while the rest is attributed to the export of manufactures. Ores and metals represent the highest share of merchandise export in Guinea whereas that of food and manufacturers account for 2 percent and 25.3percent respectively. Rubber, diamond and gold constitute 86.1 percent, 4.1 percent and 5.1 percent of the major export respectively for Liberia.

### **The Optimum Currency Area Theory**

Mundell (1961) founded the theory of optimum currency areas was again completed by McKinnon (1963) and further by Kenen (1969). The response to a question on for instance under which circumstances does a country benefits from membership in a currency union, is what the theory seeks to address.

The theory has it that, a country considering membership in a particular currency union has to have a balance of stability in the economy (thus the loss of national monetary policy) against gains in the monetary efficiency (thus gains in competitiveness due to the stimulated aggregate demand, a fall in the general price

levels and enhanced export) of a common currency. If poorly integrated, member states of a common currency union encounter an asymmetric macroeconomic shocks owing to the loss of sovereignty in economic monetary policy (Baldwin & Wyplosz, 2006). An asymmetric economic shock refers to the situation in which a shock hits only one part of a currency union while the other part is not affected or a situation in which the impacts of shocks differs widely among member states of a currency union. Thus, there will be disequilibrium if some member states of a currency union experience a positive (negative) demand shock, this is because prices and outputs in the countries in question would be too high (low). The central bank of the union on this note will then have to intervene by increasing the supply of money so as to enable countries improve the economic strength but this is done at the cost of inflation. Thus, owing to the asymmetric shocks the efforts of the central bank in using monetary policies to help overcome the shocks in some countries would be done at the detriments of some other countries.

Baldwin and Wyplosz (2006), argued that in dealing with the adjustment to asymmetric shocks, it must be done through mobility of labour, changes in price and levels of wage and fiscal transfer payments among member states.

### **The Criteria of the Optimum Currency Area**

The sustainability of member states in a currency union is guided by a set of criteria offered by the Optimum Currency Area theory. Broadly, these criteria can be grouped into two.

The first category refers to the set of criteria that aims at decreasing the member states exposure to asymmetric shock. Openness or interregional trade, similarities

in economic structure among member states and a low degree of specialization appears to be the elements found in the first group.

The second group also refers to a set of criteria that aims at facilitating the adjustment to the asymmetric shock. They include the mobility of factor, homogeneity of preferences and the transfer payments. With respect to the first category, Baldwin and Wyplosz (2006) argued on the significance of the similarities in the economic structure of the member states. Asymmetric economic shocks to a particular currency union is minimized if differences among countries in the economic structure is small. This is due to the fact that the rate at which member states respond to economic shocks are comparable therefore a monetary policy implemented by the central bank will benefit all members equally.

Baldwin and Wyplosz (2006) described the openness criterion which also known as the McKinnon criterion. It proposes that there is no serious policy independence loss for member states that open very much for international trade when an exchange rate is foregone. Variations in nominal value are quickly accompanied by variations in domestic prices, rendering the real exchange rate unaffected, this therefore makes the nominal exchange rate no longer attractive as a tool for adjustment for very open countries.

There is the thought that having trade within a region (intraregional trade) within a particular monetary union will boost the product markets integration and therefore lead to an economic integration through the closer trade links created. Again, the Kenen criterion which refers to the low degree of specialization suggests that there is a small impact of sector-specific shocks given that countries in question produce a wide variety of goods.

In considering the second category of criteria of the Optimum Currency Area, the homogeneity of preferences for the member states is seen as a very important qualification so as to guarantee an efficient management of crisis. An agreement on how to address the asymmetric shocks appears to be a necessary condition for monetary policy that aims at serving as a one-size-fits-all method for the whole currency union as monetary policy is transferred to a level of supranational. Mobility of factor embodies the free movement of both labour and capital. Mundell pointed out that populace of depressed areas can migrate to regions where prosperity is being felt.

According to Baldwin and Wyplosz (2006), capital movement is an alternative to stabilization tool. The danger of balance of payments issues that leads to devaluation and capital losses for foreign investors as money can now be easily transferred to a more favourable investments avenues can now be reduced by international capital flows. In choking the economic shocks, a transfer system may also contribute to that cause. The recovery of depressed countries can be supported by a system of transfer given that a country runs the danger of sliding into recession receives transfer payments from some other member states of the union.

### **Overview of Trade in the Economic Community of West Africa States (ECOWAS)**

Torres and Van Seters (2016), indicated that member states of ECOWAS exports mainly raw materials that undergo processing elsewhere and often returned to the region as processed and high value-added products. For instance, the Netherlands who is among the top 5 Nigerian commercial partners imports crude

petroleum mostly from Nigeria, and about 24% of the processed petroleum that are imported by Nigeria are from the Netherlands. ECOWAS major trading partners are certainly highly industrialised countries such as China, the US, India, the EU and Brazil. These trading partners buy raw materials from the region and sell back industrialised or processed products (ships, trucks, cars, motorcycles, medicaments, etc.).

Rice and wheat are two food commodities that frequently appear in the top 5 import commodities in ECOWAS countries (Torres & Van Seters, 2016). This describes the ECOWAS strong interest in building a regional rice value-chain. Regarding this, a specific Regional Rice Offensive has been launched under the framework of agricultural policy. Regarding trading partners, Appendix A indicates that irrespective of the similarities, member states of ECOWAS have different trading partners for a particular commodity. Trading partners of countries within a similar geographical area and sharing significant socioeconomic similarities are influenced by political, economic and institutional factors. Thus, the colonial heritage is an evident. Francophone countries for instance have France and as well Lusophone countries have Portugal as one of the top 5 commercial trading partners.

The ECOWAS and the UEMOA are two regional economic communities that have developed trade policy frameworks with the aim of increasing trade integration among member states. This process was long further advanced in UEMO, as the custom union and the abolition of quotas or tariffs on intraregional trade in domestic products were approved before ECOWAS. According to Torres and Van Seters (2016), The ECOWAS is however catching up through its ECOWAS trade Liberalization Scheme (ETLS) and the Common External Tariff

(CET). The prime operational tool for promoting the West Africa region as a Free Trade Area is the ETLS. It is this framework that enable artisanal and agricultural products circulate freely without customs and charges having equivalent effect since 1979. Industrial products moving in the community was also approved to be part of the scheme later in 1990.

After 10 years of negotiations, the Common External Tariff (CET) was launched in January 2015. This is largely based on, and work as a replacement to the UEMOA CET. Its organization is into five different tariff bands of 0 percent, 5 percent, 10 percent, 20 percent and 35 percent. The 35 percent was included after an intense negotiations with Nigeria particularly and West African agricultural producers strongly arguing for it to protect sensitive commodities, while the first four bands were taken from the UEMOA CET. While there is no agricultural product in the 0 percent band, ninety percent of the products in the 35 percent band are agricultural products. This therefore indicates that agriculture is comparatively more protected than other sectors. An exception is rice which has notably 10 percent tariff band. According to Roquefeuil, Plunkett and Ofei, (2014), this shows that rice consumer's interest (which is low price) succeeded over those of producers of rice.

Nonetheless, there is a sluggish improvement on the real implementation of these regional commitments at national level. ECOWAS countries do not respect the ETLS much and the implementation of the CET as well has not been successful so far. This gives an indication that regardless of the enduring and strong commitments to the "the removal of obstacles to the free movements of persons,

goods, services and capital” as indicated in the ECOWAS Treaty, there exist many trade barriers still.

### **WAMZ Member States and their Top Products of Export**

Member states of the West African Monetary Zone export a variety of products to different destinations. Table 2 below provides the top five products exported (as at 2014) their percentage of total export, as well as the top five trading partners.

Table 2- *Top 5 Exports Products and the Top 5 Commercial Partners for each WAMZ member state (in value, year 2014)*

<b>COUNTRY</b>	<b>TOP 5 EXPORTS</b>	<b>% OF TOTAL EXPORTS</b>	<b>TOP 5 EXPORT DESTINATIONS</b>	<b>% OF TOTAL EXPORTS</b>
Nigeria	Crude oil	79%	India	13%
	Petroleum gas	11%	USA	11%
	Refined petroleum	3.2%	Brazil	10%
	Cocoa beans	0.59%	Spain	7.4%
	ships	0.49%	The Netherlands	5.4%
Ghana	Gold	30%	Iran	17%
	Cocoa beans	27%	South Africa	17%
	Cocoa paste	2.1%	France	6.1%
Guinea	Aluminum	43%	India	31%



	Crude petroleum	35%	South Korea	9.2%
	Gold	4.3%	Ukraine	6.7%
	Petroleum gas	2.7%	Ireland	6.7%
Gambia	Artificial filament yarn woven fabric	29%	China	30%
	Rough wood	26%	Mali	17%
	Coconuts and nuts	16%	Guinea	15%
	Titanium	4.1%	India	14%
	iron	2%	Senegal	7.9%
Sierra Leone	Iron	77%	China	81%
	Titanium	8.3%	Belgium-Lx	2.4%
	Cocoa beans	2%	USA	1.9%
	Rough wood	1.6%	France	1.5%
	Aluminum	1.5%	Romania	1.5%
Liberia	Iron	32%	Poland	33%
	Ships	29%	China	12%
	Rubber	17%	USA	8.3%
	Special purpose ships	4%	Spain	7.1%
	Rough wood	3.2%	France	5.8%

*Source:* The Observatory of Economic Complexity (data for year 2013).

For instance, the USA is the second most important export partner of Nigeria and not necessarily the main export partner for Nigeria's petroleum gas. It also indicates that crude oil is Nigeria's top export followed by petroleum gas,

refined petroleum, cocoa beans and ships. It is worthy to note that only Nigeria, Sierra Leone and Liberia have the US in their top 5 export destinations as at 2014. Ghana, Guinea, the Gambia, Sierra Leone and Liberia however have gold, aluminum, artificial filament yarn woven fabric, and iron (for both Sierra Leone and Liberia) respectively as their top products of export.

For a visual inspection, figure 1 shows the trend of total export of WAMZ Member States to the United States. Total export from the region takes an upward trend from year 2000 (the AGOA period) and begins to fall somewhere in 2011. It does not also display a stable trend.

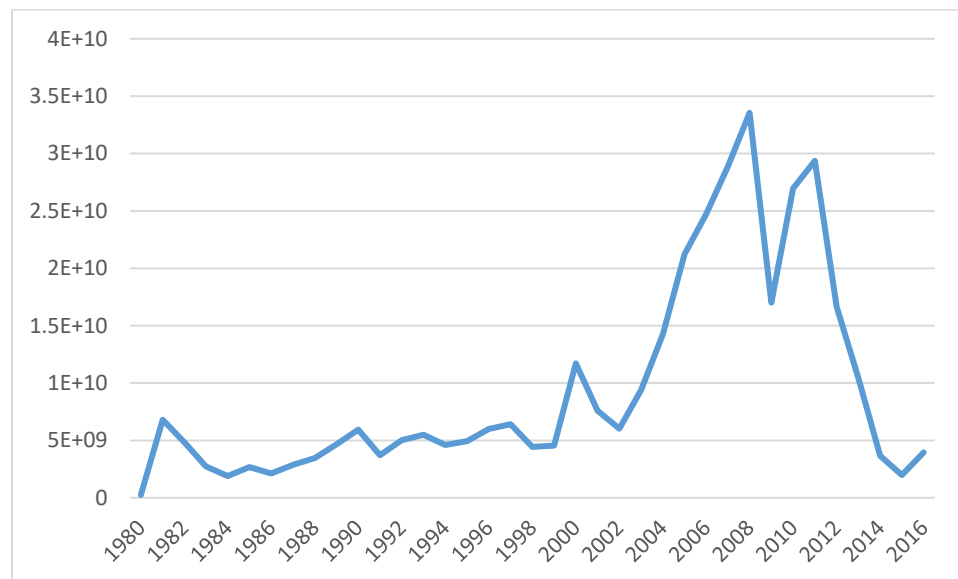


Figure 1: Total Export of WAMZ Member States to the US

Source: IMF, Direction of Trade Statistics, 2016.

Table 3 below also indicates that US provides ready market for most products especially the AGOA eligible products. In order of importance energy related products, transportation and equipment, textiles and apparel, minerals and metals, agricultural products and the likes command much value in the US market.

According to Didia, et al, (2015), over 80 percent of AGOA eligible products fall under the energy sector. It is also indicated that countries with substantial petroleum and mineral deposits exports a great deal under the AGOA rules. This therefore provides a proof of why Nigeria is found in amongst the top 5 beneficiaries of the US AGOA trade preference.

*Table 3- Leading US Imports from AGOA-Eligible Countries (in 1,000 USD)*

<b>Sector</b>	<b>2009 Import Value</b>
Energy Related Products	30,295.551
Transportation and Equipment	1,436.008
Textiles and Apparel	918.240
Minerals and Metals	413.129
Agricultural Products	290.422
Chemicals and Related Products	263.462
Miscellaneous Manufacturers	43.141
Machinery	23.618
Electronic Products	21.912
Forest Products	3.323
Footwear	494

*Source:* Compiled from official statistics of the US Department of Commerce, 2016

## **Recent Trade Facts about WAMZ Member States and the US**

### **Nigeria Trade in Goods and Services with US**

In 2016, Nigeria was the 50<sup>th</sup> largest supplier of goods to the United States. A total of 4.2 billion US dollar worth of goods were exported to the United States

in 2016. This shows an increase of 118.0% (\$2.3 billion) from the records of 2015 however down by 85% from 2006.

The top categories (2-digit HS) exported in 2016 were made up of mineral fuels (4.0 billion dollars), special other (returns) (79 million dollars), artificial flowers, feathers or down articles (7 million dollars), fertilizers (7 million dollars) and food waste, animal feed (7 million dollars).

Agriculture products exported to the United States from Nigeria amounted to 28 million dollars in 2016. The leading categories in the agriculture products are feeds and fodders (amounting 7 million dollars), spices (amounting 6 million dollars), cocoa beans (amounting 5 million dollars) tree nuts (amounting 3 million dollars) and tea herb (amounting 2 million dollars).

Trade in services from Nigeria to the US was estimated as 411 million dollars in 2016 which is 11.4% (thus 53 million UDS) less than that of 2015. Services leading imports from Nigeria to the US include travel, transport and professional and management services sectors.

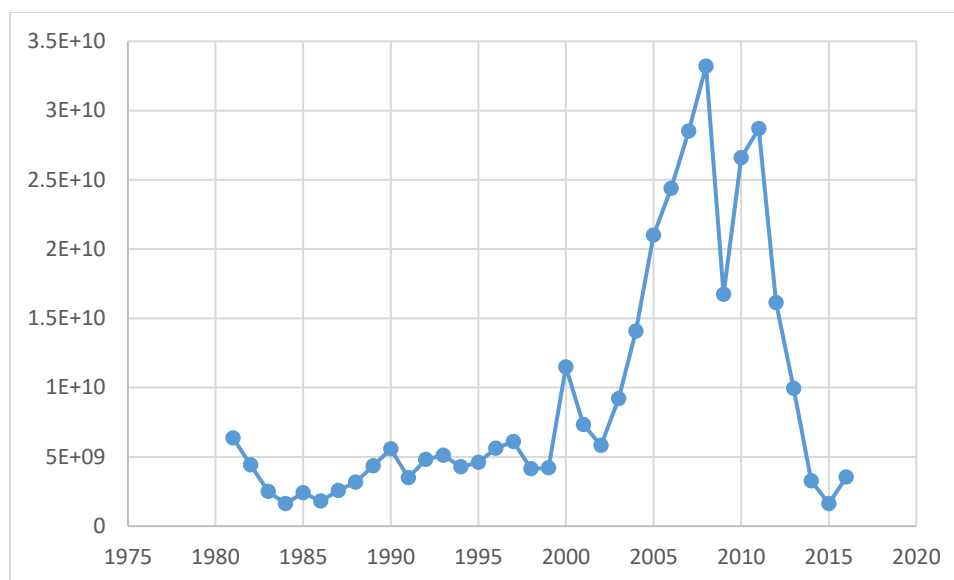


Figure 2: Trend of total Exports from Nigeria to the US (1980 to 2016).

Source: IMF, Direction of Trade Statistics, 2016

### Ghana's Trade in Goods with US

In 2016, Ghana became the United States' 96<sup>th</sup> largest supplier of goods import. Thus total of 321 million USD was recorded from goods exported which shows an increase of 3.8% (showing 12 million USD increase from 2015 and 67.1% increase in that of 2006). The top category of goods that were exported from Ghana to the United States include cocoa (amounting to 226 million USD), mineral fuels (amounting to 23 million USD), wood products (amounting to 15 million USD), precious metal and stone (gold) ( amounting to 11 million USD) and vegetables (yam) (amounting to 8 million USD).

Ghana's agriculture products exported to the United States totaled 250 million USD in 2016. The leading category of the agriculture products include cocoa (amounting 181 million USD), cocoa paste and cocoa butter (amounting 45

million USD), fresh vegetables (amounting 8 million USD), tree nuts (amounting 8 million USD) and other vegetable oils (amounting 2 million USD).

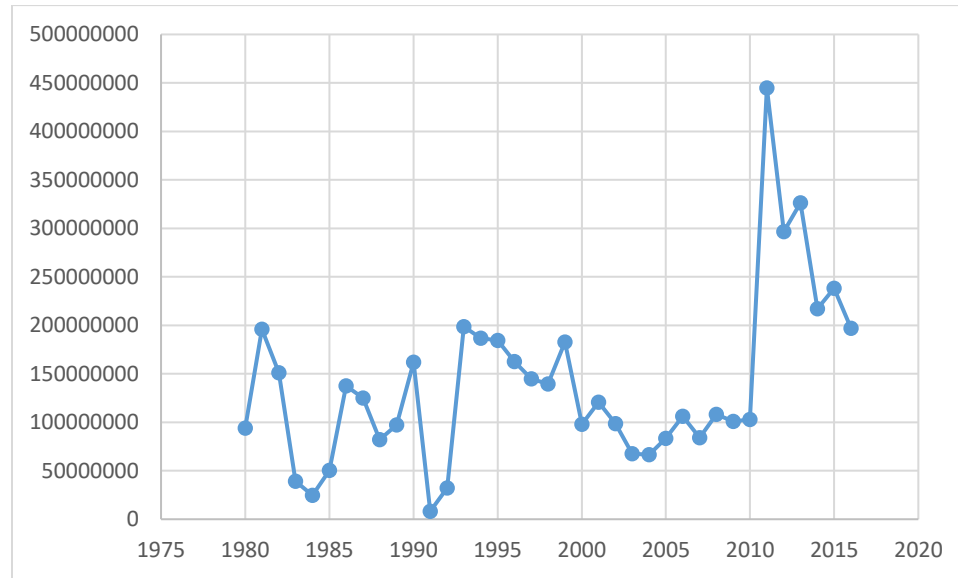


Figure 3: Trend of total Exports from Ghana to the US (1980 to 2016)

Source: IMF, Direction of Trade Statistics, 2016

### Guineas' Trade in Goods with the US

In 2016, Guinea as a country was ranked as US 173<sup>rd</sup> largest supplier of goods. The worth of goods exported from Guinea to the US amounted to a total of 9 million USD in 2016. This is however down by 88.1% (thus 70 million USD) from what was recorded in 2015 and also a fall by 89.9% from what was recorded in 2006. Ores, slag and ash (amounting 3 million USD), cocoa (amounting 2 million USD), special other (amounting 2 million USD), precious metal and stone (amounting 2 million USD) and fish and sea food (amounting 345 thousand USD) were the top categories of export to the US. Total agricultural products exported to the United States from Guinea was estimated at 2 million USD in the year 2016.

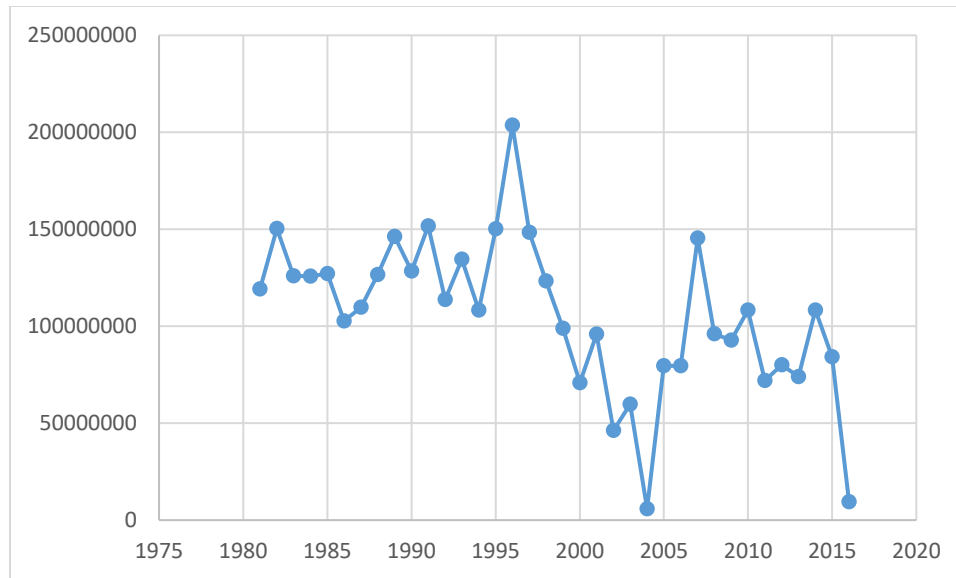


Figure 4: Trend of total Exports from Guinea to the US (1980 to 2016)

Source: IMF, Direction of Trade Statistics, 2016

### Liberia's Trade in Goods with the US

The United States in 2016, ranked Liberia as the 132<sup>nd</sup> largest supplier of goods. In the said year, the total amount of goods that were exported from Liberia to the United State was estimated to be 64 million USD. This figures shows an improvement of 42.7% (thus 19 million USD) of the total value in 2015 but also shows a fall by 54.2% in that of the 2006 estimates.

The goods that were notified to be the top of the export (to the US) categories in Liberia were rubber (amounting 41 million USD), special other (returns) (21 million USD), precious metal and stone (diamonds) (amounting 805 thousand USD), fats and oils (palm oil) (amounting 604 thousand USD) and art and antiques (amounting 137 thousand USD).

It is also known that total agriculture products exported to the United States in the year 2016 totaled 42 million USD. The export of agricultural products is domestically lead by rubber and allied product which amounts 41 million USD.

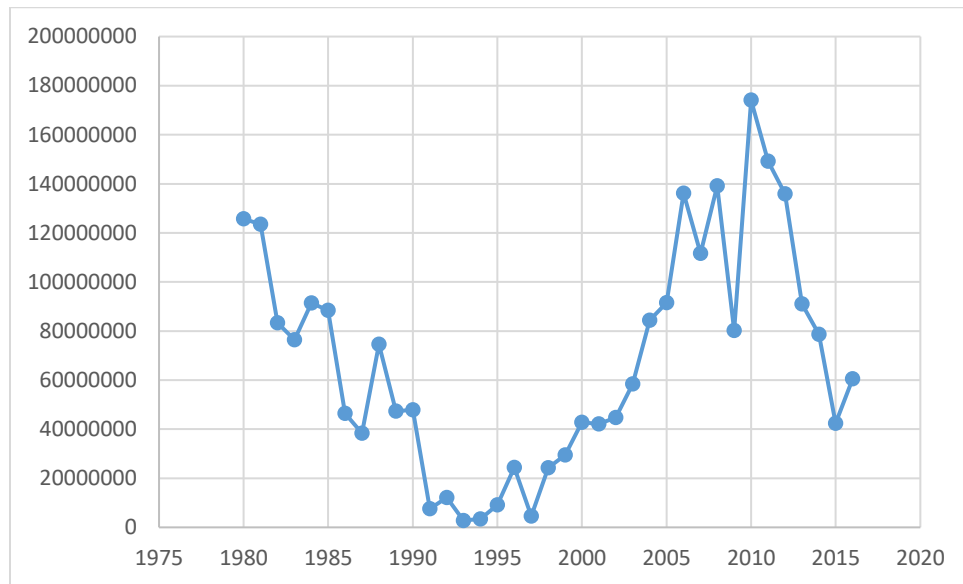


Figure 5: Trend of total Exports from Liberia to the US (1980 to 2016)

Source: IMF, Direction of Trade, 2016

### Sierra Leone's Trade in Goods with the US

In the year 2016, Sierra Leone was ranked as the 151<sup>st</sup> largest exporter of goods to the United States. Sierra Leone's total export to the United States in the year 2016 totaled 30 million USD which however shows a fall by 24.0% (thus 9 million USD) from the proceeds of 2015 and also a fall by 16.7% from that of 2006.

Categories of goods that were exported from Sierra Leone to the United States most were ores, slag and ash (amounting 20 million USD), electrical machinery (amounting 2 million USD), precious metal and stone (amounting 2



million USD), machinery (amounting 2 million USD) and optical and medical instruments (amounting 1 million USD)

A total of 792 thousand USD were recorded from the exports of agricultural products only to the United States in the year 2016.

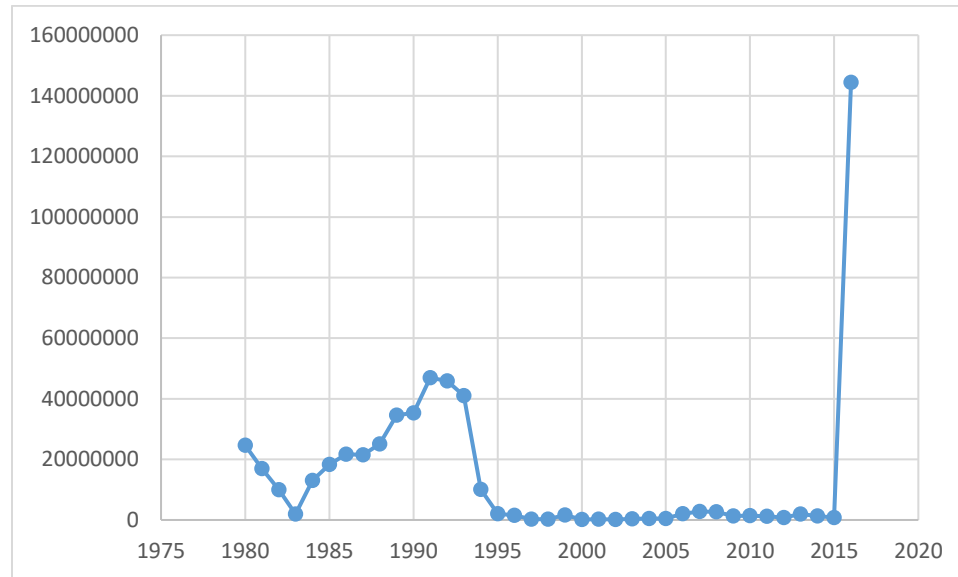


Figure 6: Trend of total Exports from Sierra Leone to the US (1980 to 2016)

Source: IMF, Direction of Trade, 2016

### Gambia's Trade in Goods with the US

Gambia is ranked 214<sup>th</sup> largest exporter of goods to the United States in the year 2016. A total estimate of 644 thousand USD worth of goods were imported by the United States from Gambia in 2016. This quantity shows a fall by 28.2% (thus 253 thousand USD) from that total estimate in the previous year (2015) but as well shows a 124.4% increase from the total estimate in 2006. The leading export categories from Gambia to the United States were special other (amounting 225

thousand USD), art and antiques (amounting 73 thousand USD), and electrical machinery (amounting 29 thousand USD).

In the year 2016, total exports of agricultural products from Gambia to the United States was estimated at 31 thousand USD.

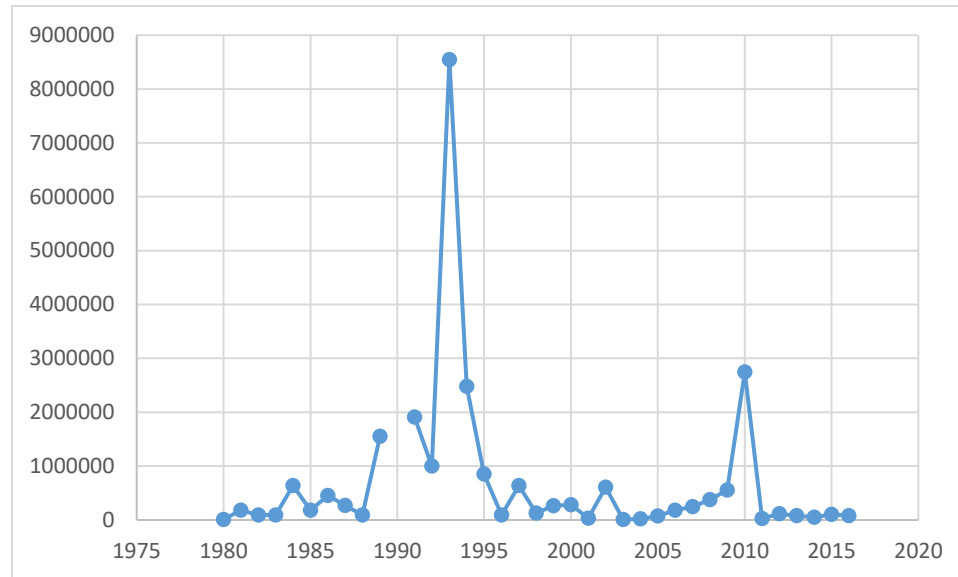


Figure 7: Trend of total Exports from Gambia to the US (1980 to 2016)

Source: IMF, Direction of Trade, 2016

## Conclusion

All member states of the West Africa Monetary Zone (Ghana, Nigeria, Liberia, Guinea, Sierra Leone and Nigeria) are trading partners of the United States. The United States is found in the top five exports destinations of Nigeria, Sierra Leone and Liberia. Aside Nigeria who exports petroleum products to the United States, agricultural products are the main products exported from the remaining member states to the United States.

## **CHAPTER THREE**

### **LITERATURE REVIEW**

#### **Introduction**

This section of the study provides a theoretical review on international trade models, theoretical framework that gives rational theoretical reasoning for the presence of trade preferences in international trade, the welfare effects and the economics of trade preferences. It further provides existing literature on how trade preference precisely the AGOA has influenced exports of SSA beneficiary countries for both eligible and non-eligible products.

#### **Theoretical Review**

##### **Models of International trade**

Krugman, Obstfeld and Melitz (2012) identified two basic reasons for why countries engage in international trade, each of which adds to their gains from trade. The first reason was that, countries differ from each other and so there is a high possibility of having their respective strengths in production as well as other important fields. According to their submission, just as individuals, nations go into agreements in which each does things it relatively does well thereby benefiting from the differences.

Secondly, countries engage in international trade so as to achieve economies of scale in production. The reason is that when a country produces only a limited range of goods, there is a higher possibility that the country in question will produce more efficiently and at a larger scale than if it made efforts to produce

everything. Patterns of international trade in the real world reflects the interaction of these motives.

It is important to look at simplified models in which one these motives is present as a first step toward understanding the causes and effects of international trade. Though much of international trade discussions were made prior to 1776, the chief discussions in this area are credited to Adam Smith as a results of the publication of his book “The Wealth of Nations (1776)”. Theoretical development of many trade models have been developed to explain intra-industry because emerging trend trade emphasize its importance as oppose to the inter-industry trade focused during the pre-1776 era. The Ricardian model and the Heckscher-Ohlin model are theories for explaining inter-industry trade while the monopolistic competition theory is also developed to provide explanation to the intra-industry trade.

### **The Ricardian Model**

Adam Smith’s concept of absolute advantage provided the basis for the Ricardian model. Thus in the year 1817, Ricardo presented the law of comparative advantage when he published his book entitled “The Principles of Political Economy and Taxation”. The theory states that a country has a comparative advantage in producing a good if the opportunity cost of producing that good in terms of other goods is lower in that country than it is in other countries (Krugman, Obstfeld & Melitz, 2012). It therefore explains that a country should specialize in the production of the good with the lower opportunity cost relative to the other countries. In the act of undertaking a particular line of production or a particular

product using the available resources, the production of other goods are sacrificed. Thus those resources could have been used in the production of other goods. Certainly, this appears to be a tradeoff. This activity will enhance inter-industry trade. In essence, the Ricardian model indicates that relative productivity differences across sectors adequately explain the need for trade among countries. The law of comparative advantage points to the fact that even if a nation is less efficient than (has an absolute disadvantage with respect to) the other nation in producing both commodities, there is still a basis and possibility of mutually beneficial trade (Salvatore, 2004)

In addition to the assumptions of perfect competition and constant returns to scale, the assumptions of two goods, two countries and labor as the only factor of production (which exist in the absolute advantage theory) was upheld. There is also the assumption of full employment and constant technology. More importantly, the existence of complete specialization progressive by the Ricardian model recommends increase in total output globally owing to free trade. The differences in opportunity cost among countries provides the possibility of mutually beneficial rearrangement of world production. Linked to that, there will be improvement in consumption possibilities of trading partners.

### **Heckscher-Ohlin (HO) Model**

This theory was developed by two Swedish Economists Eli Heckscher and Bertil Ohlin. As oppose to the single factor (labor) assumption in the Ricardian model, the HO model assumes an increase in factors of production to two. Again, this model assumes incomplete specialization and increasing opportunity cost.

However, as it is in the Ricardian model, the HO model also operates on the assumptions of perfect completion, zero cost of transportation and barriers to trade, constant return to scale and similar taste and preference. The model explains the existence of different factor endowment ratios for the respective countries. Factors used in the production are perfectly mobile within a country but completely immobile across countries. The country that is abundant in a factor exports the good whose production is intensive in that factor (Krugman, et al, 2012). Thus a country will export the commodity whose production intensively requires the use of that nation's relatively cheap and abundant factor and import the commodity whose production requires intensively the use of that nation's relatively expensive and scarce factor. Simply stated, the relatively labour-rich country exports a commodity that is labour intensive and imports a commodity that is capital-intensive from a capital-rich country (Salvatore, 2004).

According to Krugman et al (2012), the HO model is also called the factor-proportions theory because it emphasizes the interplay that exist between the proportions in which different factors of production are available in different countries and also the proportions in which they are used in producing different goods. Essentially, the two-country, two-factor, and two-good version of the HO model concludes that a country exports the goods that it uses intensively its relatively abundant factor. Thus, Baldwin (2008) explains that each country imports goods produced from its relatively scarce factor and exports its relatively abundant factor.

### **The Specific Factor Model**

This model assumes endowment of three separate for each country. It is a bit different from the HO model. Thus one particular factor (labour) appears general to each country with the others being specific (only used in distinct sectors). It proposes that the trade structure is introduced by the relative abundance of the factor that is specific. More importantly, the specific factor model is described by most Economists as the short run version of the HO model because they are not meaningfully different. The effect of trade on owners of the general factors (labour) according to this theory is unclear since it depends on the consumption bias of the workers. Thus workers with consumption biased towards importing goods are better off while those biased towards exporting goods are worse off. Again, owners of specific factors used in producing export goods are better off while owners specific factors used in producing imported goods are worse off.

### **The Monopolistic Competition Model**

It is worth mentioning that some empirical observations have challenged the classical theories aforementioned regarding the pattern of global trade. Thus the classical trade theories do not certainly explain intra-industry trade. This has led to the emergence of other trade theories to give theoretical explanation for the detected trend in intra-industry trade. The monopolistic competition model developed in 1933 by Edward H. Chamberlin is one of such theories. Baah (2015), clarified that per this model, increasing returns to scale in conjunction with product differentiation can easily explain intra-industry trade. Therefore the first step to explain intra-industry trade is to relax the assumption of constant returns to scale

present in the classical theories. According to Baah (2015), the presence of economies of scale in this model makes the gains from trade higher than it is in the classical models.

There exist a support of free trade by the discussed theories. Thus the theories provide a general conclusion that free trade is mutually beneficial hence the need for its encouragement. This idea is nonetheless hindered by trade restrictions. On this note, trade promotion can be done through relaxing of these restrictions or through the introduction of trade preferences.

### **Unilateral and Non-Reciprocal Trade Preferences**

According to Baah (2015), a designed trade preference to a group of countries or one country where by the emphasis is not necessarily targeting the beneficiaries is a unilateral trade preference. These kind of trade preferences are largely non-reciprocal in nature. This means that beneficiary countries are not obliged to in return provide duty-free access to the donor country.

The EU-ACP, GSP and AGOA are some examples of the non-reciprocal unilateral trade preferences. It has been a major concern that these trade preferences are introduced by the developed countries to provide a discriminatory services to their political allies or former colonies that are less developed.

According to Baah (2015) advance countries use unilateral trade preferences as a policy tool to favour some countries on a quid pro quo basis. The regularities in which the granted unilateral trade preferences undergo modifications appears to be another issue.



In investigating the possible effects of these changes that occurs in the short interval, Persson (2015) focused on the firm level effects and state that there is an abundant deal of uncertainty for the firm that potentially make use of these preferences owing to the short lived changes. He contended that there should be a stable reasonable period of time (ten years for instance) for these trade preferences. On the contrary, there is the much endorsed multilateral trade preferences. This trade initiative is highly accepted on a bigger consensus. Thus all stakeholders are involved where ideas or “minds meet” to make the trade agreement. With the propagation of agreements regarding preferential trade, concerns have been brought up pertaining to the likely weakening of multilateral liberalization. Thus a concern on the spread of the preferential trade agreement and its contribution to global trade liberalization. Providing preferential trade to beneficiary countries have been argued to make way for the said countries to adequately engage in competition in the global market therefore helping multilateral liberalization. Others on the other hand claim that involvement in the preferential trade agreements will lead to a fall in enticement to struggle for multilateral liberalization.

### **Theoretical Framework of Trade Preferences**

Trade preferences exist because of the quest to remove tariff and non-tariff barriers to trade. Thus it allows for a low or no tariff cost. The benefits of trade preferences comes in two forms (Collier & Venables, 2007). In their work, they mentioned the transfer of rent to the receiving country. Thus the preference margin that would have been received by developed (importer) countries by way of tariff revenue will be transferred to the beneficiary country (exporter) owing to the

elimination of tariffs in the agreement. In the second mechanism, they pointed out the supply of export in response to the trade preference. Thus their argument was that beneficiary countries will have the prospects to increase their export volumes so as to meet the foreign demand.

Baah (2015), described a partial equilibrium analysis trade preference effects on welfare. In their analyses, they presented a three-country analysis, basically A, B and C. They assumed that countries A and B are partners of trade with country C representing the rest of the world. Countries A and B are further assumed to have a trade preferential agreement (non-reciprocal) with B being the beneficiary and A the donor. Thus A imports from B. The exporter supply curve to country A is perfectly elastic because the supply from country C cannot be influenced by changes in A's import volumes due to their large nature (C's supply). Thus prices will be irresponsive to variations in import volumes after the agreement. In support of the framework, there was the assumptions of common world and homogeneous goods. Non-increasing returns to scale and perfect competition were also assumed in both studies. It can therefore be concluded that given the assumptions, exporting from B to A will cost less than it is from C to A owing to the preferential agreement, hence a shift in demand of country A from C to B. In Mold's explanation, two opinions were raised for this cause; the "terms of trade effects" and the "displacement effect". With the former, he explained that the absence of tariff will make B have good prices in A's market. For the latter, the argument was that all products of B will be sold in A's market so as to exploit the ongoing advantage. Hence preference beneficiary countries record increase in export.

The discussed theoretical model and opinions under specified assumptions bring to bear the path through which trade preferences can possibly impact bilateral trade flows.

### **Welfare Effects of Trade Preferences**

Different categories of impacts have been identified following the introduction of trade preference. Achterbosch et al (2003), identified three different categories of impact felt. It was explained that granting a selection of potential foreign producers the access to trade preference gives a primary, secondary and tertiary impact. The primary impact applies to the trade flows in the preferred goods. The secondary impact refers to the impact on substitutes and complements of the preferred goods while the tertiary impacts applies to the readjustment of the balance of payment following the trade preference.

Achterbosch et al. (2003), made efforts to bring out the effects of trade preferences on welfare of beneficiary countries. In their submission, a world of three countries (A, B and C) with only a single good production was assumed. With only one good produced and consumed, country A imports from both B and C and charges the same tariff for the two sources. (Countries B and C).

During the production process, country C offer goods at a relatively low price to A as compared to that of country B. This is because it is more expensive in producing in country B than in country C. Country A therefore initially imports from country C. Several trade effects may be felt if country A now make a decision of granting a trade preference so as to decrease the tariff for the goods of one of the

exporting countries (Either countries B or C). Trade Creation and Trade Diversion are the two main summarized effects of the preference.

1. Achterbosch et al, (2003) explained that trade creation transpires when trade is encouraged owing to a reduction in tariff and also making way for imports to displace the less efficient production made locally or and as well cause expansion in consumption levels. From the three country example given, trade creation occurs when consumers in the importing country (Country A) decide to replace the locally produced goods with those imported from the low-cost producer (Country C) following a decrease in tariff.
2. Achterbosch et al., (2003) further explained that trade diversion occurs when an initiative (trade reform) discriminates between trading partners that will results in making a source producing at a low cost being replaced by a source producing at a high cost. Again with respect to countries A, B and C, there is the occurrence of trade diversion when products of country C are charged a higher tariff than that of B making country A replace the imports of country C by that of country B. Thus in the instance where products from country B ( the high cost producer) have access to a trade preference over country C (the low cost producer) on country A's market, the trade preference effects on welfare as explained by Achterbosch et al (2003) are composed of changes in:
  - Producer Surplus in the high cost country (Country B) =  $PS_b$
  - Producer Surplus in country A =  $PS_a$
  - Consumer Surplus in country A =  $CS_a$
  - Tariff revenue in country A =  $TR_a$

- Producer Surplus in the low cost country (Country C) = PSc

The effects here are simplified along the lines of a basic equation. Thus given that the trade preference given causes the imports of the receiving country at the detriment of the products produced domestically, the resulting welfare to the world (W) will be :

$$W = \Delta CSa - \Delta TRa - \Delta PSa + \Delta PSb + \Delta PSc \quad (1)$$

The impacts in the beneficiary countries is that the trade preference will make it possible for exporters to either save or increase their export volumes (possibly at prices above world market) with the monies they would have paid as tariff duties,  $\Delta PSb > 0$ .

The effect on welfare for the importing country is however uncertain. With the existence of the preference, the importing country (Country A) will lose the revenue from tariff. With the absence of trade creation, producers within the importing country will lose from the agreement and their surplus as well,  $\Delta PSa < 0$ . Thus in total, there is a loss of tariff revenue, loss of part of rents of local producers to producers elsewhere and consumers benefitting from lower sales prices.

The difference between the gains for consumers from the low prices and the tariff revenue loss by producers will determine the net results. PSc in equation (1) denotes producer surplus from the 'third' country (Country C). It is important to note that imports from the beneficiary countries may displace that of the 'third' country thereby reducing the producer surplus in country C ( $\Delta PSc < 0$ ). Regarding the welfare to the world at large, the effects depends on the allocation of resources

globally: thus less efficiently produced products of the two may be sold to consumers at the end.

In the effect from the trade diversion, the issue of inefficiency is important as it appears to be a prime limitation to discriminatory trade relation. This is because it means a reduction of consumer surplus and global welfare. A conclusion can therefore be made that the welfare to the world at large is ambiguous. This is because while we are certain that there will be a gain by the beneficiary country (Country B), the 'third' loses and that of the importing country (country A) is ambiguous.

### **Perspective of Trade on Preferential access to Protected Markets**

There comes a variety of effects when an action of this (Trade preference) nature takes place. Achterbosch et al (2003), explained that when a country is allowed to export some of its products under a preferential tariff to a market that is protected, a trade effect occurs. The effects identified include:

1. Export to the protected market increase in volume. Country groups happens to be the major gainers of trade preference after achieving 10 percent export growth; much less is being gained by most of the individual countries. There is no enough historical evidence about how preferential tariff schemes impact trade. Convincing evidence has it that the Generalized System of Preference schemes that existed up to the mid of 1980s really induced growth in export in the beneficiary countries. Gains however were not evenly distributed. Thus countries that had favourable conditions for economic development such as the likes of Taiwan and South Korea had

greater share. The current studies in Everything But Arms (EBA) also showed this pattern of distribution.

2. Exporter receive increased rents as a results of the advantage in the terms of trade. There is the likelihood of increasing in the strength of the enhancement in the trade terms with the importing country owing to the revenue gains in export but this is however limited to some particular products. In the protected markets, these advantages in the terms of trade can be significant.
3. Donor countries experience a fall in tariff revenue. Tariff revenues to the donor countries are sacrificed when this activity takes place. Thus when goods are imported from preference-receiving countries, exports from other countries on the donor market are automatically substituted. This in no doubt means that revenue from tariff of the substituted products are lost. The small market share accrue to Least Developed Countries (LDCs), this effect appears to be minor on the EU welfare regarding the EBA access granted.

### **Effects of Preference Erosion on Trade**

According to Achterbosch et al. (2003), there are two ways in which Least Developed Countries (LDCs) trade preferences may lose their part of their 'exclusiveness'.

The first argument was that the presence of the trade preference may lure more beneficiary countries to produce an identical good. In an experiment, Hoekman, and Odzen (2005) by proxy applied unrestricted to all countries that

existed in the Generalized System of Preference scheme. Here, there were loss of market share by LDCs that are not least-cost supplier to the more efficient developing countries. Products that experienced a shift in trade are fish and sugar.

Secondly, the decrease in tariff of Most Favoured Nation (MFN) affected the LDCs. There is erosion in the preferences accrued to the LDCs whenever there is a reduction in the tariffs applicable to the non-LDCs.

### **Rules of Origin (RoO)**

According to Baah (2015), Rules of Origin can be defined as stipulated procedures that are set by the preference-giving countries or the donor countries which are used to define whether or not a particular product qualifies to be accepted under a trade agreement as originating from the preference receiving country.

A restriction is mostly placed by the RoO on which category of product is accepted as economically originating from a particular country. In a unilateral non-reciprocal preferences, these are more intense. RoO is actually used as a tool or a means by which the donor countries differentiate between the goods produced by the beneficiary countries and those transiting. The main brain behind the use of this rule in trade preference as a provision is to avoid what is called the trade deflection. This (Trade deflection) is defined as a situation in which products produced in countries that are preferences excluded are routed through a country that is receiving a preference without adding any value to the product. Since Rules of Origin are to find out if a particular or certain part of it was produced or manufactured in beneficiary country or otherwise, it goes a long way to prevent other 'third' countries (preference-excluded countries) from using the beneficiary



countries as a means of transit so as to have access to the decreased import tariff (Achterbosch et al, 2003).

Indubitably, other preference excluded countries will use some preference-receiving countries as just a transit zone so as to profit from the preference had it not been the existence of RoO. The benefits of RoO is really felt particularly when preference-receiving countries make use of outsourced inputs in the production process. This is actually made to guarantee that the benefit predicted really goes to the beneficiary country. Brenton (2003), stated that “the encouragement of development of integrated production structures within the developing countries to maximize the employment impact to ensure that it is not just too low value-added activities which go on in the LDCs” is one prime reason used as a justification for the strict Rules of Origin.

Mold (2005), however contended that the introduction of stringent RoO actually weakens the rate at which trade preferences are utilized by the beneficiary countries. The reason was that, given the stringent RoO, products produced from the preference-receiving countries may not be eligible for duty-free access. The requirement of increasing the value of a product under the preference schemes by preference-receiving countries (mostly LDCs) have been argued to possibly instead of exploitation, create an underutilization. Most preference-receiving countries depend on other countries for resources, thus capital and other inputs for producing owing to the fact that they do not have adequate capital requirement. There will therefore be a reduction in production if the introduction of strict Rules of Origin forbid them from making use of inputs imported from these sources.

There is an exceptional provision regarding the Rules of Origin for AGOA. Thus under the AGOA trade preference, RoO is mainly broken into the sector-specific rules and the general rules. While the specific sector rules refers to additional (to the general rules) rules applicable to some specific sectors, the general rules is applicable to all products that are eligible and to be exported under the AGOA trade preference.

There exist a non-restrictive rule for apparel under the AGOA agreement which has made this agreement a popular advantage over the Generalized System of Preference. Linked to this, the AGOA trade preference allows some particular eligible Sub-Saharan countries to export apparel and textile articles duty-free though this does not exist in the Generalized System of Preference.

### **Rules of Origin Requirement**

For an imported non-apparel product to be considered AGOA-eligible, it must be the product, growth or manufacture of the AGOA beneficiary country and the total of the value of materials or cost in addition to the direct costs of processing must be 35 percent or more of the appraised value of the item upon its entry into the US. In the case of apparel products, there is the provision of duty-free treatment for eligible products that are made in qualifying SSA countries through 2015.

Qualifying articles include:

- Apparel made of U.S. yarns and fabrics;
- Apparel made in a designated lesser-developed country of third-country yarns and fabrics, subject to a cap until 2012;

- Apparel made of sub-Saharan African (regional) yarns and fabrics, subject to a cap until 2015;
- Apparel made of yarns and fabrics not produced in commercial quantities in the United States; and
- Certain cashmere and merino wool sweaters.

### **Empirical literature Review**

Empirically, effects of trade agreement on trade flows is not direct as it appears in the theoretical framework. Literature in this study will basically consider most studies that made use of the gravity model in assessing the effect of the AGOA trade preference on exports of SSA countries.

Firstly, Didia et al. (2015), explained the issue of trade preferences by investigating the flow and composition of trade that exist between the United States and the AGOA beneficiary countries. The analysis employed a trade data consisting of the United State imports from 36 AGOA beneficiary countries over a period of 12 years. Empirical estimation that was centered on the gravity model revealed that having AGOA status has a strong positive and as well a significant impact on the overall trade with the United State. Nonetheless, it is interesting to know that the analysis also revealed a disproportionate impact of crude oil imports from the oil-intensive exporting countries (Gabon, Angola and Nigeria) which really is not the intent of the act.

Baah (2015), also with the objective of finding out if the EU-ACP and the AGOA trade preference have affected the total bilateral export of Ghana used a bilateral export flows and key covariates sourced from the CEP II, the World

Development Indicators (WDI) and the UN-COMTRADE on export of Ghana destinations over the period 1960 to 2013. An estimation of the gravity model augmented with measures of trade preference agreements and a multinational resistance term was made. The study after controlling for the potential endogeneity of the trade preference dummies, considering the unobserved heterogeneity and as well correcting for heteroscedasticity and serial correlation, revealed that both the EU-ACP and the AGOA trade preference have negative and insignificant impacts on Ghana's total bilateral exports. Hence gave a recommendation that there is the need for Ghana to focus on increasing its export base so as to benefit meaningfully from these two preferential trade agreements.

Again, Nogueira (2005), made use of a panel gravity trade equation with endogenous explanatory variables to study the effects of the AGOA trade preference on the exports from Sub Saharan African countries to the United State. This study made use of the Arellano-Bond Difference GMM, the Arellano-Bover and the Blundell-Bond System GMM system of estimation for a panel of 46 SSA beneficiary countries for the period 1996 to 2004. The results obtained strongly are in support of the presence of a positive impact of AGOA on Africans exports more specifically given the fact that the elasticity of substitution of the differentiated African exports is below one or unity. It was also revealed that though with little possibility, a higher elasticity may results in a neutral, or even a negative effect of the AGOA trade preference on the exports of Africa to the US. Thus the estimates based on the theoretical gravity equation revealed that each dollar increase in AGOA exports has 16 to 20 cents spillover effects of aggregate SSA exports to US and among other things further showed that maintaining distinctive characteristics

for exports in SSA will lead to a substantial benefits from the AGOA trade preference.

Contrarily, Mueller (2008) and Seyoum (2007) had no significant impact of AGOA on the overall exports from SSA to the US. Mueller (2008) conducted the assessment with two models. In the first step, AGOA effect on trade was measured by testing the impact of AGOA on total exports (without oil) by AGOA eligible countries to US from 2000 to 2004 and the results showed a negative but statistically insignificant impact. In the second step, the impact of AGOA was tested on apparel imports. The results here, also was statistically different from zero.

Furthermore, Zenebe (2013), analyzed the impacts of the AGOA trade preference on agricultural exports in African. The gravity trade model was used and a panel data showing a yearly agricultural trade from 35 beneficiary SSA countries to the US over the pre and post AGOA period (1990 to 2011) was used. The data showed wide disparities in trade flows and the economic features for the 35 countries contains several observations of zero trade flows. The Poission family of regression and the Heckman modelling techniques were employed to test if the inclusion of zero values would change the estimates of the parameters significantly. This study actually differs from others in the sense that it accounted for zero trade flows. The statistical results specified that the AGOA preference does not have a statistically significant impact on agricultural exports of SSA countries, though some of the model results showed a potential positive effect of AGOA on agricultural exports of SSA countries to the US. Thus some of the models revealed

that there is a resulting decrease in agricultural export of SSA to US if per capita GDP in SSA countries increases.

In addition, a matching approach was used by Cooke (2011) in studying how AGOA has impacted SSA beneficiary countries. Here, results revealed that the beneficiaries' share of export to the US reduced. Thus it points to a negative significant impact of AGOA on SSA beneficiaries.

Again, Frazer and Van Biesebroeck (2010), studied the AGOA scheme, thus using a data covering the period 1998 to 2006 on 5120 products and 207 countries, the US trade preference was examined. A strong positive and significant impact of the AGOA trade preference on imports of US from the AGOA countries was recorded. The imports covered the products apparel, minerals, agricultural, manufacturing and petroleum increased by 42%, 16.6%, 8%, 14.6% and 73.5% respectively. Thus a conclusion was made that US imports on the average increases by 13% cumulative when AGOA beneficiary countries receives treatment.

## **History of Preferential Trade Arrangements**

### **The period 1950 – 2000**

According to Achterbosch, Tongeren and Bruin (2003), the preference given to developing country to have access to the market of the developed countries have been an important component of international trade and development for decades. Trade preferences were extensively accepted even during the existence of the General Agreement on Tariff and Trade (GATT). Per the GATT directives, imports from some countries were not allowed to have access to more preferences than the others; thus no discriminatory act was allowed. It is a foundation of the

GATT that members have access to similar preferences to that of the most favoured before the GATT. Hence need not to be weakened. Therefore tariff of Most Favoured Nations (MFN) became the regular tariff of GATT. The non-discriminatory norm was undermined in the early 1950s and late 1960s by the European community. It was declared in the Rome Treaty that the European Community colonies must have access to the whole community market at a duty-free. A stance was taken by the community that the decision or agreement is non-negotiable though it appeared discriminatory. This decision was implemented by GATT and the United State also gave an acceptance to it. Trade policies that discriminate were made to operate on the condition that they are made available to countries that are less developed.

The Generalized System of Preference (GSP) was introduced in the early 1970s by a number of developed countries including the European Community. The prime idea behind this initiative is to give developing countries a preferential access to the internal markets of the developed countries so as to enhance export and industrialization in the developing countries. The GSP scheme of the European Union today, give trade preferences to about 179 countries.

The European Community also introduced a discriminatory trade preference scheme for some countries of the GSP after the introduction of the GSP. The Lomé Convention was signed in 1975 comprising a total of 77 African, Caribbean and Pacific (ACP) countries. This covered more groups of products and had a preference margin that were larger than the existing GSP. Thus it was meant to promote and narrow down trade preferences. Lomé largely concentrated on former colonies and countries that were less developed. Duty-free access or

additional reduced tariffs were granted to the beneficiary countries on a number of products exported. The Lomé Convention initially appeared to be offering much comparatively to the ACP countries. A lot of reasons though pointed out that the system was not that generous. Thus products that had low initial tariff and those that were not exported by most ACP-countries were attracted the most tariff reductions. Again, agricultural products that were covered by the Common Agricultural Policy (CAP) were disqualified by the arrangement. Sugar production is an exception since including India, 17 ACP countries under the Special Preferential Sugar Arrangement were granted special quota.

Four Least Developed Countries as well as the participating ACP countries have benefitted a lot from this arrangement. Thirdly, manufacturing products had a lot of restricted costly rules for instance, the rules of origin although the arrangement covered most of such products. The implication is that the prime material used for production should be obtained locally and hence have a 50 to 60% value added. In addition, the product under consideration in the ACP country must go through two stages of production. Practically, it was difficult to go by these rules owing to the fact that most ACP countries were barely industrialized.

Next, tariff given to products that are processed (example canned fish) were comparatively higher than tariffs given to the unprocessed products (example raw fish). This structure of tariff is also referred to as tariff escalation and apparently appears not to be a promoter of industrialization. The fifth factor is that the European Community introduced the tariff rate quotas on almost all products, action which placed a restriction on the volume of trade that could possibly gain from reduction in tariffs. The Tariff rate quotas (TRQs) refers to a two-tiered tariff.



Thus an in-quota tariff (the tariff that is low) coupled with a restricted volume, and an out-quota (the tariff that is high) which is applicable to every trade beyond the restricted volume. The existence of the TRQs was successful in limiting the volume of exports from the ACP countries.

Clearly, the inadequate coverage of the agriculture products by the preference schemes, the stringent requirement in value addition, the restriction in export volumes of quantity as well as the tariff escalation schemes supported not the primary targets and objectives of promotion of export and industrialization.

### **The period 2000 to 2003**

In the year 1990s the Lomé Convention was reviewed and hence substituted with the Cotonou Agreement in the year 2000. The differences between the two mostly was dwell on political issues. For instance, attention was now given to issues relating to democratic principles, good governance, human rights and social development. In the quest to improve on performance of the economy, the Cotonou Agreement was designed to focus more on projects relating to regional development for example infrastructure.

Additionally, in enhancing development of the economy, the EU allocated special funds which are subject to less rigid allocation systems. Thus the beneficiary country's specific institutional context can adapt it. The Cotonou Agreement actually do not affect much of trade policies. The EU make available to the Least Developed Countries (LDCs) precise preference schemes that technically appears to be a part of the GSP scheme. The GSP scheme was also replaced by the Everything But Arms (EBA) initiative in March 2001 that was received well by

LDCs. A total of 49 of the Least Developed Countries were granted a duty-free access to the EU market for every product produced aside arms by the EBA initiative.

The rules of origin defined to the LDCs were also altered slightly by the EBA. Sugar, banana and rice are products that were originally missing from the EBA. Thus by 2006 tariff for bananas was abolished and that of rice and sugar took place in 2009 progressively. Indeed the EBA initiative was well welcomed and was well acclaimed, however, its contribution to the LDCs over the considerable preferences under the GSP and the ACP was questioned. Therefore it is contended that the EBA initiative provide little solution to the problems of LDCs in their exports to the EU.

### **The Scope of the AGOA Trade Agreement**

Over the years, the US have introduced both general and specific trade preferences in their quest to improve on growth and development of developing countries through export. The Generalized System of Preference (GSP) which has operated since 1974 is the most lasting preference among the other initiatives. The call for special and differential treatment by developing countries lead to the establishment of the GSP. After the institution of the GSP, many other trade preferences have been introduced to boost the export volume of developing countries. The African Growth and Opportunity Act (AGOA) is among the leading trade preferences. AGOA is an act by the US endorsed on 18<sup>th</sup> May, 2000 as Public Law 106 of the 200<sup>th</sup> congress.

It is a non-reciprocal trade preference covering 48 Sub-Saharan African countries envisioned to offer duty-free quota-free (DFQF) access to beneficiary countries. Aside the tariff considerations, AGOA organizes a mandatory meeting known as the AGOA forum. It is held between the US and the African government officials to deliberate on economic and trade issues. It significantly improves market access to the US for beneficiary SSA countries. After the first authorization, the AGOA trade preferences has undergone several technical changes. According to Baah (2015), AGOA has gone through a total of five times amendments. Instead of the initial expiration (2008), its current renewal due for expiration was on the September 30<sup>th</sup>, 2015. The amendments to the AGOA trade preference have called for the adoption of various legislation in its implementation.

The legislation started with the AGOA I. the AGOA II surfaced replaced the AGOA I on August 6<sup>th</sup>, 2002 when the first amendment was made. Preferential access for export of the beneficiary countries increased following this action. In 2004, AGOA III replaced the AGOA II when President Bush signed into law the AGOA Acceleration Act of 2004 (Public Law 108-274). According to Baah (2015), extending the preferential access to September 30<sup>th</sup> and the third country fabric to 2007 were the additions that were made to the AGOA II. The Africa Investment Incentive Act of 2006 (Public Law 109-432) popularly known as AGOA IV was signed into law by President Bush in December 2006 to replace the AGOA III. The US have introduced other regional trade agreements aside the AGOA. They include the Caribbean Trade Partnership Act (CBTPA), the Andean Trade Preference Act (ATPA), the Caribbean Basin Economic Recovery Act (CBEBRA) and the Haitian Opportunity through Partnership Encouragement (HOPE) Act. Brenton and Hope

2006, explained that regardless of the other numerous trade agreements, AGOA appears to be the leading commercial and development policy that exist between the US and SSA countries.

### **Objectives**

In the year 2000, AGOA was enacted by the Congress of the United States. The AGOA trade preference was basically founded on the grounds that trade existing between Africa and the United States would lead to economic growth in Africa through the granting of Africans the unique access to the US market. This opportunity given should as well trigger small businesses to grow throughout the Africa continent. Trade has recently been identified as the fastest and the most sustainable means by which a country can be developed and have a way out of poverty.

Trading freely with the United State, to the Africa, this opportunity is purportedly to act as a catalyst to ensure that countries in Africa without a manufacturing base to institute one, and as well make it possible for those with some sort of manufacturing to undergo diversification and deepen the base of their manufacturing sector.

The AGOA enactment was hence foresaw with much of flourishes by both the United States and the Africans. This preferential trade agreement could as well serve as a means for the attraction of more foreign direct investment from the United States and other developed world to the Africa continent since there have been the creation of opportunities by the Act that will make it very attractive for these firms to have a joint-venture partnership with Africa firms.

## **Country and Product Eligibility**

The eligibility criteria is spelt out in section 104 of the AGOA Act and section 502 of the GSP. Upon qualifying, a country is declared eligible by the president of the president of the US. Also, failure of the beneficiary country to make a continual progress in meeting the conditions for eligibility could lead to a termination of the status by the president.

Other countries keep losing their status of eligibility just as some SSA countries are increasingly being considered for enrolment under the preference. Some countries that have lost their eligibility status over the years include Mauritania, Madagascar, Gambia and Guinea Bissau. Guinea Bissau regained eligibility on the 23<sup>rd</sup> of December, 2014 when President Barak Obama declared their satisfaction of the requirement stipulated in section 104 of the AGOA and section 502 of the 1974 Act. In the same vain, Mali regained beneficiary status on January 2014.

Importantly, there exist exceptional provisions for consideration of a lesser developed beneficiary country. According to Williams (2014), the gross national product per capita of the less developed beneficiary country in 1998 should have been less than \$1500 as computed by the World Bank before considered. Botswana and Namibia are the exceptions so far considered for the LDC though they have GNP per capita above the threshold. Thus there is additional benefits such as an extension of the product coverage of AGOA for these lesser developed countries.

It can therefore been seen that the introduction of AGOA was not to promote trade between Africa and the US only, but to as well inspire all other activities or doings that would encourage world peace, protect the interest of the United States

and also make way for an environment where countries in African can take part in activities of world trade and expectantly have experience of higher quality of life.

All AGOA eligible products practically can have access to the US market duty-free. Apricots, canned peaches and certain steel products are the few products that are restricted from entering the US market. The Office of the United States Trade Representative (2003), indicated that in 2002, 94 percent of the US imports from AGOA beneficiary countries came in with no tariff charged. A variety of products are being exported and imported from SSA countries. In 2009, a total of \$15.17 billion value of goods were exported to SSA countries. The US major exports to SSA country include transportation equipment at \$3.0 billion (19.7%), machinery (with the exception of electricals) at \$3.41 billion (22.4%), agricultural products at \$1.19 billion (7.9%), chemicals at \$1.31 billion (8.6%) and all the rest valued at \$6.27 billion (41.3%).

The United States on the other hand in 2009, imported a total of \$46.92 billion worth of goods from the Sub Saharan Africa countries. According to the United State Department of Commerce, the main imports of the US from the SSA countries include primary metal manufacturing valued at \$2.24 billion (4.8%), oil and gas valued at \$36.20 billion (77.2%), petroleum and coal products valued at \$1.47 billion (3.1%), transportation equipment valued at \$1.57 billion (3.3%) and all other imports valued at \$5.44 billion (11.6%).

## **Membership**

The AGOA trade preference is a US initiative designed for SSA countries only. Per the AGOA description, the SSA consist of 48 countries. A total of 32 SSA countries signed as beneficiaries during the first agreement. The number of eligible beneficiary countries increased to 41 as of August 2014. 39 SSA beneficiary countries are currently exporting under the AGOA trade preference. This is made of 15 West Africa, 14 East Africa, 6 Central Africa and 4 Southern Africa countries (Baah, 2015).

## **Product Coverage**

All products exported under the US GSP are also covered by the AGOA trade preference and as well extends to cover most products that were not eligible under the former scheme. Thus over 4,600 products that were eligible under the US GSP are all covered by the AGOA scheme. A further 1,800 tariff lines were added by the AGOA legislation. Thus currently, the AGOA preference apply to nearly 6,500 tariff lines (at the HS8-digit level). This is made up of approximately 5,000 tariff lines that are currently covered by the US GSP and other tariff lines included by the AGOA legislation.

In assessing and determining the value of a preference scheme, mostly, the number of products covered under the scheme is sometimes used. Therefore increasing the number of products eligible will influence positively the value of the preferential scheme (Persson, 2015). A product's import sensitivity determines its tariff treatment. This means that highly import sensitive products are definitely ineligible for the preferential access. Fresh cut roses, citrus (either fresh or juice)

and vegetables are some agricultural products covered. Other non-agricultural products are also covered. Some are watches, footwear, handbags etc. apparel and textiles is one key product covered under the AGOA trade preference and command high preference utilization by SSA beneficiary countries. AGOA is covers petroleum products. According to Shapouri and Trueblood (2003), covering the textiles and apparel is very important owing to the fact that most of the SSA beneficiary countries are major cotton producers.

For an exported product to qualify for AGOA Duty –Free Treatment, the following conditions must be met:

1. The product must be included in the provided eligible articles of the GSP (without exclusions), or must be included in the current products of AGOA, or must be an eligible apparel or textile item
2. The product must be imported directly from either the eligible country to the United State or through a different country and then addressed to a final destination in the United State.
3. Instances where raw materials used in the production of the eligible products are imported from foreign countries into the AGOA beneficiary country, the sum of the cost of processing and that of the materials produced in the AGOA-eligible country must be equal to at least 35 percent of the value of the product when it is sold for export into the US.
4. For clothing/apparel, the rule above (35%) is not applicable directly, however, the products need to conform to the corresponding rules of origin requirement.



5. A duty-free treatment under AGOA on the relevant customs entry form (Form 7501) must be requested by the US importer by putting a “D” in column 27 in front of the US tariff number that recognizes the article imported.

## **Conclusion**

Free trade analysis of international trade have captured the economic effects of preferential trade agreements on beneficiary countries. In theory, literature appears to justify a direct effect of the trade preferences on receiving countries, on the other hand, the empirical literatures examined indicates that the effects of trade preferences precisely, the AGOA, generally on receiving countries (mostly for SSA) be either a positive or negative. Several of these studies examine the effects on regional blocks such as SSA, ECOWAS without emphasizing much on the distinct effects on the respective countries. Again, the effect have not been much looked at on a monetary zone such as the WAMZ which is believed that member states have got similar production characteristics according to the OCA theory.

## **CHAPTER FOUR**

### **RESEARCH METHODS**

#### **Introduction**

This chapter presents the methodology of the study with specific reference to the research design and an overview of the theoretical foundations of the gravity model. It also presents specification of the model, its justification, and measurement of the variables, sources of data, estimation techniques and the post estimation tests. The chapter discusses major econometric issues regarding panel regression.

#### **Research Design**

With regard to the goals and objectives of this study, the quantitative research design is employed to study the effect of the AGOA trade preference on export of WAMZ member states to the US. Quantitative research design is known for the fact that it maximizes objectivity, generalizability and ability of replicating the findings.

This research design appears to be either descriptive (measurement of subject is once) in nature or experimental (subjects are measured before and after treatment). This study which attempts to analyze the effect of a trade preference takes the descriptive outlook. There is therefore a valid and precise presentation of variables relevant to the stated objectives of the study.

## **Theoretical Foundations of the Gravity Model**

Tinbergen (1962) introduced a concept popularly known as the “gravity model” to identify and explain how trade flows relates among two countries. International trade theory explains that trade between two countries mainly depends on two general factors; the cost (tariff and non-tariff) of trade and the size (population size economic size, geographic size,) of the countries involved.

This concept originated from Newton’s law of universal gravity, which states “the attractive force between two objects depends on the gravitational constant, masses of the two objects and the distance between the objects”. The law explains that there is a positive relationship between the attractive force between the two objects and the masses of the object. However, a negative relationship between the attractive force and the distance between the two objects. Similarly, the gravity model is used in Economics to explain some of the factors that clarify the trade flow existing between countries (Baah, 2015).

The theoretical justifications of the relationships identified dwell mostly on the cost of trade. Variables that contribute less to the cost of trade appear to boost trade. According to the model, the distance variable increases trade cost through the cost of transportation. Countries tend to trade less the more they are dispersed hence there is an increase in transportation cost if there is a larger distance between countries. Since it becomes expensive for the countries involved to trade, there is a fall in trade.

Based on the micro foundations of monopolistic competition, Anderson (1979), which is the most referenced work regarding this model, developed a gravity equation. He assumed that goods are heterogeneous in analyzing the gravity

model. Goods were differentiated based on their countries of origin. Anderson (1979) recommends that countries would at least consume a portion of every good from every country because individuals tend to review their preferences over all of the differentiated goods. Therefore, Anderson (1979) used the basis of goods differentiation as a support to the rationale behind the trade that exists between countries. A further conclusion was made that bigger countries have large volumes of export and import. Thus leading to the conclusion that all countries undergo trading and all goods are traded. The work of Anderson (1979) however became the cutting-edge to make way for the development theories related to the gravity model.

In justifying the gravity model, Bergstrand (1985 and 1989) implemented a monopolistic competition method. In getting the insights of the microeconomic underpinnings of the gravity model, the works of Anderson (1979) was further developed by Bergstrand. His analysis was optimizing behavior in a general equilibrium framework. A recommendation was made by Bergstrand that the gravity equation is dependent on the size of the countries in question, preference of the differentiated goods, cost of transportation and the endowment. Thus making his approach unique by the introduction of the Heckscher-Ohlin (HO) thought in the gravity model. The introduction of the HO model in the gravity equation was also highlighted by Deardorff (2011) where he emphasized that the gravity model is consistent with the HO model in cases where countries specialize in different good. According to Nilsson and Matsson (2009), the work of Anderson and Wincoop (2003) which was a follow up to the work of Anderson (1979) appeared to be the standard reference for the theoretical foundation of the gravity model. The

assumptions under which the gravity model was built includes asymmetric trade costs, identical and homothetic consumer preferences and market clearance among others. The main assumptions as identified by Anderson and Wincoop (2003) were referred to as the building blocks of the gravity model. The first is that there is differentiation of goods by place of origin. They argued that there is fixed supply of each good since there is specialization of goods by each region. The second which they estimated by the Constant Elasticity of Substitution (CES) utility function was the identical and homothetic preferences.

Equation 1 shows the form of the basic model for trade between two countries (*i* and *j*). Thus goods exported at country *i* are attracted to country *j* based on the economic weights of the two countries which is measured by GDP or GDP per capita ( $Y_i$  and  $Y_j$ ) but the flow is hindered by the distance between the two countries  $Dist_{ij}$ .

$$X_{ij} = G \frac{Y_i^{\beta_1} Y_j^{\beta_2} A_{ij}^{\beta_3}}{Dist_{ij}^{\beta_4}} \dots \dots \dots (1)$$

Where  $X_{ij}$  represent the trade flow from *i* to *j* and  $Y$  shows the corresponding economic mass of the exporting and importing countries (as measured by GDP or GDP per capita).  $Dist_{ij}$  represent the physical distance between countries *i* and *j*.  $A_{ij}$  shows other factors affecting trade.  $G$  represent the constant intercept.

The gravity model is traditionally rewritten in the log-linear form in estimating the vector of  $\beta$ . Thus taking the natural log of equation 1 gives:

$$\ln X_{ij} = \beta_0 + \beta_1 \ln Y_i + \beta_2 \ln Y_j + \beta_3 \ln A_{ij} - \beta_4 \ln Dist_{ij} + \epsilon_{ij} \dots \dots (2)$$

**Empirical Model Specification**

The stated model anticipates a positive relationship between the value of trade and GDP or GDP per capita while a negative relationship between the value of trade and distance (used as a proxy for transportation cost). The relationship for  $A_{ij}$  is however dependent on how the variable is represented in the regression model. The community of research have found interest in introducing other variables that are empirically useful in determining trade in the gravity model specification. Apart from the traditional explanatory variables (as identified by the theory in equation 1), other new variables such as cultural, population, exchange rate, trade preferences have been introduced as contributors to trade flows.

Cipollina, Laborde and Salvatici (2013), pointed out that in studying the ex-post effect of trade preferences on bilateral trade in international trade, the gravity equation has become the empirical rock over the past decade. The augmented gravity equation as specified by Anderson and Wincoop (2003) is;

$$X_{ij} = Y_i^\alpha Y_j^\beta \left(\frac{t_{ij}}{\pi_i P_j}\right) \dots \dots \dots (3)$$

Where  $\pi_i$  and  $P_j$  represent the Multilateral Resistance Term (MRT) for the exporter and importer respectively.  $t_{ij}$  also represent the bilateral trade cost between the two countries. Afesorgbor (2013) argued that Anderson and Wincoop employed a computationally demanding approach in estimating the MRT hence some studies proposed different methods of estimation. A time varying bilateral fixed effects was proposed by Baier and Bergstrand (2007) in controlling for the MRT.

Some studies such as Frazer and Van Biesebroeck, (2010) and Agostino et al., (2007) included in the gravity model other variables measuring natural costs and country differences such as past colonies, landlocked, border or language, and sharing of a common currency. This study therefore includes country-specific and bilateral variable like the colonial history which is measured as a dummy. Thus countries that have a colonial history are more likely to have a good understanding with each other as compared to countries without colonial history (Baah, 2015). Mátyás, (1997), argued that ignoring some of these variables in the gravity model specification can result in an inflated or deflated parameter estimates hence incorrect inferences. Regarding cost of trade, Baah, (2015) argued that several studies capturing artificial cost concentrate on cost related to tariff barriers.

Generally, tariff barriers are incorporated in the gravity model specification by including a dummy for the existence of a Preferential Trade Agreement (PTA) or a Regional Trade Agreement (RTA). The presence of these agreement either eliminates or reduce the tariff barriers therefore an increase in trade. In this study, the inclusion of the trade preference (AGOA) in the gravity model is to estimate its significance. Landlocked which is incorporated in the gravity model in most literatures is removed in the model specification because none of the member states on WAMZ considered for this work is a landlocked country. Again, unlike in recent literatures, the study include another variable (*Atime*) to capture the duration a country has spent exporting under the agreement. This is to capture the time influence since member states of the WAMZ did not enroll under the AGOA trade preference in the same year. Including all these adjustments into the traditional

gravity equation, thus expanding the variable  $A_{ij}$  to capture other variables, we specify the model to be estimated in a log-linear form as;

$$\ln X_{ijt} = \beta_0 + \beta_1 Agoa_{it} + \beta_2 \ln Y_{it} + \beta_3 \ln Y_{jt} + \beta_4 \ln Dist_{ij} + \beta_5 \ln Pop_{it} + \beta_6 Atime_{it} + \beta_7 \ln LArea_{it} + \beta_8 Col_{ijt} + \beta_9 FDI_{it} + \beta_{10} FDI_{jt} + \epsilon_{ijt} \dots \dots \dots (4)$$

Where  $i$  and  $j$  represent the exporter (WAMZ member states) and importer (US) country respectively.  $Y_{it}$  and  $Y_{jt}$  are GDP per capita of country  $i$  and country  $j$  respectively at time  $t$ .  $X_{ijt}$  represent the total export of WAMZ member states to the US at time  $t$ . Country specific variables include population ( $Pop_{it}$ ) and land area ( $LArea_{it}$ ) which is time-invariant.. The variables  $FDI_{it}$  and  $FDI_{jt}$  shows the foreign direct investment in the exporting and importing countries respectively at time  $t$  while  $Dist_{ijt}$  represent the distance between the capital cities of country  $i$  and  $j$  at time  $t$ . The variable  $Atime_{it}$  shows the number of years an exporting country has been enrolled under the AGOA agreement. Dummy variables included are  $Agoa_{it}$  and  $Col_{ijt}$ . (colonial history between exporting and importing country).

**Measurement and Justification of Variables**

In determining the effects of the AGOA trade preference on the exports of WAMZ member states to the United States, the study made use of annual data over the period 1980 to 2016; containing eleven variables which comprises two dummy variables. The variables include export to the United States ( $X$ ), AGOA, per capita Gross Domestic Product for both exporting and importing country ( $Y_i$  **and**  $Y_j$  ),



distance between the exporting and importing country (*Dist*), population of the exporting country (*Pop*), Atime, land area of the exporting country (*LArea*), colonial history between the exporting and importing country (*Col*), foreign direct investment for both the exporting and importing countries (*FDI<sub>i</sub>* and *FDI<sub>j</sub>*).

### **Dependent Variable**

#### **Total Export (X)**

This refers to the total value of exports from member states of the WAMZ to the United States at time t. This is measured in US dollars and it is the same as the total import of the United States from the member states of the WAMZ. Thus it comprises total exports of goods from Ghana, Guinea, Gambia, Sierra Leone, Liberia and Nigeria to the United States (in case of the zone). For country specific analysis, the total export comprises exports of goods from the respective countries only to the United States. This is in line with the study conducted by Didia et al. (2015).

### **Independent Variables**

The main independent variable of interest is AGOA, however the study have other control variables such as per capita Gross Domestic Product for both exporting and importing country, distance between the exporting and importing country, population of the exporting country, Atime, land area of the exporting country, colonial history between the exporting and importing country and foreign direct investment for both the exporting and importing countries.

### **Agoa**

This is measured as a dummy variable in the model. AGOA assumes the value one for years in which the WAMZ member states exported under the AGOA agreement and zero if otherwise. This data was generated by the author. The AGOA data also conforms to studies done by Zenebe (2013), Baah (2015) and Didia et al. (2015). As a trade agreement, the expected sign is indeterminate since previous studies have shown mixed results.

### **GDP per capita ( $Y_i$ and $Y_j$ )**

This variable refers to the per capita GDP of exporting (WAMZ member states) and the United States. These are used as a representative of the economic size and also serve as a proxy for the level of income for both the exporting and importing countries. This is mostly used as replacement for GDP. Bergstrand (1989) and Porojan (2001) are examples of works that employed GDP per capita in place of GDP. Positive signs are expected for these variables (especially for the exporting country). This is because a country is expected to trade more with its increasing income. This is in line with studies such as Cooke (2011), Nouve (2005) and Seyoum (2007). Nonetheless, a study made by Zenebe (2013) has given a justifications that the per capita GDP of the importing country can be negative.

### **Distance (*Dist*)**

This is a time-invariant variable measuring the geographical distance between the capital cities of WAMZ member states (i) and that of the United States (j). It is used as a proxy for transportation cost and its computation follows the great

circle formula which makes use of longitudes and latitudes of centers, and as well captures the weighted distance measure. The distance variable is expected to have a negative coefficient. This is because trading partners that stay far away or are more dispersed in geographic terms are likely to have high cost of transaction. This is in line with the studies done by Didia et al. (2015) and Baah (2015). However, a study by Xue-bin Liu Ming-xue and Yi-ying, (2007) refute this expected sign using innovations and technology.

### **Population (*Pop*)**

This is used as a representative of the total population of the WAMZ member states over time. It is also used as a measure of the economic size of the exporting country in this study. Theoretical literature regarding the expected coefficient of this variable in the gravity trade equation is ambiguous. According to Bergstrand (1989), the interpretation is that a positive coefficient for an exporting country indicates that exports are labor-intensive while a negative coefficient indicates that exports are capital-intensive. Glick and Rose (2002) also explains that a negative coefficient indicates that there is a large domestic market for the local produce hence less exports.

### **Agoa time (*Atime*)**

This measures the number of years WAMZ member states have been enrolled under the AGOA trade preference. As a completely new variable introduced in the model, the data was generated by the author. Ghana for instance was given the value 17 in the year 2000, implying that the country has spent 17

years since joining AGOA to date (2017). The value 16 is also given to Ghana in 2001 meaning Ghana has spent 16 years from 2001 to date (2017) in that order. This computation applies to all countries but depends on the year of eligibility. It was noted that Nigeria and Ghana had the same figures since they both enrolled and exported under the preference in the same year (thus 2000 and 2001 respectively).

### **Land Area (*LArea*)**

This measures the geographical land size of the WAMZ member states. A larger land area for an exporting country is likely to increase export volumes hence a positive coefficient is expected. Thus with a larger land size, land acquisition for production purposes to feed the export sector (especially for agriculture products) is likely to be easy. This is in line with the study by Baah (2015).

### **Colonial Ties (*Col*)**

This is a dummy variable, assuming the value one if the WAMZ member state is a former colony of the United States and zero if otherwise. A positive coefficient is expected for this variable since an exporting country being a former colony of an importing country is likely to boost trade between them.

### **Foreign Direct Investment(*FDI<sub>i</sub> and FDI<sub>j</sub>*)**

This refers to the amount of direct investment in the WAMZ member states as well as the United States that are made by foreigners and it is measured as the net inflows (percentage of GDP). Foreign direct investments for the

exporting countries are expected to have positive coefficients. Thus foreign direct investment whose motive especially is to tap the exports markets by taking advantage of the country's comparative advantage, will lead to export growth. Hence there will be an increase in the export. This is in line with the study by Didia et al. (2015). However, the expected sign for foreign direct investment for an importing country (United States) is ambiguous. Foreign direct investment and imports are expected to have a negative relationship when the latter is considered as another mode of supplying foreign market, thus seeing foreign production as a substitute. Rodrik (1999), also explained that foreign direct investments leads to growth in imports especially when importation of ideas, investment and intermediate goods are made.

### **Sources of Data**

The sample period for this study is from 1980 to 2016. Data used for the study are from a combination of three different databases. Data on the GDP per capita (measured as constant US \$) for both the exporter and importer, Population, land area (square km), and Foreign Direct Investment are sourced from the World Development Indicators. Data on the bilateral export to the importing country was also taken from the International Monetary Fund Direction of Trade (IMF DOTS,). The PTA dummies (Agoa and Colonial ties) as well as the bilateral distance were sourced from the CEP II.

**Estimation Technique**

Fixed and random effects estimations were conducted on the assumptions underlying the country specific effects ( $\eta_i$ ). A Hausman test was further conducted to determine which estimation should be accepted among the results from the fixed effects and the random effects.

**Fixed and Random Effects Models**

A fixed and/or random effects is examined for individual or time using a panel data model. The role of dummy variables draws the core difference between the fixed and random effects models. In a fixed effect model, a parameter estimate of a dummy variable is part of the intercept and an error component in the random variable. In both the fixed and random effects models however, the slopes remain the same across groups or time period. The functional form of the fixed and random effect models are specified below;

Fixed effect model;

$$y_{it} = ( a + \mu_i ) + X'_{it}\beta + v_{it} \dots\dots\dots (5)$$

Random effect model;

$$y_{it} = a + X'_{it}\beta + (\mu_i + v_{it})\dots\dots\dots (6)$$

Where  $\mu_i$  is a fixed or random effect specific to individual (group) or the time period that is excluded in the regression and errors are independently and identically distributed,  $v_{it} \sim IID(0, \delta_v^2)$ .

A fixed group model examines the differences in the individuals within the intercept, on the assumption of same slopes and constant variance across individual (thus group and entity). Since an individual specific effects is time invariant and also considered a part of the intercept,  $\mu_i$ , it is allowed to be correlated with some other regressors; thus the OLS exogeneity assumption (expected value of disturbance is zero or disturbance term does not correlate with any of the regressors). The fixed effect model is estimated by least square dummy variable (LSDV) regression (thus OLS with a set of dummies) and within effect estimation methods.

In the random model, there is the assumption that the individual effect (heterogeneity) is uncorrelated with any regressors and the estimates error variance specific to group (or time). Therefore,  $\mu_i$  is a random heterogeneity specific to individuals or a component of the composite error term. The slope of the regressors as well as the intercept are the same across individuals. Among individuals (or time periods) the difference can be found in their specific errors, and not in their intercept. A random effect estimation is done by the generalized least squares (GLS) when a covariance structure of an individual  $i$ ,  $\Sigma$  (sigma) is unknown. The entire variance-covariance matrix  $V$  ( $\Sigma$  in all diagonal elements and 0 in all off-diagonal elements) when  $\Sigma$  is unknown is estimated by the estimated generalized least square (EGLS) or feasible generalized least square (FGLS).

According to Greene and Hensher (2008), a random effects model decreases the number of parameters to be estimated but this will lead to inconsistent estimates when there is a correlation between the individual specific random effect and the regressors. While the random effects are examined by the Lagrange

Multiplier (LM) test, the fixed effects are tested by the F-test (Breusch & Pagan, 1980). If the null hypothesis is not rejected in both tests, the pooled OLS is favoured.

In comparing the two tests, the Hausman specification test is used. Thus if the null hypothesis that there is no correlation between the individual effects and regressors are rejected, a random effects model is preferred over the fixed effect model. There is a one-way fixed or random effect model in a case where one cross-sectional or time-series variable is considered (country, firm). In a two-way effect models, there exist dummy variable for individual and/or time variables (country & year) and thus entails issues in estimation and interpretation.

### **Estimating Fixed Effects Model**

There exists several ways of estimating a fixed effect model. Dummy variables are used by the least square dummy variable model (LSDV) while the “within” estimation does not. Identical parameter estimates of regressors (non-dummy independent variable) are produced by these strategies. A model that uses the individual or time means of dependent and independent variables without dummies fits by the ‘between’ estimation.

There is a wide use of LSDV with a dummy dropped out of a set of dummies owing to the fact that it is comparatively easy to estimate and interpret. It however becomes a challenge where there are many individuals (or groups) in panel data. In contrast to the LSDV, the “within” estimation does not require dummy variable but rather makes use of deviation from group (or time period) means. Thus for



“within” estimation, there is the use of variables within each individual or entity of a large number of dummies. The “within” estimation is as follows:

$$(y_{it} - \bar{y}_i) = (x_{it} - \bar{x}_i)' \beta + (\epsilon_{it} - \bar{\epsilon}_i), \dots\dots\dots (7)$$

Where  $\bar{y}_i$  represent the mean of dependent variables (DV) of individual (group)  $\bar{x}_i$ , is the means independent variables (IVs) of group  $i$ , and  $\epsilon_i$  is the mean of errors of group  $i$ .

The incidental parameter problem is no longer an issue in the “within” estimation. In the “within” estimation and the LSDV, the parameter estimates of regressors are identical. The sum of square errors (SSE) are correctly reported in the “within” estimation however, there exist several weaknesses for this method.

Data transformation for the “within” estimation is known to wipe out all time-invariant that do not vary within an entity. Thus since deviations of time-invariant variables from their averages are all zero, it appears impossible to estimate coefficients of such variables in “within” estimation. Therefore the need to fit LSDV in a case where a model has time-invariant independent variables.

Again, the “within” estimation is known to produce incorrect statistics. There is large degrees of freedom for errors accordingly reporting of small mean square errors (MSE), standard errors of estimates (SSE) or square root of mean square errors (SRMSE) and incorrect (smaller) standard of parameters since no dummy is used. Therefore there is the need for adjustment of incorrect standard errors using the following;

$$Se_k^* = Se_k \sqrt{\frac{df_{error}^{within}}{df_{error}^{LSDV}}} = Se_k \sqrt{\frac{nT-k}{nT-n-k}} \dots\dots\dots (8)$$

Thirdly, there is incorrect  $R^2$  of the “within” estimation because the intercept is suppressed. And also, the dummy coefficients are not reported by the “within” estimations. There is the need for comparisons using the formula

$$d_i^* = \bar{y}_i - \bar{x}_i' \beta \dots\dots\dots (9)$$

The “between group” estimation (group means regression), make use of variations that exist between individual entities (group). This estimation significantly calculates group means of dependent as well as independent variables and hence decrease the number of observations down to  $n$ . Therefore run OLS on this transformed, aggregated data:

$$\bar{y}_i = a + \bar{x}_i + \epsilon_i \dots\dots\dots (10)$$

**Estimating Random Effects Model**

A complete error term is incorporated into the one-way random effect model:

$$w_{it} = \mu_{it} + v_{it} \dots\dots\dots (11)$$

Then  $\mu_i$  are assumed independent of traditional error term  $v_{it}$  and regressors  $X_{it}$ , which are also independent of each other for all  $i$  and  $t$ . This assumption however is not necessary in the fixed effect model. This model is:

$$y_{it} = a + X_{it}' \beta + \mu_i + v_{it} \dots\dots\dots (12)$$

Where  $\mu_i \sim IID (0, \delta_\mu^2)$  and  $v_{it} \sim IID (0, \delta_v^2)$ .

The covariance elements of  $Cov(w_{it}, w_{js}) = (w_{it}w'_{js})$  are  $\delta_v^2 + \delta_u^2$  if  $i = j$  and  $t = s$  and  $\delta_u^2$  if  $i = j$  and  $t \neq s$ . Hence the covariance structure of the composite error  $\Sigma (w_i w'_i)$  for individuals  $i$  and the variance-covariance matrix of entire disturbance (error)  $V$  are:

$$\Sigma_{T \times T} \begin{bmatrix} \delta_u^2 + \delta_v^2 & \delta_u^2 & \delta_u^2 \\ \delta_u^2 & \delta_u^2 + \delta_v^2 & \delta_u^2 \\ \delta_u^2 & \delta_u^2 & \delta_u^2 + \delta_v^2 \end{bmatrix}$$

And  $V_{nT \times nT} = I_n \otimes \Sigma = \begin{bmatrix} \Sigma & 0 & \dots & 0 \\ 0 & \Sigma & \dots & \dots \\ \dots & \dots & \dots & \dots \\ 0 & 0 & \dots & \Sigma \end{bmatrix} \dots \dots \dots (13)$

When the covariance structure is known, a random effect is estimated by generalized least squares (GLS) and by a feasible generalized least square (FGLS) when the covariance structure of composite errors are not known.

**Post Estimation Technique**

The following post estimation tests are conducted to ensure that the estimates from the regression are robust and consistent. It is done to test the fitness of the model estimated in the study.

**Hausman Test (for comparing the fixed and random effects)**

$$LM = (b_{LSDV} - b_{random})' \widehat{W}^{-1} (b_{LSDV} - b_{random}) \sim X^2(k) \dots \dots \dots (14)$$

$$= Var [ b_{LSDV} - b_{random} ] = Var ( b_{LSDV} ) - Var ( b_{random} ) \dots \dots \dots (15)$$

Where  $\widehat{W}$  is the difference in the estimated covariance matrices of LSDV (robust model) and GLS (efficient model). This however follows the chi square distribution with  $k$  degrees of freedom. The formula explains that a Hausman test examines if the random effects estimates is significantly different from the unbiased fixed effects estimates. If the null hypothesis which states that there is no correlation is rejected, there is the conclusion that individual effects  $\mu_i$  are significantly correlated with at least one of the regressors in the model implying the random effect is a challenge. There is therefore the need to accept the fixed effect over the random effect. The weakness associated with the Hausman, according to Greene and Hensher (2008), is that the difference of covariance matrices  $W$  may not be positive definite; then a conclusion can be made that the null is not rejected assuming similarity of the covariance matrices renders such a problem.

### **Final Model**

There is the motivation for the model to be estimated due to the general consideration of the panel data (unbalanced in this case). As indicated in the objectives and the hypothesis, six different models were estimated. The first is done to examine the effects of AGOA on export of the entire WAMZ. The remaining five are conducted to examine the effect of AGOA on the export of the respective or individual WAMZ member states separately (Gambia has been excluded in the specific country estimations since they lost their eligibility because of political instability and human right issues). The first model estimated is in the form of equation (4).

Where  $i$  represent the entire WAMZ (Thus  $i = 1$ ) and  $j$  represent the US.

The five models catering for the specific countries are also in the form:

$$\ln X_{ijt} = \beta_0 + \beta_1 A_{goa_{it}} + \beta_2 \ln Y_{it} + \beta_3 \ln Y_{jt} + \beta_4 \ln Dist_{ij} + \beta_5 \ln Pop_{it} + \beta_6 FDI_{it} + \beta_7 FDI_{jt} + \varepsilon_{ijt} \dots \dots \dots (17)$$

Where  $i$  represents individual WAMZ member states (Ghana, Guinea, Liberia, Sierra Leone and Nigeria) and  $j$  represent the US. Thus (17) can be written in six different forms with  $i$  taking on different country names ( $i = 1, 2, 3, 4,$  and  $5$ ).

**Diagnostic Test**

A major methodological problem associated with panel data analysis is the possible correlation between the error terms of different periods. This refers to the violation of the assumption of constant variance for the error term (thus  $\text{Var}(\varepsilon_{ijt}) \neq \delta^2$ , referred to as heteroscedasticity). A post estimation test of this assumption was therefore done to determine the efficiency of the estimates. Thus the study conducted a modified Wald test in testing for heteroscedasticity in the fixed effects model and Panel Groupwise Heteroscedasticity Tests (for random models). Much focus was not on the test for multicollinearity since a panel data has one advantage of containing less multicollinearity (Hsiao, 2007)

Again in correcting for heteroscedasticity and a possible serial correlation, the study runs a robust command as part of the panel estimation technique.

## **Conclusion**

Briefly, the chapter have elaborated on theoretical underpinnings of the effects of the AGOA trade preference on exports of WAMZ member states. The positivist philosophy is the research design used. Regarding this, both theoretical and empirical models were formulated. The study as well adopted the gravity model which have been identified to be resourceful in examining trade flows between countries.

## **CHAPTER FIVE**

### **RESULTS AND DISCUSSION**

#### **Introduction**

The purpose of this chapter is to present an in-depth analysis and discussion of results of the study. The chapter is structured into different sections. The first section provides the descriptive statistics of the non-binary variables. The next section presents the empirical estimations (fixed and random effects estimations) for the study. These are in relation to the objectives of the study.

#### **Descriptive Statistics**

This section of the study discusses briefly the basic statistical properties of the non-binary variables used in the model for the period 1980 to 2016. The examined descriptive statistics include the means, minimum, maximum, and standard deviation. These are presented in Table 4.

Table 4 - *Summary Statistics of Variables, 1980 to 2016*

Variables	Mean	Std. Dev	Minimum	Maximum
EX_US	1.36e+09	4.64e+09	0	3.32e+10
GDP <sub>i</sub> pc	516.8481	492.1548	65.011	3221.678
GDP <sub>j</sub> pc	34056.11	13706.75	12597.67	57466.79
DIST	7573.014	846.6411	6524.287	8874.532
ATIME	2.004	4.121	0	17
POP <sub>i</sub>	2.61e+07	4.50e+07	604369	1.86e+08
FDI <sub>i</sub>	6.222917	15.9566	-82.89	89.48
FDI <sub>j</sub>	1.296	0.755	0.288	3.403729
LAREA	260441.7	303246.6	10120	910770

Note: Std. Dev. represents Standard Deviation

*Source:* Author's Computation

From Table 4, the total export to US from WAMZ member states is averaged about US\$ 1.4 billion. The maximum value is approximately US\$ 34 billion with a minimum value of zero. GDP per capita for WAMZ member states for the period is averaged at about US\$ 517 while that of the US for the period is averaged at US\$ 34054. Exports of WAMZ member states travelled on an average distance of 7573 km to the United States. Dispersion of the variables from their means are measured by the standard deviations.



## **Empirical Results and Discussions**

The results as shown in Table 5 and the Appendix B are derived from estimation of the gravity equation (4) using the random and fixed effects. Thus Appendix B shows the results of the Hausman test which rejects the null hypothesis of no correlation between the regressors and the individual heterogeneity. Thus rendering the random effect model inappropriate. The results of the Hausman test for the WAMZ indicated similar outcome of Baah (2015). Hence the study concentrates on the parameter estimates derived under the fixed effects estimator. The study further tested a null hypothesis of constant variance in the fixed model using the Modified Wald test and a Panel Groupwise Heteroscedasticity Test. As evident in appendices H and I, the tests reject the null hypothesis hence confirms of the presence of heteroscedasticity in the model. This is therefore corrected as well as any possible serial correlation by using the robust estimations.

Table 5- Estimates of gravity model for the WAMZ using Random and Fixed Effects

<b>Dependent Variable: log(Export to US)</b>		
<b>Independent variables</b>	<b>RE</b>	<b>FE</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>
AGOA	-0.243* (0.139)	-0.271* (0.149)
LGDP <sub>i</sub> pc	0.992*** (0.168)	0.560*** (0.183)
LGDP <sub>j</sub> pc	-3.980*** (1.004)	-8.357 (1.793)
LDIST	-5.829*** (2.184)	
LPOP <sub>i</sub>	1.404*** (0.327)	4.271*** (1.163)
ATIME	0.011 (0.113)	0.026** (0.012)
LLAREA	1.294*** (0.234)	
COL	1.217*** (0.234)	
FDI <sub>i</sub>	0.164** (0.069)	0.169** (0.065)
FDI <sub>j</sub>	0.243 (0.205)	0.384** (0.199)
Constant	29.406 (10.232)	15.056*** (4.054)
Hausman test ( $\chi^2$ )	36.25***	
Number of Obs.	204	

Note: Robust standard errors are reported in brackets; \*\*\*p< 0.01; \*\*p<0.05; p< 0.1, i and j represent the exporter (WAMZ member state) and importer country (US) respectively.

Source: Author's Computation.

### Control Variables

The results shown in column 3 indicates a positive effect of GDP per capita of the WAMZ member states on exports to the United States. Thus all things being

equal, a percentage increase in the exporter (WAMZ member states) per capita GDP increased export to United States by about 0.56 percent. Per capita GDP of importing country (US) is statistically insignificant. The intuition is that exports from the WAMZ member states represent a small portion of the total imports of the United States. Per capita GDP of United States may not have any strong effect on United States demand for export from the WAMZ member states. Again, there is the possibility that a growth in per capita GDP of the United States may not contribute to an increase in demand for imports from WAMZ states since changes in per capita GDP are more likely to lead to increases in consumption of goods from other regions which appears to be more income elastic than that from the WAMZ.

The variables land area, colonial ties, distance, population, foreign direct investment for both the exporting and importing countries and the years WAMZ states have exported under the preference are used as control variables. The fixed effects estimation (column 2) reported no results for Land area, colonial ties and distance were because they are time invariant variables.

Population was estimated to be positive and significant at 1 percent. It indicates that a percentage increase in the population of the zone will lead to about 4.3 percent increase in export to the US. As expected, this result is consistent with the study by Bergstrand (1989), which explained that a positive coefficient for the population in an exporting country or region indicates that exports are labor-intensive therefore increases as population goes up.

Again, a percentage increase in foreign direct investment within the zone leads to about 17 percent increase in export to the US. The estimated positive relationship between foreign direct investment and export to the US is in line with

the study by Didia et al. (2015). The results further indicated that a percentage increase in foreign direct investment in the US leads to about 38 percent increase in export of WAMZ to the US. This conforms to the findings of Rodrik (1999), who argued that foreign direct investment is likely to contribute to import growth especially when imported items constitute ideas, investment and intermediate goods.

Also, the number of years exported under AGOA was estimated to be positive and significant at 5 percent. This implies that the years WAMZ states have exported under the preference is a significant factor that influences total export from the zone to the US.

### **Effects of AGOA on the Exports of WAMZ to the US**

The AGOA dummy variable which is the main variable of interest was estimated to be negative and statistically significant at 10 percent as in column 2 (Fixed effects). Thus, all things being equal, exports from WAMZ to the US during the AGOA period is 27 percent lower than the period before. The results obtained for the region conforms to the findings of Cooke (2011) which revealed that exports from SSA beneficiaries appear lesser after the implementation of the AGOA trade preference.

### **Country Specific Results**

Results for the individual countries are estimated from the gravity equation (17) (thus each panel contains one WAMZ member state and the US as the trading partner). The Appendices C to G show the results of the Hausman test for the

various countries (Ghana, Guinea, Liberia, Nigeria and Sierra Leone) that failed to reject the null hypothesis of no correlation between the regressors and the individual heterogeneity. Thus rendering the fixed effects model inappropriate. Panel Groupwise Heteroscedasticity Tests were also conducted and there were evidence of heteroscedasticity as shown in appendices J to N. This and possible serial correlation were corrected by running robust tests. The estimates for Gambia have been omitted because Gambia as a country lost her eligibility of exporting under AGOA since 2015.

Table 6- *Estimates of gravity model for Ghana using Random and Fixed Effects*

<b>Dependent Variable: log(Export to US)</b>		
<b>Independent variables</b>	<b>RE (1)</b>	<b>FE (2)</b>
AGOA	-0.123*** (1.15e-12)	-0.123*** (3.36e-16)
LGDP <sub>i</sub> pc	0.338*** (4.64e-13)	0.338*** (1.88e-13)
LGDP <sub>j</sub> pc	-2.50e-13 (3.72e-13)	-3.86e-29 (3.83e-16)
LDIST	3.475*** (1.72e-11)	
LPOP <sub>i</sub>	0.897*** (9.20e-12)	-0.897*** (5.20e-17)
FDI <sub>i</sub>	0.357*** (9.58e-13)	0.357*** (2.61e-17)
FDI <sub>j</sub>	1.26e-13 (1.88e-13)	1.96e-29 (1.93e-16)
Constant	1.12e-12 (1.67e-12)	6.826*** (1.52e-15)
Hausman test ( $\chi^2$ )	0.00	
Number of Obs.	74	

Note: Robust standard errors are reported in brackets; \*\*\*p< 0.01, i and j represent the exporter (Ghana) and importer country (US) respectively.

Source: Author's Computation

### **Control Variables for Ghana**

Per capita GDP, population and foreign direct investment in Ghana as expected are all statistically significant at 1 percent, exerting positive effect on export of Ghana to the United States. Thus all things being equal, a percentage increase in per capita GDP increases export to the United State by about 0.34 percent. A percentage increase in population in Ghana leads to about 0.90 percent increase in export to the United States *ceteris paribus*. Again, a percentage increase in foreign direct investment leads to about 36 percent increase in exports to the United States.

The distance variable is estimated to be positively significant at 1 percent. This sign is inconsistent with the expected sign as captured in the gravity model. However, some recent studies such as Xue-bin et al. (2007) found the distance variable to be positive. This implies that transport cost no longer appears to be an impediment to trade since distance between trading countries have been minimized drastically due to recent technological advancements. Using a more recent data (1980 to 2016), it is possible for this study to have a positive coefficient for the distance variable indicating that the negative effect on trade is minimized.

Table 7- *Estimates of gravity model for Guinea using Random and Fixed Effects*

<b>Dependent Variable: log(Export to US)</b>		
<b>Independent variables</b>	<b>RE</b>	<b>FE</b>
	<b>(1)</b>	<b>(2)</b>
AGOA	-0.146*** (7.41e-13)	-0.146*** (4.26e-16)
LGDP <sub>i</sub> pc	0.683*** (3.09e-12)	0.683*** (4.80e-15)
LGDP <sub>j</sub> pc	-8.67e-13 (1.30e-12)	-4.93e-30 (1.09e-15)
LDIST	2.846*** (6.82e-09)	
LPOP <sub>i</sub>	-0.677*** (2.53e-12)	-0.677*** (5.64e-15)
FDI <sub>i</sub>	0.007*** (5.88e-14)	-0.007*** (2.34e-16)
FDI <sub>j</sub>	4.37e-13 (6.55e-13)	2.43e-30 (5.54e-16)
Constant	3.88e-12 (5.82e-12)	4.799*** (8.79e-15)
Hausman test ( $\chi^2$ )	0.00	
Number of Obs.	66	

Note: Robust standard errors are reported in brackets; \*\*\*p< 0.01; i and j represent the exporter (Guinea) and importer country (US) respectively.

Source: Author's Computation

### Control Variables for Guinea

As expected, per capita GDP and foreign direct investment in Guinea was estimated to have a positive and statistically significant effect on the exports to the United States. Thus, a percentage increase in per capita GDP will lead to about 0.68 percent increase in export to the United States all things being equal. Again, there will be a 0.7 percent increase in export to the United States given a percentage increase in foreign direct investment in Guinea ceteris paribus.

The population variable for Guinea was estimated to have a negative effect on the export to the United States. The results shows that all things being equal a

percentage increase in population will lead to about 0.67 percent decrease in exports to the United States. This findings as in line with Glick and Rose, (2002) confirms the expectation that a large domestic market leads to an increase in domestic demand for locally produced goods hence less export.

The distance variable is also positively significant indicating transport cost is not impediments to trade in Guinea due to improvements in technology.

Table 8- *Estimates of gravity model for Liberia using Random and Fixed Effects*

<b>Dependent Variable: log(Export to US)</b>		
<b>Independent variables</b>	<b>RE</b>	<b>FE</b>
AGOA	-0.060*** (1.20e-12)	-0.060*** (4.01e-15)
LGDP <sub>i</sub> pc	1.092*** (3.12e-13)	1.092*** (1.44e-15)
LGDP <sub>j</sub> pc	-3.05e-13 (4.54e-13)	-9.57e-29 (2.25e-17)
LDIST	-0.800*** (8.09e-12)	
LPOP <sub>i</sub>	1.279*** (4.80e-12)	1.279*** (1.33e-14)
FDI <sub>i</sub>	-0.024*** (4.00e-15)	-0.024*** (1.44e-16)
FDI <sub>j</sub>	1.54e-13 (2.29e-13)	4.81e-29 (1.39e-17)
Constant	1.37e-12 (2.03e-12)	-1.551*** (4.28e-14)
Hausman test ( $\chi^2$ )	0.00	
Number of Obs.	74	

Note: Robust standard errors are reported in brackets; \*\*\*p < 0.01; i and j represent the exporter (Liberia) and importer country (US) respectively.

Source: Author's Computation

### **Control Variables for Liberia**

Per capita GDP of Liberia and Distance are consistent with the gravity model. Thus, per capita GDP and Population in Liberia shows positive and



statistically significant effects on exports to the United States. A percentage increase in per capita GDP and population will lead to respectively about 1.1 percent and 1.3 percent increase in exports to the United States. Again, distance reduces exports to the United States by about 0.80 percent. These results are consistent with the expectations of the gravity model and also in line with the findings of Didia et al. (2015).

### **Effects of AGOA on Exports of Ghana, Guinea, and Liberia to the US.**

The AGOA variable for the above countries were estimated to be negative and significant at 1 percent. This suggests that exports from the said countries have witnessed a fall under the AGOA trade preference. Thus, exports to the United States are reduced by about 12 percent, 15 percent and 6 percent for Ghana, Guinea and Liberia respectively. These results are in line with the findings of Cooke (2011) which employed a matching approach to study how AGOA has impacted beneficiary countries. Thus pointing to a negative significant impact of AGOA on exports of Sub Saharan Africa countries to the United States.

AGOA eligible products strictly have to meet the US safety standards (Sanitary and Phytosanitary standards) before the products are accepted in the US market. Studies have shown that strict standards impacts exports negatively. For instance Baboola, Reed, Saghaian and Subramaniam (2008) analyzed data for processed food exports from 15 developing countries for a period of 17 years using a gravity equation. The study estimated that a percentage increase in food safety standards decreased exports by approximately 0.5 percent. Again, large quantities of yam exported from Ghana to the US were rejected because they were seen to be

below standard (“US rejects Ghana’s yam in spite of AGOA”, 2014). This indubitably reduces Ghana’s exports to the US. Anasensor (2016), indicated that the US seems to tactically use these standards to ward off too much in her market.

Additionally, regarding industries like textile manufacturing, it is stipulated by the AGOA trade preference that producers make use of raw materials from the United States which effectually blocks investment in local upstream sectors within the beneficiary countries like Ghana, Guinea and Liberia.

Also, to ensure that eligible countries receive the benefits of the preference, the Rules of origin stipulates that any product with a different origin and transiting through an eligible country undergo a value addition of at least 35 percent. This therefore means that products which do not meet this requirement but were previously exported to the US market will be rejected under the preference hence a reduction in export.

Linked to the above, since the preference requires that goods that are exported to the US “originate” from the host country, Chinese and other Indian clothing manufacturers mostly tag their products “made in Ghana”, “made in Guinea” and so on and transship them through the eligible countries to the US so as to get preferential treatment. Overall, the effect is that the trade preference does not create greater market share for the beneficiary companies but actively diminishes it.

Table 9- *Estimates of gravity model for Nigeria using Random and Fixed Effects*

<b>Dependent Variable: log(Export to US)</b>		
<b>Independent variables</b>	<b>RE (1)</b>	<b>FE (2)</b>
AGOA	0.333*** (5.63e-12)	0.333*** (1.38e-15)
LGDP <sub>i</sub> pc	0.837*** (6.96e-12)	0.837*** (4.00e-15)
LGDP <sub>j</sub> pc	2.71e-12 (4.04e-12)	-2.93e-29 (1.53e-15)
LDIST	5.194*** (9.32e-11)	
LPOP <sub>i</sub>	-1.674*** (4.85e-11)	-1.674*** (2.33e-15)
FDI <sub>i</sub>	0.965*** (5.07e-12)	0.965*** (1.72e-15)
FDI <sub>j</sub>	2.81e-12 (-1.37e-12)	1.49e-29 (7.76e-16)
Constant	-1.21e-11 (1.81e-11)	10.114*** (7.84e-15)
Hausman test ( $\chi^2$ )	0.00	
Number of Obs.	73	

Note: Robust standard errors are reported in brackets; \*\*\*p< 0.01; i and j represent the exporter (Nigeria) and importer country (US) respectively.

*Source:* Author's Computation

### **Control Variables for Nigeria**

Per capita GDP, population and foreign direct investment for the exporting country (Nigeria) and distance are all significant at 1 percent. It shows that a percentage increase in per capita income leads to about 0.84 percent increase in export from Nigeria to the United States all things being equal. Thus consistent with the expectations of the gravity model. Again, a percentage increase in population leads to about 1.67 percent decline in the exports from Nigeria to the United States. Distance between Nigeria and the United States is also positively significant at 1 percent. This points to the fact that distance or transportation cost is

not an impediment to trade between Nigeria and the United States possibly due to technological advance as explained by Xue-bin et al. (2007).

Table 10- *Estimates of gravity model for Sierra Leone using Random and Fixed Effects.*

<b>Dependent Variable: log(Export to US)</b>		
<b>Independent variables</b>	<b>RE (1)</b>	<b>FE (2)</b>
AGOA	0.163*** (4.48e-11)	0.163*** (4.85e-16)
LGDP <sub>i</sub> pc	0.783*** (2.87e-12)	0.783*** (1.03e-14)
LGDP <sub>j</sub> pc	-1.47e-12 (2.19e-12)	2.34e-28 (4.00e-15)
LDIST	12.358*** (4.26e-10)	
LPOP <sub>i</sub>	-6.472*** (2.47e-10)	-6.472*** (3.04e-14)
FDI <sub>i</sub>	0.516*** (2.08e-12)	0.516*** (2.07e-15)
FDI <sub>j</sub>	7.39e-13 (1.10e-12)	-1.19e-28 (2.03e-15)
Constant	6.57e-12 (9.80e-12)	22.456*** (8.62e-14)
Hausman test ( $\chi^2$ )	0.00	
Number of Obs.	70	

Note: Robust standard errors are reported in brackets; \*\*\*p< 0.01; i and j represent the exporter (Sierra Leone) and importer country (US) respectively.

*Source:* Author's Computation

### **Control Variables for Sierra Leone**

As expected, the per capita GDP, population, foreign direct investment and distance are all significant at 1 percent. The results show that a percentage increase in per capita GDP and foreign direct investment respectively lead to an increase in export of Sierra Leone by about 0.78 and 52 percent. It reveals further that

population impacts exports of Sierra Leone to the United States negatively which is in line with the findings of Glick and Rose, (2002).

Just as in the case of Nigeria and the other WAMZ member states, the distance variable for Sierra Leone relates positively with the exports to the United States.

### **Effects of AGOA on the Exports of Nigeria and Sierra Leone to the US**

The AGOA dummy variable was estimated to be positive and significant at one percent. Thus, the AGOA trade preference increases exports to the United States by about 33 percent and 16 percent for Nigeria and Sierra Leone respectively. This means that holding other factors constant, exports to the US during the AGOA period is 33 percent and 16 percent higher for Nigeria and Sierra Leone respectively than the period before. These results conform to the empirical findings Duru (2012) who recorded a positive and significant impact of the AGOA trade preference on exports from Nigeria and South Africa to the US.

The trade preference under study is seen to be biased towards petroleum products and also favors countries that export natural resources like iron ore in the case of Sierra Leone (Baah, 2015). As revealed in the literature, over 80 percent of AGOA eligible products are energy and mineral products. Nigeria which is seen as one of the top 5 beneficiaries of AGOA have over 90 percent of energy products as a percentage of the total exports. This has enable Nigeria benefit significantly from the AGOA trade preference. The discovery of iron ore in Sierra Leone in the year 2011 coupled with the resumption of operation of one of the two main iron ore companies contributed to a massive rebound of the economy, recording a growth

rate of 6.3% in 2016. Iron ore being a significant AGOA eligible product also forms 77 percent of the total export of Sierra Leone. The United States is currently third largest export destination of Sierra Leone hence attesting the significant benefit of the AGOA trade preference.

### **Conclusion**

Estimations of the model (using the fixed and random effects techniques) revealed that exports from the WAMZ to the United States have been negatively affected by the AGOA trade preference. In the case of the specific countries, it was discovered that exports to the United States from Ghana, Guinea and Liberia under AGOA significantly reduced while that of Nigeria and Sierra Leone recorded a significant increase.

## **CHAPTER SIX**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

#### **Introduction**

This chapter presents summary and conclusion of the study. It further provides some policy measures or recommendations grounded on the findings. Limitations of the study as well as suggestions for future studies are provided.

#### **Summary**

Trade preferences have been largely investigated by most researchers. Most of the focus have been to examine the ex-post effect of these trade preferences on the trade performance of beneficiary countries, mostly developing countries. Preferences that have been largely researched include the AGOA and the EU-ACP agreement (Baah, 2015). Amidst these several studies, it is worthy to mention that there have been records of inconclusive results. Thus while some estimate insignificant effects, others have found either positive or negative effects. Importantly, a limited number of these studies have considered the effects of these preferences on individual beneficial countries.

The objectives of this study therefore are to examine the effects of the AGOA trade preference on the exports from the WAMZ as a whole to the United States as well as examine the effects on exports from the individual countries within the zone to the United States. This has been done so that appropriate policy recommendations can be directed to the specific countries.

The study estimated an unbalanced panel model of bilateral export data of the WAMZ to the United States as well as bilateral export of individual countries

(Ghana, Guinea, Liberia, Nigeria and Sierra Leone) to the United States using an augmented gravity model. The AGOA trade preference was captured in the model as a dummy variable while the AGOA time was captured as the number of years the respective countries have exported under the AGOA preference. A Fixed and Random Effects estimation techniques were used to estimate the effects of the preference. The Hausman test however rejected the null hypothesis of no correlation between the unobserved heterogeneity and the explanatory variables for the first estimation (estimation for the whole WAMZ). This suggests that the Fixed Effect model is preferred over the Random Effect Model. In the second estimations (for the individual countries), the Hausman test failed to reject the null hypothesis of no correlation between the unobserved heterogeneity and the explanatory variables hence declaring the Random Effects Model appropriate over the Fixed Effect Model. In controlling for serial correlation and heteroscedasticity, robust estimations were conducted. It was revealed that the AGOA trade preference influence export of the WAMZ bloc to the US negatively. For the respective countries, the preference was estimated to be significant but negative for Ghana, Guinea and Liberia whilst significant but positive for Nigeria and Sierra Leone.

## **Conclusions**

The following conclusions are therefore made; Empirical evidence from the study brings to light that the AGOA trade preference has significant and negative effect on the exports of WAMZ as a whole to the US. Again, the number of years member states have exported under the AGOA trade preference being significant suggests that it is a factor that influences their exports to the US.



The empirical evidence also shows that exports from Ghana, Guinea and Liberia to the US have significantly reduced after the introduction of the AGOA trade preference as compared to the period before the introduction. For the case of Nigeria and Sierra Leone, there is a record of significant increase in exports to the US after the AGOA trade preference was introduced as compared to the period before.

GDP per capita for the exporting countries (both WAMZ and individual countries) are also seen to be a booster of exports to the US. However, GDP per capita for the importing country (the US) is seen not to have any significant effect on exports from the WAMZ and the individual countries to the US.

Again, the population within the zone and countries like Ghana, and Liberia were recorded to have a positive effect on exports to the US while that of Guinea, Nigeria and Sierra Leone were seen to have negative effect on their exports to the US. In addition, foreign direct investment (for the exporting countries) is seen to be a significant factor which increases the exports from the WAMZ and the respective member states to the US.

### **Recommendations**

The following are the suggested recommendations based on the key results estimated from the study.

Firstly, the study proves that foreign direct investment impacts exports of WAMZ states to the US positively. There is the need to work harder to improve on the business environments so as to magnetize foreign direct investment. WAMZ member states are recommended to work hard to attract foreign investment. This

can be done by giving them tax holidays. This is because investors from abroad are mostly attracted by a country's position within the global business competitive ranking.

In addition, AGOA is identified lately to be biased towards petroleum products as evident in Table 3. That informs the significantly positive effects recorded by Nigeria in this study and the others like Zenebe (2013) and Didia et al (2015). It is therefore recommended that Ghana as an emerging oil exporting country take advantage of this by developing its oil sector.

Again, it is revealed in the literature that most of the AGOA eligible products suffered strict rules of origin with the exception of textiles and clothing. Rules of origin (RoO) are seen as impediments to the vision of the AGOA trade preference. This does not position these countries to reap the benefits of AGOA. There should therefore be a negotiation for relaxation of the RoO on commodities especially goods that the said countries (Ghana, Guinea and Liberia) have comparative advantage in their production.

### **Direction for future research**

Future studies can consider similar analysis by investigating the effects of the trade preference on exports of only AGOA eligible products (as dependent variable). Again, the effects can be looked at on exports of some specific AGOA eligible products such as agricultural products, petroleum products, textiles and clothing etc. This will however help to design a policy direction to affect the particular sector or product category in question.

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## APPENDICES

### APPENDIX A

TOP 5 traded products and top 5 commercial partners for ECOWAS (excluding WAMZ member states) member states (in value, year 2014)

Country	Top 5 Exports	% Of Total Exports	Top 5 Destinations	% Of Total Exports
Côte d'Ivoire	Cocoa beans	20	Ghana	13
	Ships	13	Germany	8
	Refined petroleum	12	France	7.7
	Crude petroleum	7.1	Netherland	7.3
	rubber	7	USA	7.2
Senegal	Frozen fish	16	India	10
	Phosphoric acid	7.2	France	9.9
	Mollusks	4.8	Cote d'Ivoire	8.1
	Ships	4.5	Spain	7.1
	Fresh fish	4.1	Congo	6.2
Mali	Raw Cotton	60	China	27
	Fertilizers	13	India	14
	Oily seeds	5.5	Burkina Faso	14

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	Gold	3.6	Vietnam	11
	Iron	3	Indonesia	7.9
Burkina Faso	Gold	56	Switzerland	51
	Raw Cotton	20	China	6.6
	Refined Petroleum	7.5	Mali	6.4
	Oily seeds	4.5	South Africa	5.3
	Coconuts and nuts	2.1	Indonesia	3
Benin	Raw Cotton	25	China	18
	Coconuts and nuts	12	India	17
	Gold	9.5	Nigeria	8
	Rough wood	6.7	Lebanon	7.8
	Ships	4.2	Vietnam	5.8
Niger	Rolled Tobacco	4.3	Nigeria	52
	Radioactive chemicals	30	France	26
	Refined petroleum	12	Burkina Faso	4.6
	Uranium and Thorium	4.3	USA	4

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	Gold	1.8	South Korea	3.5
Togo	Gold	14	Ghana	12
	Cement	13	Lebanon	12
	Calcium Phosphates	8.4	Burkina Faso	10
	Refined Petroleum	7.2	Benin	9.3
	Ships	4.3	India	7
Guinea Bissau	Coconuts and nuts	69	India	48
	Frozen Fish	22	Vietnam	22
	Rough wood	6.2	Ghana	16
	Animal meal	2.3	Togo	5.3
	Iron	1.9	China	5.1
Cape Verde	Sea vessel	38	Congo	38
	Frozen fish	25	Spain	37
	Processed fish	19	Portugal	9.8
	Footwear parts	3.9	India	2.7
	Iron	2.1	Italy	2.7

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*Source:* The Observatory of Economic Complexity (data for year 2013)

## APPENDIX B

### Hausman Specification Test for WAMZ

	Coefficients		Difference (b – B)	Standard Errors Sqrt(diag(V_b- V_B))
	Fixed Effects (b)	Random Effects (B)		
AGOA	-0.2712966	-0.2429452	-0.0283515	0.0528531
LGDP <sub>1pc</sub>	0.5597758	0.9917419	-0.4319661	0.0743879
LGDP <sub>jpc</sub>	-8.357349	-3.98039	-4.376959	1.485932
LPOP	4.270597	1.40414	2.866458	1.116189
ATIME	0.0260094	0.0110186	0.0149908	0.0027956
FDI <sub>i</sub>	0.1691513	0.1635119	0.0056394	-
FDI <sub>j</sub>	0.3837328	0.242762	0.1409708	-

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\text{chi2}(7) = (b-B)'[(V_b-V_B)^{-1}](b-B) = 36.25$$

$$\text{Prob} > \text{chi2} = 0.0000$$

**Therefore (V\_b-V\_B is not positive definite)**

## APPENDIX C

### Hausman Specification Test for Ghana

	Coefficients		Difference (b – B)	Standard Errors Sqrt(diag(V_b- V_B))
	Fixed Effects (b)	Random Effects (B)		
AGOA	-0.1226638	-0.1226638	7.74e-13	-
LGDP <sub>i pc</sub>	0.3378977	0.3378977	-3.09e-13	-
LGDP <sub>j pc</sub>	-3.86e-29	-2.50e-13	-2.50e-13	2.88e-07
LPOP	-0.8968665	-0.8968665	-6.23e-12	-
FDI <sub>i</sub>	0.3572333	0.3572333	6.47e-13	-
FDI <sub>j</sub>	1.96e-29	1.26e-13	-1.26e-13	1.45e-07

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\text{chi2}(7) = (b-B)'[(V_b-V_B)^{-1}](b-B) = 0.00$$

$$\text{Prob} > \text{chi2} = 1.0000$$

**Therefore (V\_b-V\_B is not positive definite)**

## APPENDIX D

### Hausman Specification Test for Guinea

	Coefficients		Difference (b – B)	Standard Errors Sqrt(diag(V_b- V_B))
	Fixed Effects (b)	Random Effects (B)		
AGOA	-0.1459257	-0.1459257	6.67e-14	
LGDP <sub>i pc</sub>	0.6825658	0.6825658	3.58e-12	
LGDP <sub>j pc</sub>	-1.90e-29	-3.88e-13	3.88e-13	
LPOP	-0.6765124	-0.6765124	-3.23e-12	4.86e-07
FDI <sub>i</sub>	-0.0071961	-0.0071961	1.82e-13	
FDI <sub>j</sub>	9.43e-30	1.96e-13	-1.96e-13	

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\text{chi2}(6) = (b-B)'[(V_b-V_B)^{-1}](b-B) = 0.00$$

$$\text{Prob >chi2} = 1.0000$$

**Therefore (V\_b-V\_B is not positive definite)**



## APPENDIX E

### Hausman Specification Test for Liberia

	Coefficients		Difference (b – B)	Standard Errors Sqrt(diag(V_b- V_B))
	Fixed Effects (b)	Random Effects (B)		
AGOA	-0.0598842	-0.0598842	-7.21e-13	-
LGDP <sub>i pc</sub>	1.092339	1.092339	1.70e-13	-
LGDP <sub>j pc</sub>	-9.57e-29	5.20e-13	-5.20e-13	-
LPOP	1.278822	1.278822	2.87e-12	-
FDI <sub>i</sub>	-0.0239553	-0.0239553	1.84e-14	-
FDI <sub>j</sub>	4.81e-29	-2.62e-13	-2.62e-13	-

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\text{chi2}(6) = (b-B)'[(V_b-V_B)^{-1}](b-B) = 0.00$$

$$\text{Prob >chi2} = 1.0000$$

**Therefore (V\_b-V\_B is not positive definite)**

## APPENDIX F

### Hausman Specification Test for Nigeria

	Coefficients		Difference (b – B)	Standard Errors Sqrt(diag(V_b- V_B))
	Fixed Effects (b)	Random Effects (B)		
AGOA	0.3329826	0.3329826	4.67e-12	2.57e-07
LGDP <sub>1 pc</sub>	0.8368753	0.8368753	5.07e-12	2.61e-07
LGDP <sub>j pc</sub>	-2.93e-29	2.50e-12	-2.50e-12	
LPOP	-1.67443	-1.67443	-3.81e-11	2.06e-06
FDI <sub>i</sub>	0.9654016	0.9654016	3.79e-12	1.99e-07
FDI <sub>j</sub>	1.49e-29	-1.26e-12	1.26e-12	

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\text{chi2}(7) = (b-B)'[(V_b-V_B)^{-1}](b-B) = 0.00$$

$$\text{Prob} > \text{chi2} = 1.0000$$

**Therefore (V\_b-V\_B is not positive definite)**

## APPENDIX G

### Hausman Specification Test for Sierra Leone

	Coefficients		Difference (b – B)	Standard Errors Sqrt(diag(V_b- V_B))
	Fixed Effects (b)	Random Effects (B)		
AGOA	0.1625742	0.1625742	2.11e-11	1.53e-06
LGDP <sub>i pc</sub>	0.7831671	0.7831671	3.17e-12	
LGDP <sub>j pc</sub>	1.98e-28	-1.02e-12	1.02e-12	
LPOP	-6.472205	-6.472205	-1.24e-10	7.13e-08
FDI <sub>i</sub>	0.5164873	0.5164873	9.84e-13	1.99e-07
FDI <sub>j</sub>	-9.98e-29	5.15e-13	-5.15e-13	

b = consistent under H<sub>0</sub> and H<sub>a</sub>; obtained from xtreg

B = inconsistent under H<sub>a</sub>, efficient under H<sub>0</sub>; obtained from xtreg

Test: H<sub>0</sub>: difference in coefficients not systematic

$$\chi^2(6) = (b-B)'[(V_b-V_B)^{-1}](b-B) = 0.00$$

$$\text{Prob} > \chi^2 = 1.0000$$

Therefore (V<sub>b</sub>-V<sub>B</sub> is not positive definite)

## APPENDIX H

Modified Wald Test for Groupwise Heteroscedasticity in Fixed Effect Model for Wamz

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$$H_0 : \delta_i^2 = \delta^2 \text{ for all } i$$

$$\text{Chi2 (7)} = 84.85$$

$$\text{Prob} > \text{chi2} = 0.0000$$

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## APPENDIX I

### Panel Groupwise Heteroscedasticity Tests for WAMZ

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Ho: Panel Homoscedasticity - Ha: Panel Groupwise Heteroscedasticity

Lagrange Multiplier LM Test      =4029.4420      P-Value > Chi2(5)      0.0000

Likelihood Ratio LR Test          =39.1112      P-Value > Chi2(5)      0.0000

Wald Test                              = 1.25e+04      P-Value > Chi2(6)      0.0000

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## APPENDIX J

### Panel Groupwise Heteroscedasticity Test for Ghana

---

Ho: Panel Homoscedasticity - Ha: Panel Groupwise Heteroscedasticity

Lagrange Multiplier LM Test =2016.0000 P-Value > Chi2(1) 0.0000

Likelihood Ratio LR Test =1983.3373 P-Value > Chi2(1) 0.0000

Wald Test =1.46e+50 P-Value > Chi2(2) 0.0000

---

## APPENDIX K

### Panel Groupwise Heteroscedasticity Test for Guinea

---

Ho: Panel Homoscedasticity - Ha: Panel Groupwise Heteroscedasticity

Lagrange Multiplier LM Test =2648.8466 P-Value > Chi2(1) 0.0000

Likelihood Ratio LR Test =1974.1650 P-Value > Chi2(1) 0.0000

Wald Test =4.81e+50 P-Value > Chi2(2) 0.0000

---

## APPENDIX L

### Panel Groupwise Heteroscedasticity Test for Liberia

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Ho: Panel Homoscedasticity - Ha: Panel Groupwise Heteroscedasticity

Lagrange Multiplier LM Test =2072.7778 P-Value > Chi2(1) 0.0000

Likelihood Ratio LR Test =2031.9458 P-Value > Chi2(1) 0.0000

Wald Test =2.46e+51 P-Value > Chi2(2) 0.0000

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## APPENDIX M

### Panel Groupwise Heteroscedasticity Test for Nigeria

---

Ho: Panel Homoscedasticity - Ha: Panel Groupwise Heteroscedasticity

Lagrange Multiplier LM Test =2648.8466 P-Value > Chi2(1) 0.0000

Likelihood Ratio LR Test =1974.1650 P-Value > Chi2(1) 0.0000

Wald Test =4.81e+50 P-Value > Chi2 (2) 0.0000

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## APPENDIX N

### Panel Groupwise Heteroscedasticity Test for Sierra Leone

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Ho: Panel Homoscedasticity - Ha: Panel Groupwise Heteroscedasticity

Lagrange Multiplier LM Test =2275.1736 P-Value > Chi2(1) 0.0000

Likelihood Ratio LR Test =1953.2003 P-Value > Chi2(1) 0.0000

Wald Test =3.81e+49 P-Value > Chi2 (2) 0.0000

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## APPENDIX O

### Total Export of WAMZ member states to the US

YEARS	TOTAL EXPORT	GROWTH (%)
1980	244303000	
1981	6812574134	2688.58
1982	4821815545	-29.22
1983	2731733909	-43.35
1984	1886764636	-30.93
1985	2681469858	42.12
1986	2112754940	-21.21
1987	2863996544	35.56
1988	3468774291	21.12
1989	4670138908	34.63
1990	5942151627	27.24
1991	3713870978	-37.50
1992	5022789349	35.24
1993	5484704273	9.20
1994	4588958554	-16.33
1995	4941982542	7.70
1996	6002867638	21.45
1997	6405752342	6.71
1998	4422341628	-30.96
1999	4532946020	2.50
2000	11707059136	158.27
2001	7579237241	-35.26
2002	6009634326	-20.71
2003	9391189768	56.27
2004	14238001987	51.61
2005	21248190240	49.24
2006	24712361219	16.30
2007	28867124613	16.81
2008	33551050937	16.23
2009	17002345041	-49.32
2010	26972770609	58.64
2011	29372650337	8.90
2012	16637403273	-43.36
2013	10435320409	-37.28
2014	3661130261	-64.92
2015	1990309828	-45.64
2016	3952783155	98.60

Source: Author's Computation from IMF, Direction of Trade Statistic, 2016

## APPENDIX P

### List of SSA Countries under AGOA

Eastern Africa	Western Africa	Central Africa	Southern Africa
Burundi*	Benin*	Angola*	Botswana*
Comoros*	Burkina Faso*	Cameroon*	Lesotho *
Djibouti*	Cape Verde*	Central African Republic	Namibia*
Eritrea	Cote D'Ivoire*	Republic of Congo*	South Africa*
Ethiopia*	Gambia	Chad*	Swaziland
Kenya*	Ghana*	DR Congo	
Madagascar*	Guinea*	Equatorial Guinea	
Malawi*	Guinea-Bissau*	Gabon*	
Mauritius*	Liberia*	Sao Tome and Principe*	
Mozambique*	Mali*	South Sudan**	
Rwanda*	Mauritania*		
Seychelles*	Niger*		
Somalia	Nigeria*		
Tanzania*	Senegal*		
Uganda*	Sierra Leone*		
Zambia*	Togo*		
Zimbabwe			

\*Current beneficiary

\*\*South Sudan technically belongs to the northern Africa, but has been included in the SSA under AGOA. South Sudan was added after the 112th Congress when the amendments of the AGOA were effected