



LUNDS UNIVERSITET  
Ekonomihögskolan

# AGOA or EBA?

Does the ‘African Growth and Opportunity Act’ or ‘Everything But Arms’ have a more significant effect on trade from Least Developed Countries?<sup>1</sup>

## Abstract

The United States (US) and European Union (EU) both have preferential trade agreements with least developed countries with the aim of increasing trade volumes in order to catalyse development. The US implemented their system, the “African Growth and Opportunity Act” (AGOA) in 2000 and the EU followed with “Everything But Arms” (EBA) in 2001. Since these preference systems have the goal of increasing development by raising export earnings, it is important to analyse whether or not they fulfil their goal and if not, how they should change in order to become more effective. This paper aims at comparing the two systems in order to investigate which system is more effective in its goal of increasing trade volumes. Unlike other studies, this paper includes both systems in one model in order to make an accurate comparison. Using a gravity model, trade volumes from least developed countries to the US and EU15 were analysed over the time period 1998-2006. The results show that neither AGOA nor EBA have any significant effect on trade volumes, and thus the systems should be reviewed and improved in order to fulfil their goals.

Key words: AGOA, EBA, preferential trade agreement, least developed countries, trade, development, Generalized System of Preferences, GSP

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**Abbreviations used in paper:**

ACP – African Caribbean Pacific

AGOA – African Growth and Opportunity Act

CGE - Computable General Equilibrium model

CDP – Center for Development Policy

EBA – Everything But Arms

EU – The European Union

GATT – Generalized Agreement of Tariffs and Trade

GDP – Gross Domestic Product

GSP – Generalized System of Preference

LDCs – Less Developed Countries

MFN – Most Favored Nation

OLS – Ordinary Least Squares

PTA – Preferential Trade Agreement

SSA – Sub-Saharan African

UN – United Nations

US – United States

WTO – World Trade Organization

UNCTAD – United Nations Conference of Trade and Development

QUAD – Canada, EU, Japan, US

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## **1. Introduction**

The aim of this paper is to compare two non-reciprocal trade preference systems: the African Growth and Opportunity Act (AGOA) implemented by the United States (US) in 2000 and Everything But Arms (EBA) implemented by the European Union (EU) in 2001, in order to evaluate which one has been more successful in its goal of increasing trade volumes with Least Developed Countries (LDCs).

Trade is argued to be an important mechanism for economic growth and development. However, many LDCs struggle to access and be competitive on the international market and therefore are hindered from expanding their export industries. For the sake of this paper, LDCs are defined as outlined by the United Nation's (UN) Center for Development Policy (CDP)<sup>1</sup>. All countries listed as LDCs in the time period 1998-2006 are included in this study, see appendix 1 for a complete list. Non-reciprocal trade preferences are policies enacted by more developed countries offering lower trade barriers to LDCs than they do to other more developed countries, and where the preference-receiving country is not expected to make any market access concessions in return. These are enacted in order to facilitate increased export earnings through two goals: a larger volume of exports and more diversified exports (Persson, 2013). Since these policies represent an active decision by a developed country to assist LDCs in their economic growth and development, it is relevant to examine whether or not they have been successful, and what determines their success. It is especially important to evaluate AGOA as the act is reaching its expiration date in 2015, and policymakers considering to renew or amend the act should be aware of its strengths and weaknesses in order to be able to maximize its potential.

Although several studies have looked at the effectiveness of the two systems separately, none have compared the system in one model. This paper fills that gap in the research and makes a contribution by providing a direct comparative analysis of AGOA and EBA. This is especially important since exporting countries can decide which preferences to export under, and any differences in the effectiveness of the preferences might affect trade patterns.

In order to properly compare the effects of these two trade preference systems, it is necessary to construct a counterfactual. This means creating a model that looks at what trade flows would have been like without the existence of the preferences in our study (Persson and Wihelmsson, 2007). This paper will use a gravity model to estimate which system has a more significant effect. The data used in this model is based on the gravity-model dataset provided by the CEPII spanning the time period 1998-2006. Since AGOA was implemented in 2000 and EBA in 2001, this is an appropriate timespan in order to capture the effects of both systems. The data has been restricted to only look at the EU15 as the EU importers as well as the US. The EU15 includes only the original 15 EU member countries<sup>2</sup> as opposed to the 28 current member countries. This simplification is due to the fact that the EU15 were EU member countries when both preference systems were implemented. The countries included as

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<sup>1</sup> The CDP includes having a low per capita gross domestic product (GDP), structural barriers to growth, a small share of manufacturing in total GDP and low literacy rates as criteria for being classified as an LDC.

<sup>2</sup> The EU15 countries: Austria, Belgium, Denmark, Finland, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom.

exporters are all countries that were considered LDCs by the United Nations during each of the years 1998-2006.

The paper begins with a general outline of the economic effects of General Systems of Preferences (GSP) in section 2 before outlining the economic effects of preferences being granted in section 3. Section 4 follows with a more specific description of both AGOA and EBA, outlining details regarding eligibility, product coverage and preference margins, stability of access and rules of origin. This is followed by an overview of previous literature on the subject in section 5 before the empirical strategy is introduced and explained in section 6. In section 7 the results are presented and discussed.

## **2. Background to Generalized Systems of Preferences (GSP)**

Both AGOA and EBA are non-reciprocal trade preference systems that have been implemented as extensions of the US and EU Generalized System of Preference (GSP).

GSP has its roots in the second United Nations Conference of Trade and Development (UNCTAD) conference in 1968, Resolution 21 (II) that called for the establishment of “generalized, non-reciprocal, non-discriminatory system of preferences in favour of developing countries, including special measures in favour of the least advanced among the developing countries” (UNCTAD, 2013).

The goal of these preferences is to:

- a) Increase export earnings for developing countries
- b) Promote industrialization
- c) Accelerate developing countries’ rates of economic growth (UNCTAD, 2013)

Under these systems, selected products originating in developing countries are granted reduced or zero tariff rates compared to the existing Most Favoured Nation (MFN) tariff rates, with special preferential treatment given to the LDCs. This is a clear contradiction to the rule of non-discrimination outlined in Article 1 of GATT, which states that countries cannot discriminate against each other, and thus must grant the same preferences to all its trading partners (WTO, 2014b). However, the GSP resolution received a wavier, the “GSP Decision” in 1971, which authorized the scheme for a 10-year period. In 1979 this was replaced by the Enabling Clause, entitled “Differential and more favorable treatment, reciprocity and fuller participation of developing countries”, which created a permanent wavier to the MFN-clause and allowed for preference-giving countries to grant preferential tariff treatment under their GSP indefinitely (WTO 2014a). There is no global GSP program that all countries adhere to. Instead, developed countries implement their own GSP programs. This has created a web of overlapping GSP systems, which may affect the utilization-levels of specific preference systems.

Since the Enabling Clause does not specify any regulations regarding product coverage or other conditions that might restrict preferences from being granted (Persson, 2013), the GSP regimes implemented by different countries may vary significantly. These differences might affect how successful the systems have been, and should therefore be further evaluated in order to better understand and potentially adjust the regimes currently in place.

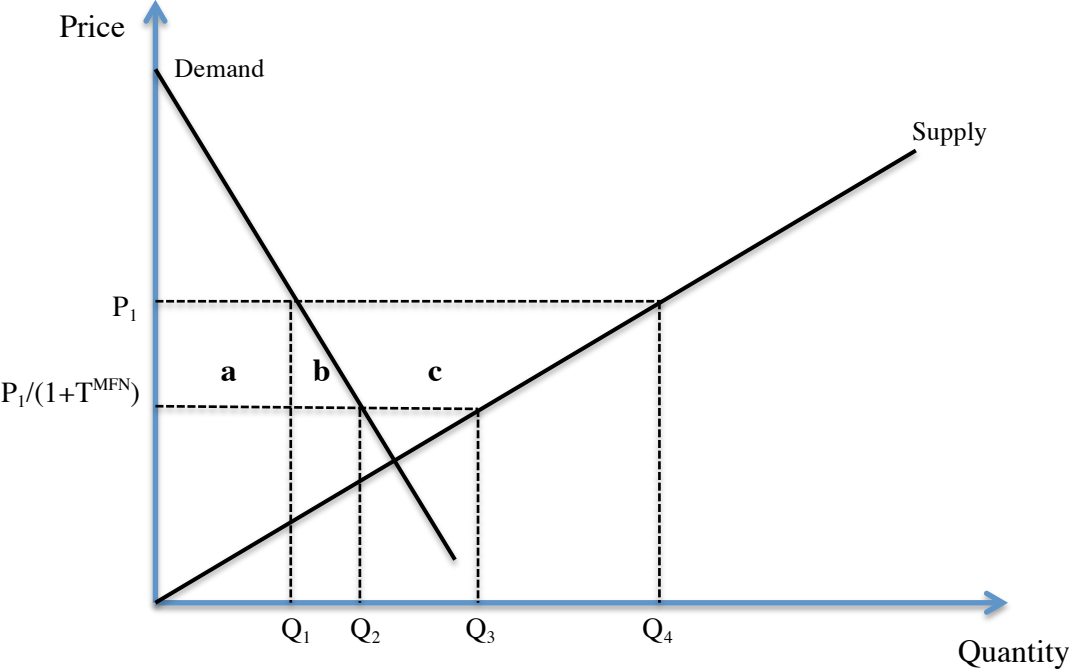
We will explain AGOA and EBA in detail in section 4, but first the expected economic effects of preference systems will be examined.

**3. Economic effects of preferential access**

In order to understand why it is beneficial for LDCs to export to the US and EU under the two preference systems, the economic effects of the preferential access must be analyzed. The following analysis is based on Grossman & Sykes, 2005.

Figure 1 illustrates the economy of a small exporting country and what happens when it is granted preferential access after facing an MFN-tariff at the rate  $T^{MFN}$ .

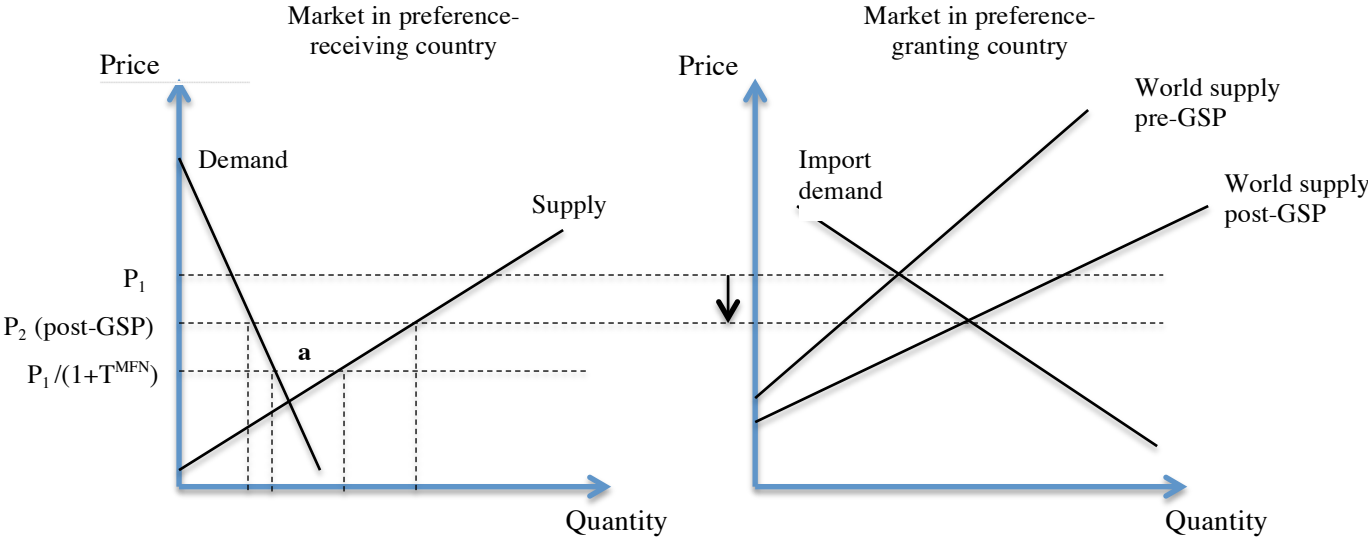
*Figure 1. Analysis of the effects of trade preferences for a small preference-receiving economy*



The world market price in the illustrated market is  $P_1$ . Before preferences are granted, the exporting country must pay the MFN-tariff, and sell their output at price  $P_1/(1+T^{MFN})$  in order to stay competitive (Grossman and Sykes, 2005). At this price, exports from the illustrated country will equal  $Q_3-Q_2$ . When the preference is granted, the country in question no longer pays the MFN-tariff. This means that they now are able to charge the higher price of  $P_1$  and still be competitive on the foreign market. Due to the higher sales price, following the law of supply, output will expand to  $Q_4$ . Local demand, however, will contract to  $Q_1$  due to the increased sales price. Both these effects cause exports to increase to  $Q_4 - Q_1$ . The gains for producers are twofold: they are able to export more units, and also receive a higher price for each unit sold. This increases producer surplus by the areas  $a + b + c$ , however at the expense to local consumers who now consume less due to the increased price. This is illustrated by the loss of consumer surplus, area  $a + b$ , in the above figure. The net-effect of this change in welfare is  $+ c$ , which illustrates that AGOA and EBA should increase welfare for small exporting countries.

Important to note is that the above analysis discusses the case for a small economy that does not affect the world market price. On many markets this would be the case for developing countries since they export relatively small volumes. However, on certain markets these developing countries are the main exporters and therefore any preference given to them in those markets would affect the world market price. For example, Madagascar is the world’s largest exporter of vanilla (FAO, 2009) and would therefore be a large economy on the market for vanilla and also affect world market price. The analysis for this case is slightly different, and has significant consequences on the welfare of the preference-receiving country.

Figure 2. Analysis of the effects of trade preferences for a large preference-receiving economy<sup>3</sup>



Just like before, the domestic price in the preference-receiving country will increase to  $P_1$  when preferences are granted, as illustrated in the left-hand panel. However, in this case the analysis does not end there. Instead, the increase in exports from the preference-receiving will shift the world supply of the good outward and thus reduce the world market equilibrium price to  $P_2$  (post-GSP) as illustrated in the right-hand panel. This means that the preference-receiving country benefits from a smaller terms of trade gain than before since the price of their exports increases relatively less than in the case for a small economy. Thus, the welfare gain for the larger economy will be significantly smaller, area “a” on the above diagram, as opposed to the larger area “c” in figure 1.

In summary, when countries are granted preferential access, ceteris paribus, we expect the value of their exports to increase. We will test this empirically in section 6 of the paper. Next, we will introduce the two systems in more detail.

<sup>3</sup> Grossman & Sykes, 2005

## **4. The African Growth and Opportunity Act and Everything But Arms**

In order to gain an understanding of why there might be differences in the effectiveness of the two systems, this section will compare AGOA and EBA by looking at how countries become eligible, what products are covered, and the rules of origin of the two different systems. This background information should allow for a hypothesis regarding the effectiveness of the systems to be made.

### **4.1 AGOA background**

AGOA is a United States Trade Act enacted on May 18<sup>th</sup> 2000 as Public Law 106 of the 200<sup>th</sup> congress (AGOA, 2014a) extending preferences previously only available under the US GSP (AGOA, 2014a). The GSP program, instituted on 1 January 1979, is designed to promote economic growth in the developing world by providing duty-free access entry for up to 5000 products when imported from one of the 123 designated GSP beneficiary countries (Office of the United States Trade Representative, 2014). AGOA extends preferences with the goal of significantly enhancing access to the US market by providing duty-free entry for qualifying Sub-Saharan African (SSA) countries. AGOA also provides duty-free access to all clothing and certain textiles exported from countries that qualify under the act's "wearing apparel provisions", provided Rules of Origin are met (AGOA, 2014d).

AGOA's goal of promoting economic growth and development is outlined in section 102 of the Trade and Development Act of 2000. It emphasizes that it is in the mutual interest of the US and the countries of SSA to promote stable and sustainable growth and development in SSA. It also highlights the fact that offering the countries of SSA enhanced trade preferences will encourage both higher levels of trade and foreign direct investment in support of the positive economic and political developments under way throughout the region (Trade and Development Act of 2000, pp. 252-253). AGOA originally covered the eight-year period after it came into effect in October 2000 until September 2008, and was later extended until 2015.

Most AGOA countries were already eligible for preferences under the original US GSP. However, the preferences granted under AGOA benefit these countries further by increasing the stability of access as well as preference margins.

### **4.2 EBA background**

Everything But Arms (EBA) is a special arrangement for least developed countries (LDCs) under the European Union (EU) GSP.

The EU GSP has three strands:

1. GSP general arrangement which applies to all beneficiary countries
2. GSP+, which entirely removes tariffs on the same product categories as those covered by the general arrangement. In order to be eligible, countries must ratify and implement international conventions relating to human and labor rights, environment and good governance.



3. Everything But Arms, which is a special arrangement for least developed countries giving them duty-free and quota-free access for all products, except arms and ammunitions (European Commission, 2014b).

The initiative was signed on February 28 2001 and provides LDCs with duty-free access to the European market to imports of all products except arms and munitions, without any quantitative restrictions. The decision was made, as outlined in article 7 of the European Commission Council Regulation, due to the increasing marginalization of LDCs in the world economy (Council Regulation 416/2001).

Once the benefits are granted, the beneficiary country receives benefits until the UN removes the country from the list of LDCs, in which case it is withdrawn from the list of beneficiaries with a minimum transitional period of three years (UNCTAD, 2011). The special arrangement does not have an expiry date as the preferential market access was granted for an unlimited period of time (Council Regulation 416/2001). However, there can be a provisional suspension of preferences if the European Community's financial interests are at stake due to massive increases in imports of products from LDCs (Council Regulation 416/2001). Preferences can also be withdrawn temporarily if there have been serious and systematic violations of social rights or principles of labor law or certain other serious circumstances (Council Regulation 2501/2001).

This paper will use data looking at imports to the EU15 countries (listed in appendix 2).

### **4.3 Comparing the systems: Eligibility**

It is important to note the difference between which countries can become eligible for the two systems. EBA is open for any LDCs whereas AGOA is restricted to specifically countries in SSA.

The processes of becoming eligible for preferences under AGOA and EBA differ. The more complicated the process is, the smaller the expected benefits from the preferences will be since fewer LDCs will be able to access the benefits. This section will outline how to become eligible for AGOA and EBA respectively.

#### *AGOA*

In order to qualify for preferences under AGOA, the President of the US must see that the applicant country has established or is making continual progress towards establishing... (Trade and Development Act of 2000)

- a) A market-based economy that protects private property rights
- b) The rule of law that guarantees fair trials and equal treatment by the law
- c) The elimination of barriers to United States trade and investment by providing national treatment<sup>4</sup>, protecting intellectual property rights and resolving bilateral trade disputes
- d) Economic policies to reduce poverty, increase the availability of health care, educational opportunities and expand physical infrastructure

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<sup>4</sup> "National treatment" meaning that US products should be treated the same as national products once they are on the LDC market.

- e) A system to combat corruption
- f) Protection of internationally recognized worker rights

The country in question may not be engaged in activities threatening US national security, be engaged in gross violations of internationally recognized human rights or aiding acts of international terrorism. The preferences can be terminated if an eligible SSA country is not making continual progress in meeting these requirements (Trade and Development Act of 2000). A country does not automatically receive preferences under AGOA when it fulfills the correct criteria, but instead must apply for eligibility. This is a process that takes time and is costly for the applicant country due to administrative procedures, and might reduce the positive effects of AGOA.

Table 1 lists all countries that were eligible for AGOA under the years covered by this study, as well as if any of these countries lost eligibility within this time span. Note that all countries on the list are not included in the study as they are not all classified as LDCs.

*Table 1. List of AGOA eligible countries during the years 1998-2006*

<b>Country</b>	<b>Preferences received</b>		
Angola	2003	Lesotho	2000
Benin	2000	Mali	2000
Botswana*	2000	Mozambique	2000
Burkina Faso	2006	Mauritania**	2000
Burundi	2000	Mauritius*	2000
Cameroon*	2004	Malawi	2000
Congo (Democratic republic)	2000	Namibia*	2000
Cap Verde	2003	Niger	2000
Chad	2000	Rwanda	2000
Congo (Republic)*	2000	Senegal	2000
Djibouti	2000	Seychelles*	2000
Ethiopia	2000	South Africa*	2000
Gabon*	2000	Sierra Leone	2002
Guinea	2000	Swaziland*	2001
Gambia	2000	Sao Tome and Principe	2000
Ghana*	2002	Tanzania	2000
Guinea-Bissau	2000	Uganda	2000
Kenya*	2000	Zambia	2000
Liberia	2006		

\*Countries that are not classified as LDCs and thus not a part of this study.

\*\*Mauritania lost its AGOA eligibility in 2005

Figure 3 illustrates a map of all AGOA eligible countries.

*Figure 3. Map of AGOA-eligible countries*

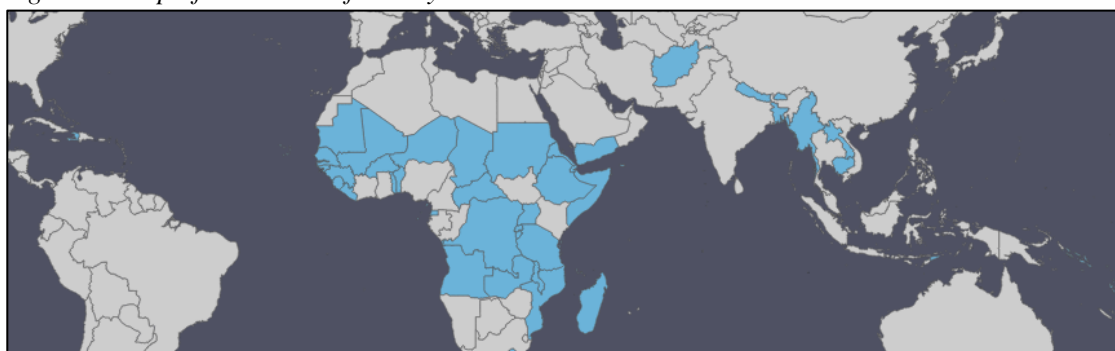


*Note: Not all AGOA beneficiaries are classified as LDCs and thus will not be included in this study.*

### *EBA*

In order to be eligible for the special arrangement under EBA, the country must be recognized and classified as an LDC by the UN. These are illustrated in the below figure, and listed in appendix 1.

*Figure 4. Map of LDCs as defined by the UN 1998*



As opposed to AGOA, countries are free to export under EBA preferences without applying for preferences. Exporters still need to apply for preferential treatment when they export, but the country in itself does not need to apply to become eligible for the preferences. This might make countries more likely to export under EBA since the preferences are more easily accessible. Due to this, we expect EBA to have a more significant effect on exports from LDCs.

Below, table 2 lists of countries eligible for EBA. All countries received preferences in 2002, with the exception of Timor-Leste that received preferences in 2005. No countries have lost eligibility within the time period of this study.

Table 2: Countries eligible for EBA between 1998-2006

Country	
Afghanistan	Maldives
Angola	Mali
Bangladesh	Mauritania
Benin	Mozambique
Bhutan	Myanmar
Burkina Faso	Nepal
Burundi	Niger
Cambodia	Rwanda
Cap Verde	Samoa
Central African Republic	Sao Tome and Principe
Chad	Senegal
Comoros	Sierra Leone
Congo Democratic republic	Solomon Islands
Djibouti	Somalia
Equatorial Guinea	Sudan
Eritrea	Tanzania
Ethiopia	Timor-Leste*
Gambia	Togo
Guinea	Tuvalu
Guinea-Bissau	Uganda
Haiti	Vanuatu
Kiribati	Yemen
Lao People's Democratic Republic	Zambia
Lesotho	
Liberia	
Madagascar	
Malawi	

\* Became eligible 2005.

#### 4.4 Comparing the systems: Product coverage and preference margins

Product coverage is important because, generally speaking, the more products that are covered by the preference system, the larger the potential gains from the system are since countries will be able to increase exports in many different sectors. This section aims to compare the level of product coverage of AGOA and EBA in order to evaluate any potential differences.

A preference margin is defined as the absolute difference between the MFN rate of duty and the preferential rate of duty for the like product (WTO, 2014a). However, for the sake of this paper it is more useful to look at the margin between the GSP tariff rates and the AGOA or EBA tariff rate respectively since this determines how large the change in tariff rates is when preferences are introduced. Preference margins are a significant part of the analysis regarding whether or not preferences will be effective or not. If the margins are relatively high, we expect a larger effect of preferences than if the margin is relatively low. This section will also compare the preference margins provided by AGOA and EBA respectively.

### *AGOA product coverage and preference margins*

AGOA provides duty-free treatment for any article that is not deemed to be “import sensitive”, meaning that it would significantly affect domestic production in the US. These include agricultural commodities such as sugar, dairy and beef (Costello, 2009). Import sensitive products are generally speaking products with relatively high duties, on average over 30% (Brenton and Hoppe, 2006), and thus excluding them from preference should have a significant effect on the impact of the preferences. The fact that these products do not receive preferences also demonstrates that there still are significant barriers to trade for SSA countries trying to export to the US. AGOA covers products under two categories: apparel and non-apparel. On average, the preference margin under AGOA is 7.7% (Brenton and Hoppe, 2006).

Within the category of non-apparel goods, AGOA provides an additional 1800 items with a zero duty as compared to the US GSP system, covering over 6400 items (Frazer and Biesebroeck, 2010). For manufactured goods, the average preference margin is over 12%. However, it is worth noting that more than 900 tariff lines for manufactured goods are not covered by AGOA, and for these products the average duty remains around 9% (Brenton and Hoppe, 2006). Regarding agriculture, AGOA liberalizes only 26 additional tariff lines, which corresponds on only 12% of the remaining dutiable lines (Brenton and Hoppe, 2006). This leaves over 200 agricultural tariff lines with no preferences under AGOA (Brenton and Hoppe, 2006).

Under the category of apparel goods, AGOA allows for special provisions for certain apparel articles. In order to obtain AGOA benefits on these textiles, the exporter must provide specific information proving their eligibility (Costello, 2009), which takes time and is costly. It is also worth noting that there still are goods exported to the US under no preferences at all since the MFN-tariff for that product already is zero, and thus the preference margin is non-existent (Brenton and Hoppe, 2006).

In order to get a more clear understanding of AGOA, the below table summarizes the preference margins for particular goods.

*Table 3. Overview of preference margins of AGOA*

<b>Goods in question</b>	<b>Preference margin (%)</b>
AGOA-eligible goods on average	7,7
AGOA-eligible manufactured goods on average	12,0
Manufactured goods not included in AGOA on average	9,0
Import-sensitive goods excluded from AGOA on average	30,0

### *Product coverage and preference margins EBA*

Under EBA, all LDCs are granted preferential access for all products, except for arms and munitions. EBA extends tariff free and quota free access to the EU market to 919 tariff lines that had not already received preference under other systems. The majority of these are agricultural products, meats, vegetables, fruit and prepared foodstuffs (Brenton, 2003).

However, when EBA was implemented, preferences were differentiated depending on the sensitivity of the product. Tariffs on non-sensitive products were suspended completely, whereas sensitive products enjoyed a tariff reduction sufficiently large to motivate traders (Council Regulation 2501/2001). For specific duties, the reduction was set at 30%, and for ad valorem duties, the reduction was set at 3,5% (Council Regulation 2501/2001). The exception for sensitive products was implemented on the market for fresh bananas, rice and sugar as they were classified as particularly sensitive to the EU market. For these products, there was a transitory period to grant duty-free access, and the tariffs for these products were progressively reduced until they reached zero. For bananas, this was in 2006, and for rice and sugar 2009 (Council Regulation 416/2001).

Another important detail to note is that many products receiving preference under EBA already received duty free treatment under GSP or other agreements (Brenton 2003), rendering the new preferences useless in relation to some goods. For example, many countries that receive preferences under EBA are African Caribbean Pacific (ACP) countries that can export under Lomé preferences. Exporters in these countries might not decide to change to EBA preferences since they would be required to learn a new system. This underutilization would make EBA less effective.

Due to a wider range of products being covered and a less complicated classification system, we expect EBA to have a more significant effect on trade volumes. Preference margins differ across products, but generally are larger under EBA, and thus trade volumes are expected to increase more under EBA preferences.

#### **4.5 Comparing the systems: Stability of access**

Another aspect that might affect how much the preference systems increase trade is how stable the access to the preferences is. The more secure the access to the preferences is, the more likely trade is to increase since there will be an incentive to invest in export markets and expand the production capacity without the uncertainty of losing preferences.

AGOA provides more stability of access than the US GSP system previously did. This stability is created by the removal of the process of graduation; where countries lose preferences for goods that have become sufficiently competitive on the world market (AGOA 2014a). However, the preferences are set to expire in 2015. Regardless of the fact that AGOA has been renewed several times, the fact that it has an expiration date as well as the fact that it can be revoked relatively easily due to the negative conditionality of the preferences creates uncertainty in the beneficiary markets. EBA, however, has a much more stable preference system as it is offered indefinitely and cannot be

withdrawn at a whim. It should be noted that these preference systems are by no means a right for LDCs and can be revoked by the preference-granting countries.

Due to the fact that EBA provides more stable access to its preferences, we expect EBA to have a larger positive effect on exports than AGOA.

#### **4.6 Comparing the systems: Rules of origin**

Rules of Origin are requirements that outline whether or not a product exported by a beneficiary country is considered to be the “economic origin” of that country. If it is not, the product will not be eligible to be exported under the relevant preference system. The purpose of these requirements is to prevent trade deflection. Trade deflection is when imports from a non-beneficiary country (country C) are routed through a beneficiary country (country B) before being imported into country A at the beneficiary country’s tariff rate without any local value-added activities having taken place (Baldwin and Wyplosz, 2012). The rules of origin are therefore implemented in order to stop the preferences from being exploited by non-beneficiary countries, which would significantly affect trade (AGOA, 2014d).

It is important to examine rules of origin since they can significantly increase costs to the preference-receiving countries and therefore can be considered barriers to trade that counteract preferences (Baldwin and Wyplosz, 2012). These increased costs arise due to documentation requirements increasing administrative costs as well as from the fact that countries are forced to use more expensive domestic inputs in production instead of importing cheaper inputs from the region.

Since AGOA and EBA have differing rules of origin, this section aims at outlining and comparing the specific rules of origin of the two systems in order to understand the main differences between them.

##### *AGOA Rules of Origin*

AGOA requires that products must be the “growth, product or manufacture” of an AGOA-beneficiary SSA country in order to be eligible, with the exception of import-sensitive products which may not be eligible (Trade and Development Act of 2000). Generally speaking, the rules of origin require that the good must be wholly produced in the beneficiary country, or that any imported materials that are used in the production of the export must be substantially transformed locally in order for the good to be eligible. The main features that outline the general rules of origin in AGOA are the following (AGOA, 2014b):

- a) The product must be imported directly from the AGOA-country into the United States
- b) Items must be growth, product or manufacture of an AGOA-beneficiary country. This can be met jointly by more than one AGOA-beneficiary if one beneficiary country imports and uses materials from another beneficiary country in the production of goods to be exported under AGOA. This is called “cumulation of origin”.
- c) Products may incorporate materials sourced from outside countries, provided that the sum of the direct cost or value of the materials produced plus the direct costs of processing

undertaken in the AGOA-beneficiary country equals at least 35% of the production's appraised value

- d) A total of 15% of the 35% may consist of US-originating parts and materials

The GSP program on which AGOA is based does not cover apparel and textile articles. However, under AGOA, countries are able to receive duty-free market access for these items if or when they are certified as complying with the "wearing apparel" provision (AGOA, 2014c). This certification proves that the country has adopted an effective visa system and the related procedures to prevent unlawful transshipment and the use of counterfeit documents, as well as making substantial progress towards implementing and following customs procedures that assist the customs service in verifying the origin of the products (Federal Register 2001). When the country has complied with these regulations, the main features of the "wearing apparel" provisions are the following (Trade and Development Act of 2000):

- a) Apparel assembled in one or more qualifying SSA countries from fabrics wholly formed and cut in the US using US yarn and thread is provided with duty-free and quota-free access to the US market without limitations
- b) Apparel assembled in one or more qualifying SSA countries using domestically produced fabric and yarns, or fabrics and yarns produced in AGOA-beneficiary country, qualifies for preferences. These preferences are subject to quantitative restrictions (currently 3.5% of overall garment imports by the United States from all sources).
- c) Apparel that contains interlinings of foreign origin is not made ineligible for duty-free benefits as long as the value of those interlinings does not exceed 25% of the cost of the components of the assembled apparel article
- d) "De Minimus Rule": Apparel containing fibers or yarns not wholly formed in the US or in one or more of the AGOA-beneficiary SSA countries is not made eligible if the total weight of those fibers and yarns does not exceed 10% of the total weight of the article (AGOA, 2014c)

The Secretary of Commerce monitors the imports of the articles included in the wearing apparel provision on a monthly basis, and if the imports have been damaging, the preferences can be suspended (Trade and Development Act of 2000).

AGOA also includes a "Special Rule" for beneficiary countries that are LDCs if the LDC has a per capita gross national product of less than \$1,500 per year in 1996 as measured by the World Bank. This rule allows for apparel articles wholly assembled in the one or more LDC beneficiary to be given preferential treatment regardless of the country of origin of the fabric used to make the products (Trade and Development Act of 2000).



## *EBA Rules of Origin*

For the EBA, the rules of origin for the EU GSP apply. In order to import under a preferential regime into the EU, the product needs to be originating in that country. In order for the product to be eligible, it must either be:

- a) “Wholly obtained” in a non-EU country: this refers to products that have no relation with any other country than the beneficiary country
- b) Or “sufficiently transformed” in a non-EU country: referring to products which involve more than just the beneficiary country, for example using materials from another country (European Commission, 2014a)

There are three methods through which a product becomes sufficiently transformed.

- 1) The change of tariff heading criterion: meaning that the finished product is classified under a different four-digit tariff heading than the non-originating materials are classified
- 2) The ad valorem criterion: meaning that the customs value at the time of importation of non-originating materials used may not exceed a given percentage of the sum of the costs of the finished product
- 3) The specific process criterion: meaning that certain stages in a manufacturing process have to be carried out on any non-originating materials used (European Commission, 2014f)

Cumulation of origin allows countries that have identical rules of origin and are in specific regional groups to use their combined resources to manufacture products and still be eligible for preferential tariff treatment (Council Regulation 1063/2010). Under the EU GSP, bilateral and regional cumulation is acceptable. Bilateral cumulation refers to that materials originating in the EU can be integrated in the products manufactured in the GSP country as long as the processing done in the GSP country goes beyond minimal ones. Minimal operations refer to packaging, simple cutting, simple assembling, etc. if only one of the aforementioned processes have taken place within the beneficiary country (European Commission, 2014c). Regional cumulation is only acceptable within four specific regional groupings, see appendix 3 for details on these regional groups (European Commission, 2014d).

The direct transport rule ensures that the imported product was sent from the “originating country” without being manipulated in another country (European Commission, 2014e).

Both AGOA and EBA have relatively restrictive rules of origin. Since the regulations are targeted at specific goods it is difficult to make a comparison of which system is more restrictive and would hamper export volumes more. However, in general, AGOA has more restrictive rules.

### **4.7 Summary of comparisons**

By comparing many different aspects of the preference regimes, it seems like EBA should have a larger impact on trade volumes from LDCs compared to AGOA. This is due to the fact that EBA covers more products and has a deeper scope of preference margins than AGOA. It is also easier to gain access to EBA’s preferences due to a less complicated process of eligibility. Once preferences are

granted, they are also more stable under EBA since they have been granted for an unlimited period of time. Although both systems have quite restrictive rules of origin, AGOA has the more limiting regulations and thus EBA is expected to have a greater effect.

## **5. Previous literature**

In order to be able to compare the results of this paper with previous research, we have reviewed existing literature on the subject. The majority of the research on this subject has estimated the effectiveness of GSP in general. Since this paper focuses on two specific GSP systems, AGOA and EBA, the previous literature has been restricted to cover these systems. For a general overview, see table 3 and table 4 below.

The main methods used in the previous literature are:

- Gravity model (used in 5 papers)
- Analysis of trade volumes before and after preferences (used in 5 papers)
- Partial-equilibrium model (used in 2 papers)
- Computable General Equilibrium model (CGE, used in 2 papers)
- Triple difference estimations (used in 2 papers)

When AGOA and EBA were introduced, several studies investigated how effective the systems would be. Ianchovichina, et al., (2001) use a partial-equilibrium model and conclude that unrestricted market access could give significant benefits for SSA countries if market-access is granted from all four QUAD (Canada, EU, Japan, US) countries. Access to the US market alone would not increase welfare significantly due to the fact that the US already was quite open in the areas that SSA countries exported. Regarding EBA, Stevens & Kennan (2001) present a report to Oxfam arguing that EBA would have modest positive effects due to the limited nature of the exporting countries' supply capacity that restricts the increase in exports by examining export trade flows over time.

Early results of the programs were also evaluated. Mattoo & Subramanian (2003) use a partial equilibrium model and present positive effects of AGOA by illustrating that non-oil exports increase by up to 11%. They also highlight the fact that the increases could have been greater if the rules of origin had been less restrictive. Lederman & Özden (2004) make similar conclusions using a gravity model, stating that preferential market access has statistically significant effects on exports, but that these effects were reduced due to rules of origin restrictions. Brenton & Ikezuki (2004), however, examine export data over time and conclude that AGOA has not yet become beneficial to LDCs that are not eligible for apparel benefits. They show that exports from some AGOA-beneficiaries increase, but argue that the system would be more valuable if it diversified exports, which could be accomplished through universal access to preferences on apparel. Since these results were obtained very early after the implementation of AGOA, the full potential effect may not yet be observed.

Early research regarding EBA also shows limited positive effects. Brenton (2003) examines export volumes and concludes that the effects of EBA have been minor due to small preference margins, but also hypothesizes that the scheme has greater potential. Similarly, Cernat et al., (2003) use a CGE model and find EBA's trade and welfare effects to be relatively low, except in the market for sugar where the effects were much more significant.

Brenton and Hoppe's (2007) paper illustrates a bleaker view of AGOA results. They analyze export data and conclude that "AGOA has fallen short of its potential" due to its limited product coverage and restrictive rules of origin, and that the only positive effects have been to apparel provisions. Collier and Venables (2007) use a triple difference estimation and make the same conclusion regarding apparel provisions, stating that the program should be redesigned as to not hinder specialization. Seyoum (2007) further supports these results. He uses a Wilcoxon signed rank test, and emphasizes the marginal size of the increase in textile exports. Further research by Tadesse and Fayissa (2010) uses a gravity model and concludes that AGOA has contributed to the diversification of exports in both manufactured and non-manufactured goods, but has a minimal effect on trade volumes. Frazer and Biesebroeck (2010) use a triple difference estimation and find that AGOA caused a 42% increase in imports to the US. The increases are most significant in the apparel sector, but relatively large in the manufactured sector as well. Since this research is more recent, it may have captured more of the effects of AGOA than the very early papers. The most recent study was by Zappile (2011.) She uses a gravity model and concludes that the AGOA textile benefits have no significant results on trade due to expiring preferences and eroding preference margins.

Research comparing the two systems in one model is rare, with the exception on Nilsson (2007) who compared the effects of all EU and US trade policies on developing countries. This differs from our study as we look specifically at only AGOA and EBA and their effects on trade from LDCs. He uses a gravity model and finds that the EU trade preference systems are more successful due to their wider scope.

The results from the previous research vary greatly, which is probably due to the wide variety of methods and datasets used, which makes it very difficult to compare the results of the studies in order to get an idea of whether AGOA or EBA has been more successful in increasing trade. This paper aims to fill that gap in the literature. Since we are using a gravity model to estimate our results, the five previous studies that also use a gravity model are of most interest to us.

Table 4. Previous research AGOA

Authors	Question	Method	Results/Conclusion
Ianchovichina, et al. (2001)	Unrestricted Market Access for Sub-Saharan Africa: How Much is it Worth and Who Pays?	Partial-equilibrium model	Providing preferential access to only the US market will limit the effects of the preferences since the US market already is relatively open.
Mattoo and Subramanian (2003)	The AGOA and its Rules of Origin: Generosity Undermined?	Partial-equilibrium model	AGOA increases non-oil exports by up to 11%.
Lederman and Özden (2004)	US Trade preferences: All are not created equal	Gravity model	Countries who benefit from preferences export 2-3 times more than countries excluded from preferences.
Brenton and Ikezuki (2004)	The Initial and Potential Impact of Preferential Access to the US Market under AGOA	No econometric analysis, instead analysis of trade volumes before and after preferences	AGOA does not significantly affect LDCs that are not eligible for clothing benefits.
Brenton and Hoppe (2006)	The African Growth and Opportunity Act, Exports and Development in Sub-Saharan Africa	No econometric analysis, instead analysis of trade volumes before and after preferences	AGOA has stimulated export diversification in some countries, but has not reached its potential due to restrictive rules of origin and limited product coverage.
Collier and Venables (2007)	Rethinking trade preferences: how Africa can diversify its exports	Triple difference estimation	AGOA has been effective through its apparel waiver, however needs to redesign its rules of origin.
Seyoum (2007)	Export performance of developing countries under the AGOA	Wilcoxon signed rank test & times series regression analysis	AGOA has a small positive significant effect on exports of textiles and apparel from beneficiary countries to the USA.
Tadesse and Fayissa (2008)	The Impact of African Growth and Opportunity Act on US Imports from Sub-Saharan Africa	Gravity model	AGOA has increased imports from eligible SSA countries by initiating imports in several sectors and product categories.
Frazer and Van Biesebroeck (2010)	Trade Growth Under the African Growth and Opportunity Act	Triple difference estimation	AGOA causes a 42% increase in apparel imports and a 13% increase in non-apparel imports to the US.
Zappile (2011)	Nonreciprocal Trade Agreements & Trade: Does AGOA Increase Trade?	Gravity model	AGOA has no significant effect on trade for beneficiary countries.

Table 5. Previous research EBA

Authors	Question	Method	Results
Stevens and Kennan (2001)	The Impact of the EU's "Everything But Arms" Proposal: A Report to Oxfam	No econometric analysis, instead analysis of trade volumes before and after preferences	EBA will improve access to the EU market and increase competition for industrialized countries. The scales of these increases are not likely to be large.
Brenton (2003)	Integrating the LDCs into the world trading system: the current impact of EU preferences under EBA	No econometric analysis, instead analysis of trade volumes before and after preferences	EBA has minor effects due to small preference margins. It has the potential to have a more substantial impact on trade through stimulating export diversification if the rules of origin become less restrictive.
Cernat, et al. (2003)	The EU's EBA initiative and the Least Developed Countries	Computable General Equilibrium model + disaggregated partial equilibrium simulations	EBA causes moderate welfare and trade gains, most significantly the sugar market.
Yu and Jensen (2005)	Tariff preferences, WTO negotiations and the LDCs: the case of the EBA initiative	Computable General Equilibrium model	EBA is not likely to cause significant welfare gains to LDCs due to low preference margins and limited product coverage. The majority of the gains will come from sensitive products that are subject to lengthy implementation.
Nilsson (2007)	Comparative effects of EU and US preferences	Gravity model	EU preferences have been more successful in generating exports from developing countries generating approximately 35% more exports.
Faber and Orbie (2009)	Everything but Arms: Much more than appears at first sight	No econometric analysis, instead analysis of trade volumes before and after preferences	EBA has increased imports of sugar by 160% since 2001.
Aiello and Cardamone (2009)	Analyzing the impact of EBA initiative using a gravity model	Gravity model	EBA has mixed effects in different sectors. It creates substantial tariff gains for specific non-ACP LDCs on certain markets, for example in the exports of crustaceans and vanilla.

## 6. Empirical strategy

To compare whether AGOA or EBA is more effective in increasing trade from LDCs to the EU and US we estimate a gravity model. The gravity model allows us to construct a counterfactual to see how much the countries would have traded without the preferential trade agreement. The difference between these scenarios is captured by the binary variables for AGOA and EBA and is interpreted as the effect of the exporter having access to the preferences. The model is extended to include variables that hinder or promote trade between the trading partners, for example whether or not the countries have a common language, colonial background or are landlocked. This allows us to estimate the effect of another outside disturbance, for example AGOA or EBA, in order to see whether it promotes or hinders trade and to what extent. The gravity model has been used by a large number of studies to assess the effects of trade policies, for instance free trade agreements, customs unions, and the WTO. It is, in other words, a well-established methodology for evaluating the impact of various trade policies.

### 6.1 Sample and data

The time period sampled is between 1998-2006 since AGOA was implemented in 2000 and EBA in 2001, and this time span is enough to capture the effects of both preference systems. In order to simplify the model and to avoid adjusting the list of importing countries when new countries joined the EU, this paper focuses on imports to the EU15 countries who were the original importers granting preferences under EBA, as well the US. The trade values come from the UN Comtrade Database and present the import values for the EU15 and US. The import data was used instead of export data from the exporting countries since LDCs generally speaking may have less reliable data. There is approximately 16% missing data for trade values, which should be taken into account when analyzing the results of the regression. The majority of the other data used in this model, for example population and GDP values, are from the *gravity* and *geodist* datasets provided by the CEPII.

Table 6. Variables, their expected effect on trade and source

Variables	Effect on trade	Source
Imports to EU and US (M)	N/A	UN Comtrade Database
GDP importer	+	CEPII database
GDP exporter	+	CEPII database
Population importer	+	CEPII database
Population exporter	+	CEPII database
Distance <sup>5</sup>	-	CEPII database
Colony	+	CEPII database
Common language	+	CEPII database
AGOA	+	Constructed binary variables <sup>6</sup>
EBA	+	Constructed binary variables

<sup>5</sup> Distance is population-weighted using a great circle formula that takes into account the distance between the large cities of the two countries.

<sup>6</sup> We have constructed the variables *AGOA* and *EBA* by collecting data regarding countries' eligibility for both systems. Data was collected from the EU commission and AGOA homepage.

We have chosen Ordinary Least Squares (OLS) as our main model estimator since it is the traditionally used technique for estimation of a gravity model in a log-linear form (Kepaptsoglou, et al., 2010). Studies have suggested that OLS might not be the best estimator. Silva and Silvana (2006) argue that OLS estimations suffer from bias due to heteroskedasticity and the presence of zeroes in data that disappear when both sides of the model are logged. They suggest using a Poisson pseudo-maximum likelihood method instead. While acknowledging that OLS is associated with certain problems, and that more advanced alternative methodologies should ideally be used, we will use OLS as our estimator. In order to control for heteroskedasticity, robust standard errors are used throughout.

**6.2 Descriptive statistics**

In order to get a better understanding of the data, the following figures illustrate average bilateral trade values before and after the implementation of AGOA and EBA respectively.

*Figure 5. Imports to the US from LDCs before and after the implementation of AGOA*

*Figure 6. Imports to the EU15 from LDCs before and after the implementation of EBA*

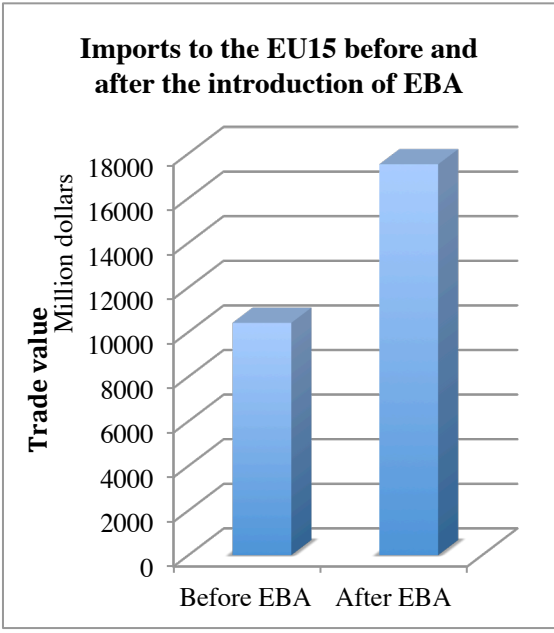
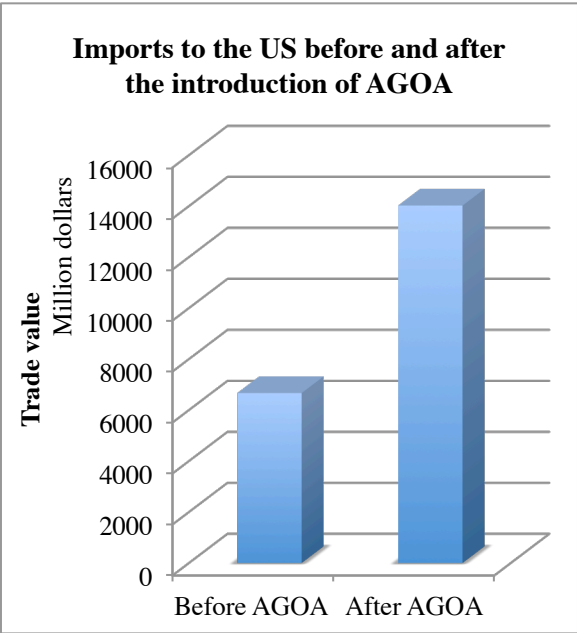


Figure 5 illustrates a comparison of the average bilateral trade values to the US from AGOA-eligible countries during the years before and after AGOA was implemented in 2000. Here we can see that average trade values after AGOA was implemented have more than doubled, suggesting that AGOA has had a positive impact on trade. Similarly, figure 6 compares trade values from LDCs to the EU15 before and after the implementation of EBA. Just like with AGOA there is an increase in the trade values from LDCs to the EU15 after the implementation of EBA in 2001, suggesting it may have had a positive effect on trade flows. This gives us an idea of how trade has developed in the time period of 1998-2006, we have not controlled for other variables that might affect trade other than AGOA and EBA. In order to do so, we will build up a gravity model to estimate the effects of both systems and thus see which system is more effective.

## 6.2 Main model estimation

The main model we will use is presented in equation 1 below. We will test the robustness of this scaled down baseline specification further on in the paper.

$$\ln(M_{ijt}) = \beta_1 + \beta_2 \ln(GDP_{it}) + \beta_3 \ln(GDP_{jt}) + \beta_4 \ln(Pop_{it}) + \beta_5 \ln(Pop_{jt}) + \beta_6 \ln(Dist_{ij}) + \beta_7 Colony_{ij} + \beta_8 ComLang_{ij} + \beta_9 AGOA_{ijt} + \beta_{10} EBA_{ijt} + \varepsilon_{ijt} \quad (1)$$

Subscript  $j$  refers to the LDC exporters and  $i$  represents the importers (EU15 and the US) during the years  $t$  specified in the model. Since we are interested in whether AGOA or EBA has had a more significant effect on trade, the dependent variable is exports to the US and EU from LDCs.  $\beta_1$  is a constant and is therefore not relevant in our analysis. Similarly,  $\varepsilon$  is as an error term and will not be analyzed.

The GDP of both exporters and importers is expected to have a positive effect on trade. The GDP of exporting countries will increase trade since export supply increases when GDP increases. The GDP of importing countries should have a positive effect since import demand increases at a higher GDP level. Exporter population should have a positive effect on trade since a larger population should mean a larger work force that is able to produce and supply a larger volume of goods. However, it is important to keep in mind that increases in population do not necessarily guarantee a larger work force in LDCs, as well as the fact that there might be supply capacity constraints that restrict increases in output. Importer population should have a positive effect on trade since a larger population will demand more goods. The distance between the exporting LDC and its importing partner should have a negative effect on trade since increased distances increases transport and transaction costs. Transport costs increase with larger distances, and transaction costs increase due to worsened information flows.

The binary variables included in the model are whether or not the trading partners have a colonial history together (*Colony*) and whether the counties have a common language. *Colony* should have a positive effect on trade since countries that have been a colony generally have strong trading ties with their prior colonizers. *Common Language* is expected to have a positive effect on trade since it should reduce trade and transaction costs.

The last binary variables, *AGOA*, whether or not the LDC is a beneficiary of AGOA, or *EBA*, whether or not the LDC is a beneficiary of EBA, are of most interest since they will estimate AGOA's and EBA's effect on trade volumes. The effect on trade is expected to be positive in both cases.

Using the results from this model, we will test the following hypothesis in order to determine which preference scheme has a larger effect:

$$H_0 : \beta_9 - \beta_{10} = 0$$

If there is a statistically significant difference between the coefficients, we will interpret this as one of the preference systems having a greater effect than the other.



## 7. Empirical Results: Effects of AGOA and EBA

### 7.1 Results from the baseline model

The results from our *main model OLS* regression are presented in column 1 of table 7. The results of certain variables differ greatly from what we expected. *GDP importer* has a negative significant effect, and *Distance* does not have a significant effect. However the variables *GDP exporter*, *Population importer*, *Population exporter*, *Colony* and *Common Language* have positive significant effects, which is in line with our previous hypothesis in section 6.2. The results for *AGOA* and *EBA* are also surprising. *AGOA* has a significant negative effect and *EBA* does not have any significant effect. These results may be due to unobserved heterogeneity.

Table 7. Results

Variable	Main model OLS	Main model Panel	Extension 1 Panel	Extension 2 Panel	Combination Panel
GDP importer	-0.440*** (0.000)	0.332 (0.211)	0.320 (0.269)	0.195 (0.514)	-0.579 (0.423)
GDP exporter	0.807*** (0.000)	0.664*** (0.000)	0.700*** (0.000)	0.737*** (0.000)	0.724*** (0.000)
Population importer	1.755*** (0.000)	1.082*** (0.000)	1.083*** (0.001)	-1.265 (0.689)	0.736 (0.870)
Population exporter	0.292*** (0.000)	-1.207 (0.144)	-1.443 (0.486)	-1.352 (0.150)	-1.429 (0.494)
Distance	-0.069 (0.454)	-2.781*** (0.000)	-2.828*** (0.000)	-3.178*** (0.000)	-3.162*** (0.000)
Colony	1.072*** (0.000)	0.904*** (0.001)	0.932*** (0.001)	1.491*** (0.000)	1.493*** (0.000)
Common Language	0.496*** (0.000)	0.599*** (0.008)	0.580** (0.010)	-0.058 (0.763)	-0.059 (0.762)
AGOA	-1.346*** (0.000)	-0.078 (0.864)	-0.259 (0.592)	-0.175 (0.727)	-0.244 (0.636)
EBA	-0.042 (0.571)	-0.152* (0.063)	-0.493* (0.059)	-0.054 (0.514)	-0.181 (0.486)
R <sup>2</sup>	0.5469	0.4599	0.4605	0.5362	0.5369
Exporter Fixed Effects	No	Yes	Yes	Yes	Yes
Time fixed effects	No	No	Yes	No	Yes
Importer Fixed effects	No	No	No	Yes	Yes

Note: the parentheses show the robust p-values and the asterisks denote significance at the 1% (\*\*\*), 5% (\*\*) and 10% (\*) levels.

In order to control for unobserved heterogeneity, the model has been successively extended to include more variables. Since each exporting country has unique institutional, geographic and other characteristics that may affect trade volumes, a panel data method with fixed effects for the exporting countries can be used in order to estimate the results. This should work better with the large dataset since it controls for unobserved variables that do not change over time but that do change across countries and thus accounts for heterogeneity between countries. Column 2, *main model, panel* presents results using a fixed effect estimator on our main model instead of OLS. In this specification,

unobserved exporter heterogeneity is captured by the inclusion of exporter-specific effects. Column 3, *extension 1 panel*, further builds on the model by creating a time fixed effect<sup>7</sup>. This fixed effect picks up factors that vary over time but not across bilateral trading partners and that are not explicitly included in our model, for example business cycle effects. Column 4, *Extension 2 panel*, is another version of our *main model panel* regression. Instead of controlling for time heterogeneity as we did in column 3, we now control for importer heterogeneity by creating an importer fixed effect<sup>8</sup>. The final column includes controls for both time and importer heterogeneity. This captures unobserved heterogeneity on several different levels in order to minimize the risk of omitted variable bias.

When we look at the *main model panel regression* in column 2, these results are closer to what we expected as *Distance* has a significant negative effect on trade. However, the effects of *GDP importer* and *AGOA* are no longer significant. Additionally, *EBA* now has a negative and significant effect on trade. When further controls for time heterogeneity are included in *Extension 1 panel*, the results do not change significantly. However, when we control for importer heterogeneity in *Extension 2 panel*, the results differ. Now, neither *AGOA* nor *EBA* have a significant effect on trade values. When we have time fixed effects as well as importer fixed effects in *Combination panel*, there is no great change from *Extension 2 panel*, but since this model controls for the most heterogeneity, we will use these results in our analysis.

In the results from *Combination panel*, the variable *GDP importer* does not have a significant effect on the trade values from LDCs to the importing countries. *GDP exporter*, however has a positive effect significant at the 1% level. This seems accurate as an increase in GDP corresponds to a higher level of production and exports in the exporting country in question. Neither *Population importer* nor *Population exporter* has a significant effect. This differs from our expectations, but could be reasonable since other factors may affect trade values significantly more than the population of the countries. *Distance* has a large negative effect on trade values significant at the 1% level. This is in line with our prior hypothesis that larger distances reduce trade volumes due to increased costs of transportation and transaction. *Colony* has a large positive effect on trade values significant at the 1% level. This is also in line with our prior hypothesis since countries that have been a colony generally have strong trading ties with their prior colonizers. *Common Language* does not have a significant effect. However, since countries that have been colonies generally speak the same language as their prior colonizers, the effect of common language could have been picked up by *Colony*.

The results for AGOA and EBA are surprising. In our extended model *Combination panel*, neither system seems to have any form of significant effect on export volumes since their significance levels are far beyond even a 10% level. However, this differs from our original OLS results where AGOA's effect was estimated to be significant and negative. Although a fixed effect estimator is more appropriate since it controls for heterogeneity across importers and years, it is difficult to come to any strong conclusion since the results vary across our methods. Due to the insignificance of our results of

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<sup>7</sup> The binary variables for each year have been manually added to the dataset.

<sup>8</sup> The binary variables for each importer have been manually added to the dataset.

*AGOA* and *EBA*, a hypothesis test will not give any significant results regarding whether *AGOA* or *EBA* is more effective in increasing trade volumes<sup>9</sup>.

## 7.2 Robustness

In order to test the accuracy of our specification, we have performed several robustness checks on the *Combination panel* model. Firstly, we test when the effect of *AGOA* and *EBA* takes place by altering our *AGOA* and *EBA* binary variables. In column 1, the binary variables are changed to correspond to *AGOA* and *EBA* being implemented one year in advance. This is tested since expectations of future preference may change exporters behavior prior to the preferences being implemented. In column 2, the binary variables are lagged two years after the implementation of *AGOA* and *EBA* respectively. This is tested since it might take time for exporters to react to preference changes and thus the effect of the preferences may not be picked up until a few years after they are implemented. Finally, we test the effect of only including SSA exporting countries. Since *AGOA* only includes these countries, restricting our exporting countries to this region would make our dataset as homogenous as possible by removing additional unobserved heterogeneity.

*Table 8. Robustness checks*

Variable	Lag one year earlier	Lag two years later	Only SSA exporters
GDP, importer	-0.649 (0.246)	-0.548 (0.470)	-1.150 (0.191)
GDP, exporter	0.721*** (0.000)	0.722*** (0.000)	0.651*** (0.000)
Population, importer	0.881 (0.812)	0.621 (0.888)	1.998 (0.720)
Population, exporter	-1.357 (0.519)	-1.364 (0.512)	-1.861 (0.546)
Distance	-3.131*** (0.000)	-3.166*** (0.000)	-3.171*** (0.007)
Colony	1.494*** (0.000)	1.493*** (0.000)	1.546*** (0.000)
Common Language	-0.059 (0.761)	-0.059 (0.760)	-0.034 (0.895)
<i>AGOA</i>	-0.352 (0.488)	-0.298 (0.542)	-0.308 (0.565)
<i>EBA</i>	-0.230 (0.189)	-0.311* (0.098)	-0.210 (0.533)
R <sup>2</sup>	0.5371	0.5370	0.5357

*Note:* All results are using exporter FE, time FE and importer FE. The parentheses show the robust p-values and the asterisks denote significance at the 1% (\*\*\*), 5% (\*\*) and 10% (\*) levels.

The results in column 1 do not differ greatly from our above-analyzed results. This suggests that expectations of changing preferences did not affect trade before *AGOA* and *EBA* were introduced. Similarly, when looking at only the SSA exporter (column 3), there is no substantial change from our main results. The only considerable change observed is that *EBA* has a negative effect on trade significant at the 10% level when we lag the effect of *AGOA* and *EBA*, as can be seen in column 2. A

<sup>9</sup> In order to be consistent, we tested the hypothesis and got a coefficient of -0.063 with a p-value of 0.900. This is far from significant and therefore not useful in our analysis.

possible explanation for this could be that there was a backlash to EBA a while after its implementation. However, a 10% level of significance is not very relevant, which makes this odd result less concerning. Since some of our results change when we alter variables that allow us to analyze when the effect of the systems are picked up, we cannot draw strong conclusions from the results on our main model.

### **7.3 Discussion of results**

When different estimation techniques are used, the results regarding the effects of AGOA and EBA on trade values vary. However, since the fixed effect estimator (see column *combination panel*) includes controls for exporter, year and importer heterogeneity, these results should be the most reliable and are therefore discussed. In this case, neither AGOA nor EBA affect trade on any significant level, which differs from the hypothesis that both AGOA and EBA have positive effects on trade. This can be due to several factors, as we will discuss below.

Both AGOA and EBA have strict rules of origin that determine whether or not a product can be exported under the two preference systems. This increases administrative costs by requiring heavy documentation as well as severely hampering the range of inputs that can be used in production of exports. This is especially significant in terms of LDCs since their scales of production are relatively small and they might not have all the intermediate inputs they require for their exports. The product coverage of the two systems may also affect trade volumes of the preference systems. Many products that are considered to be import sensitive by the EU and US are major export industries in the LDCs. Since these products are excluded from preferences, LDCs are hindered from fully exploiting their potential benefits. This is the case for example under AGOA, where 120 out of the 514 agricultural products liberalized under AGOA still are subject to high tariff quotas (Cordon & Stern, 2011). Many of these products, for example peanuts and beef, could potentially be large export markets for the LDCs in question. Preferences could also be incentivizing expansion in the wrong sectors, which may be harmful to the economy in the long run. Product coverage is also important in terms of preference margins. If preference is granted under AGOA or EBA for products that already receive duty free access, the preferences systems will be useless. As mentioned earlier, many countries that receive preference under EBA are ACP countries that can export under Lomé preferences that already offer duty-free access for agricultural and mineral goods to the EU market (European Commission 2012). Exporters in these countries might not decide to change to EBA preferences since they would be required to learn a new system, which would make EBA preferences ineffective. Stability of access to the preferences is another area that may affect trade volumes. Although AGOA is more easily revoked, the preferences under both systems can be removed since neither the US or the EU are required to offer them.

Other factors that are not examined in this study might significantly hamper trade, and might counteract any positive effects of AGOA or EBA. For example, many LDCs do not have capacity to increase production. If preferences are granted in a sector where LDCs do not have a large capacity, the increased market access will not be enough to increase trade volumes. Other variables could include political instability and corruption as well as price volatility of primary products and poor infrastructure.

## **8. Conclusion**

The aim of this paper has been to compare two non-reciprocal trade preference systems: AGOA and EBA, in order to evaluate which one has been more successful in its goal of increasing trade volumes with developing countries. This is relevant since both systems represent active decisions by more developed countries to aid LDCs in their economic growth and development. We have compared the systems by estimating a fixed effect gravity model using trade flow data from LDCs to the EU15 countries and the US between the years 1998 and 2006. Although previous research has examined the two systems separately, this is the first paper to compare them in one model.

After comparing different aspects of the preference systems, it seems like EBA has the more appropriate conditions to succeed and thus should have a larger impact on trade volumes from LDCs compared to AGOA, as discussed in section 4.7. However, our results suggest that neither AGOA nor EBA has had any significant effect on trade flows from LDCs. This may be due to a variety of factors regarding the preference systems, for example strict rules of origin, lacking product coverage and preference margins as well precarious access to the preferences themselves. Another reason why EBA does not show any significant effects might be due to the existence of other preference systems which hinder EBA from reaching its full potential. Exporters in the relevant countries may lack incentive to change to EBA preferences since they already enjoy duty-free access to the EU market. These issues should be taken into account by policy makers in order to make the systems more effective, especially considering the renewal of AGOA after 2015. Other issues that might hamper the effectiveness of AGOA and EBA could be more specific exporter-country conditions, for example lack of production capacity, political instability and poor infrastructure. These problems need to be addressed in order to give the exporting countries the circumstances to allow the preference systems to become effective.

This study could be improved by including more variables, for example production capacity, political stability and infrastructure. Reducing the number of missing trade values could also improve the accuracy of the results. Further research should examine the effects on AGOA or EBA using more advanced estimation techniques. A suggestion would be to use a Poisson pseudo-maximum likelihood method. It would also be useful to examine the effects of AGOA and EBA on a more disaggregated level by looking at trade flows of certain products, since the results may be significantly different. The method would be improved by using a more specific binary variable in order to capture the effects of the preference systems. For example, exporter-country binary variables could be replaced by more specific product-level binary variables. Any additional research should examine the effects of AGOA and EBA on products that promote development, since development is the main goal of the preference systems. Another research question could be focusing on the dynamic effects caused by AGOA and EBA.

Our results are surprising as they suggest that there is no difference between the systems since neither has a significant effect on trade. Even though our results are difficult to analyze and are not completely conclusive, this is the first study to directly compare AGOA and EBA in one model, and thus the results are an important addition that will allow us to delve deeper into this topic and more accurately evaluate the two systems in relation to each other.

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## **Appendix**

*Appendix 1. Least Developed Countries (LDCs), as defined by the UN 1998.*

<b>Countries</b>	
Afghanistan	Malawi
Angola	Maldives
Bangladesh	Mali
Benin	Mauritania
Bhutan	Mozambique
Burkina Faso	Myanmar
Burundi	Nepal
Cambodia	Niger
Cap Verde	Rwanda
Central African Republic	Samoa
Chad	Sao Tome and Principal
Comoros	Senegal
Congo Democratic Republic	Sierra Leone
Djibouti	Solomon Islands
Equatorial Guinea	Somalia
Eritrea	Sudan
Ethiopia	Timor-Leste
Gambia	Togo
Guinea	Tuvalu
Guinea-Bissau	Uganda
Haiti	United Republic of Tanzania
Kiribati	Vanuatu
Laos People's Democratic Republic	Yemen
Lesotho	Zambia
Liberia	
Madagascar	

*Appendix 2. List of EU15 countries*

EU15
Austria
Belgium
Denmark
Finland
France
Germany
Greece
Ireland
Italy
Luxembourg
Netherlands
Portugal
Spain
Sweden
United Kingdom

*Appendix 3. Regional cumulation groups allowed within EBA (European Commission, 2014d)*

<b>Group 1</b>	<b>Group 2</b>	<b>Group 3</b>	<b>Group 4</b>
Brunei-Darussalam	Bolivia	Bangladesh	Brazil
Cambodia	Colombia	Bhutan	Paraguay
Indonesia	Costa Rica	India	Uruguay
Laos	Ecuador	Maldives	
Malaysia	El Salvador	Nepal	
Philippines	Guatemala	Pakistan	
Singapore	Honduras	Sri Lanka	
Thailand	Nicaragua		
Vietnam	Panama		
	Peru		
	Venezuela		