Does the African Growth and Opportunity Act (AGOA) impact EU-15 imports from Africa?

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Abstract

At the heart of the African Growth and Opportunity Act (AGOA) are substantial trade preferences which, coupled with the Generalised System of Preferences (GSP), grant a wide range of goods produced in qualified African countries duty-free access to USA. To be AGOA-eligible, countries are assessed annually on their progress in undertaking appropriate economic, institutional and human rights reforms. Our paper seeks to cover new grounds by exploring whether exports of apparel to US crowds out EU-15's imports from Africa over the period 2001-2016. Two-stage least squares estimates of our gravity model provide no evidence of trade displacement but, instead, provide support for the hypothesis of complementarity of African exports to the two key markets. Positive impact of bilateral trade between US and Africa on EU-African trade is evident mainly after the phasing out of the Agreement on Textiles and Clothing. We also examine whether the more relaxed special waiver embodied in AGOA's apparel provision causes Non-Knitted exports to EU-15 to be crowded out. We find that Special Rule beneficiaries' exports to the two markets still complement each other, but for every percentage increase in exports to USA, there is a less than proportionate increase in exports to EU-15, indicating a higher utilisation of the special waiver.

Keywords: AGOA, EU-15, Apparel sector, Gravity Model
JEL Classification: F13, F140

1. Introduction

The African Growth and Opportunity Act (AGOA) was introduced by the United States in the year 2000 with the objectives of expanding and deepening trade and investment relationship with Sub-Saharan Africa (SSA), encouraging economic growth and development and facilitating the continent's integration into the global economy. At the heart of AGOA are substantial trade

preferences, which coupled with the Generalised System of Preferences (GSP), grant a wide range of goods produced in qualified countries duty-free access to the US. To be AGOA-eligible, countries are assessed on an annual basis on their progress in meeting a set of specific criteria including establishment of market-based economy and rule of law, strengthening of the private sector, reforms to alleviate poverty and combat corruption, better access to health services and education recognition of core labour standards and elimination of barriers to US trade and investment.

Most of these eligibility requirements encourage SSA countries to undertake appropriate economic, institutional and human rights reforms that in turn reduce behind-the-border barriers to trade. The need for enhanced behind-the-border trade facilitating and growth enhancing amenities, such as improved 'hard infrastructure' (highways, railways, ports, etc) and 'soft infrastructure' (better institutions, higher transparency, more competition, stronger governance, etc) as a means to facilitate economic growth and development is well documented in literature (see for example, Limão and Venables, 2001; Francois and Manchin, 2006; Portugal-Perez and Wilson, 2008; Iwanow and Kirkpatrick, 2009).

While the impacts of AGOA on US imports from Sub-Saharan Africa have received a lot of attention in the literature, few studies have examined whether an increase in African exports to the US affects similar exports to other key markets such as EU-15 offering similar preferences. This paper adds to the discussion of trade redirection from EU to US due to AGOA as proposed by Frazer and Van Biesebroeck (2010). Using data for the apparel sector, we employ a gravity model framework to analyse whether higher apparel exports to the US have a complementary or crowding-out effect on exports to the EU. The apparel sector has been identified as one of the three non-crude petroleum sectors benefitting most from the legislation, along with transportation equipment and refined petroleum products (USITC, 2014). In first three years since AGOA's inception, the value of US imports of apparel rose sharply but later dropped to a lower level. Over the 2001-2016 period, however, the value of US apparel imports remained higher than EU-15's

imports from the same group of countries. It would therefore be interesting to quantitatively assess whether there has been any displacement effects from EU-15 to US following AGOA's implementation, more so given that EU also offers duty-free access to African apparel.

The extent of preferential access, measured by the average most-favoured-nation tariff, to the US market under AGOA does not differ greatly from that granted by the EU's preferential regimes under the Cotonou agreement and EBA, but there is a significant divergence on rules of origin (Portugal-Perez, 2008). For example, while the EU's rules require a double transformation process in which yarn should be woven into fabric in the beneficiary country or in a country qualifying for cumulation under EU schemes and then made up into apparel in the beneficiary country, AGOA's Special Rule allows lesser developed countries to use fabric originating from anywhere in the world, hence allowing these countries to take advantage of cheaper sources. Apparel products using third country fabric gain preferential access to the US but not to the EU market (Brenton and Özden, 2005). Rules of origin are more costly for non-knitted apparel as fabric is a key input compared to knitted items where typically fabric is not involved. We also look at the apparel sub-sectors, namely knitted (CH61) and non-knitted (CH62), and examine whether there has been a deflection of exports in the latter sub-group to the market offering more liberal rules.

The displacement or complementarity effect uncovered by the analysis would yield interesting insights on the success of the clothing provision of the Act. If bilateral trade from Africa is redirected from EU to US, this would imply that African apparel exporters find AGOA's market access provisions, including its more relaxed rules of origins, to be more beneficial. This would provide the much anticipated support and credibility to the clothing program, seen as a centrepiece of the legislation at the time of implementation. AGOA intentionally targeted the highly labour-intensive apparel sector for special benefits with a view to not only foster employment creation opportunities in all beneficiary countries, but also to give Africa another chance to lift its apparel exports to threshold productivity levels and carve a niche amidst an increasingly competitive global trading environment. Apparel production is considered as a manufacturing sector with low

technological and investment barriers to entry, requiring relatively low skilled labour forces, hence relevant to many African nations (Williams, 2015).

On the other hand, if there is complementarity between EU and US apparel imports, this would imply that African exporters still see EU as a natural market and that AGOA preferences were not being fully utilised by all beneficiaries to cause an offsetting effect, thus undermining one of the key intentions of the act. From the US importers' perspective, tariff margins offered by AGOA would not provide enough incentives to influence apparel sourcing decisions away from more competitive suppliers from around the world. International competitiveness requires, among other things, modern business practices, good infrastructure and trade logistics. Earlier studies have linked poor export performance in the region to inadequate infrastructure (Limão and Venables, 2001), low levels of per capita income, small country size, geography (Rodrik, 1998), domestic trade policies (Wang and Winters, 1998) and transport costs and other natural barriers (Morrissey, 2005). These could still represent major impediments to trade in many African nations.

The paper is organised as follows: Section 2 presents a descriptive overview of US and EU preferential trading schemes with Africa. Section 3 then reviews the literature. Model specification and data sources are outlined in Section 4. Estimation results and discussion are provided in Section 5. Section 6 concludes.

2. US and EU Trading Arrangements with Africa

2.1. US-Africa Trade Relation

The centrepiece of US trade policy for Africa is the African Growth and Opportunity Act (AGOA), a non-reciprocal trade agreement signed on May 18, 2000 by US Congress. Initially designed to cover an 8-year period, the program was extended to 2015 in the AGOA Acceleration Act of 2004 (AGOA III). On June 29, 2015, the Trade Preferences Extension Act renewed the program for a further 10 years. The legislation also includes a mandate for US and African

government officials to meet and discuss economic issues including US development assistance to Africa through the AGOA forum.

AGOA eligibility is not an automatic process. Country eligibility is reviewed annually by the US President, who grants beneficiary status to an African nation if it is committed to: developing market-based economies, political and legal institutions; removing barriers to US trade and investment; improving intellectual property rights; fighting corruption; reducing poverty; protecting human and worker rights, and eradicating child labour (AGOA 2000).

AGOA allows eligible African nations to export non-apparel and apparel products to the US without incurring a tariff charge. It expands the US Generalized System of Preferences (GSP) list of approximately 4,600 non-apparel products (such as watches, footwear, handbags, luggage and work gloves to name a few) adding 1,800 other items; representing additional markets to which only AGOA-eligible countries have access. African countries must be eligible for GSP to become AGOA beneficiaries. As a result, AGOA countries can export about 6,400 items without duty restrictions to the United States.

Apparel articles, generally excluded from the US GSP[1], are exempt from US import tariff under AGOA. This trade preference is, however, not automatic as soon as AGOA eligibility is granted. To qualify for the Apparel provision, countries must have in place (i) an effective apparel visa system to prevent illegal shipment and use of counterfeit documentation and (ii) appropriate enforcement and verification procedures. The provision's product specific rules of origin (PSRO)[2] were designed in line with the triple-transformation process (cotton to yarn to textile to apparel) prevailing under other US trade concessions programmes such as North American Free Trade Agreement (NAFTA) and Caribbean Basin Initiative (CBI) (Portugal-Perez, 2008). Apparel has

[1] The US GSP allows duty free access to some handicraft items certified for being hand-loomed and of folklore nature under the 'Certified Textile Handicraft Agreements' signed by the United States and fifteen beneficiary countries (United States Trade Representative, These items are not part of the HS61 (knitted apparel) and HS 62 (non-knitted apparel) considered in this paper

[2] These elaborate sets of rules, designed primarily to prevent trade deflection, apply in a "non-homogeneous" manner across product categories. Rules of origins are guidelines for establishing the origin or 'economic nationality' of the goods and not just the country they have been shipped from but also the place where they are deemed to have been produced. This ensures that concessionary access given to a particular market benefits the intended recipient and not third parties.

to be assembled in one or more AGOA eligible country from US fabrics (or African-country fabrics up to a specified percentage), which in turn were made from US yarn[3]. Apparels made in AGOA eligible countries from US fabric and yarn have duty-free and quota-free access to the US market without limitations. Apparels made with domestically produced fabric or that produced in other AGOA beneficiary countries also qualify for concessionary treatment but are subject to a quantitative restriction4.

The Apparel provision also embodies a 'Special Rule' (or 'third country fabric rule of origin') designed for lesser-developed AGOA beneficiaries. The Special Rule relaxes the apparel provision's rules of origin by allowing these lesser-developed AGOA beneficiaries to manufacture with fabrics and yarns originating from anywhere in the world without incurring a tariff charge. In effect, this special provision allows for a single transformation requirement (fabric to apparel) instead of the more rigorous triple transformation. AGOA eligible nations with a GNP per capita below $1,500 in 1998 receive this benefit unconditionally and beneficiaries above this threshold are subject to terms and conditions set by the International Trade Commission. However, despite having a level of GNP per capita exceeding the threshold, Botswana, Namibia and Mauritius have been granted LDC status. South Africa is the only country that does not qualify for the special waiver. Since its inception in 2001, the Special Rule has been renewed four times[5] and remains in effect until September 2025.

2.2 EU-Africa Preferential Trading Schemes

[3] Under the "De Minimis Rule", apparel containing fibres or yarns not wholly formed in the US or other AGOA beneficiaries retain duty free benefits provided the weight of such inputs do not exceed 10% of the total weight (AGOA, https://agoa.info).

[4] AGOA restricts imports of apparel made with regional fabric to a fixed percentage of the aggregate square meter equivalents of all apparel articles imported into the US. Starting October 1, 2007, the annual aggregate quantity of imports under these provisions was an amount not to exceed 7% of all apparel imported into the US. Any excess imports over this amount are subject to applicable tariffs. In addition, the duty-free cap is not allocated among countries but works on a "first come, first serve" principle (OTEXA, 2017). Moreover, the value of any foreign-sourced interlinings, findings and trimmings should not exceed 25 per cent of the cost of the components of the assembled apparel article.

[5] The special rule was extended in 2004 for three years, in 2007 for another five years, in 2012 for a further three years and in 2015 for ten years.

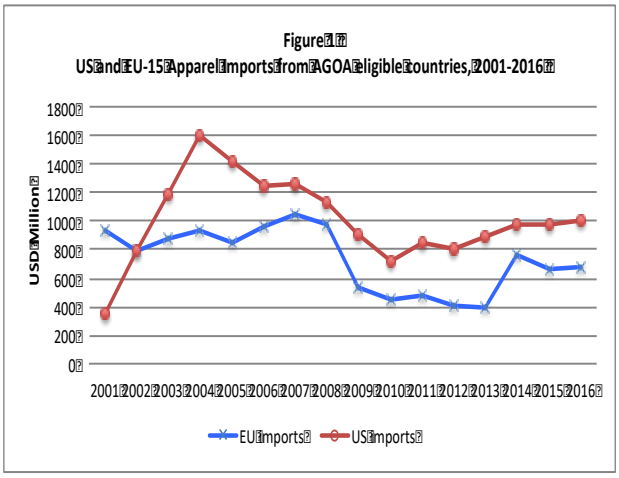
Since 1975, African countries have enjoyed unilateral preferential access to the EU market under Lomé Convention and its successive rounds. Deemed as a breach of the WTO 'most-favoured nation' principle, the convention was replaced by the Cotonou Agreement in 2000. This marked the beginning of a reciprocal but asymmetric market access, where the EU provides full duty free market access to ACP countries that ratify Economic Partnership Agreements (EPAs) and the latter commit to progressively open their markets to EU. To assist the integration of least developed countries into the global economy, EU launched the "Everything but Arms" (EBA) initiative in 2001 as an extension of its GSP scheme to meet the needs of least developed countries worldwide and granted full duty free and quota-free access to the EU for all their exports with the exception of arms and armaments.

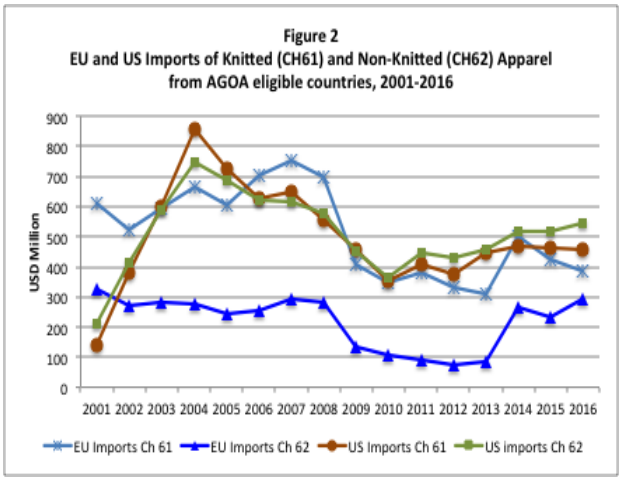
Product specific rules of origin (PSRO) for textile and apparel under EBA and Cotonou agreement follow those postulated by EU's "single list" (Portugal-Perez, 2008). The "Single List", implemented since July 2000, harmonised rules of origin under various trading agreements, and extended the double transformation process to all apparel lines under chapter 61 and 62 of the Harmonised system. For textile and apparel, the rules of origin required that apparel be manufactured from yarn wholly produced in the exporter country. Production from yarn entails a double transformation process in the beneficiary country, with the yarn being woven into fabric and fabric cut and made into clothing (yarn to fabric to apparel). The EBA initiative imposes a further burden on African countries in that the cumulation provision is 'bilateral'[6] (EU and beneficiary country). In other words, fabrics cannot be sourced from countries in the region to manufacture clothing; only fabrics made in the exporting country or the EU are acceptable. Cotonou agreement allows full cumulation among African countries so that regional fabrics can be used without compromising origin requirements. It also attached extensive conditions to potential cumulation with non-ACP countries, including South Africa.

[6] With bilateral cumulation, parties can use intermediate goods from each other without losing origin status.

2.3 AGOA Countries' Apparel Exports to US and EU-15

US total imports under AGOA are heavily concentrated in crude petroleum, which account for a share of roughly 90%. Imports other than crude petroleum include agriculture, manufactured goods (including electronics, machinery, transportation equipment, chemicals and miscellaneous manufacturing), natural resources (non-crude petroleum energy, minerals and metals) and textiles and apparels (USITC, 2014). Apparel was the main non-petroleum product category imported under AGOA in the early years of the program, but has since faltered in rank and value.





As shown in Figure 1, exports in this category increased sharply in the first three years of AGOA's launch, growing by 70% on average. Since 2005, which also marks the termination of the Agreement on Textiles and Clothing, US imports of apparel from the region dwindled, posting an average growth of -3.4% to 2016. The value of EU-15 apparel imports from the same group countries, on the other hand, stayed relatively flat until 2008, declined during the recession and picked up again in 2013. A similar pattern is observed with US imports post 2008. Overall, however, the value of US imports of apparel remained higher than EU imports since AGOA's inception.

A more disaggregated view of the apparel sector shows that US imports of knitted and non-knitted apparel articles from Africa bear a very close resemblance (Figure 2). This contrasts remarkably with EU-15, which appears to source more Knitted apparel (CH61) from Africa than Non-Knitted items.

3. Literature review

Considering that the intent of AGOA is to enhance Africa's integration into the global economy by encouraging trade and investment, generate employment and increase productivity and per capita income growth, its impact on beneficiaries' exports to the US has generated a lot interest among researchers. To this end, various approaches have been used including computable general equilibrium models (Bouët et al., 2010), partial equilibrium models (Mattoo et al., 2003; Shapouri and Trueblood, 2003; Laborde, 2008), analysis of raw trade data and AGOA provisions (Brenton and Hoppe, 2006; Brenton and Ikezuki, 2004; Dean and Wainio, 2006), country case studies (Lall, 2005; Rolfe and Woodward, 2005; Phelps et al., 2009), gravity model (Nouve and Staatz, 2003; Nouve, 2005; Seyoum, 2007; Tadesse and Fayissa, 2008; Mueller, 2008) and triple difference-in-differences models (Collier and Venables, 2007; Frazer and Van Biesebroeck; 2010)7.

Yatrakis (2002) is among the first to assess the impact of AGOA, claiming that $1 billion of trade was created within its first year, accounting for 17% of total SSA exports to the US. However, this was very much limited to five countries, with South Africa responsible for two thirds of exports via AGOA. Given that South Africa is the largest and most developed in the region, which implies fewer internal constraints compared to other beneficiaries, Yatrakis explains that it is not surprising to find South Africa instantly benefitting from AGOA. More recently, Didia et al. (2015) perform a cross-country analysis by applying the gravity model using ordinary least squares (OLS) and generalized methods of moments (GMM) estimation technique on aggregated data spanning 12 years. They find a large, positive and significant impact caused by the Act, but the promising results wither once the five major oil producing nations are not included. The authors conclude that there is a disproportionate impact in favour of crude oil exporters, which does not align with the intentions of the Act, and suggest that any future research regarding AGOA should

[7] See Condon and Stern (2011) for an interesting review of these studies.

be carried out specifically on non-energy products to remove distortion (Didia et al., 2015). The disentanglement Didia et al. propose has partly been accomplished in previous work of Tadesse and Fayissa (2008). Using the gravity model to assess the impact of AGOA, they undertake a comprehensive analysis of manufactured and non-manufactured goods at a 2-digit HTS level. The authors state that AGOA had a statistically significant trade initiation effect across 24 of the 99 product categories (compared to negative and significant for just 2 product categories), with the effect on apparel exports being particularly large.

Among all manufactured goods sector, apparel witnessed a particularly sharp rise in exports following AGOA implementation. The Apparel provision however worked in favour of a small group of countries, mainly located in Southern and Eastern Africa (Rolfe and Woodward, 2005; Olarreaga and Özden (2004); Edwards and Lawrence, 2010). Primary research is used by Phelps et al. (2009) to assess AGOA's impact on Kenya's clothing industry. Interacting with two thirds of the clothing producers in the country, they conclude that AGOA has reignited the industry. A similar success story resonates for the small landlocked country, Lesotho, whose apparel exports surpassed that of more coastal countries having more established industrial sectors such as Mauritius and South Africa (Lall, 2005).

Although Seyoum (2007) finds no significant effect of AGOA on beneficiaries' overall exports to the US over 2000-2004 period, his analysis of energy, minerals and apparel sectors shows that AGOA-induced statistically significant gains only in the case of apparel exports. Portugal-Perez (2008) reports that the more relaxed rules of origin embodied in the special provision of AGOA increased exports of apparel by about 300 % for the top seven beneficiaries and 96% for the whole sample of 22 countries eligible for the special provision. Using a triple difference-in-differences regression as a means to effectively isolate AGOA and circumvent issues rising from endogeneity of policy, the dispersed impact on apparel products on SSA countries is confirmed by Frazer and Van Biesebroeck (2010) who estimate a variation ranging from 9% to 155% rise in exports, with five out the 26 countries being negatively affected. They, however, establish that the impact of the

Act on apparel trade for the whole sample of countries is substantial and grows significantly over time from 21.9% in 2002 to 44.4% in 2006. Collier and Venables (2007) find that the AGOA apparel provision increased apparel exports to the United States by a factor of 7.4 over 1991-2005.

In contrast to the large body of work on impacts of the Act on exports to the United States, the indirect effects of such trade policy on export to other key markets is a relatively less covered area. As part of robustness checks for their main findings, Frazer and Van Biesebroeck (2010) provide some evidence that heightened US imports under AGOA is not a result of trade redirection from EU. They use imports from 25 EU countries instead of US imports as dependent variable in their specification but limit their time coverage to 1999, 2000, 2002 and 2003. Collier and Venables (2007) also factor in EU imports in their regression model by considering the value of apparel exports from the exporting country to the US relative to its apparel exports to the EU as the dependent variable. Using dummy variables, they compare the effectiveness of AGOA and EU's 'Everything but Arms' (EBA) initiative on African apparel exports. They find that AGOA has a more favourable effect on African apparel exports compared to EU's trade preferences and attribute this to AGOA's special apparel waiver.

4. Model Specification and Data Sources

The Gravity Model

In line with the literature on trade displacement effects, we use the gravity model as our econometric specification. In its basic form, the gravity model posits that trade between two countries is positively influenced by economic size, captured by gross domestic product of the trading partners, and negatively affected by distance between them. The model is augmented with other trade inhibiting and trade facilitating variables and has been used and developed in Anderson (1979); Bergstrand (1985); Deardorff (1995); Eaton and Kortum (2002); Evenett and Keller, 2002. Empirical work have been proposed by Eichengreen et al. (2004), Greenaway et al. (2008), Amann et al. (2009), Athukorala (2009) on China effect on Asian countries' exports; Giovanetti and

Sanfilippo (2009) on African exporters and Giovanetti and Sanfilippo (2012) on EU exports to OECD markets.

For our purpose, we estimate the following gravity specification:

$$lnEUIMP_{ijt} = \beta_0 + \beta_1 lnUSIMP_{jt} + \beta_2 lnGDP_{it} + \beta_3 lnGDP_{jt} + \beta_4 lnGDPC_{it} + \beta_5 lnGDPC_{jt} + \beta_6 lnDIST_{ij} + \beta_8 lnAREA_{ij} + \beta_9 Landlocked_{ij} + \beta_{10} Colony_{ijt} + \beta_{11} ComLang_{ij} + \beta_{12} Polity_{jt} + \varepsilon_{ijt} \quad (1)$$

where

$EUIMP_{ij}$	Imports of EU-15 country *i* from African country *j*
$USIMP_{jt}$	US imports from African country *j*
GDP_{it}	Real GDP of EU country *i*
GDP_{jt}	Real GDP of African country *j*
$GDPC_{it}$	Real GDP per capita of EU country *i*
$GDPC_{jt}$	Real GDP per capita of African country *j*
$DIST_{ij}$	Distance between country *i* and *j*
$AREA_{ij}$	Product of land areas (km^2) of country *i* and *j*
$Landlocked_{ij}$	Number of landlocked countries in pair (0/1/2)
$Colony_{ijt}$	Binary dummy =1 if i ever colonized j, zero otherwise
$ComLang_{ij}$	Binary dummy = 1 when country *i* and *j* share common language, zero otherwise
$Polity_{jt}$	Polity index score of country *j*

We use EU and US imports as our dependent variable. A negative coefficient on our variable of interest, US imports from African country j (USIMPj), would indicate displacement of EU exports from an increase in exports to US under AGOA. A positive coefficient would imply that exports to the two markets are complementary. GDP and per capita GDP capture the sizes of African exporters and EU importers. This in turn determines export supply of exporters and import demand respectively.

The product of land areas of country pairs traditionally has a negative relation with the dependent variable as it represents a greater amount of production occurring further away from the borders of a country with the aim of supplying the domestic market (Greenaway et al. 2008). Landlockedness raises transportation costs in terms of port access, therefore negatively affecting bilateral trade. Colonial links are expected to increase bilateral trade due to the infrastructure

established that country *j* will still benefit from, sharing a language is another common variable in the contemporary gravity model that is known to have a positive impact (Greenaway, 2008; Tadesse and Fayissa, 2008; Didia et al. 2015; Didier and Hoarau, 2016).

Lastly, Polity captures the effect of better institutionalised democracy of country j and is expected to have a positive influence on trade. Anderson and Marcouiller (2002) proposed that hidden transaction costs such as imperfect contract enforcement have a significant impact on the propensity to trade and should therefore be included in the gravity equation. This has typically been captured by corruption indices in the literature. We use a broader measure of individual exporter's institutional quality and political stability (polity) to capture such hidden costs. As noted by Eichengreen et al. (2004, p. 13), such variables have the additional benefit of being close substitutes for country fixed effects and should therefore be included in the regression.

Data Sources

Bilateral apparel imports of each EU-15 country from 54 African countries are sourced from EU trade since 1988, Eurostat and are converted to US dollars using exchange rate from FRED (2017). Bilateral US imports from Africa are obtained from USITC Interactive Tariff and Trade Dataweb. US GDP deflator is then used to calculate real trade values for both EU-15 imports and US imports. Real GDP and Population data are taken from the World Development Indicators. Distance, product of land areas, landlockedness, colonial relationships and common language are obtained from CEPII's GEOdist database. Polity data is sourced from the Centre for Systemic Peace's Polity IV Annual time series. Information on AGOA and special waiver country eligibilities (presented in Appendix A) are obtained from International Trade Administration (ITA), US Department of Commerce. The descriptive statistics of variables in our specification are given in Table 1 below.

Table 1: Descriptive Statistics

	(1)	(2)	(3)	(4)	(5)
VARIABLES	N	Mean	SD	Min	Max

$lnEUIMP_{jt}$	4,507	9.124	3.527	0.0208	19.55
$lnUSIMP_{jt}$	8,234	11.26	3.764	5.490	20.04
$lnGDP_{it}$	12,495	27.07	1.144	24.43	28.96
$lnGDP_{jt}$	12,095	22.71	1.534	18.59	26.86
$lnGDPC_{it}$	12,495	10.66	0.354	9.963	11.63
$lnGDPC_{jt}$	12,095	7.050	1.038	5.267	9.920
$lnDIST_{ij}$	12,495	3.771	0.121	3.375	4.010
$lnAREA_{ij}$	12,495	10.44	0.986	7.178	12.14
$Landlocked_{ij}$	12,495	0.419	0.533	0	2
$Colony_{ijt}$	12,495	0.0735	0.261	0	1
$Comlang_{ij}$	12,495	0.133	0.340	0	1
$Polity_{jt}$	11,555	2.035	5.205	-9	10

5. Results and Discussion

We estimate equation (1) using OLS and Two Stage Least Squares (2SLS)[8] and results are shown in Tables 2 and 3. Column (1) shows the gravity estimates for the African countries eligible for the wearing apparel provision over the entire period 2001-2016. To factor in possible effects of the phasing out of the Agreement on Textiles and Clothing (ATC) on Apparel exports, we separately consider four years before the removal of the agreement (2001-2004) and four years after its complete phase out (2005-2008). Results are reported in columns (2) and (3) respectively. We also examine whether AGOA impacts on EU exports differ by type of apparel exported, especially given that AGOA offers more lenient rules of origin. The last two columns (4) and (5) show results for Knitted Apparel (CH61) and Non-knitted Apparel (CH62) sub-sectors.

Table 2: OLS Estimates

	(1)	(2)	(3)	(4)	(5)
	All Apparel	All Apparel	All Apparel	Knitted	Non-Knitted
Dependent Variable:		With ATC	Without ATC	(CH61)	(CH62)
Log EU Imports	2001-2016	2001-2004	2005-2008	2001-2016	2001-2016

[8] We employ two instruments that have been widely used in exports displacement literature for the potentially endogenous USIMP. These are (i) US GDP expressed in natural logarithm and (ii) the distance between US and each African nation, also in natural logarithm. It is reasonable to believe that US imports of apparel would be commensurate to its GDP. By the same token, the bilateral distance is a key determinant of trade between two partners as it is a reflection of transportation costs.

Ln $USIMP_{jt}$	0.270***	0.146**	0.0979**	0.182***	0.228***
	(0.0296)	(0.0566)	(0.0434)	(0.0350)	(0.0262)
Ln GDP_{it}	0.617***	0.667***	0.632***	0.616***	0.566***
	(0.159)	(0.195)	(0.211)	(0.201)	(0.147)
Ln GDP_{jt}	0.355***	-0.0897	0.290*	0.259*	0.220**
	(0.115)	(0.202)	(0.167)	(0.139)	(0.108)
Ln $GDPC_{it}$	-1.988***	-1.905**	-2.900***	-2.718***	-1.677***
	(0.495)	(0.754)	(0.748)	(0.622)	(0.614)
Ln $GDPC_{jt}$	-0.170	0.485	-0.236	-0.292	-0.343**
	(0.197)	(0.304)	(0.285)	(0.252)	(0.156)
Ln $DIST_{ij}$	4.926***	8.691***	6.999***	8.879***	1.425
	(1.417)	(2.272)	(1.906)	(1.811)	(1.164)
Ln $AREA_{ij}$	-0.403*	-0.113	-0.536*	-0.580**	0.0904
	(0.223)	(0.262)	(0.282)	(0.234)	(0.215)
$Landlocked_{ij}$	-0.651**	-0.817**	-0.759**	-0.472	-0.355*
	(0.269)	(0.386)	(0.340)	(0.337)	(0.211)
$Colony_{ijt}$	1.897***	1.528**	1.240	1.581**	1.889***
	(0.654)	(0.763)	(0.803)	(0.757)	(0.487)
$Comlang_{ij}$	1.107**	1.565***	1.364**	0.983	0.781**
	(0.509)	(0.578)	(0.601)	(0.597)	(0.365)
$Polity_{jt}$	0.148***	0.159***	0.182***	0.149***	0.0955***
	(0.0295)	(0.0387)	(0.0386)	(0.0354)	(0.0254)
Constant	-12.15	-23.84*	-4.876	-13.51	-1.753
	(8.111)	(12.63)	(11.27)	(10.28)	(8.461)
Observations	2,578	514	704	1,841	1,410
R-squared	0.405	0.507	0.384	0.404	0.299

Notes on Table: Robust standard errors in parentheses. *, **, *** indicate insignificance at 10%, 5% and 1% level, respectively

As expected, importer's and exporter's GDP are found to have a statistically significant positive effect on bilateral trade. Being landlocked and having a large land area reduce trade while an improvement in institutional quality and sharing colonial ties and common language facilitate trade. However, bilateral distance and importer's GDP per capita, despite being statistically significant, carry the wrong signs. This may be attributable to the bias caused by the endogeneity of our key variable, USIMPjt. In general, our variable of interest is statistically significant and shows no evidence of exports displacement. In fact, the positive coefficients point to some degree of complementarity between African apparel exports to USA and EU.

The gravity model performs better once endogeneity of USIMP is accounted for – see Table 3 below. The high values of the first-stage F-statistic and statistically non-significant Hansen J statistic support the relevance and exogeneity of our instruments. EU-15 countries import more with an increase in their GDP and bilateral distance reduces the trade flow between partners.

Importers' and exporters' GDP per capita and exporters' GDP are found not to be statistically significant. This may not be surprising given that preferential trade in a specific sector is being considered. Unlike the case of aggregate trade, exporters' GDP may not matter and so would GDP per capita that capture market size. Landlockedness is found to deter trade flows due to higher transportation costs as these nations inevitably rely on political stability, infrastructure and institutions of neighbouring transit countries. Sharing a common language and colonial ties enhance trade flows. Not surprisingly, countries with better institutional and democratic framework also engage more in trade. Rampant corruption, underdeveloped institutions, constraints on business competition, and weak governance, on the other hand, impose high trading costs placing some African nations at a considerable disadvantage (Portugal-Perez and Wilson, 2008).

Table 3: Two-Stage Least Squares (2SLS) Estimates

Dependent Variable: Log EU Imports	(1) All Apparel 2001-2016	(2) All Apparel With ATC 2001-2004	(3) All Apparel Without ATC 2005-2008	(4) Knitted (CH61) 2001-2016	(5) Non-Knitted (CH62) 2001-2016
Ln $USIMP_{jt}$	1.084***	1.301***	1.525***	1.163***	0.865***
	(0.148)	(0.373)	(0.385)	(0.157)	(0.160)
Ln GDP_{it}	0.727***	0.882***	0.658**	0.563***	0.639***
	(0.178)	(0.263)	(0.294)	(0.196)	(0.175)
Ln GDP_{jt}	0.0618	-0.926**	0.361	-0.0525	-0.177
	(0.153)	(0.444)	(0.275)	(0.180)	(0.160)
Ln $GDPC_{it}$	0.149	0.307	-0.255	-0.201	0.677
	(0.790)	(1.595)	(1.302)	(0.791)	(0.859)
Ln $GDPC_{jt}$	0.175	1.219**	-0.689	0.104	0.174
	(0.233)	(0.520)	(0.454)	(0.273)	(0.237)
Ln $DIST_{ij}$	-8.502***	-14.17*	-13.75**	-9.888***	-7.354***
	(2.768)	(8.085)	(5.804)	(3.305)	(2.426)
Ln $AREA_{ij}$	0.256	1.152*	-0.103	-0.0999	0.942***
	(0.264)	(0.604)	(0.411)	(0.264)	(0.334)
$Landlocked_{ij}$	-0.636**	-0.849*	-0.716	-1.050***	-0.339
	(0.320)	(0.507)	(0.582)	(0.369)	(0.276)
$Colony_{ijt}$	1.863***	0.856	2.023*	1.863**	1.802***
	(0.661)	(0.853)	(1.147)	(0.759)	(0.590)
$Comlang_{ij}$	1.564***	2.657***	1.507*	1.219**	0.985**
	(0.559)	(0.737)	(0.854)	(0.613)	(0.473)
$Polity_{jt}$	0.146***	0.0660	0.166***	0.114***	0.0567
	(0.0390)	(0.0577)	(0.0576)	(0.0380)	(0.0349)
Constant	-0.290	18.56	22.52	19.83*	-6.409
	(9.146)	(18.06)	(15.10)	(10.93)	(10.01)
Observations	2,578	514	704	1,841	1,410
1st Stage F-Stat	60.64	10.07	13.61	77.82	28.78
Hansen J (pvalue)	0.336	0.512	0.416	0.475	0.699

Notes on Table: Robust standard errors in parentheses. *, **, *** indicate insignificance at 10%, 5% and 1% level, respectively.

Moreover, the complementary effects of African apparel exports between the USA and EU are maintained across various (sub)samples with all coefficients of lnUSIMP being positive and statistically significant, thus echoing the findings of Frazer and Van Biesebroeck (2010). Over the entire period (2001-2016), a 1% increase in apparel exports to the US confers roughly the same percentage (1.1%) increase in exports to the EU. When the structural change from the removal of quotas on exports of textiles and clothing on 1st January 2005 is taken into account, we find that African nations tend to export slightly more to the EU after the phase out. In the four years starting January 2005, a 1% rise in exports to the US led to 1.5% increase in exports to the EU (column 3) compared to a 1.3% increase over the 2001-2004 period (column 2). The complementary effect is also evident in the apparel sub-sectors (columns 4 and 5). A 1% increase in African knitted exports to the US leads to 1.16 % percentage increase in exports to the EU. However, a 1% increase in non-knitted apparel exports to the US leads to a less than proportionate rise to EU markets.

Furthermore, our estimated regression coefficients are plausible and robust when importer fixed effects and year effects are being considered – Table 4 (see Baldwin and Taglioni (2007) for detailed discussion of inclusion of multilateral resistance terms in gravity model to avoid misspecification). Notwithstanding, the lower coefficient of the variable of interest post-ATC removal, the statistically significant complementary effects of African apparel exports to the two destinations holds across all specifications. The preference of EU markets for Knitted African apparel exports is again noticeable.

One of the instrumental variable, namely lnUSGDP is dropped due to collinearity. In the presence of one instrument, the equation is exactly identified and standard overidentification tests do not apply. Two additional test statistics for the weak identification and under-identification are

reported. Both suggest that the instrument, bilateral distance between US and each African exporter in logarithmic form, is efficient.

Table 4: Two-Stage Least Squares (2SLS) Estimates with importer and time effects

Dependent Variable: Log EU Imports	(1) All Apparel 2001-2016	(2) All Apparel with ATC 2001-2004	(3) All Apparel without ATC 2005-2008	(4) Knitted CH61 2001-2016	(5) Non-Knitted CH62 2001-2016
Ln $USIMP_{it}$	0.995***	1.554**	1.219***	0.918***	0.551***
	(0.230)	(0.669)	(0.405)	(0.179)	(0.116)
Ln GDP_{it}	1.310	9.133	-9.325	-0.855	-3.333
	(4.018)	(22.12)	(16.41)	(4.292)	(4.075)
Ln GDP_{jt}	0.189	-1.219*	0.469*	0.278	0.142
	(0.178)	(0.702)	(0.253)	(0.177)	(0.147)
Ln $GDPC_{it}$	3.474	-4.757	1.550	3.723	6.963
	(4.598)	(25.47)	(12.04)	(5.066)	(4.944)
Ln $GDPC_{jt}$	0.000145	1.500**	-0.752*	-0.267	-0.240
	(0.203)	(0.733)	(0.388)	(0.232)	(0.180)
Ln $DIST_{ij}$	-5.099	-19.39	-6.840	-2.959	-1.186
	(3.735)	(13.93)	(6.214)	(3.572)	(1.782)
Ln $AREA_{ij}$	0.120	1.726	-0.327	-0.569*	0.348
	(0.401)	(1.165)	(0.455)	(0.308)	(0.337)
$Landlocked_{ij}$	-0.644**	-0.938	-0.908	-0.739*	-0.221
	(0.310)	(0.687)	(0.650)	(0.403)	(0.247)
$Colony_{ijt}$	0.256	0.567	-0.0786	-0.0348	0.644
	(0.593)	(1.017)	(1.005)	(0.625)	(0.479)
$Comlang_{ij}$	2.393***	1.548	2.537**	2.172***	1.523***
	(0.650)	(1.002)	(1.044)	(0.719)	(0.439)
$Polity_{jt}$	0.163***	0.0621	0.162***	0.149***	0.0798***
	(0.0374)	(0.0788)	(0.0516)	(0.0377)	(0.0262)
Constant	-63.58	-132.0	248.9	-7.757	12.17
	(65.37)	(366.4)	(367.5)	(70.35)	(63.56)
Importer fixed effects	Yes	Yes	Yes	Yes	Yes
Time effects	Yes	Yes	Yes	Yes	Yes
Observations	2,578	514	704	1,841	1,410
Kleibergen-Paap rk LM	26.42	7.571	13.97	50.62	32.30
p-value	0.0000	0.0059	0.0002	0.0000	0.0000
Kleibergen-Paap rk Wald F	39.35	9.007	17.33	91.19	51.08
p-value	0.0000	0.0030	0.0000	0.0000	0.0000

Notes on Table: Robust standard errors in parentheses. *, **, *** indicate insignificance at 10%, 5% and 1% level, respectively.

Discussion

Since EU rules of origin do not grant producers in African LDCs the freedom to source fabrics from anywhere in the world as is possible under AGOA, one would expect AGOA's special rule beneficiaries to redirect their non-knitted apparel exports to the US at the expense of the EU. We find evidence of a preference for the US market in this sub-sector but there is no export

crowding out. In comparison, these countries tend to favour EU-15 market for their knitted apparel exports, to which EU's more restrictive rules do not directly apply.

Following AGOA's implementation in 2000, apparel exports from the region to the US increased rapidly until expiry of ATC in 2005. Although a number of countries were AGOA-eligible, over 95% of the apparel exports to the US were accounted for by a handful of countries, namely Lesotho, Kenya, Madagascar, Mauritius, Swaziland and South Africa (Gillson et.al., 2007). Investors from quota-constrained suppliers, in particular China and Taiwan, set up factories in some of these countries especially those benefitting from the "third country fabric provision" and used them as backdoors to access US market duty free and quota-free. With the phase out of ATC, many Asian firms closed the apparel facilities, leading to sharp drop in apparel exports to the US in the first few years following its expiry. It is not surprising to find that AGOA did not have any crowding out effect on apparel exports to the EU, which remained fairly steady since 2000. The stronger complementary effect post ATC termination suggests that less competitive AGOA country suppliers diversified their markets away from US in face of mounting competition from South and East Asian apparel exporters that obtained new quota-free access to the US markets.

Overall, despite its efforts to improve beneficiaries' economic and institutional structure and more liberal rules of origin, it can be argued that AGOA did not have the ability to substantially attract exports away from the other major market. A number of reasons could explain this. First, the higher transportation costs resulting from distance and lack of efficient trade linkages to the US market relative to the EU is a key barrier that many African nations struggle to overcome (USITC, 2014). Second, the margin of preference enjoyed by African nations under AGOA is shrinking as more countries supply the US under other trade agreements such as Central America Free Trade Agreement (CAFTA) and North American Free Trade Agreement (NAFTA), which account for a larger share of the US apparel market under preference, dwarfing by far African

countries' share under AGOA (Naumann, 2012). Third, concerns have been expressed over the short term and last minute renewals of the third country fabric provision. Before its latest new lease of life in 2015, the provision was renewed for periods of only three to five years, which are deemed as not certain enough to place new orders or undertake new investments (USITC, 2014). Investment decisions can also be influenced by the revocation of AGOA status if eligibility criteria are not met. With a high likelihood that some fragile African states may not meet these criteria, they are likely to revert to weak governance, hence forestalling potential investments that would only be profitable with free market access.

6. Conclusion

This paper extends the literature by examining potential displacement effect of apparel exports to the EU as a result of increased exports under AGOA over the period 2001-2016 using the gravity model. Our estimation strategy addresses the problem of endogeneity of our variable of interest. Empirical results show no evidence of such displacements but instead reveal a strong complementary effect between exports to the two markets. This positive effect still holds in the Non-Knitted (CH62) apparel sector despite a more relaxed rule of origin offered under AGOA compared to EU's EBA and Cotonou Agreement. However, for every percentage increase in exports of Non-Knitted apparel to the US, there is a less than proportionate increase to EU-15, suggesting that the special waiver under AGOA remains attractive to African apparel exporters. Not surprisingly, EU-15 markets attract more Knitted apparel from Africa than does the US.

It is worth noting that although a number of African countries are eligible for the Apparel provision, apparel exports originate from only a handful of countries; in particular Kenya, Lesotho, Ethiopia, Mauritius and Swaziland. Despite the duty-free privilege, other nations have not been successful in expanding their apparel exports due to higher transportation costs to the US relative to the EU. African apparel also competes head to head against exports US neighbours who equally benefit from duty-free access under trade arrangements. African nations are further disadvantaged

by poor infrastructure, cumbersome customs procedures and dearth of technical and managerial talent. Uncertainty surrounding AGOA and its apparel provision renewals has also prompted African apparel exporters to retain their more secure EU markets. Despite the restrictive rules of origins in EU's EBA program, African apparel producers still stand to benefit from the more liberal cumulation allowances offered by EU's Cotonou Agreement, allowing African apparel exporters to source their fabrics from the region and meet the demands of EU markets.

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Appendix A: African Countries' Eligibility for AGOA, Apparel Provision and Special Rule, 2001-2016

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Angola				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Benin	✓	✓	✓	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S
Botswana	✓	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S
Burkina Faso						✓	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S
Burundi						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cameroon	✓	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S
Cape Verde	✓	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S
Central Af Rep	✓	✓	✓													✓
Chad	✓	✓	✓	✓	✓	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S
Comoros								✓	✓	✓	✓	✓	✓	✓	✓	✓
Congo Dem R			✓	✓	✓	✓	✓	✓	✓	✓						
Congo ep	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cote d'Ivoire		✓	✓A S	✓A S							✓	✓	✓A S	✓A S	✓A S	✓A S
Djibouti	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Eq. Guinea																
Eritrea	✓	✓	✓													
Ethiopia	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S
Gabon	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Gambia			✓	✓	✓	✓	✓	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S		
Ghana	✓	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S
Guinea	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
Guinea Bissau	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
Kenya	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S
Lesotho	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S
Liberia							✓	✓	✓	✓	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S
Madagascar	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S					✓A S	✓A S	✓A S
Malawi	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S
Mali	✓	✓	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S		✓	✓	✓
Mauritannia	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓
Mauritius	✓A	✓A	✓A	✓A S	✓A S	✓A S	✓A	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S
Mozambique	✓A	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S
Namibia	✓A	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S
Niger	✓A	✓A	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S		✓A S	✓A S	✓A S	✓A S	✓A S	✓A S
Nigeria	✓A	✓A	✓A	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S
Rwanda	✓A	✓A	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S
Sao Tome	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Senegal	✓	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S
Seychelles	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sierra Leone	✓	✓	✓	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S	✓A S
Somalia																
South Africa	✓A	✓A	✓A	✓A	✓A	✓A	✓A	✓A	✓A	✓A	✓A	✓A	✓A	✓A	✓A	✓A

South Sudan													✓	✓		
Sudan																
Swaziland	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]		
Tanzania	✓	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]
Togo								✓	✓	✓	✓	✓	✓	✓	✓	✓
Uganda	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]
Zambia	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]	✓[A S]
Zimbabwe																

Source: United States International Trade Commission, (2014). Updated using information from USITC Dataweb and AGOA.info (https://agoa.info/about-agoa/country-eligibility.html)

Key: ✓: Eligible for AGOA; [A] Eligible for Apparel Provision; [S] Eligible for Special Rule

EU-15 Countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom.