# An evaluation of the US African Growth and Opportunity Act (AGOA) trade arrangement with Sub-Saharan African countries

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**Abstract**:

*This paper evaluates the impact of the US African Growth and Opportunity Act (AGOA) trade arrangement on the growth of exports from Sub-Saharan African (SSA) countries. Using several variants of propensity score matching techniques, results show that the impact of AGOA on SSA exports is generally negative and statistically significant. The same conclusion is reached using the difference in differences (DID) method. Further, descriptive statistics show that the proportions of Africa's exports going to the EU and the US since 2011 have been declining and the export shares of the three largest exporters to the US, namely, South Africa, Nigeria and Angola, are falling.*

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Economic growth has been varied across regions of the world, and for many years Africa has been lagging behind. The Sub-Saharan African (SSA) region, in particular, has been characterised by sluggish growth and high poverty and unemployment levels, as well as widening income inequality in some countries. The poor economic performance was, in part, a result of international trade rules that imposed costs on goods and services in which the African countries had a comparative advantage (for example, textiles and agricultural products), and of a lack of progressive economic policies (Haykin, 1991). The debt crisis of the 1980s contributed to the poor performance of some African economies (Greene and Khan, 1990), and the proposed solution to the debt crisis (in the form of structural adjustment

programmes) worsened the socio-economic situation in many countries. Despite the large inflows of aid, the poor performance of African economies resulted in some scholars questioning the effectiveness of that aid (Easterly, 2006; Collier, 2007; Moyo, 2009). Over time, the amounts, composition and stability of aid flows to Africa have increasingly become varied, more so with the occurrence of wars and natural disasters in other regions of the world.

In order to maintain a grip on growth and development in Africa, the European Union (EU) provided aid and trade support to African countries under the Lomé Conventions (1975-2000) and more recently the Cotonou Agreement (2000-2020). From the late 1990s, the thrust for growth and development focused on trade and trade liberalization and pro-poor growth initiatives. On the foundation of the Cotonou Agreement, the EU has been negotiating regional economic partnership agreements with African countries. In fact, the current trend is towards greater regional integration, with various regional groupings existing on the African continent.

One other trade arrangement that came about at the turn of the century is the trade arrangement between the US and African countries under the US's African Growth and Opportunity Act (AGOA). It is this arrangement that is the focus of this paper. It is important to note that the AGOA came into existence in the international trade space where other trade arrangements already existed, for example, between SSA and the EU, several multilateral trade arrangements within SSA itself, as well as bilateral relationships between individual SSA countries and other countries in the world. The plethora of trade arrangements, including the AGOA, creates opportunities for both trade creation and trade diversion. As this paper finds, this possibility poses a challenge for the future existence of the AGOA itself. These issues are examined as part of the evaluation of the benefits of the AGOA.
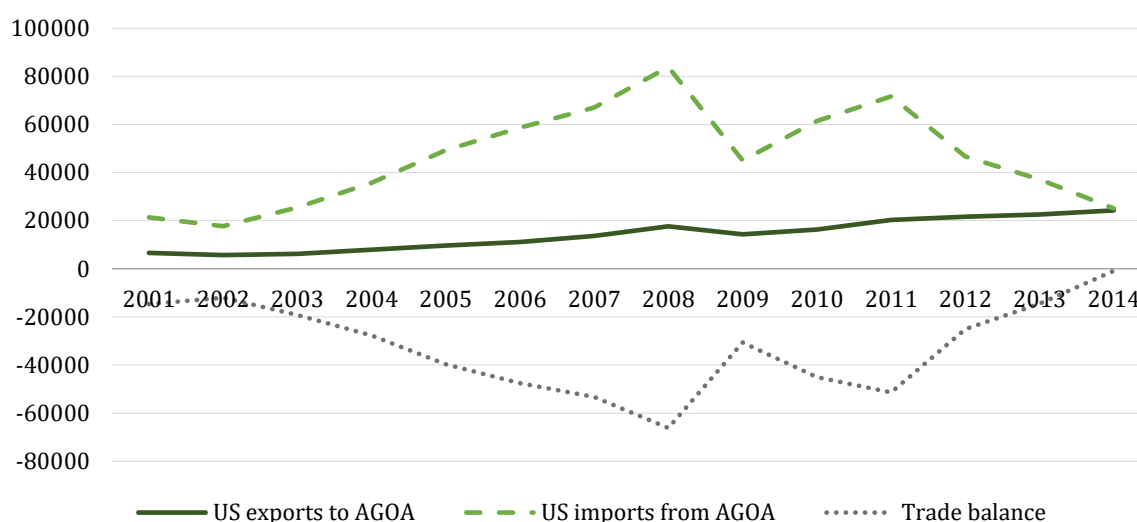
One key difference between the EU and US trade relations with Africa is that the US's strategy has been that of negotiating bilateral agreements, whereas the EU's strategy has been to negotiate multilateral trade agreements. The latter's strategy, although cumbersome, offers privileged trade arrangements to blocs of countries, which, through economies of scale, reduce costs. The distinction above is very important for the policies and actions of African countries. As argued later, the EU strategy may be more beneficial to African countries and, given the declining trend of trade flows to the US, African countries may need to increase their efforts towards regional integration.

The AGOA was signed into law in 2000 by the US government to promote preferential market access to exports from eligible SSA countries through a reduction or removal of tariffs on different products. The AGOA was initiated as a non-reciprocal trade preference arrangement that provides duty-free treatment to US imports of certain products from eligible SSA countries. The AGOA was built on pre-existing US trade programmes by expanding the (duty-free) benefits previously available only under the General System of Preferences program (GSP).[1] The duty-free access to the US market under the combined AGOA/GSP program now stands at approximately 7,000 product tariff lines, including roughly 1,800 product tariff lines that were added to the GSP through the AGOA. However, the AGOA covers more products and includes additional eligibility criteria beyond those in the GSP. The newly added products include items such as apparel and footwear, wine, certain motor vehicle components, a variety of agricultural products, chemicals and steel. The US congress authorised the AGOA to encourage export-led growth and economic development in SSA, as well as to improve economic relations. Figure 1 shows the trends of trade volumes between the US and AGOA countries.

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[1] This is a US trade preference program that applies to more than 120 developing countries.

Figure 1 – *Exports and imports of goods: US-AGOA (US$ millions)*



*Source:* International Trade Centre, *Trade Map*, available at: https://www.trademap.org/Index.aspx.

Figure 1 shows that Africa's exports to the US increased steadily from 2001 to reach a maximum of US$83 billion in 2008, before sliding to about US$25 billion in 2014. The decline between 2008 and 2009 was, in part, due to the global financial crisis. African countries' exports have been on a downward trend since 2011. On the other hand, the US's exports to AGOA beneficiaries started from a low level but increased steadily over the years from 2001 to a maximum of US$25 billion in 2014. From Africa's perspective, the graph shows a worsening trade balance between 2008 and 2009, which may partly be a result of the food, fuel and financial crises that occurred during that period. On average, from 2011 onwards, the US benefited proportionately more from the AGOA than did the African countries, as the US trade balance increasingly improved and became positive from 2014 onwards.

Edwards and Lawrence (2011) argue that the AGOA has stimulated exports of manufactured products, especially clothing, but the ultimate impact on economic development has been quite disappointing. According to Frazer and Van Biesebroeck (2007), the AGOA legislation explicitly allows the US president to grant duty-free treatment for non-apparel goods on the basis of advice and guidance from the US trade representative and the International Trade Commission as to whether or not the goods are considered 'sensitive' when first imported. This selective implementation of tariff concessions differs from widespread free trade agreements, thus making the impact of the AGOA less obvious. The benefits of the AGOA may also be dampened by the fact that trade restrictions may not be the primary constraint on the growth of Africa's exports. Collier and Gunning (1999) identified the chief factors explaining Africa's poor economic performance as distorted product and credit markets, high risk, inadequate social capital, inadequate infrastructure, and poor public services. Therefore, these internal factors may continue to constrain African exports even after the removal of US import restrictions. Nonetheless, it is also true that one of the many factors cited for inhibiting the development of Africa and other low-income countries is the trade barrier imposed by high-income countries on the imports of commodities in which poor

countries are likely to have a comparative advantage: textiles and some agricultural products in particular (Frazer and Van Biesebroeck, 2007).

The US acknowledges that the objectives of the AGOA cannot be met through market access alone. Therefore, the US works closely with African governments and businesses to enhance AGOA recipients' trade benefits by launching other trade-related initiatives. For example, the centrepiece of US support for building trade capacity for the last five years has been the $200 million African Global Competitiveness Initiative (AGCI). The main objective of the AGCI is to assist African countries to make the most of the trade opportunities available under the AGOA trade arrangement. Although African countries are not obliged to reciprocate the AGOA trade preferences for US goods, only a limited number of countries have successfully made significant use of the AGOA benefits. As a consequence, there are doubts about the beneficiary countries' abilities to make maximum use of the short-term preferential benefits, and to transform and enhance their capabilities and competitiveness in the long term.

This paper contributes to the existing literature that interrogates the effectiveness of the US-SSA trade relationship. It investigates the impacts of the AGOA on beneficiary countries in the region, 16 years after its implementation. This research is motivated by the desire to provide further evidence to the controversial outcomes of the evaluation of the programme – with authors like Frazer and Van Biesebroeck (2007), Schneidman and Lewis (2012), and De Melo and Portugal-Perez (2013) arguing that the programme has positively affected exports, while Condon and Stern (2010), Edwards and Lawrence (2010), and Lall (2005), among others, argue that the programme has not been very effective in bringing about export growth, especially after the end of the multi-fibre agreement. Collier and Venables (2007) stress the importance of the beneficiaries' domestic policies in enhancing gains from trade. In contributing to the debate, this paper has the added advantage of evaluating the policy long after its initial launch, with the conjecture that the policy interventions and impacts have filtered through and settled down. The long time period also makes it possible to assess the sustainability of the benefits of the agreement. The study relies on the continuous treatment (of the preferential margins) to capture the treatment effect of the programme rather than on a binary treatment based on dummy variables. The continuous treatment variable allows for an in-depth control of the heterogeneity of coverage of the US preferential benefits across products and countries, and for the actual rate of preference utilisation.

Further, this study exploits both the cross-sectional and time series components of the data, which enriches the analysis. In addition, the study applies methodological triangulation (that is, the propensity score matching (PSM) and the difference in differences (DID) methods) to ensure the robustness of the results, and it controls for the endogeneity between the AGOA and trade flows and their determinants. The key results of the paper are that, using the PSM approach, the AGOA trade agreement has a negative overall long-term impact on the exports of recipient countries compared to non-recipient countries. The DID approach results also indicate that the AGOA trade arrangement has, in the long term, failed to improve the total exports of AGOA beneficiary countries relative to the exports of non-AGOA countries. Further, the results that African countries may prefer trade with the EU rather than with the US is partly because the AGOA is as uncertain as it is arbitrary regarding the whims of the US president, and because Africa's historical, political and economic ties with Europe remain strong.

The paper is structured as follows: Section 2 examines the literature on the AGOA, while section 3 presents the two methods that are used in the analysis. Section 4 presents the data analysis and interpretation and explores the implications of the results; further, the paper

supports some of the quantitative conclusions with exploratory qualitative analysis of hypotheses of trade creation and trade diversion associated with the AGOA. Lastly, section 5 concludes the analysis.

## 1. Existing evidence on the AGOA trade arrangement

The existing evidence on the impacts of the AGOA trade arrangement shows mixed results. Cooke (2011) attributes the mixed results to the lack of a proper counterfactual (to the measurement of impacts of the preferences) to the use of different estimation methods, as well as to the level of aggregation of the data. For example, Collier and Venables (2007), Di Rubbo and Canali (2008), and Nilsson (2005) compared SSA exports to the US to those of the EU as a way of isolating the impact of the AGOA given that these countries also export to other regions and also receive preferential treatment from these regions. On the contrary, Cooke (2010) controlled for the exports of the developing countries to the rest of the world. The logic behind this is that, in order to also control for countries that, in addition to benefiting from the preferences of the US and/or the EU, are also members of free trade areas within their regions, it is necessary to control for intra-regional trade that is exclusive of tariffs.

From a methodological standpoint, some studies have applied PSM techniques (for example, Chintrakarn, 2008), while others have applied the gravity model (e.g., Tadesse and Fayissa, 2008), or the DID approach, to assess the impacts of AGOA trade arrangements. Further, Frazer and Van Biesebroeck (2007) applied the triple DID method to control for policy endogeneity. They also used greater data coverage to explore the AGOA effect and concluded that the programme has had a large and robust impact on US apparel imports from SSA countries. The positive effect argument is supported by Collier and Venables (2007), who argued that trade preferences (such as the AGOA) serve as a catalyst for trade in manufactured goods, leading to rapid growth in exports and employment. They estimated the impact of trade preferences on exports of developing countries to the US relative to the EU, using total apparel exports. They captured the AGOA impact through a dummy variable indicating when the country was eligible for AGOA preferences. The coefficients of the AGOA apparel dummies were positive and statistically significant, signifying the strong impact of the AGOA in increasing exports to the US relative to the EU in apparel products.

As part of their conclusions, Collier and Venables (2007) emphasised the need for designing trade preferences that are consistent with international trade in fragmented 'tasks' (as opposed to complete products) and making them open to countries with sufficient levels of complementary inputs, such as skills and infrastructure. In the study mentioned above, Frazer and Van Biesebroeck (2007) estimated the impact of the AGOA using data that was disaggregated at HS 8-digit level. They applied the standard DID and triple DID techniques, controlling for baseline levels of imports, country and product-specific import trends after the adoption of the AGOA. They concluded that the AGOA resulted in a 42% increase in US imports from recipient countries.

Tadesse and Fayissa (2008) used a different method than that used by Frazer and Van Biesebroeck (2007) to arrive at a different conclusion. They used a gravity model to estimate the impacts of the AGOA on eligible countries' exports to the US, using HS 2-digit disaggregated data. They decomposed the coefficient of the AGOA dummy into extensive and intensive margin effects, and they concluded that the AGOA has a positive but insignificant impact on exports. In

addition, they found that the coefficients for the intensive and extensive margins were significantly different from zero, and that the trade arrangement had contributed to the initiation of new exports and to the marginal intensification of existing US exports in both manufactured and non-manufactured goods and several product categories.

Other studies that used the gravity model are Nilsson (2005) and Di Rubbo and Canali (2008). However, their samples did not find strong results supporting the AGOA, possibly because these studies did not use the same product groups and levels of aggregation as other studies. Nilsson (2005) explored the effects on total exports, while Di Rubbo and Canali (2008) examined the AGOA impacts on agro-products; Collier and Venables (2007) limited their analysis to apparel; and Didia, Nica and Yu (2015) distinguished between crude oil exports and non-oil exports. In summary, Nilsson (2005) and Di Rubbo and Canali (2008) found EU trade policy to be more trade-creating compared to the AGOA.

The research on the AGOA mainly uses aggregate export data, but to some extent uses disaggregated data. The impacts of the trade arrangement are mixed, and they are also varied between and within countries. The mixed results in the literature seem to suggest that econometric specifications or data aggregation significantly influence the magnitude of AGOA trade effects. We apply our analysis to total exports (in line with Flam and Nordstrom, 2003), making our results comparable to those of researchers who applied similar methods. We go a step further by disaggregating exports into agriculture, manufacturing, and mining and oil sub-groups. We apply two analytical methods so as to assess the robustness of the results: the PSM and the DID methods. The models include all variables that are related to the outcome of the intervention, notwithstanding the relationship between such variables and the treatment itself (Rubin and Thomas, 1996; Rubin, 1997).

We apply the PSM technique to estimate the treatment effects conditional on observable determinants of 'treatment intensity'. Non-parametric matching techniques help to isolate the treatment from any other event specific to the country pairs, and they also take into account the presence of non-linearities in the relationship between preferences, trade flows and the covariates (Baier and Bergstrand, 2009; Montalbano and Nenci, 2014). The PSM approach allows us to present a dose-response function and to illustrate how bilateral trade flows at the product level actually respond to changes in continuous treatment within the treatment group. The DID is another approach for estimating programme impacts when there are two groups, one treated and the other untreated (Ashenfelter and Card, 1985). This study applies the DID approach in order to extend the analysis as well as to test the robustness of the PSM results. Further, the paper conducts qualitative exploratory analyses of the hypotheses of trade creation and trade diversion associated with the AGOA.

## 2. The analytical framework

The AGOA trade arrangement has been in operation for nearly 17 years. Some countries joined at the onset of the programme, while others joined over time and yet others also temporarily and/or permanently left the group. The length of the period since the programme started offers a unique opportunity to evaluate the impact of the trade arrangement using a panel with a longer series, focussing on those countries that were consistently members of the trade arrangement. This study seeks to capture the medium- to long-term impacts.

The analysis is based on three distinct but related methodologies. We apply the PSM estimators (Rosenbaum and Rubin, 1983) and the DID estimator (Slottje et al., 2007), and a combination of the two. The mixed method cross-corrects the individual weaknesses of the two approaches, and builds on their joint strengths. Since the data we have is non-experimental, PSM allows us to create a pseudo-counterfactual scenario for membership in the AGOA trade arrangement. Matching makes it possible to draw conclusions from observational data. In this study, there is a non-randomly assigned treated group (where treatment implies membership in the AGOA) and an untreated group (that is, countries with similar characteristics as those treated but that did not join the trade arrangement). The PSM approach allows us to estimate the probability of a case being treated by matching treated and untreated cases with the same propensity scores (Rosenbaum, 2002).

In our sample, there are countries with certain observable qualifying characteristics that were allowed to join the AGOA arrangement (the treated group), while others could not (the untreated group). Using these two groups, we test whether or not the membership increased export growth.

Our treatment variable $D_{AGOA}$ is an indicator variable that is explained in terms of the eligibility or non-eligibility of a country for the AGOA preferences, such that:

$$D_{AGOA} = 1 \text{ if a country is a beneficiary of AGOA, 0 otherwise.} \tag{1}$$

Assuming $y$ to be the bilateral trade between an exporting country and the US in a given period, we can formulate an equation of the expected outcome for a country that joins the trade arrangement. For the treated group, we observe the countries' exports after joining AGOA, that is:

$$E[y^1 | z, D_{AGOA} = 1] \tag{2}$$

where $y^1$ is the outcome variable for the treated group and $z$ is a vector of observable country characteristics prior to the treatment. In this scenario, there is no counterfactual of what their exports would have been had the countries not joined the trade arrangement. We therefore consider countries with similar characteristics as the treated but which did not join the AGOA as the counterfactual. The counterfactual can be represented as:

$$E[y^0 | z, D_{AGOA} = 1] = E[y^0 | z, D_{AGOA} = 0] \tag{3}$$

where $y^0$ is the outcome variable for the untreated group. Given equations (2) and (3), we can formulate the objective equation as:

$$E[y^1 | z, D_{AGOA} = 1] - E[y^0 | z, D_{AGOA} = 1] = E[y^1 - y^0 | z, D_{AGOA} = 1] \tag{4}$$

The objective equation allows us to determine the difference in the outcome variable before and after treatment. The treated and untreated groups are not directly comparable as they have differences in their baseline characteristics. In order to ensure comparability, we apply a matching method that allows for balancing of the groups (Rosenbaum and Rubin, 1983). The intention is to establish whether or not the preferential access to the US market under the AGOA (compared to no access) resulted in growth in exports of the AGOA beneficiaries. The matching is performed using country characteristics in vector $z$ (that is, economic, social, cultural and political factors obtaining in the groups of countries). Successful matching makes it possible to make causal inference about the impacts of the AGOA on exports.

Matching is performed after the generation of propensity scores using equation (5) below:

$$PS(z) = Pr(D_{AGOA} = 1|z) \tag{5}$$

The estimated binary choice selection model is specified as follows:

$$\text{AGOA dummy}_{i,t} = \alpha_i + \delta_i X_{i,t} + \beta_i \text{INST}_{i,t} + \eta_i Z_{i,t} + \varepsilon_{i,t} \tag{5a}$$

The propensity score equation can be estimated using a logit or probit regression. The propensity scores are the probability estimates of each country being a beneficiary of the AGOA trade arrangement, conditional on the vector $z$. The generated estimates constitute the scores used to match the treated and untreated groups. For this study, $Z$ is a vector of variables such as GDP, exchange rate, inflation, and socio-geographical factors like common official language and distance to markets. INST captures institutional indicators used by the US to determine AGOA eligibility and $X$ is for US export growth. AGOA dummy takes the value of one if the country is a member of AGOA and zero otherwise. Brookhart et al. (2006) give insights into choosing variables for the propensity score model. They recommend the inclusion of variables that are unrelated to the treatment but more related to the outcome. They argue that this helps to reduce the variance of the estimated treatment without increasing the associated bias. The estimated logit results are in table A6 (appendix), and figures A1 and A2 (appendix) also show the distribution of propensity scores before and after matching using kennel density functions.

Matching is effective in reducing the imbalance between treated and untreated cases. It also reduces selection bias, which is a challenge when using quasi-experimental data. Since our study design has no randomisation, there is a need to estimate propensity scores (Austin, 2008). In addition, combining the conditional independence assumption and the common support assumption reduces selection bias when treatment is determined by observable characteristics. The downside of matching is that the unmatched cases are discarded from the analysis (Newgard et al., 2004), and important information may be lost. Nonetheless, PSM is most suited when dealing with a large number of covariates, and for this reason, it is the analytical method of choice. We use the matched cases and discard the unmatched ones (in line with Rubin, 2001). With matching, we try to make the groups more similar, based on observed characteristics. Matching ensures that the differences between the treated and untreated groups are not caused by the matching variables, and the validity of the results depends on two key assumptions being satisfied, namely: (i) there should be sufficient overlap in order to create a counterfactual (lack of which gives results that are biased towards the mean); (ii) conditional independence assumption (that the variables on which the treated and untreated individuals differ must be observable to the researcher). There are a number of matching techniques that can be applied, and each has its own advantages and disadvantages; this study applies a variety of them as a robustness check of the results. Khandker et al. (2010) discuss the different matching methods in detail.

One problem with AGOA membership is the endogeneity of such membership, given the fact that endorsement to join the group depends on the decision of the US president. If joining the AGOA is based on American geopolitical considerations, the membership decision becomes endogenous to American politics. This implies that the membership of the trade arrangement may be non-random, and that there may be unobservable characteristics that influence the treatment and the outcome. Further, there is also the possibility of some explanatory variables being omitted from the outcome equation (Chintrakarn, 2008). To overcome these problems, we employ the DID estimator and the mixed method of DID with PSM. The DID is a powerful

form of measuring the impact of a programme when using panel data collected from a baseline survey before and after the treatment/programme. The DID method estimates the difference in outcomes during the post-treatment period between a treated group (AGOA recipients) and a control group (non-recipients) relative to the outcomes observed during the pre-intervention baseline survey.

The DID and mixed methods help us check the robustness of the PSM method. The DID approach is also used to estimate the impacts of a programme (treatment) on the outcome $y$. Given our two groups of countries, the treatment status $T = (0, 1)$, where 0 indicates the control group of countries (otherwise represented as $C$) and 1 represents the treated group. We observe the countries over two time periods, $t = (0, 1)$, where 0 represents the period before joining the AGOA trade arrangement (i.e., the treatment), and 1 represents the time after joining the AGOA arrangement. Each country $(i)$ consists of two sets of observations, one before and one after treatment. The sample averages of the outcomes $\bar{Y}_0$ and $\bar{Y}_1$ are the average outcomes before and after treatment, respectively. The superscripts correspond to the treatment status (that is, $T$ = treated group, and $C$ = control group), while the subscripts correspond to the time periods.

The DID method is defined as the difference in the average outcomes in a treated group before and after treatment, *minus* the difference in the average outcome in the control group before and after treatment period; hence the 'difference of the differences'. The estimator must meet the following assumptions for it to be unbiased: the model equation must be correctly specified, the error term must average zero, and it must not be correlated with any of the variables in the model equation (i.e., cov $(e_i, T_i) = 0$; cov $(e_i, t_i) = 0$; and cov $(e_i, T_i t_i) = 0$). The last assumption is very important; it is also called the parallel trend assumption.

The DID estimator can be represented as:

$$\hat{\phi}_{DID} = \left[\bar{Y}_1^T - \bar{Y}_0^T\right] - \left[\bar{Y}_1^C - \bar{Y}_0^C\right] \tag{6}$$

where the first part of the equation represents the difference in outcomes of the treated group before and after treatment, and the second part represents the difference in outcomes of the control group in the before and after treatment periods. Taking expectations of the estimator in equation (6) above yields the unbiased DID estimate ($\delta$), taking into account the time trend from the treatment group's estimator:

$$E(\hat{\phi}_{DID}) = E\left(\bar{Y}_1^T\right) - E\left(\bar{Y}_0^T\right) - E\left(\bar{Y}_1^C\right) - E\left(\bar{Y}_0^C\right) \tag{7}$$

Given that

$$E\left(\bar{Y}_1^T\right) = \alpha + \beta + \gamma + \delta \tag{8a}$$

$$E\left(\bar{Y}_0^T\right) = \alpha + \beta \tag{8b}$$

$$E\left(\bar{Y}_1^C\right) = \alpha + \gamma \tag{9a}$$

and

$$E\left(\bar{Y}_0{}^C\right) = \alpha, \tag{9b}$$

where $\alpha$ is the constant term; $\beta$ is the group-specific treatment effect (accounting for the average permanent differences between the treatment and the control groups); $\gamma$ is the time trend common to treated and untreated groups; and $\delta$ is the true effect of the treatment.

The DID estimate can be calculated using the following regression:

$$y_{i,t} = \alpha + \delta T_i t + \beta T_i + \gamma t + \eta X' + \varepsilon_{it} \tag{10}$$

where $\delta$ is the coefficient on the interaction between the AGOA treatment variable ($T_i$) and the time variable ($t$, which ranges from 2000 to 2014) and it gives the average DID effect of the AGOA trade agreement. We also include $t$ and $T_i$ variables separately to pick up any individual mean effects that vary across time and across countries that are treated against those that are not treated, respectively. $X$ is a vector of controls that can also affect exports (for example, income, exchange rate, inflation, distance, and common official language). The assumptions above have to hold for the estimate to be unbiased. One of the common problems with the estimator is the violation of the parallel trend assumption. This, however, can be resolved by getting longer data series before and after the treatment to establish if there are any pre-existing differences in the trends (Meyer, 1995). In this study, the DID estimator shows the increase in imports in countries included in the AGOA trade arrangement after they join the arrangement.

## 3. Data coverage and analysis

The analysis in this paper is restricted to African countries that have had continuous membership in the AGOA. The treated countries are those that, once they joined the AGOA, remained members thereafter without exiting. Countries that joined the trade arrangement and got dropped and/re-joined the arrangement are excluded from the analysis in order to avoid having them as both control and experiment. Otherwise this would complicate the analysis because it would be difficult to isolate the impacts of the treatment before and after re-joining. The DID method does not allow for several treatments. The analysis focuses on the period between 2000 and 2014. In total, 58 countries are included in the analysis, of which 42 are in SSA. The other countries used as controls were drawn from North Africa, Latin America and the Caribbean as well as Asia.[2] The list of treated and untreated countries is in the appendix. As mentioned above, the untreated group includes Latin American, Caribbean, North African and Asian countries. This is meant to increase the number of cases of the untreated group, given that only 12 African countries in the dataset were completely excluded from the AGOA. Table 1 summarises the key variables used in the analysis.

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[2] The selection of these countries is based on similarities with other SSA countries in terms of income, level of development, trade potential and population dynamics. The additional countries were included to supplement the three countries from SSA which were never part of the AGOA (Equatorial Guinea, Zimbabwe and Central African Republic). This is because insufficient sample size in the control group can significantly affect the PSM results (Schuler, 2015).

Table 1 – *Summary of statistics (2000-2014)*

|  | AGOA eligible | | | AGOA non-eligible | | |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Obs** | **Mean** | **Std. dev.** | **Obs** | **Mean** | **Std. dev.** |
| Log GDP | 442 | 28.39 | 75.64 | 168 | 4.02 | 5.51 |
| Log exports | 442 | 17.99 | 2.76 | 168 | 18.27 | 2.67 |
| Log GDP growth | 399 | 0.10 | 0.24 | 134 | 0.00 | 0.63 |
| Inflation | 442 | 7.54 | 9.17 | 167 | 166.43 | 1889.87 |
| Mining exports growth | 261 | 0.17 | 1.88 | 114 | 0.00 | 2.01 |
| Manufacturing exports growth | 406 | 0.06 | 0.89 | 154 | 0.03 | 1.17 |
| Agriculture exports growth | 346 | 0.07 | 0.89 | 138 | 0.12 | 1.04 |

*Source:* Calculation using data from United States Department of Commerce (2017) and World Economic Outlook (2017).

The table shows the descriptive statistics of the AGOA (treated) and non-AGOA (untreated) African countries. The treated countries are those that never left the AGOA, while the untreated include countries that never joined or that at one point were excluded from the AGOA. As anticipated, the economic variables for both groups are not significantly different from each other, thus making the application of the PSM technique appropriate. The table shows that the treated group experienced higher average economic growth compared to the untreated group. The treated group had lower average inflation than the untreated group. The same is true for agriculture exports growth. The untreated group had lower mining and manufacturing sector exports growth during the study period.

## 4. Results and interpretation

As mentioned above, the empirical analysis is based on a variety of approaches, and the results are presented below. The PSM results are presented first, followed by the DID and mixed methods results. The results are based on export performance in the post-AGOA period.

### 4.1. PSM results

In table 2, we present the estimates of the average treatment of being a member of the AGOA or being treated (ATT). In order to ensure that the results are robust, we present the ATT estimates from different matching techniques, namely the nearest neighbour, the stratification method and the kernel matching method. For robustness, various tests are performed on the models, and the balancing property is satisfied for each covariate in each block. The matching process is done on common support. Further, we note the complexity of evaluating the effectiveness of the trade arrangement over a long period because of the lag effect. Even when two countries are almost identical in $t + 1$, in $t + 13$, the differences between them over time may be driven by many other factors not related to the trade agreement. To address this challenge, we estimate the effects of the treatment at different time horizons (synthetic time periods): $t + 4$, $t + 8$, $t + 12$ and $t + 13$. The treatment effect results are presented below.

Table 2 – *PSM results using total exports*

| Matching method | 2001-2014 | | 2001-2013 | | 2001-2009 | | 2001-2005 | |
|---|---|---|---|---|---|---|---|---|
| | Coefficient | S.E. | Coefficient | S.E. | Coefficient | S.E. | Coefficient | S.E. |
| Nearest neighbour matching | –0.080 | 0.416 | –1.866 | 0.307*** | –1.136 | 0.415** | –1.961 | 0.575*** |
| Kernel matching (bandwidth 0.06) | –0.759 | 0.226*** | –2.353 | 0.267*** | –2.116 | 0.261*** | –1.767 | 0.450*** |
| Stratification method | –0.755 | 0.241*** | –2.340 | 0.215*** | –1.636 | — | –1.976 | 0.358*** |

*** $p<0.01$, ** $p<0.05$, * $p<0.1$.   S.E. = standard errors.

The overall average treatment effect on the treated (ATT) result in table 2 indicates that being a member of the AGOA did not result in increased exports to the US any more than for countries that were non-AGOA members. The effect of the agreement is only consistently statistically significant using kernel matching, and for some periods for the stratification and the nearest neighbour matching techniques. Various bandwidth and radii are used to check the sensitivity of the results.[3] The coefficients of all three methods are consistently negative for different time periods, and the sizes of the coefficients tend to decline over the period 2001 to 2014 for the nearest neighbour and the stratification matching techniques. In all the econometric models, most of the institutional variables are insignificant, and this is explained by the fact that these factors are used in determining each country's eligibility under the trade arrangement.[4] The ATT results vary between –0.08 and –0.76. They indicate that the AGOA has not been effective in boosting exports to the US as intended by the trade arrangement.

These results have to be interpreted with caution because, as the time period increases from the initial introduction of treatment, the effect on the outcome may be compounded or diminished. All the same, the effect may become less clearly linked to the treatment at time *t*. Therefore, we apply multiple methods in order to check the robustness of the results. As a starting point, we apply the PSM method to disaggregated export groups: mining and oil, manufacturing, and agricultural exports. This is necessary because African countries' resource endowments are different, and the differences are manifested by the type of products that the countries export. The disaggregation also makes it possible to compare our results with those of Nilsson (2005), Di Rubbo and Canali (2008), and Didia, Nica and Yu (2015). The results are presented in table 3.

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[3] The regression results, based on random and fixed effects, from which the treatment effects have been calculated can be made available, on request, from the corresponding author.
[4] The full econometric model includes the following variables: voice of accountability, rule of law, national income exchange rate, distance and political stability.

Table 3 – *PSM results using sector level exports (ATT)*

| | Synthetic period | Mining and oil | | Manufacturing | | Agriculture | |
|---|---|---|---|---|---|---|---|
| | | Coeff. | Std. errors | Coeff. | Std. errors | Coeff. | Std. errors |
| Nearest neighbour matching | 2001-2014 | –0.589 | 0.643 | –0.673 | 0.427 | –0.205 | 0.423 |
| | 2001-2013 | –2.787 | 0.48 *** | –2.215 | 0.339 *** | –0.746 | 0.366 |
| | 2001-2009 | –2.527 | 0.605 *** | –1.446 | 0.439 | –0.638 | 0.447 |
| | 2001-2005 | –4.486 | 0.777 *** | –2.214 | 0.598 *** | –1.273 | 0.580 * |
| Kernel matching (band width 0.06) | 2001-2014 | –0.847 | 0.388 ** | –1.304 | 0.234 *** | 0.043 | 0.278 |
| | 2001-2013 | –3.202 | 0.374 *** | –2.813 | 0.255 *** | –1.453 | 0.221 *** |
| | 2001-2009 | –2.945 | 0.499 *** | –2.612 | 0.285 *** | –1.557 | 0.308 *** |
| | 2001-2005 | –3.073 | 0.669 *** | –2.281 | 0.500 *** | –1.676 | 0.492 *** |
| Stratification method | 2001-2014 | –0.831 | 0.349 ** | –1.314 | 0.243 *** | –0.139 | 0.254 |
| | 2001-2013 | –3.202 | – | –2.789 | 0.231 *** | –1.435 | 0.239 *** |
| | 2001-2009 | –3.135 | – | –2.612 | – | –1.557 | – |
| | 2001-2005 | –3.217 | 0.678 *** | –2.027 | 0.440 *** | –1.605 | 0.481 *** |

*** p<0.01, ** p<0.05, * p<0.1.

As with the results in table 2, the product group results indicate that, in general, the AGOA trade arrangement has a negative impact on the recipient countries compared to non-recipient countries. The results suggest that, on average, the AGOA has a strong and negative impact on sectoral exports of recipient countries. The negative impact tends to dissipate with time. After controlling for the three sub-groups of exports, the treatment effect is negative for all three exporting exports. The impact on the mining and oil and manufacturing exports is statistically significant, while the impact on agricultural exports is only statistically significant using the kernel matching method. The reason why the impact is significantly felt in only two sectors is because, between the periods 2002 and 2016, 71% of SSA exports to the US were in the form of mining and oil, 25% in manufactured goods, and 3% in agricultural products. To further test for the robustness of this result, we estimate the same models with similar controls using more robust (DID) approaches that control for unobservable characteristics.

## 4.2. DID results

As a robustness check to our PSM results, and to strengthen our analysis, we apply the DID panel methods for both matched and unmatched samples. We apply the DID approach with a matched sample as a robustness check, and also to address the criticism of the regular DID approach that, if the analysis compares treated and control countries that are not similar, the results may be skewed in one particular direction. Thus, we use PSM with the baseline data to make a comparison group that is similar to the treatment group, and we then apply the DID method to the matched sample. An additional advantage of this approach is that it accounts for unobservable heterogeneity in the initial conditions (Khandker et al., 2010).

Both approaches are applied over synthetic time periods to capture possible changes in the impact of the trade agreement over time. Application of the DID method is possible given the existence of data before and after the introduction of the AGOA trade arrangement for both treated and untreated cases. We use the differences in outcomes to calculate the DID estimates, and the results are presented in table 4. The results control not only for the unobserved time-invariant heterogeneity, but also for multi-period heterogeneity in observed characteristics. The results are based on the fixed effects approach.

Table 4 – *DID estimation with synthetic periods*

| Synthetic period | All sectors | Mining and oil | Manufacturing | Agriculture |
|---|---|---|---|---|
| Unmatched sample | | | | |
| 2001-2005 | –0.703 (0.286)** | –0.226 (0.716) | –1.221 (0.258)*** | –1.334 (0.362)*** |
| 2001-2009 | –0.713 (0.201)*** | –0.207 (0.464) | –1.590 (0.193)*** | –0.934 (0.283)*** |
| 2001-2013 | –0.679 (0.162)*** | –0.239 (0.375) | –1.638 (0.162)*** | –0.533 (0.239)** |
| 2001-2016 | –0.674 (0.156)*** | –0.227 (0.358) | –1.595 (0.161)*** | –0.438 (0.233)** |
| Matched sample | | | | |
| 2001-2005 | –0.436 (0.322) | –0.130 (0.834) | –0.950 (0.265)*** | –1.172 (0.410)*** |
| 2001-2009 | –0.468 (0.227)** | –0.449 (0.542) | –1.064 (0.191)*** | –0.742 (0.336)** |
| 2001-2013 | –0.390 (0.188)** | –0.421 (0.444) | –1.053 (0.159)*** | –0.204 (0.280) |
| 2001-2016 | –0.389 (0.179)** | –0.410 (0.426) | –0.994 (0.156)*** | –0.079 (0.268) |

*Notes*: The dependent variable is computed at country year level. The basic model is a DID model with standard gravity equation variables, including language and measures of institutional framework variables. The estimated regressions exclude Cote d'Ivoire and DRC because of their inconsistent participation in the AGOA agreement, which could bias the results. The corresponding standard errors in parentheses are robust.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

The results confirm the negative impact that is indicated by the PSM method above. The DID results that use unmatched data indicate that the treatment had a negative and statistically significant impact on the three main sectors over the synthetic periods. There is no particular pattern over time for the aggregate and mining and oil sector results. However, the manufacturing sector results show that the impact of the trade agreement increasingly became negative, while the agriculture sector results indicate a statistically significant but falling negative impact of the trade agreement on the sector. Overall, these results indicate that, for the treated countries, the long-term growth of exports to the US is significantly less than that for the untreated countries. This may not be surprising given that beneficiary countries are picked to participate in the agreement by the US, depending on the latter's social, political and economic focus. As argued below, there are countries that are members of the treated group but whose governance indicators are questionable yet acceptable to the US. The uncertainty and one-sided nature of the agreement causes countries to develop and focus on other markets in order to ensure stability of foreign currency earnings should the US decide to exclude them from the agreement.

The results on some of the standard gravity model variables (not included in the table), like income and common language, conform with existing knowledge about them. The income variable, for example, is positive and statistically significant across the different models. This suggests that an increase in a treated country's national income positively influences exports of that country. This is consistent with the anticipation that, as the income of a country increases, the country's ability to produce more (exports) increases. Thus, countries with higher incomes are likely to export more than countries with lower incomes. The common language variable is also positive and statistically significant, indicating that countries that use official language similar to that of the US (that is, English speaking), are likely to export more to the US than countries that use different languages. These results confirm similar findings in the gravity model literature (e.g., Frankel and Rose, 2002; Anderson and van Wincoop, 2004; and Helpman et al., 2008).

The results from the DID approach matched data show that the same variables with significant impact on exports in the unmatched sample remain significant under the matched sample model ; in addition, the key results are still negative and statistically significant. The coefficients have become less negative in the manufacturing and agriculture sector results, as well as in the full model results. Again, mining sector results, although negative, are still statistically insignificant. Thus, trade with the US appears to have a negative and significant impact on Africa's manufacturing and agriculture sectors. The results indicate that, after controlling for all the other variables in the model, the impact of the AGOA trade agreement on exports is negative when similar groups of countries are compared. The results reinforce the hypothesis that, over time, the AGOA preferences seem to adversely affect the exports (especially manufacturing exports) of the beneficiary countries to the US relative to the exports of non-beneficiary countries. The negative effect on agriculture exports declines over time.

Despite the overall negative impact of AGOA preferences on the exports of beneficiary countries, the outcomes are not uniformly distributed among the countries. This could explain the mixed results found in the literature (for example, see Tadesse and Fayisa, 2008; Cooke, 2011; and Frazer and Van Biesebroeck, 2007). Countries have, in the past, been impacted differently by the AGOA trade arrangement. In the next section we explore the evolution of country-level trade volumes between SSA countries and the US. In doing so, we ask the question, "Who really benefits from the AGOA trade arrangement?" Or alternatively, "How is the trade with the US unfolding over time?" The last question is linked to what manifests itself as trade creation and/or diversion.

## 4.3. Who benefits more from the AGOA?

To explore the line of argument opened by the first question, and to check for the robustness of the results above, we explore the sector level analysis based on the three main products exported to the US through the AGOA trade arrangement: agriculture, manufacturing, and mining with oil. We run both the DID and mixed methods (see tables A1 and A2 in the appendix). The results show that, with both the unmatched and the matched samples, the AGOA arrangement generally has a negative impact on exports of the beneficiary countries. However, using the mixed method based on the DID approach with a matched sample, the results show that the AGOA trade arrangement has a statistically significant effect only on manufacturing exports of the AGOA beneficiaries, while it is insignificant for agriculture and oil exports. These results suggest that, in the AGOA beneficiary countries, manufacturing

exporters are mostly affected, compared to exporters of other products. Alternatively stated, countries that have a strong manufacturing base (e.g., South Africa, Kenya and Mauritius) are losing significantly from the AGOA trade arrangement, compared to other countries. These countries export textiles and apparel and manufactured car parts to the US. Some countries, like Lesotho, are highly dependent on trade with the US under the AGOA because a significant amount of their exports (mainly textiles) goes to the US market.

There are some African countries whose exports to the US manly consist mainly of oil products (e.g., Nigeria, Angola, Gabon, Republic of Congo and Chad), and the extent to which these countries benefit from the trade arrangement has been shaken by growing home production of crude oil by the US and by the decline in oil prices worldwide since 2013. It is therefore not surprising that our results show a negative but statistically insignificant impact of the AGOA arrangement on the countries' exports.

The lack of robustness of industrial structure among the other beneficiary countries leaves them exposed to global market dynamics that favour countries with some form of competitive advantage. Table A4 statistics (appendix) shows the revealed comparative advantage values for the top ten products exported to the US in 2016. Around 60% of the exported products are primary commodities and the remainder are manufactured goods, suggesting that the industrial structure of these African countries has not significantly changed. For most of these products, revealed comparative values are generally decreasing, implying that AGOA countries are not gaining sustainable competitiveness. Given the product range and competitiveness of exports going to the US under the AGOA arrangement, it shows that many beneficiaries of the trade arrangement have failed to deepen their trade relationship with the US, and therefore the current benefits will likely cease if preferential treatment is removed. If the US pushes for reciprocity, as asserted by the Trump Administration, some of the beneficiary countries may be forced to become more protectionist because of the structural weaknesses of their firms' production systems (for example, lack of/low economies of scale, lower technological capabilities, limited research and innovation, and limited availability of highly skilled labour), which make it difficult to compete with US firms.

Lastly, it has been mentioned above that membership in the AGOA trade arrangement is unilaterally determined by the US. The US also determines the composition of the goods that it allows duty free access to its market, and this is done without taking into account the developing countries' comparative advantages. For example, food products entering the US market have to meet stringent phyto-sanitary requirements, and the requirements tend to discourage some (African) producers. In addition, the most competitive section of the African countries' exports, apparel, remains underdeveloped and low skill, with little skill development among the workers; hence the benefits of the agreement are unlikely to be sustainable beyond the demise of the preferential market access (Edwards and Lawrence, 2010).

To explore the line of argument associated with the second question, we computed the DID equations with a variable that captures whether the existing trade between SSA and the rest of the world decreased and/or increased following the implementation of the AGOA. In other words, did the AGOA trade arrangement result in trade creation or trade diversion? Thus, we estimate the equations controlling for trade flows between the EU and SSA countries (table A3 in the appendix). The results show that Africa's trade with the EU results in greater trade with the US (that is, trade creation). This result is partly supported by figure 2 below over the period 2001 to 2011. This result supports the findings by Nilsson (2005) and Di Rubbo and Canali (2008) that trade with the EU appears to be more trade-creating. The figure shows that,

from 2011 onwards, the proportion of African exports going to the US declined persistently until 2015, when it started increasing again. However, during the same period EU exports were increasing, a trend that is indicative of trade diversion. For the period 2001 to 2016, the SSA countries' share of exports going to the EU has been larger than the US's share of the region.

Figure 2 – *Africa's exports to the US and to the EU, 2001-2016*
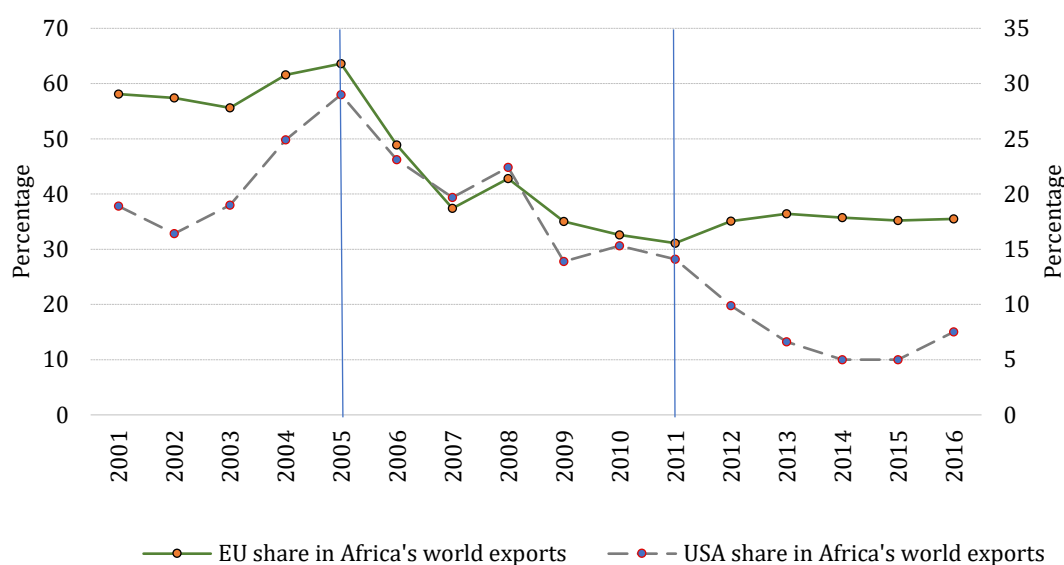


*Note:* The US share in Africa's world exports is measured on the right-hand axis.
*Source:* International Trade Centre, *Trade Map*, available at: https://www.trademap.org/Index.aspx.

The figure suggests that the AGOA arrangement does not have a straightforward story. It appears that, in the early years of the AGOA, there was trade creation as the proportion of Africa's exports to the US peaked to a high of nearly 30% of all exports in 2005, from a low of 18.9%. During the same period, the proportion of Africa's exports to the EU increased from 58.1% to 63.6%. The concurrent growth of exports to the US and to the EU suggests that the US market was an untapped market, and/or that economies of scale in production made it possible to expand capacity and to increase exports to the US. It may not be surprising, therefore, that early studies of the impact of the AGOA that centred on this time period found a significantly positive impact of the trade arrangement.

Over the period 2005 to 2011, the diagram shows that exports to both the EU and the US declined, and they were almost similar in proportion. It shows that the financial crisis affected African exports to both regions, but the situation changed from 2011 onwards. From 2011 to 2016, the proportion of African exports going to the US declined significantly, from 14.1% (in 2011) to 7.5% (in 2016), while that of exports to the EU increased from 31.1% (in 2011) to 35.5% (in 2016). The period 2011 to 2016 may be driving the results reported above.

Figure 3 – *Countries with increasing share of exports to the US*



*Source:* International Trade Centre, *Trade Map*, available at: https://www.trademap.org/Index.aspx.

There are several possible explanations for these trends. It could be that the demand for African exports declined because of the financial crisis. It could also be that Africa's productive capacity failed to fully recover from the 2008-09 financial crisis; or that, faced with low productive capacity, African countries prioritised the 'tried and tested' EU market with which they have a long trading history. If the latter holds, it implies some form of trade diversion. Furthermore, it could be that African countries have come to realise that they cannot build their future trade (with the US) based on an arrangement in which they are not equal partners. In addition, the US's arm-twisting techniques, like what it did to South Africa in 2016 following a dispute about US chicken entry into the South African market, is an indication that the AGOA trade arrangement exists to suit US interests. Such outcomes may cause countries to review the extent to which they would want to rely on exports to the US, given the skewed power

relations and possible unilateral action by the US. It may thus not be surprising that, from 2011 onwards, African countries preferred to export their products to other countries as opposed to the US. From another angle, the governance requirements of the AGOA qualification criteria may be putting off African countries that do not like to be coaxed into improving their governance systems. This is particularly important given the 'no questions asked' attitude of the Chinese, who have a very large market and are also making significant inroads into African countries. International Trade Centre (2017) statistics show that the share of exports to China of AGOA total world exports has increased from 2% in 2001 to about 15% in 2016.

Figure 4 – *Countries with declining share of exports to the US*



*Source:* International Trade Centre, *Trade Map*, available at: https://www.trademap.org/Index.aspx.

The declining importance of the US in African trade is not a universal phenomenon. There exist varieties of experiences. We classify these experiences into two types: countries that have a high proportion of total exports going to the US, and countries that have declining proportions of total exports going to the US. Figures 3 and 4 below illustrate the groups of countries.

The countries represented in figure 3 either have high proportions of their exports going to the US, or they have growing shares of US exports. These countries value trade with the US and would be worried if the Trump administration changes the AGOA trade rules. The importance of the AGOA arrangement to their development processes means they may need to take a proactive role to engage the US regarding its international trade focus, given the rather protectionist approach adopted by the Trump Administration and the call for reciprocal trade arrangements.

Figure 4 shows countries that either have very small proportions or declining proportions of their exports going to the US. These are the countries that may have been diverting their trade towards other world markets. Such countries will not likely be significantly affected by changes to the AGOA rules and may be contributing to the declining importance of the AGOA in total African exports.

The countries shown in figure 4 are probably the ones that are driving our results. Thus, we have Africa's largest economies: Nigeria, South Africa and Angola; and these countries account for 78% of total SSA exports to the US (US Department of Commerce, 2017). US firms have a special interest in accessing the large markets of the three countries and thus it is important to understand why trade shares to the US are declining.

The declining impact of the AGOA and the possible changes to the rules by the US Administration means some countries may not miss the AGOA if it is brought to an end. To understand this point, we can examine the export performance of countries that have never been part of the AGOA, or were expelled at some point and never re-joined. These countries have either stopped exporting to the US altogether and focused on alternative markets, or they continued to export to the US but without the preferential treatment of their exports (e.g., Zimbabwe and Equatorial Guinea). Trade statistics from the US Department of Commerce show that Zimbabwe accounts for about 0.2% of SSA exports to the US while Equatorial Guinea's share is 3%. This is higher than the share of countries like Tanzania, Uganda, Mozambique and Zambia that joined the AGOA at its inception. This small group of countries is an interesting case because it proves that access to the US market is still possible even without preferential treatment offered by the AGOA. These countries can serve as an example to those benefiting from the AGOA arrangement that there is life after or outside the AGOA.

## 4.4. AGOA and structural change

Another dimension of the AGOA trade agreement is that it may have influenced the structure of the recipient economies. In fact, the trade agreement is expected to have influenced recipient countries' resource allocation towards sectors offering greater efficiency and competitiveness. Table 5 shows the change in shares of agriculture, mining and oil, manufacturing and services in GDP for AGOA and non-AGOA African countries.

Table 5 – *Structural change in AGOA and non-AGOA countries*

|  |  | 2000 | 2005 | 2010 | 2015 | 2016 | Average |
|---|---|---|---|---|---|---|---|
| AGOA countries only | GDP growth | 4.6 | 6.0 | 6.0 | 2.8 | 3.0 | 5.4 |
|  | Manufacturing share | 10.8 | 10.7 | 9.6 | 9.2 | 8.3 | 10.8 |
|  | Agriculture share | 23.6 | 24.5 | 22.9 | 21.7 | 21.5 | 24.4 |
|  | Services share | 37.8 | 42.4 | 51.6 | 53.4 | 53.3 | 49.7 |
|  | Mining and oil share | 6.3 | 7.4 | 7.4 | 3.7 | 3.8 | 6.4 |
| Non-AGOA countries | GDP growth | 2.5 | 4.1 | 4.2 | 3.1 | 2.6 | 4.0 |
|  | Manufacturing share | 8.6 | 9.9 | 8.4 | 9.3 | 8.4 | 9.3 |
|  | Agriculture share | 22.2 | 24.2 | 23.7 | 22.5 | 22.3 | 22.9 |
|  | Services share | 31.6 | 39.2 | 45.6 | 49.3 | 50.0 | 42.7 |
|  | Mining and oil share | 1.5 | 3.8 | 9.9 | 5.9 | 6.5 | 6.7 |

*Source*: World Development Indicators: Manufacturing, mining and oil, agriculture and services values are a percentage of GDP. GDP growth is calculated per annum.

The table shows that the same structure that obtained between AGOA and non-AGOA countries in 2000 still applied in 2016. On average, AGOA countries experienced higher GDP growth than non-AGOA countries. The shares of agriculture and manufacturing in GDP have not changed significantly in both AGOA and non-AGOA countries since 2000. The share of these two sectors also appear to be gradually declining from 2005 onwards. From 2010 onwards, the share of mining and oil for AGOA countries has been lower than that of non-AGOA countries. For both groups, the share of services in GDP increased significantly over time. It appears that African economies are increasingly becoming service-driven, a phenomenon pushed by phenomenal growth in the hotel and tourism sector. These statistics suggest that trade with the US has not changed the economic structure of AGOA countries. For these countries, the agreement reinforced their primary sector dependency, with little to offer in terms of industrial diversification. It is inconceivable that these countries will be able to address the challenges of joblessness (especially youth unemployment), poverty and inequality they face by growing their raw materials sectors.

The analysis of agricultural sector export growth between treated and non-treated countries (see table 1, above) shows that export growth was higher in non-AGOA countries (11.8%) compared to that in AGOA countries (6.9%). For AGOA countries, this may be an indication of resource reallocation away from the agriculture sector to other sectors, like manufacturing, whose goods had duty-free access to the US market. This is indicative of inadequate investment in the agriculture sector, which is rather retrogressive given that countries in SSA struggle with food insecurity exacerbated by changing climatic conditions. Despite the existence of initiatives like the EU's Agenda 2063 and the Comprehensive African Agriculture Development Programme (CAADP), many countries in the region are failing to adequately finance agricultural production. Further, the low agriculture export growth indicates another dimension of the AGOA, that it is skewed in favour of the US: the latter has a highly protected agriculture sector, such that many AGOA beneficiaries cannot meet the stringent conditions required for them to export agriculture output to the US.

Manufactured exports grew more in AGOA than in non-AGOA countries. Since manufactured exports tend to be high value, some countries shifted resources to manufacturing in order to fully exploit the duty-free access offered by the AGOA. Existing data shows that AGOA countries experienced an average 6.3% growth in manufactured exports compared to 3.2% in non-AGOA countries. Key beneficiary countries in this regard are Kenya, South Africa, Lesotho and Mauritius, whose textile manufacturing sectors registered significant growth after the countries joined the AGOA. The challenge for all the countries is how much they are investing in education and training in order to reap greater benefits from manufacturing expansion, as well as how prepared they are to compete for a larger share of the US market with Asian countries. As mentioned above, there is a growing realisation that the skewed nature of the AGOA agreement puts African countries in a disadvantaged position. The hype of the agreement is fading, and the reality is increasingly drawing African countries to their traditional export markets like the EU and China. The changing face of AGOA countries' trade relationships is illustrated in figure 5.

Figure 5 – *AGOA countries' trade with the US, China and the EU*



The figure confirms the declining trade between the US and AGOA countries. The share of AGOA countries' exports going to the US has been below 10% since 2012. The share of exports going to the EU has been more than double those going to the US. About a quarter of African countries' imports come from the EU and nearly a fifth come from China. Imports from the US have never been above 10% of AGOA countries' total imports. The structure of trade shows the growing influence of China and the resilience of Africa's trade with the EU. African countries may need to take advantage of their relationship with the EU because the relationship supports regional integration, as opposed to the bilateralism preferred by the US. The growing imports from China imply a growing presence of Chinese technology in Africa. The need for parts and servicing of the equipment will increasingly tie Africa to China. Africa's exports to China are still low and largely consist of primary products. There is room for export growth, especially with China investing in African agriculture.

From a political economy perspective, while the US and the EU condition their trade arrangements on the upholding of democracy and human rights, China tends to prefer doing

business without questioning other countries' democratic values and human rights records. It is not a surprise that African countries with dubious democratic values are persuaded to do more business with China than with Europe and the US. For instance, when the Government of Zimbabwe was placed under sanctions for human rights abuses, it adopted a 'look East' policy aimed at busting the sanctions and securing more trade with China. Thus, China presents an alternative trading partner for many African countries, and there has been significant Chinese infrastructure investment across Africa. Could this be indicative of shifting allegiances of African countries? Or a strategic move aimed at reducing losses should the AGOA abruptly come to an end? In any case, it remains to be seen how the Trump Administration sees the future of trade with Africa under the AGOA, but there is significant scepticism given the US's preference for bilateralism over multilateralism.

## 5. Conclusions and implications

The main reason for the AGOA is to encourage export-led growth and economic development in SSA countries by enhancing market access to the US economy. The AGOA legislation enacted in 2000 has been in existence for about 15 years and has recently been extended by a further 10 years, until 2025. The most important question that this paper sought to answer is whether or not the eligible countries in SSA benefited from this preferential trade arrangement more than those countries that were excluded.

Using descriptive statistics and different econometric methods, the results have consistently shown that the impact of the AGOA on SSA exports is generally negative and waning. The different matching techniques used show negative and statistically significant coefficients of the treatment effects. The same conclusion is reached using the difference-in-differences technique. Further, a graphic presentation of the proportions of Africa's exports going to the EU and to the US shows that, from 2011, the proportion of exports going to the US has been declining and the export shares of the three largest exporters to the US, namely South Africa, Nigeria and Angola, have been declining. Table A4 (appendix) shows that trade between the US and SSA countries is still heavily tilted towards primary goods despite the fact that the AGOA was initiated to grow manufactured exports from the continent. It has been argued that this result may be an indication that the AGOA trade arrangement has run its course, such that it is no longer very attractive to African countries. It is possible that the trade situation between the US and SSA will get even more complex because of the protectionist approach adopted by the Trump Administration. Whether the US will modify the AGOA or drop it is yet to be seen. While the US has announced its trade position in its relationships with its major trading blocks, especially those against which the US has trade deficits, nothing has been said about US-Africa trade under the AGOA.

African countries' future in the AGOA arrangement depends entirely on the US. This creates uncertainty and anxiety among African countries, and the proactive ones would need to start diversifying their export markets. It has been shown that the future of the AGOA is not straightforward. It has been argued that the opposite approaches of the US and the EU towards trading with Africa, including the geopolitical influence, may be to the disadvantage of the AGOA agreement because the EU has been negotiating regional economic partnership agreements with African countries while the US favours bilateralism. African countries realise that there are advantages in negotiating as groups rather than as individual countries. The group effect is voiced through the vision and intent of the African Union. If the drive is towards

greater regional integration, then the US's bilateral approach may be incompatible with the current thrust.

   One perspective that arises from the discussion above is entrenched in the basic reason why the AGOA agreement was created – to offer trade over aid. It was a way of reducing the aid burden on the US and of making African countries responsible for development and poverty reduction. In consequence, (some) African countries need the trade arrangement more than the US does. As such, the current uncertainty of the future of the agreement demands that these countries take proactive action to engage the US rather than wait for US pronouncements on the agreement. African countries may also need to proactively seek alternative markets, like the case of trade with China and the EU mentioned above, in order to reduce the risk associated with AGOA uncertainty. They may also need to strategically disengage and refocus their trade efforts elsewhere, in case the US decides to end the AGOA or pursue reciprocal arrangements that may be detrimental to the African countries' interests. The long-term impact of the agreement does not appear to have been significantly beneficial on the whole, which is why there is a need for viable alternatives for the greater number of African countries.
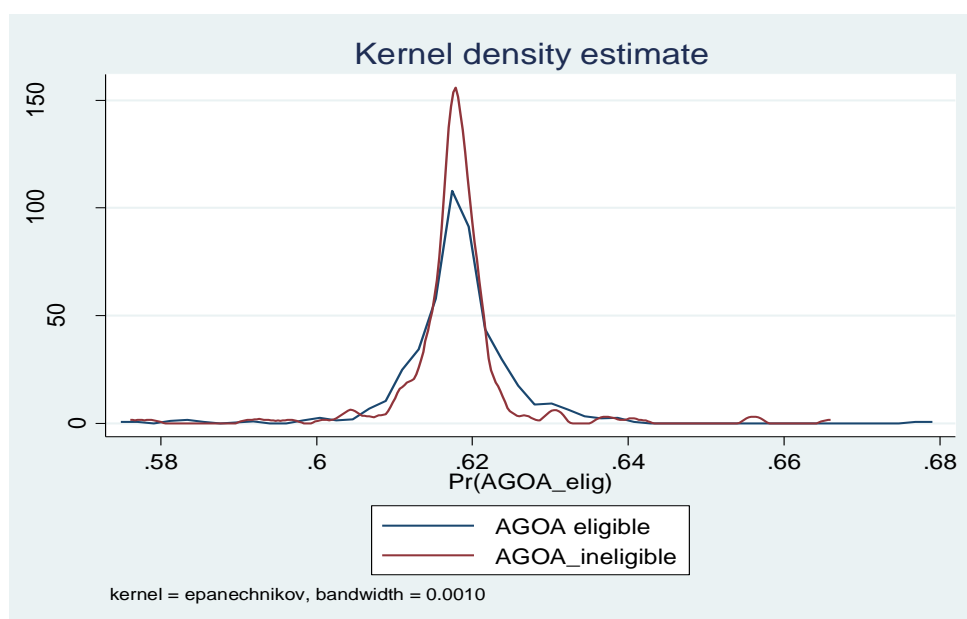
## Appendix

Figure A1 – *Before matching distributions (2001-2013)*
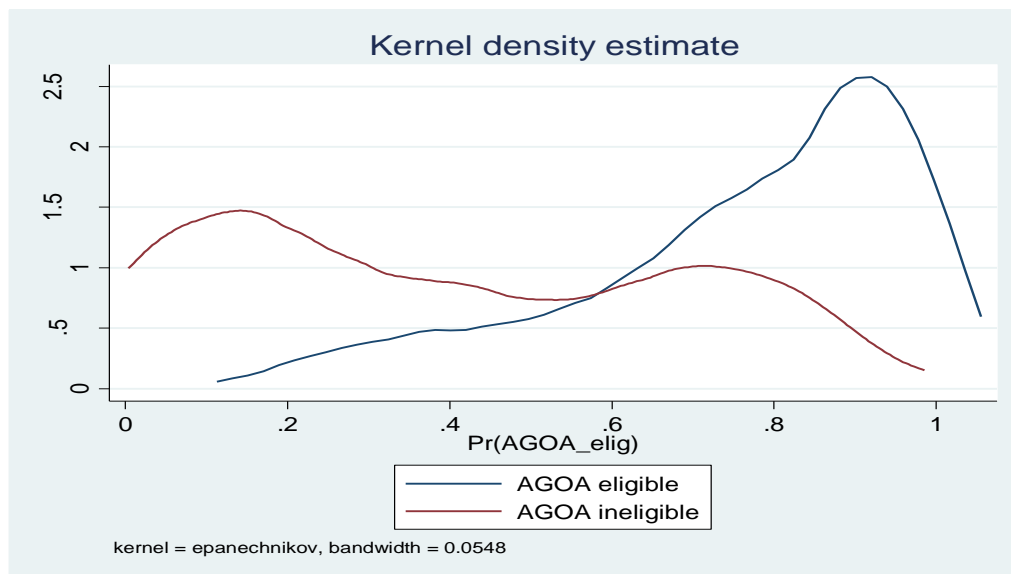


*Source:* United States Department of Commerce (2017) and World Economic Outlook (2017).

Figure A2 – *After matching distributions (2001-2013)*



*Source:* United States Department of Commerce (2017) and World Economic Outlook (2017).

Table A1 – *Sector level regression estimates for unmatched sample*

| Dependent variable: log total exports to the US | Total exports | Agric | Manu | Min & oil |
|---|---|---|---|---|
| DD estimate (treatment*post) | −0.674*** | −0.438* | −1.595*** | −0.227 |
| | (0.156) | (0.233) | (0.161) | (0.358) |
| log (GDP) | 1.232*** | 0.954*** | 1.084*** | 1.520*** |
| | (0.037) | (0.062) | (0.045) | (0.088) |
| log (exchange rate) | −0.080*** | 0.004 | −0.210*** | 0.058 |
| | (0.022) | (0.039) | (0.033) | (0.052) |
| log distance (ldist) | −0.200 | 0.049 | 0.434** | −2.103*** |
| | (0.454) | (0.196) | (0.186) | (0.326) |
| Common language | 0.151* | 0.743** | 0.645*** | −0.846** |
| | (0.095) | (0.343) | (0.206) | (0.423) |
| Treatment variable | Yes | Yes | Yes | Yes |
| Time variable | Yes | Yes | Yes | Yes |
| Constant | Yes | Yes | Yes | Yes |
| Observations | 742 | 675 | 740 | 583 |
| Number of countries | 43 | 43 | 43 | 43 |

*Notes*: The dependent variable is computed at country year level. Column 1 presents the results for total exports to the US, column 2 presents the results for agricultural exports, column 3 for manufacturing exports and column 4 for oil and mining exports. The estimated regressions exclude Cote d'Ivoire and DRC because of their inconsistent participation in the AGOA agreement, which could bias the results. The distance variable drops off in the fixed model. The corresponding robust standard errors are in parentheses.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table A2 – *Sector level regression estimates for matched sample*

| Dependent variable: log total exports to the US | Total export | Agric | Manu | Min & oil |
|---|---|---|---|---|
| DD estimate (treatment*post) | −0.389*** | −0.079 | −0.994*** | −0.410 |
| | (0.179) | (0.268) | (0.156) | (0.426) |
| log (GDP) | 1.128*** | 0.865*** | 1.034*** | 1.397*** |
| | (0.044) | (0.070) | (0.038) | (0.109) |
| log (exchange rate) | −0.019 | 0.047 | −0.128*** | 0.151* |
| | (0.025) | (0.060) | (0.039) | (0.085) |
| log distance (ldist) | 1.791*** | 2.838*** | 4.148*** | −2.267*** |
| | (0.293) | (0.443) | (0.263) | (0.770) |
| Common language | 0.099 | 0.591 | 0.206** | −0.603 |
| | (0.095) | (0.380) | (0.089) | (0.484) |
| Treatment variable | Yes | Yes | Yes | Yes |
| Time variable | Yes | Yes | Yes | Yes |
| Constant | Yes | Yes | Yes | Yes |
| Observations | 548 | 494 | 547 | 402 |
| Number of countries | 43 | 43 | 43 | 43 |

*Notes*: The dependent variable is computed at country year level. Column 1 presents the results for total exports to the US, column 2 presents the results for agricultural exports, column 3 for manufacturing exports and column 4 for oil and mining exports. The estimated regressions exclude Cote d'Ivoire and DRC because of their inconsistent participation in the AGOA agreement, which could bias the results. The corresponding robust standard errors are in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table A3 – *Regression results to estimate trade creation or diversion*

| Dependent variable: log total exports to the US | (1) | (2) |
|---|---|---|
| DD estimate (treatment*post) | −0.567*** | −0.257* |
| | (0.149) | (0.150) |
| EU exports | 0.504*** | 0.623*** |
| | (0.059) | (0.070) |
| log (GDP) | 0.765*** | 0.564*** |
| | (0.063) | (0.070) |
| log (exchange rate) | 0.007 | 0.075*** |
| | (0.023) | (0.028) |
| log distance (ldist) | −0.590*** | 1.673*** |
| | (0.144) | (0.261) |
| Common language | 0.275** | 0.180 |
| | (0.129) | (0.117) |
| Treatment variable | Yes | Yes |
| Time variable | Yes | Yes |
| Constant | Yes | Yes |
| Observations | 725 | 540 |
| Number of id | 58 | 43 |

*Notes*: The dependent variable is computed at country year level. Column 1 presents the results for the unmatched sample while column 2 presents the results for the matched sample. The estimated regressions exclude Cote d'Ivoire and DRC because of their inconsistent participation in the AGOA agreement, which could bias the results. The corresponding standard errors in parentheses are robust.
*** p<0.01, ** p<0.05, * p<0.1

Table A4 – *Changes in revealed comparative advantage values for the products that were in the top ten in 2016*

| Products | 2001 | 2005 | 2010 | 2015 | 2016 |
|---|---|---|---|---|---|
| Aluminium and articles thereof | 0.22 | 0.28 | 0.46 | 1.21 | 1.25 |
| Coffee, tea, mate and spices | 0.35 | 0.13 | 0.30 | 1.43 | 1.23 |
| Apparel and clothing accessories, knitted or crocheted | 1.12 | 1.33 | 1.43 | 5.89 | 4.30 |
| *Machinery, mechanical appliances, nuclear reactors* | *0.50* | *0.22* | *0.37* | *1.66* | *1.12* |
| *Ores, slag and ash* | *0.61* | *0.12* | *0.26* | *1.27* | *0.57* |
| *Apparel and clothing accessories, not knitted or crocheted* | *1.87* | *1.71* | *1.87* | *7.73* | *5.34* |
| *Iron and steel* | *0.51* | *0.21* | *0.47* | *1.76* | *1.31* |
| *Vehicles other than railway or tramway rolling stock* | *0.64* | *0.16* | *1.29* | *1.57* | *1.57* |
| *Pearls, precious or semi-precious stones, precious metals* | *0.56* | *0.28* | *0.49* | *1.15* | *0.73* |
| *Mineral fuels, mineral oils and products of their distillation* | *2.00* | *5.12* | *1.59* | *0.77* | *1.36* |

*Source*: International Trade Centre, *Trade Map*, available at: https://www.trademap.org/Index.aspx . Products in italics have always been in the top ten since 2001.

Table A5 – *Treated and untreated countries*

| Members of AGOA for the whole study period | | | Non-AGOA countries and those excluded from the trade arrangement at least once | |
|---|---|---|---|---|
| Angola | Benin | Botswana | Eritrea | Excluded from 2003 to 2016 |
| Burkina Faso | Burundi | Cameroon | Central Afr. Rep. | |
| Cape Verde | Cote d'Ivoire | Togo | Gambia | Excluded in 2014 |
| Chad | Comoros | Congo | Guinea | Excluded from 2010 to 2011 |
| Ethiopia | Gabon | Ghana | Guinea Bissau | Excluded in 2013 |
| Kenya | Lesotho | Liberia | Madagascar | Excluded from 2010 to 2013 |
| Malawi | Mauritius | Mozambique | Mali | Excluded in 2013 |
| Namibia | Nigeria | Rwanda | Niger | Excluded from 2010 to 2011 |
| South Africa | Senegal | Sierra Leone | DR of Congo | Excluded from 2011 onwards |
| Swaziland | Tanzania | Uganda | Equatorial Guinea | |
| Sao Tome & Principe | | Zambia | Mauritania | Excluded in 2008 |
| Seychelles | | | Zimbabwe | |
| | | | **Non-SSA countries** | |
| | | | Tunisia | Peru |
| | | | Morocco | Philippines |
| | | | Algeria | Sri Lanka |
| | | | Columbia | Trinidad and Tobago |
| | | | Haiti | Venezuela |
| | | | Indonesia | Papua New Guinea |
| | | | Jamaica | Pakistan |

*Source:* United States Department of Commerce, International Trade Administration (2017).

Table A6 – *Selection models using Logit*

| Dependent variable: AGOA dummy | (1) | (2) | (3) |
|---|---|---|---|
| US export growth | 0.168 | 0.177 | 0166 |
| | (0.222) | (0.227) | (0.228) |
| log (GDP) | 0.964** | 0.953** | 0.693 |
| | (0.426) | (0.381) | (0.454) |
| log (exchange rate) | −0.258 | −0.044 | −0.339 |
| | (0.315) | (0.326) | (0.357) |
| log distance (ldist) | 0.589*** | | 0.110*** |
| | (0.118) | | (0.022) |
| Common language | 0.757 | 0.127*** | 0.507 |
| | (2.027) | (0.032) | (0.483) |
| Log (inflation) | −0.161 | −0.149 | −0.039 |
| | (0.265) | (0.257) | (0.261) |
| Log (EU exports) | | | −0.228 |
| | | | (0.359) |
| Corruption | | | 0.963 |
| | | | (1.877) |
| Political stability | | | 0.067 |
| | | | (0.831) |
| Rule of law | | | 0.262* |
| | | | (0.130) |
| Regulatory quality | | | −0.439 |
| | | | (1.933) |
| Voice and accountability | | | 0.569*** |
| | | | (0.142) |
| Constant | Yes | Yes | Yes |
| Observations | 700 | 637 | 637 |
| Number of countries | 43 | 43 | 43 |

*Notes:* robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. The coefficients are calculated using marginal effects. Model 3 is the one that we used for the study to calculate the p-scores. The balancing equation was satisfied using GDP and US exports growth.

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