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Long-Distance Industrial Policy for Africa

Justin Sandefur and Arvind Subramanian

Abstract

Starting in 2001, duty-free access to U.S. markets under the African Growth and Opportunity Act (AGOA) led to a brief boom in African manufacturing exports, particularly apparel, which then fizzled in the face of unfettered Chinese competition after 2005. The looming expiration of AGOA—and eroding Chinese competitiveness—offers an opportunity for the United States to think more imaginatively about actions to boost African industrialization. Re-establishing the same degree of trade preferences Africa enjoyed relative to competitors in the early 2000s would require negative tariffs, i.e., import subsidies. While unconventional, we estimate targeted subsidies equivalent to 2 percent of current U.S. aid to Africa could double the region's light-manufacturing exports to the U.S. On the investment side, the U.S. International Development Finance Corporation could complement AGOA's boost to structural transformation by redirecting a portion of its portfolio from banking and mining to manufacturing.

KEYWORDS
African Growth and Opportunity Act, trade preferences, apparel exports

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Long-Distance Industrial Policy for Africa

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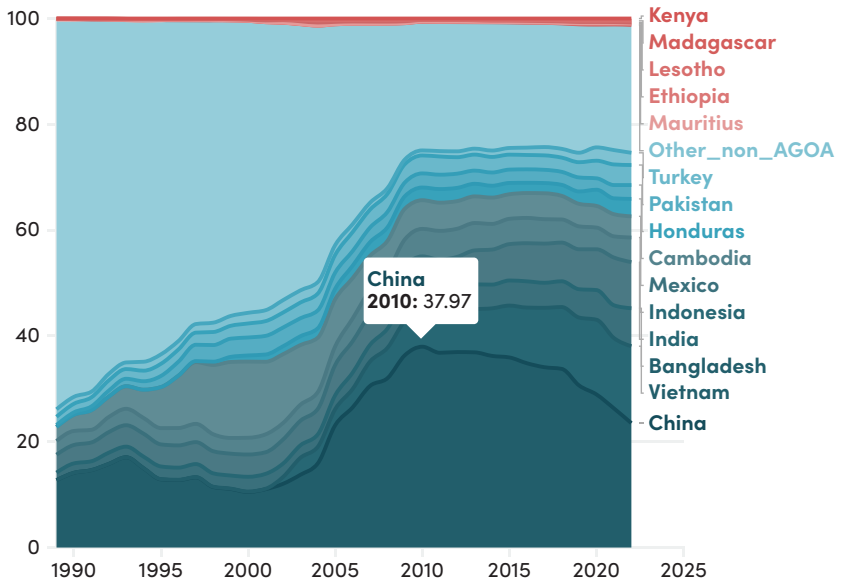
1. Introduction

Exporting light manufactured goods like t-shirts, shoes, and toys has been the first rung on a ladder of rapid economic growth and development for most of the newly industrializing countries in the twentieth century. A large literature established a pattern of "learning by exporting", in which developing country firms raised productivity and upgraded skills by selling abroad, particularly to advanced economies (e.g., Park et al 2010, Verhoogen 2008) – a pattern observed among African firms as well (Bigsten et al 2004). While cross-country incomes diverged for several decades, manufacturing productivity exhibited unconditional convergence (Rodrik 2016), offering developing countries a route to catch up to the technological frontier. In Africa, Mauritius has been an exemplar of graduation into upper middle income status based on diversification away from commodities (sugar) to manufacturing (clothing).[1]

After dominating global apparel exports in the 2000s and 2010s, China's market share is now in decline, falling from a peak of 38 percent of American apparel imports in 2010 to 24 percent in 2022, as the country graduates to more capital- and skill-intensive industries (Figure 1). As multinational companies pursue "China + 1" strategies to diversify their investments outside of mainland China, and the U.S. attempts to redirect its own import purchases to geopolitical allies through "friend shoring", a window of opportunity has opened for other entrants into the light-manufacturing export sector (see e.g., Freund et al 2023).

1 See Romer (1993), Rodrik (1999), Sachs and Warner (1995) and Subramanian and Roy (2001). Interestingly, clothing exports took-off somewhat serendipitously when Chinese investors were looking for alternative locations to Hong Kong that had become quota-constrained under the MFA. The local Chinese community in Mauritius played a key role in attracting such investors.

FIGURE 1. China's retreat from apparel exports creates an opening
Share of total U.S. apparel imports by value



Source: USITC.

Note: AGOA figures include all imports from the 45 countries ever eligible for AGOA, regardless of whether the tariff exemption was claimed or not.

This window is unlikely to remain open for long. Many commentators have predicted that automation will soon shut down this traditional path of economic development for poor countries via labor-intensive manufactured exports, rendering them more capital- and skill-intensive. Noting the falling global demand for manufactures as a share of GDP, Rodrik and Stiglitz (2024) conclude "the manufacturing- and export based growth strategies that drove East Asia's development miracles are no longer suited for today's low-income countries; at the very least, they are insufficient." Most African economies (with a tiny footprint in global trade) still have considerable scope to expand their share of manufacturing exports even as global totals plateau, but are not currently on a clear path to doing so.

In this paper we explore policy actions that the United States could take to give African economies a "final" and plausible shot at export-led industrialization. Specifically, we examine opportunities to expand the U.S. African Growth and Opportunity Act (AGOA), which is due for renewal by 2025.

Since 2001, the U.S. has maintained trade preferences for Africa to help facilitate its access to this traditional development ladder. These AGOA preferences granted many African products, particularly garments, duty-free access to U.S. markets.

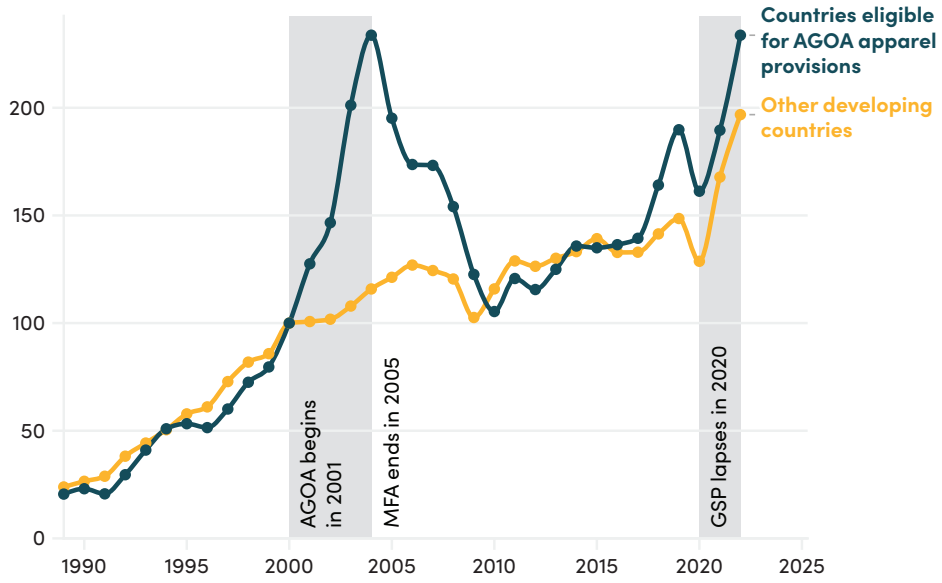
AGOA contributed to a brief boom in African manufacturing, which quickly went bust a few years later. A central task of this paper is to understand both the boom and the bust and the continued impact of AGOA today, to understand prospects for extending or improving it.

The most important policy context for understanding AGOA's impact is that, circa 2001, global textile trade was governed by the Multi Fiber Agreement (MFA) and its successor the Agreement on Textiles and Clothing (ATC). These treaties effectively imposed quotas or caps on garment exports from specific developing countries to rich countries. While technically AGOA included its own caps, these were not binding, and made African countries an attractive sourcing point for cheap textiles. Thus from 2001 to 2005 Africa had not only a tariff advantage over other competitors, those competitors were constrained by binding caps on their textile trade with the U.S.

Over that same four-year span, U.S. textile imports from African countries rose by nearly 150 percent. Apparel continues to dominate AGOA trade, accounting for 78 percent of tariff waivers by value in 2022 (see Section 4 below). Several studies documented positive impacts of AGOA on trade in general and apparel in particular, using variations of a difference-in-differences model during this early period (see e.g., Tadesse & Fayissa 2008). Applying a triple-differences framework across countries and products, Frazer and Van Biesebroeck (2010) estimated that AGOA increased the volume of African exports by 12.7 percent overall, and of apparel exports by 42 percent. Both of these analyses stopped in 2006, however, just as Africa's textile boom had begun to crash.

FIGURE 2. The rise and fall (and rise again?) of U.S. apparel imports from Africa

U.S. apparel imports from countries eligible for AGOA apparel provisions, versus equivalent imports from other developing countries, nominal USD, base year 2000 = 100



Source: USITC.

Notes: To avoid composition effects, the list of AGOA-eligible countries and products is held fixed across years, and includes any country ever eligible for the apparel provisions. Comparator countries include all other countries which qualified for AGOA or GSP at any point from 2000 onward.

When the MFA/ATC quotas expired in January 2005, WTO members like China began to export large quantities of textiles to the U.S. Africa's textile boom was quickly over. This rise and fall was fully anticipated. Mattoo, Roy, and Subramanian (2003) noted shortly after its passing, that AGOA was likely to lead to a dramatic 92 percent increase in textiles exports from, e.g., Madagascar to the U.S., but that this trade would fall back to just a 5 percent net gain after 2005.

Ex post, Rotunno, Vézina, and Wang (2013) confirm this rise and fall of AGOA garments exports, presenting evidence that some of the boom may have consisted of transshipment of goods produced in China with minimal value added in African countries. In any case, by 2010 African exports of textiles to the U.S. had fallen back to pre-AGOA levels.

After the global financial crisis, as China started to lose competitiveness, Africa's apparel exports to the US rose again but as Figure 1 shows, so too did the exports of countries such as Vietnam and Bangladesh.[2]

As Congress debates renewing AGOA before its expiration in 2025, an obvious question is whether it still has any effect, and/or how it could be improved. Despite the demise of the AGOA boom of the early 2000, we find evidence that the answer to the first question is yes, AGOA still matters for African exports. This is consistent with evidence Fernandes et al (2023) who extend Frazer and van Biesebroeck's (2010) specification up to 2017 and find growing impacts over time, particularly for cases such as Mauritius.

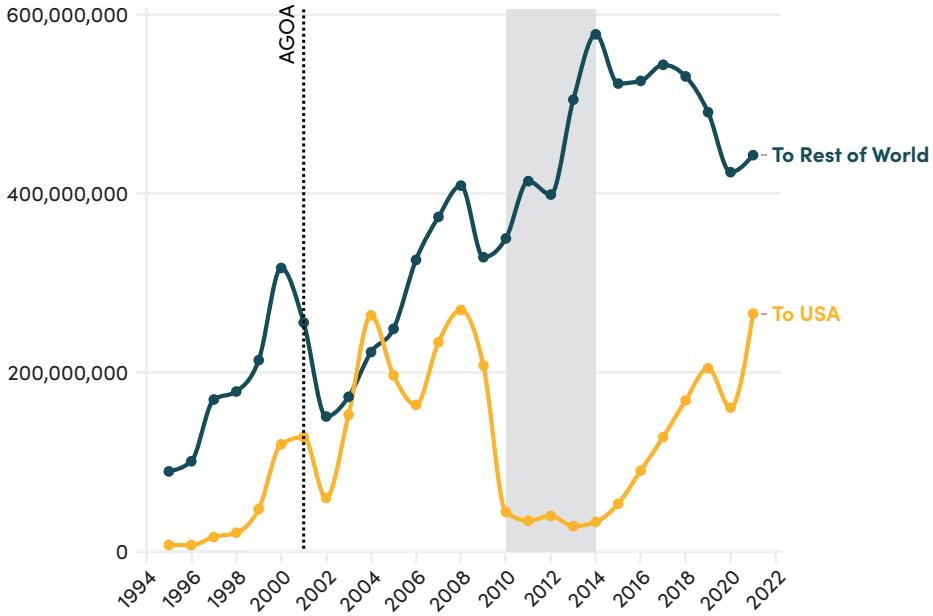
Madagascar provides a simple case study to illustrate the continued relevance of AGOA, even after China rose to dominate the global apparel market. Madagascar was central to the early AGOA boom, before exports plateaued in the mid-2000s. After a coup d'etat in 2009, the U.S. suspended Madagascar from AGOA eligibility starting in 2010 through 2014 (inclusive). As shown in the figure, Madagascar's apparel exports to the U.S. plummeted in one year from $208 million to $44million. Only after the country was reinstated to AGOA did exports begin to rise again, reaching pre-suspension levels in 2022. One can debate whether or not this use of trade policy as a sanctions tool was effective in shaping Madagascar political outcomes, but what seems abundantly clear is that AGOA had a massive impact on Madagascar's export patterns.[3]

2 While we emphasize China vacating space in the apparel sector, note that over this period from 2010 to 2022, China's global export market share in manufacturing as a whole has actually risen from 14.8 percent to 21.7 percent (Subramanian et al 2023).

3 Astute readers will note that in Madagascar's case, it looks like AGOA impacts trade with the U.S., but that may just be redirecting trade from elsewhere without changing total exports much. Frazer and van Biesebroeck (2010) find this has not been the case with AGOA overall, demonstrating impacts on total exports as well as exports to the US specifically.

FIGURE 3. Madagascar's apparel exports to the U.S. collapsed when it was suspended from AGOA

Madagascar lost access to AGOA after the 2009 coup, and was readmitted in 2014. The figure shows total annual exports for HS 50-63 in nominal USD



Source: BACI data, derived from UN Comtrade.

In line with this case study, the remainder of this paper sets out to answer two basic empirical questions more systematically. First, does AGOA still matter for African manufacturing exports to the United States? Here we focus specifically on the apparel sector given its prominent role in Africa's industrial development to date. In addition to extending the time series, we address various econometric issues that may cause bias in earlier estimates, including reliance on two-way fixed effects estimators with staggered treatment timing (Goodman-Bacon 2021) and use of logarithmic specifications where most country-sector cells report zero trade (Chen and Roth 2023).

Second, how responsive are African exports to the wedge created between the tariff rate under AGOA versus the rate paid by competitors? We confirm earlier findings that counterfactual tariff rates matter – AGOA's impact is bigger for apparel products whose U.S. tariffs are otherwise higher – even in the period of intense Chinese competition post 2005.

The final section of the paper uses the answers to these questions to lay out a policy proposal to strengthen AGOA's impact on African manufacturing going forward, by re-establishing or enhancing the continent's preferential treatment under U.S. customs in the wake of China vacating export space; and to reinforce enhanced market access through complementary actions that would create an ecosphere for sustained manufacturing activity in Africa.

Our focus here is squarely on the role of AGOA in promoting growth and job creation through labor-intensive manufacturing exports. Usman and Csanadi (2023) and Usman (2024) notes that the growth of clean energy has also opened new opportunities for US-Africa trade in critical minerals. Apart from the institutional strengthening that will be required to prevent the "resource curse" from limiting or impeding these opportunities, the employment potential in them is likely to be limited. Promoting labor-intensive industrialization, therefore, remains a critical development objectives.

In sum, we echo recent calls to renew AGOA, on the grounds that it is both good economics and good geopolitics. But we also caution that recent congressional proposals to extend AGOA as-is or with fairly modest adjustments – while far superior to letting AGOA lapse – may have limited effects, as we've seen since 2005. If America is serious about promoting African industrialization, it should contemplate stronger measures and use more of its policy tools.

2. AGOA background

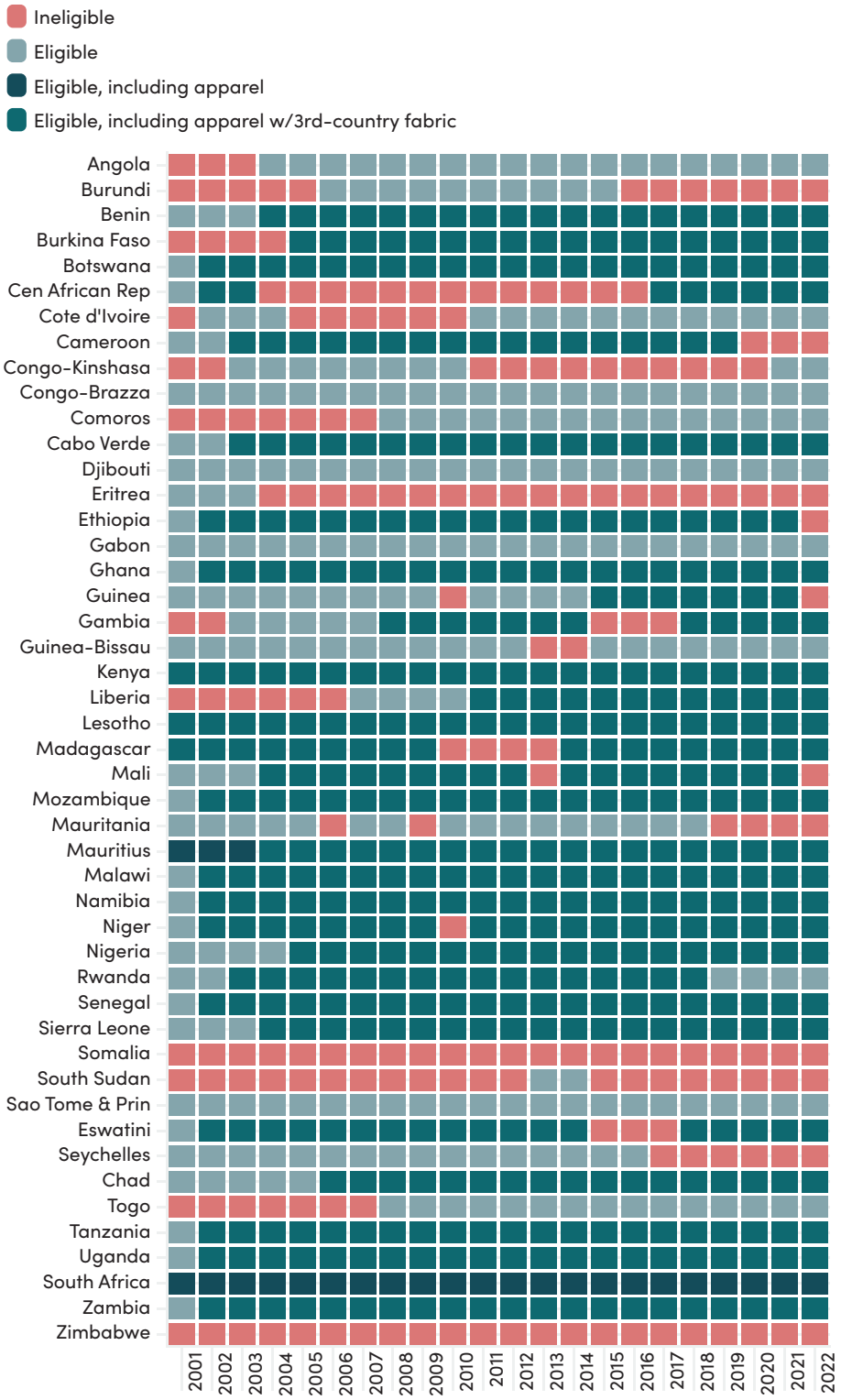
The African Growth and Opportunity Act was passed in 2000 and came into effect in 2001. Initially signed by Bill Clinton, it was extended by George W. Bush in 2004, and has enjoyed bipartisan support in Congress. It is currently set to expire in 2025, and there are already multiple bills in the senate proposing to renew it.

In the country dimension, 45 African countries have ever qualified for AGOA, including an initial list of 33 in 2001. Over time, new countries have been added, and some countries have been suspended either temporarily or permanently, e.g., after coups d'etat or, more controversially, Rwanda's refusal to allow imports of used clothing from the U.S.

There are two basic hurdles that countries must clear for AGOA eligibility, one for general eligibility and an additional hurdle for the right to import apparel products under AGOA. As shown in the figure, 33 countries qualified for AGOA in its first year, 2001, but only 5 qualified for the apparel provisions by the middle of that year, joined by another 12 by mid-2002, with more to follow.

FIGURE 4. Who is eligible for AGOA?

The answer changes over time, as countries are added and others suspended. Duty-free apparel access is a separate hurdle



In the product dimension, AGOA offers tariff-free access to U.S. markets for a wide range of goods, spanning all broad sectors (from agriculture to minerals to manufactured goods), with specific inclusions and exclusions within narrow product categories. By our calculation, AGOA currently covers just over half of product lines as defined by 8-digit codes in the Harmonized System (HS). The products eligible for AGOA account for about 40 percent of U.S. imports, though African countries comprise only a tiny fraction of that trade.

The AGOA product list has been expanded at various points, most substantially in 2016, and we use this time-series variation in product eligibility in our analysis below.

AGOA is effectively an extension of the U.S. Generalized System of Preferences (GSP), which grants duty-free access to U.S. markets for selected developing countries and products. All AGOA countries also qualify for GSP, making some AGOA tariff reductions theoretically redundant. Compared to GSP, AGOA offers additional tariff reductions, on an expanded list of products, with an additional legislative guarantee protecting that access, since Congress sometimes 'forgets' to renew GSP.

Most recently, Congress failed to renew GSP before the end of 2020. Since then, African countries have been at a somewhat greater advantage to other exporters competing for the U.S. market. But that also makes them quite vulnerable if AGOA is not renewed before 2025.

3. Data

The United States International Trade Commission (USITC) DataWeb reports both trade and tariff data at the 8-digit Harmonized System (HS) code level. We rely on the customs value of imports for consumption, by year and country of origin, from 1989 through 2022.

We use the most-favored nation (MFN) ad valorem tariff rate in 2000 as our measure of baseline protection pre-AGOA, and annual, product-specific MFN rates to compute the foregone tariff revenue from AGOA preferences.

Given the high proportion of zeros in the bilateral 8-digit imports data, we aggregate data and perform all analysis at the 6-digit level. For trade flows this is a straightforward summation. For tariffs, we average the MFN rate within 6-digit codes, using total U.S. imports in 2000 within each 8-digit sector as weights.

One complication we can only partially address is that HS product codes change over time, with some codes being dropped, others being added, and others merged or split. We apply the concordances maintained by the World Bank (Cebeci 2012), but these only reduce rather than eliminate the problem. We remain with a somewhat unbalanced panel of 6-digit HS codes as a result. For portions of the econometric analysis we enforce a balanced panel, by retaining only 6-digit HS codes which

can be reliably tracked from 1989 through 2022 and are unambiguously eligible or ineligible for AGOA treatment in any given year.

AGOA product eligibility is flagged in USITC tariff data, at the 8-digit level by year. We follow USITC's designation of AGOA products, though it is important to note that this includes a reasonable number of 8-digit codes (roughly half of codes eligible for AGOA in 2001) for which some developing countries – including most AGOA beneficiaries – were already granted duty-free access to the U.S. market under the Generalized System of Preferences (GSP). Frazer and Van Biesebroeck (2010) note that their results on the impact of AGOA on trade flows are strengthened if these overlapping products are removed from the AGOA list, but opt to keep them in. Doing so is further justified now given the expiration of GSP in 2020.

Aggregating AGOA eligibility is slightly subjective. Roughly 80 percent of 6-digit codes have homogenous AGOA treatment. In the remaining cases, we create a binary AGOA indicator by treating the 6-digit sector as AGOA eligible in a given year if the trade-weighted majority of 8-digit sectors within it are AGOA eligible.

AGOA *country* eligibility is somewhat harder to track down historically. Up to 2014, countries' eligibility for AGOA and the special apparel provisions were reported on a now-defunct U.S. government website. Beyond this, we update annual eligibility using reports from the private website AGOA Info.

To express trade flows as a proportion of national income, we rely on total Gross Domestic Product in current U.S. dollars from the World Bank, World Development Indicators. The geographic units in the USITC trade data do not correspond in all cases to countries as recognized by the World Bank. We start from the correspondence table created by Dingel (2010), and make a handful of more recent updates, e.g., incorporating newer ISO 3 codes for South Sudan, Kosovo, and the aggregation of the West Bank and Gaza Strip.

For the analysis of Madagascar's garment exports to the U.S. versus the rest of the world, we rely on United Nations Comtrade data on bilateral trade flows, as processed by Gaulier and Zignago (2010) in the BACI dataset. For further details see the BACI documentation page.

4. Econometric specification

In this section we use the panel of countries and sectors described above to estimate AGOA's impact on exports of AGOA-eligible products in a difference-in-differences framework.

To increase comparability across countries, we focus only on AGOA countries and, as controls, non-AGOA countries that qualified for GSP at some point from 2000 onward (the number of GSP-eligible countries is shrinking over time). The GSP sample includes big garment exporters like Bangladesh

and Cambodia, but notably excludes Vietnam and China. The motivation for excluding non-GSP countries is that we expect time trends for garment exports to look quite different in these countries, which are predominantly richer.[4]

We allow our treatment variable to vary over time only once per country-sector cell. As noted above, AGOA eligibility varies over time both for countries and products, creating a complex array of treatment timings. Furthermore, the impact of AGOA may be dynamic and accumulate over time. And the impacts of gaining and losing AGOA eligibility may not be equal and opposite. Thus we limit attention here to the "first crossing", i.e., the initial year at which a country and/or product becomes eligible for AGOA (note this date often differs within the same country for apparel and non-apparel products, and new products were added to the eligible list over time, particularly in 2016). This analytical choice implies that all of our estimates reported here are somewhat conservative, as we will classify some countries as treated even in years in which they lost eligibility.

For the sake of transparency, we start with a simple difference-in-difference specification. We restrict attention to AGOA eligible products and make comparisons across country-sector cells and time. This yields an unbalanced panel of 134 countries and 562 apparel sectors spanning 34 years from 1989 to 2022. The imbalance arises because of the introduction of new sectors noted above, and (e.g.) at the country level because South Sudan emerged as an independent country in 2011, and subsequently qualified (albeit briefly) for AGOA in 2013.

4.1 Estimation strategy

We confront two challenges that have garnered considerable attention in recent applied econometric work. First, 90 percent of the values in our data set are zero, i.e., there are no exports of most apparel products to the U.S. from most countries in most years. Most previous work on the impact of AGOA has reported results from a logarithmic specification, where the dependent variable is constructed as log(y+1) to avoid missing values. As Chen and Roth (2023) show, however, this can lead to arbitrary biases in point estimates. To avoid this problem, while acknowledging that absolute trade flows will likely differ in economies of different sizes, we use as our dependent variable the dollar value of exports as a percentage of the exporter's GDP.

Second, recent methodological work has emphasized the potential for bias in two-way fixed effects estimates of difference-in-differences models when treatment timing differs across treated units and effects are potentially heterogeneous (Goodman-Bacon 2021, inter alia). Both conditions are likely relevant for the AGOA context. First, the timing of treatment is staggered, i.e., some countries first-qualified for AGOA and AGOA's apparels provision starting in 2001 while others entered for the first time as late as 2018. Second, AGOA's effects on apparel exports are likely heterogeneous

4 The relationship between GDP and manufacturing intensity is an inverse-U shape (Rodrik 2013). Thus in less developed economies, we anticipate a background trend of positive economic growth will lead to an expanding garment sector, while in richer countries (like China) it will lead to a shrinking one.

(early qualifiers were countries that easily met the AGOA governance criteria, and enjoyed an initial phase where potential non-AGOA competitors were hampered by the Multi Fibre Agreement). Later entrants had weaker institutions and faced a more challenging competitive environment.

We use the estimator proposed by Callaway and Sant'Anna (2021), which builds up from estimates of the period-specific average treatment effect for cohorts (or treatment-timing groups) who were first treated in a given period g. In their notation, $ATT(g,t)$ for $g = 2001$ and $t = 2022$ would be the effect of AGOA in 2022 on country-sector cells that first became eligible in 2001. Under suitable assumptions about parallel trends and no anticipation, the period and cohort specific treatment effect is

$$ATT(g,t) = E[m_t - m_{g-1} \mid G = g] - E[m_t - m_{g-1} \mid G = \infty]$$

where $G = \infty$ refers to units who were never treated. Letting m_{cst} denote imports as a share of GDP from country c in sector s in calendar year t, the sample analog in the AGOA case would be:

$$\widehat{ATT}(g,t) = \frac{1}{N_g} \sum_{cs:G_{sc}=g} [m_{cst} - m_{cs,g-1}] - \frac{1}{N_{G_{comp}}} \sum_{cs:G_{sc}=\infty} [m_{cst} - m_{cs,g-1}] \quad (1)$$

In words, the estimate of the average treatment effect on the cohort of sectors (or more precisely, country-sector cells) first treated in period g is the sample average of their export growth minus the export growth of never-treated sectors.

TABLE 1. Summary statistics on apparel exports to the U.S. for the estimation sample

	% of GDP	
	Non-AGOA Countries	AGOA Countries
2000	1.36	0.87
	(4.1)	(3.03)
2001-2005	1.3	1.6
	(4.07)	(5.81)
2006-2016	0.63	0.71
	(2.5)	(2.88)
2017-2022	0.43	0.54
	(1.6)	(2.27)
Countries	102	29

Notes: The numbers reported are apparel exports to the U.S. as percentage points of GDP, aggregated to the country-year level and then averaged within groups and time periods. Numbers in parentheses are standard deviations of the country-level data.

Table 1 presents basic summary statistics for our estimation sample. We aggregate across the 562 sectors so that trade values as a share of GDP are easier to interpret, and group years into four periods that we'll use in the analysis. The basic trajectory described in the intro is clearly apparent: apparel exports to the U.S. from AGOA countries rose faster than in other countries in the years

immediately following 2000, but then dropped back down subsequently. Meanwhile, non-AGOA countries saw lower apparel exports to the U.S. as a share of GDP in each subsequent period.

4.2 Benchmark results for AGOA's impact twenty years later

Our benchmark results are shown in the event-study plot in Figure L. Following Callaway and Sant'Anna (2021), we report aggregates of the period and cohort specific effects, averaging over cohorts and time periods to create estimates for years since initial treatment, aka "event time". Because the data series runs from 1989 to 2022 and the largest group of AGOA countries began treatment in 2001 or 2002, we limit the event study to the period from $t - 12$ to $t + 20$.

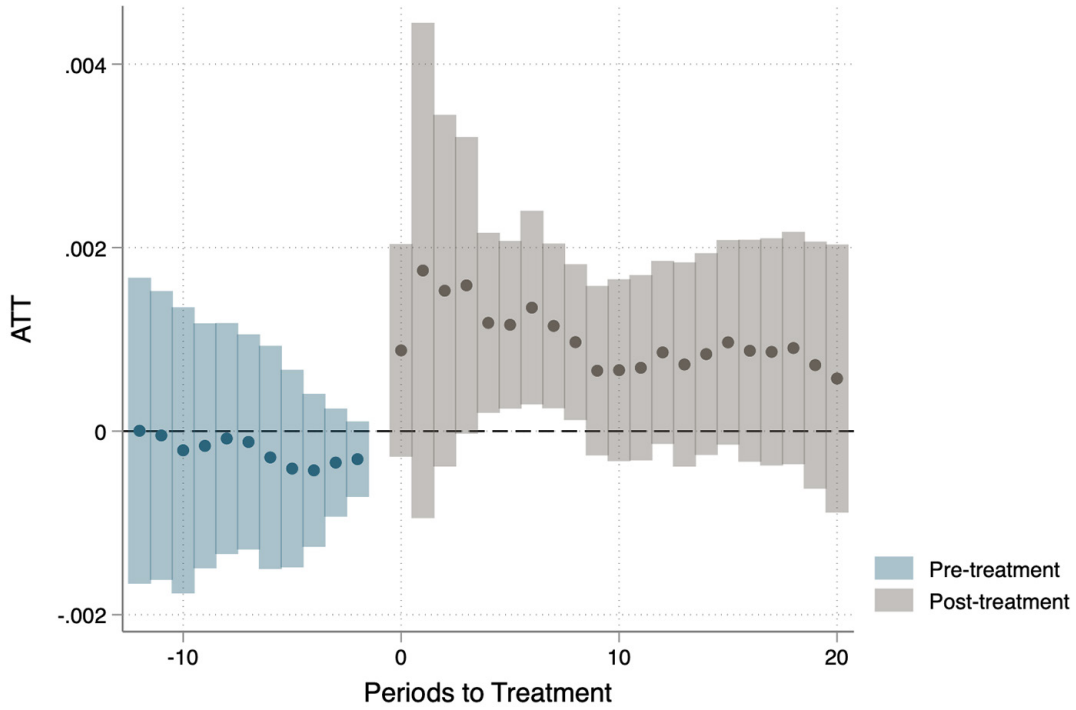
A basic assumption underlying most difference-in-difference designs is that treatment and control units would evolve in parallel in the absence of treatment. It is common to examine differences in pre-treatment trends as suggestive evidence in favor of this assumption.[5] In our case, Figure 5 shows some signs of deviation from parallel trends. These deviations are statistically significant (a X^2 test of the null that all pre-treatment coefficients are zero is rejected at the 1% level) but modest in magnitude.

Turning to the post-treatment periods, as anticipated, the results imply a large and significant role for AGOA in boosting apparel exports in the early years of treatment. That effect then attenuates and remains fairly flat from roughly $t + 5$ onward.

Some care is required in interpreting magnitudes here. Note that while coefficients are measured in percentage points of GDP, there are 562 AGOA-eligible apparel product lines in our sample. Thus to back out the implied aggregate impact of AGOA per country, the coefficients should be multiplied by 562. By this metric, AGOA raised apparel exports by 1.3 percent of GDP annually before the end of the MFN in 2005, and by 0.45 percentage points of GDP annually thereafter.

5 In the case of the Callaway and Sant'Anna (2021) estimator used here, period-specific treatment effects, ATT, are calculated using the change between period G-1 (just before initial treatment) and the current period T. For ATTs *prior* to treatment, the base period is T-1 and the post-period is G-1. Thus for a country that entered AGOA in 2001, the treatment effect in 2005 is built on the change in exports from 2000 to 2005. And we pre-test for parallel trends circa, say 1995 or 1996 by examining the changes in exports from 1994 to 2000 and 1995 to 2000, respectively. To align with standard event study coefficients, the signs on these pre-test coefficients are flipped (using the "long2" option in the Stata "csdid" package).

FIGURE 5. Difference-in-differences estimates of AGOA's impact on African apparel exports to the U.S. as a share of GDP at the 6-digit HS code level



Notes: Event study estimates are based on equation (1). The sample includes all AGOA-eligible apparel products. The coefficients are measured in percentage points of GDP. Note that there are 562 eligible apparel product lines, so the aggregate impact per country implied by a coefficient of 0.001 would be 0.562 percentage points of GDP.

We know from context that this rise and fall of AGOA's impact likely has more to do with calendar years (and the global policy environment) than with years since treatment for a specific country. Thus in Table 2 we report results broken into three basic time periods: the early AGOA years before the expiration of the MFA, 2001-2005, a middle period from 2006 to 2016, and then the most recent five year window, 2017-2022. The latter is intended to give a rough idea of AGOA's impact now, and the best indication of what policymakers should expect going forward.

When grouping years in this way we gain some statistical power relative to examining specific years, and we see that AGOA's impact on apparel imports as a share of GDP is statistically significant in each of the three periods (Table 2, column [1]). The magnitude, however, drops by roughly two-thirds after 2005 and remains flat in the second and third periods.

TABLE 2. Difference-in-difference estimates of AGOA's impact on exports to U.S. as a share of exporter's GDP

	AGOA Apparel Products			Non-AGOA
	All Apparel Products	Low-Tariff Only (τ<1)	High-Tariff Only (τ>10)	All Apparel Products
	[1]	[2]	[3]	[4]
DiD coefficient:				
2001-2005	0.0023	0.000	0.005	0.000
	(0.0007)***	(0.000)	(0.0016)***	(0.000)
2006-2016	0.0008	0.000	0.0015	0.000
	(0.0003)***	(0.000)	(0.0007)***	(0.000)
2017-2022	0.0008	0.000	0.0014	0.000
	(0.0004)***	(0.000)	(0.0010)	(0.000)
Countries	131	131	131	131
6-digit HS codes	562	45	254	40
Pre-AGOA years	2000	2000	2000	2000

Notes: The dependent variable is exports as a share of GDP in percentage points. The sample in columns [1] to [3] includes only apparel products which were, at some point, made eligible for AGOA, and in column [4] those which never were. At the country level, the sample includes all countries ever eligible for AGOA and/or GSP post 2000, with the latter serving as "never treated" controls for estimation of AGOA's impact. Estimates are based on equation (1), using data at the country-year-sector level, where sectors are defined at the 6-digit HS code. The coefficients reported in the table are aggregates of the Callaway-Sant'Anna (2021) estimates for specific treatment cohorts and time periods (the ATT(g,t)). Standard errors are clustered at the country level.

4.3 Responsiveness to tariff rates

We're interested in knowing how much more trade AGOA would create if tariffs were lowered further. Thus we focus here on the differential impact of AGOA based on the counterfactual tariff rate for specific products, i.e., how much non-AGOA importers pay. (Our estimand here is similar to a tariff elasticity, but because we're not estimating equation (1) in logs, and we don't need an explicit elasticity for our policy simulation, we forgo calculation of a formal elasticity.)

For ineligible countries, the average ad valorem tariff rate on AGOA products was about 5.6 percent as of 2022. For apparel products, the average rate was about 8.5 percent, with a range from zero to 32 percent. Here we exploit that range.

Where tariffs are high, AGOA gave African countries a bigger advantage over global competitors. Frazer and Van Biesebroeck (2010) show that the initial import response of African countries to AGOA was indeed significantly bigger in product lines that faced higher initial tariff rates.Does that remain true today?

As a simple approach to getting at the tariff elasticity, we estimate the difference-in-differences model in equation (1) separately for products with different levels of baseline MFN tariff rates. Specifically, we first aggregate country level exports of AGOA-eligible products with MFN tariff rates less than 1 percent as of 2000, and produce a DiD estimate of AGOA's impact. Then we repeat this

estimation, focusing instead on products with initially high levels of MFN tariffs, i.e., greater than 10 percent. The difference between these estimates provides a rough estimate of the tariff elasticity.

AGOA's impact on low-tariff products is null in all time periods, as shown in Table 2, column [2]. For high-tariff apparel products (column [3]), the coefficient is roughly double the magnitude of the overall estimate from column [1]. (For reference, the average tariff rate in the low-tariff group is 0.1 percent and in the high-tariff it is 16.4 percent.) Note that the estimates are noisy in the final period and not statistically different from zero, but the overall picture is as expected: AGOA has a much bigger impact where tariffs are otherwise high.

The results in Table 2 are broadly consistent with the evolution in AGOA exports to the US shown in Figure 5. Between 2001 and 2005, the trade elasticity with respect to the tariff is high because of restrained Chinese competition courtesy of the MFA. Once the WTO agreements kicked in and the MFA was eliminated, the trade elasticity declined between 2006 and 2016. As China started to vacate export space, both Africa and other competitor nations experienced a common shock which kept the elasticity low. In Section 4 we use these estimates to model the potential impact of hypothetical policy changes going forward.

4.4 Placebo tests or triple differences

Our difference-in-differences estimates exploit cross-country and time series variation in AGOA eligibility, but not within-country differences in product eligibility (except, implicitly, when we compare results for our separate estimates for high- and low-tariff goods). In their analysis of AGOA's impact in its first five years, Frazer and Van Biesebroeck (2010) propose a triple-difference estimator that exploits all three dimensions of variation in AGOA eligibility, which they estimate by OLS. They find significant impacts on the log of U.S. imports from AGOA-eligible countries across all sectors, and much larger effects for apparel. Collier and Venables (2007) go further, comparing African exports to the U.S. versus Europe, adding a fourth difference.[6]

The basic intuition behind triple-differencing is that the superior performance of exports from AGOA countries over time should be concentrated in AGOA-eligible products. We can test this hypothesis by estimating equation (1) separately for products that are, and are not, eligible for duty-free import under AGOA.[7]

6 While these estimates reflect an earlier time period, Fernandes et al (2023) apply a similar triple-difference framework finding AGOA impacts up to 2017. Importantly, they also present updated evidence confirming earlier findings from Frazer and van Biesebroeck (2010) that AGOA impacts are not merely the result of trade diversion from other destinations to the U.S.

7 Sant'Anna (2022) provides a basic sketch of this approach, which amounts to taking the difference, in our setting, between ATT(g,t) estimated on AGOA products and the ATT(g,t) estimated on non-AGOA products. In our setting, however, the ATT(g,t) estimates for non-AGOA products are fairly consistently null. Thus we see no sign of any violation of the parallel trends assumptions underlying difference-in-differences estimates. We follow the suggestion of Cunningham (2023) of treating these regressions on non-AGOA products as a placebo test, and forgo the extra step of taking a third difference.

Column [4] of Table 2 presents the results. As anticipated, we find no impact of AGOA on African exports of non-covered apparel products to the U.S. in any time period. This provides some additional reassurance about the validity of our basic difference-in-differences estimates.

5. Tariff policy proposal

Our results imply that renewing AGOA "as is" will have significant benefits from African economies relative to the counterfactual of letting the program lapse. This is particularly true given Congress's failure to renew GSP in 2020. But there is little sign that a continuation of the status quo will lead to any catch-up growth in African manufacturing.

AGOA faces something of a "zero lower bound" problem. Currently, AGOA already offers African countries duty-free access to U.S. markets for the relevant goods we consider, i.e., light-manufactures, primarily apparel. Furthermore, the most-favored nation tariff rates faced by non-African competitors have gradually fallen over time; and the US has entered into free trade agreements with competitor countries such as Vietnam. Perhaps, most importantly countries in Asia that are part of the China value chain stand to gain disproportionately (relative to Africa) from the new China shock where investors seek alternative locations. The need for enhancing preferences to Africa might just be a case of having to run to stay in the same place.

To promote the expansion of African manufacturing exports beyond their current level under a zero-tariff regime, we propose turning to negative tariff rates. Conceptually, there is nothing special about zero. Rather than taxing (or not) the value of African imports at a specified percentage rate, the U.S. could opt to offer U.S. firms positive incentives to import specific goods from specific countries to pursue U.S. policy goals abroad.

We explore a range of possible negative tariff (or equivalently, subsidy) levels, what they would mean for African export performance, and their cost for the U.S. Treasury.

In practical terms, we conjecture that it would be both politically and administratively difficult to enact a system by which subsidies were paid out to African producers scattered across dozens of countries, with ownership held in third countries. Instead, we propose that the simplest means to enact negative tariffs would be through a tax rebate to U.S. firms importing African products. Rather than a simple tax deduction (after all, normal business expenses like procuring goods via import are already tax deductible regardless of their origin), this would take the form of a rebate on corporate taxes, equal to the (negative) tariff rate times the value of goods imported. Our expectation is that the economic incidence of this subsidy (different from the legal incidence) would be such as to result in higher prices being paid to the firms in Africa that are producing and exporting apparel products.

5.1 Predicted impact on African exports

Our preferred econometric estimates from Section 3 suggest a trade preference for African apparel products equivalent to a 10 percentage point tariff reduction currently would lead to an average increase in exports as a share of GDP among eligible African countries of 0.14 percentage points for each of the 562 products covered.

To see how we arrive at this number, start with the difference in coefficients between high- and low-tariff products in Table 2 (0 in column [2] and 0.0014 in column [3]). Note that the average tariff rate for "high" tariff products in our sample is 16.4 percent, and just 0.1 percent for low tariff products. So each percentage point of tariff differential amplifies AGOA's impact by 0.0014/16.4 percentage points of GDP.

Because our dependent variable is a share of GDP and the analysis is done at the country-product level, the boost to trade is computed as the sum of effects across all eligible products (562 apparel products under AGOA) and countries (36 AGOA countries in the latest period of our data).
Thus we have:

$$Total\ impact\ on\ exports\ in\ USD = \sum_{c}\sum_{s}\{\Delta\tau \times [ATT(\tau > 10) - ATT(\tau < 1)] \times GDP_{c}\ /16.3\}$$

This formula gives us the impact on total African exports per percentage point of tariff reduction.

TABLE 3. Implied impact of a negative tariff on African light-manufacturing imports to U.S.

	10% Negative Tariff		20% Negative Tariff	
	Benchmark Estimate from Table 2, Columns [2] and [3]	High end Estimate (Top of 95% Confidence Interval)	Benchmark Estimate from Table 2, Columns [2] and [3]	High end Estimate (Top of 95% Confidence Interval)
Total increase in African exports to U.S. ($)	$1.48 billion in new trade	$2.94 billion in new trade	$2.97 billion in new trade	$5.88 billion in new trade
Percentage increase over 2022	104 percent increase	206 percent increase	208 percent increase	411 percent increase
Marginal cost to U.S. Treasury in foregone revenue/rebates	$291 million	$437 million	$880 million	$1.46 billion

Notes: Calculations assume trade preferences are targeted to light manufacturing goods (i.e. apparel and similar) and to current AGOA beneficiaries. Foregone tariffs are likely an overestimate for reasons explained in the text.

The headline result is that a 10 percent negative tariff on African light manufacturing exports would generate $1.48 billion in new trade. This is equivalent to a 104 percent increase in African apparel exports to the U.S. The cost of this policy would be roughly $291 in foregone tariff revenue and/or rebates. For a 20 percent negative tariff, the impacts are doubled though costs rise more than

proportionally, because African exports expand and the rebates apply to a larger quantity of trade. The following sections discuss these calculations in more detail.

5.2 Sensitivity analysis

It is worth considering at least two kinds of uncertainty here: statistical and model based. We can give an indication of the former by repeating our calculation using the bounds of the 95 percent confidence interval on our AGOA impact estimates. This suggests a range of possible effects from zero to $2.94 billion in additional exports.

Another way to think of these bounds is in terms of model misspecification. Even if our estimates of the causal impact of AGOA are well-identified, if (for instance) our linearity assumptions are wrong, then extrapolating the results will generate misleading predictions. As it works out, the upper bound calculated here is equivalent to assuming that our estimates are off by roughly a factor of two. Thus the final column of Table 3 can be read as the anticipated impact of the actual sensitivity of exports to tariffs is doubled compared to past experience. This seems like a possibility worth contemplating when tariffs pass into the negative domain.

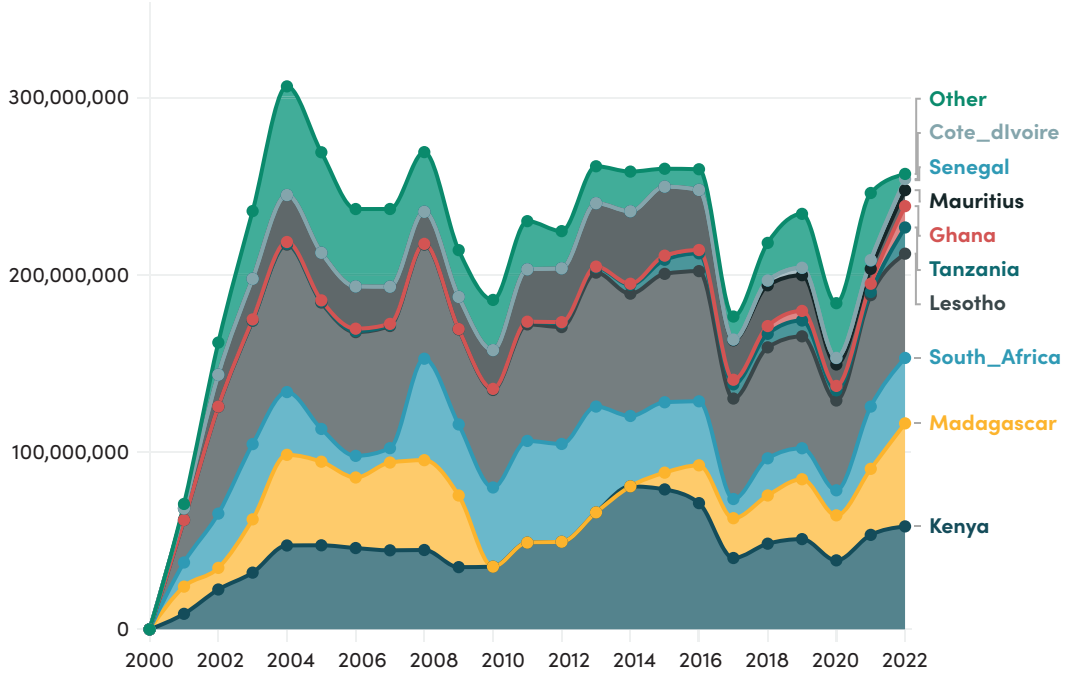
5.3 Fiscal cost to the U.S. of subsidies and foregone tariffs

At present, the actual cost of AGOA to American taxpayers, measured in foregone tariff revenue, is incredibly low. It peaked at about $400 million in 2022. Kenya has been the biggest beneficiary, claiming total AGOA tariff waivers worth about $120 million in 2022, followed by Madagascar at about $90 million and South Africa at around $70 million.[8]

For comparison, the U.S. spent about $17.7 billion on foreign aid to sub-Saharan African in 2022. So trade preferences cost about 2% of what the U.S. spends on aid in the same countries. (Of the $18 billion U.S. foreign aid for Sub-Saharan Africa in 2022, roughly $8 billion was spent on humanitarian assistance which is sometimes treated separately; just $300 million was spent on military aid.)

8 The question of why some countries have managed to exploit AGOA eligibility so much more so than others is an important question outside our scope here. See Signé (2023) for a summary.

FIGURE 6. AGOA costs the U.S. about 2% of the foreign aid budget for Africa
Total tariffs avoided in USD



Source: USITC.
Note: The value of the AGOA trade preference is calculated as the foregone tariffs, i.e., the dollar value of imports times the relevant tariff rate in the absence of any trade preferences.

The 'costs' of AGOA that we calculate here equal the total value of all the foregone tariff revenue that African countries were exempted from thanks to AGOA. They're calculated by multiplying the dollar value of imports for each 8-digit HS product category by the most-favored nation (MFN) ad valorem tariff rate for that product, and then summing over all the products.

Not only is AGOA cheap, our calculation probably overstates how much it actually costs, for two reasons. First, without lower tariffs, African countries wouldn't have sold so much stuff to the U.S. (increasing trade is the whole point of lowering tariffs, after all). And second, our calculation assumes African imports would've paid full tariff rates in the absence of AGOA. In reality, other exemptions like the General System of Preferences (GSP) would have applied in many cases. But since GSP expired in 2020, and its availability has always been uncertain, we focus on the simple comparison of AGOA versus full, regular tariff treatment.

Going forward, the calculation is somewhat different. A hypothetical rebate of, say, 10 percent on the value of AGOA apparel imports would (we estimate) induce new trade flows, but would also need to be applied to existing, inframarginal flows. Thus we estimate the marginal cost of the policy as the rebate rate, 10 percent in this scenario, times the total value of existing AGOA apparel imports plus our estimated impact on trade flows, yielding the $291 million cost listed above.

5.4 Product coverage

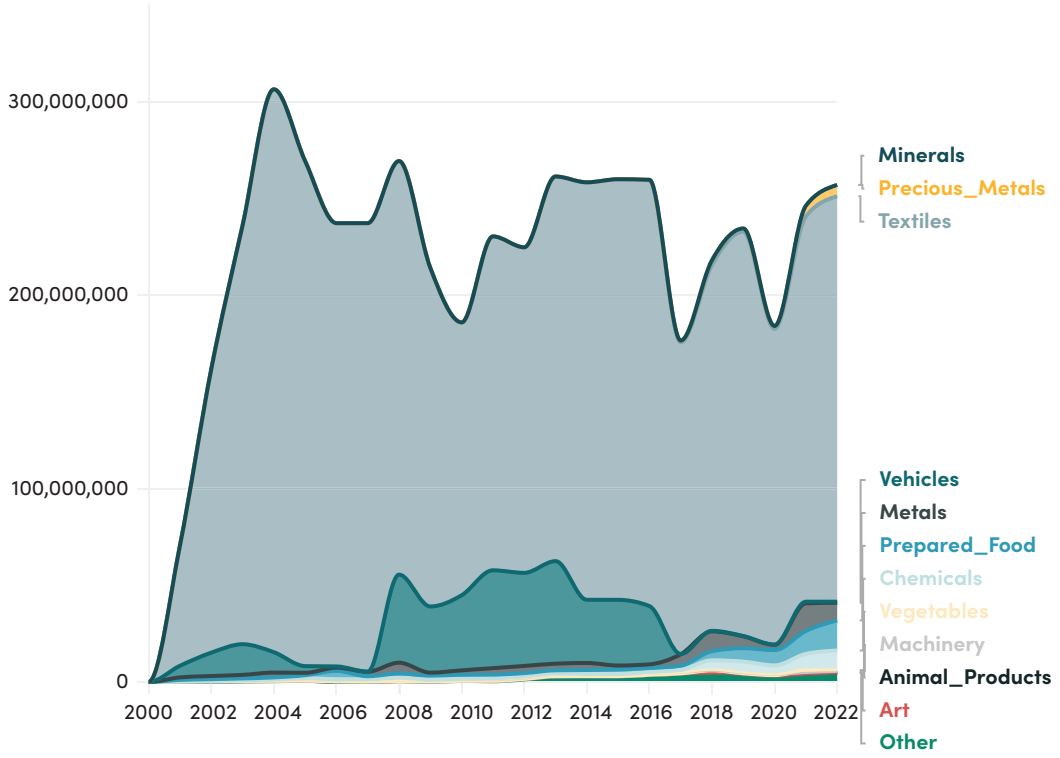
Subsidies would, by necessity, be targeted to labor-intensive manufacturing exports.

We believe the most compelling policy logic for subsidizing African imports to the U.S. is built around the promotion of light manufacturing as an engine for growth. Hence, while AGOA currently includes a much wider range of products – including, notably, crude oil – it would make no sense (and be prohibitively expensive) to include these raw commodities in an import subsidy program.

As an aside, note that there is no necessary tension between focusing further AGOA tariff measures on manufacturing imports to promote industrialization, while separately seeking to enhance Africa's participation in America's clean energy supply chain through trade in critical minerals. Usman and Csanadi (2023) lay out ways to exploit current AGOA provisions and new provisions under the IRA to this end. Note, however, that international competitiveness and lack of supply are not the main challenges African economies face in this sector. Furthermore, rather than incentives to export more primary products, many African countries seek to increase their value addition in these sectors. For all these reasons, additional tariff measures offer the largest benefit if targeted to the manufacturing sector.

To date, AGOA has been largely self-targeting toward manufacturing. The dollar value of imports claiming AGOA exemptions is dominated by minerals. But these products, including oil, face very low tariff rates, and thus the value of AGOA waivers even aggregated over billions of dollars of imports is small. Tariffs rates are much higher, as we have seen, for light-manufactured goods. As a result, the overwhelming majority of foregone tariffs under AGOA have been for apparel imports, as shown in the figure below.

FIGURE 7. What's being imported under AGOA? (by foregone tariff duties)
Total tariffs avoided in USD



Source: USITC.

Going forward, an import subsidy would likely break this self-targeting. A rebate on crude oil imports would create huge incentives for Nigerian and Angola oil exporters to reroute trade to the U.S. from other destinations, at enormous cost to the U.S. Treasury and with little obvious development benefit. The obvious, simple solution would be to target our subsidy proposal to AGOA's apparel provisions, and/or a few additional HS product codes, including shoes and toys.

6. Complementary policy options

If capital markets function perfectly and efficiently around the world, then if we "get prices right" – i.e., we provide tariff incentives to expanding manufacturing in Africa – then new private investment in African garment factories should follow. Alas, that may be too optimistic.

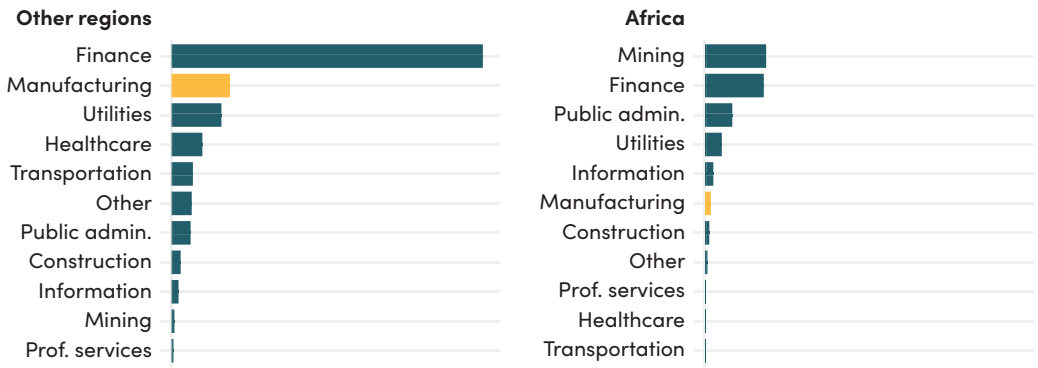
Providing enhanced market access might not be enough to sustain manufacturing for longer periods. Even the value of preferential trade access tends to erode over time. Ideally, African countries, taking the lead from other countries such as India and Vietnam, would undertake complementary industrial policy action on their own to try and achieve scale and create a value chain which are critical to sustaining export competitiveness. Chinese and even Bangladeshi firms employ over

50,000 to 100, 000 employees in the apparel sector. India is trying to achieve this by providing generous subsidies to attract large-sized firms.

Many African economies are, however, fiscally strapped with high debt burdens and other pressing needs, to render infeasible the provision of similar subsidies (UNCTAD 2023). The US can take the lead in addressing this challenge. It could set aside say $2.5 billion (implying about a 15 percent increase in U.S. foreign aid to the region) as venture capital for African countries to experiment with industrial policy.[9] The binding constraints which industrial policy would try to overcome would be several: political risk; business risk, small market size etc.

The US International Development Finance Corporation (DFC) has been established precisely to address these problems. Its agreement in Sri Lanka for energy development, involving a private, foreign company, could serve as a template. It could, in cooperation with relevant African governments, target attracting large multinational companies to establish, for example, an East African supply chain (Kenya, Tanzania, Uganda, Rwanda, Malawi) and a Southern African supply chain (Zambia, Zimbabwe, South Africa). The design details would have to be the fruit of cooperative effort between the US government, African governments, and potential foreign investors. African governments will have to undertake complementary actions such as ensuring internal free trade, reducing the cost of doing business, generating data to ensure that subsidies are not being wasted and policy is not being captured, and to ensure timely, corrective action.

FIGURE 8. In Africa, the U.S. has invested in finance and mining, not manufacturing
Total commitments in USD, FY20-23, by the U.S. Development Finance Corporation



Source: U.S. DFC.

To date, the DFC has performed well at delivering finance to lower-middle income countries, but struggled to find projects outside of banking and insurance in the more labor-intensive sectors of the "real" economy (Collinson et al 2023). In fiscal year 2023, the agency committed over $2 billion

9 India, for example, has allocated about US$1.3 billion by way of production subsidies for the textile and clothing sector. Since Africa might potentially have more and more serious binding constraints, a greater allocation might be warranted.

for projects in Africa, and around $1.3 billion for projects in the manufacturing sector, but just $50 million for manufacturing in Africa. Since fiscal year 2020, it has committed just $200m for African manufacturing compared to $2.2 billion for mining, oil, and gas extraction in the region. In a sense, America's marquee effort to finance private sector activity in the developing world is tilting *against* African industrialization – financing industrialization elsewhere, while focusing on mining and public administration in Africa.

Strengthened AGOA trade preferences could serve as a pull mechanism to create bankable projects for DFC to lend to and invest in, reorienting its work away from financial services towards job creation and industrialization.

7. Conclusion

This paper argues that trade preferences for developing countries remain – even in the wake of China's rise to global dominance in manufacturing trade and on the cusp of widespread automation – an effective tool to promote industrialization in Africa.

Export-led manufacturing has been the engine of growth for many of the world's most successful cases of economic development. To date, few economies in sub-Saharan Africa have established global competitiveness in this arena. The window of opportunity is closing, and the U.S. possesses effective policy instruments to help Africa exploit it.

Over the past twenty years, U.S. foreign aid has grown considerably compared to previous decades, contributing to historic improvements in child mortality rates and school enrollment, among other human development indicators. But these achievements have not been matched with equivalent gains in terms of structural transformation and industrialization of African economies.

Clearly, U.S. policy alone is insufficient to achieve structural transformation in African economies. Previous analysis has highlighted that the gains from AGOA have been concentrated in a minority of African countries. Kassa and Coulibaly (2019) and Fernandes et al (2023) provide evidence on the factors that explain this variation, including investments in ICT infrastructure, macroeconomic stability, and domestic regulatory reforms, among others.

Nevertheless, U.S. efforts to promote African industrialization under the African Growth and Opportunity Act (AGOA) had impressive impacts in the early 2000s, particularly in the apparel sector, but Africa's brief textiles boom flattened out once confronted with unfettered Chinese competition from 2005 onward. The U.S.'s financial commitment on this front has been fairly paltry: as America's flagship trade promotion system since the expiration of the Generalized System of Preferences in 2020, AGOA subsidies add up to only about 2 percent of America's foreign aid budget for Africa.

Today, Washington is more willing than ever to contemplate unorthodox trade measures to promote both economic and geopolitical goals, e.g., the advent of "friend shoring". As Congress and the Biden administration debate renewal of AGOA before 2025, we propose that the U.S. do more than simply preserve the status quo, and move aggressively to bring Africa under this "friend-shoring" umbrella. The U.S. should take this opportunity to enact stronger trade preferences targeted at light-manufacturing from select African countries, as part of a concerted effort to achieve rapid industrialization on the continent.

Implementation of this policy would require little more than a stroke of the pen – systems are already in place to process AGOA tariff exemptions. The costs would be modest, amounting to hundreds of millions of dollars relative to a U.S. foreign aid budget measured in tens of billions. And the benefits for Africa's economic growth prospects might be substantial, potentially doubling the size of the manufacturing export sector and, more speculatively, opening a path for more rapid productivity growth.

Trade preferences will, of course, have to be complemented with other actions to create an ecosphere for durably sustaining labor-intensive industrialization. Current policies, for example through the DFC, seem to be disfavoring such industrialization which needs to be redressed in new and creative ways.

One can think of these actions as the new industrial policy for Africa but done long-distance from the US and in cooperation with African governments. The two key components would be the provision of enhanced market access through import subsidies by the US as Africa's trading partner combined with the provision of subsidized venture capital also by the US with a view to attracting leading global firms to create a manufacturing ecosphere in Africa. As ideas about development change, so too must the nature of international cooperation. AGOA 2.0 affords an excellent opportunity.

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