

Reinforcing AGOA beyond renewal: A GTAP assessment of tariff and non-tariff barrier reductions

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Abstract

This study examines policy options for reinforcing the African Growth and Opportunity Act (AGOA) following its expiration in 2025, by focusing on tariff elimination and reductions in non-tariff measures (NTNs). Using the GTAP model, the analysis evaluates economy-wide, as well as impacts across sectors for the United States and Sub-Saharan Africa (SSA). The results indicate that both full tariff removal and a substantial reduction in NTMs would increase gross domestic product and employment in both regions, with slightly larger gains for SSA. Skilled labor in SSA benefits the most due to the expansion in non-agricultural sectors. While tariff elimination yields positive welfare effects for the US, but slightly negative for SSA, NTM reductions generate positive welfare outcomes for both. Overall, reinforcing AGOA could enhance trade, though impacts vary across policy instruments and economic indicators. Finally, rules of origin (ROO) clauses seem to hold, taking into account the SSA import variations from the rest regions.

Keywords: African Growth and Opportunity Act; tariff elimination; non-tariff measures; GTAP model; USA-SSA trade

1. Introduction

The African Growth and Opportunity Act (AGOA) has been a cornerstone of trade relations between United States (US) and Sub-Saharan Africa (SSA), since its enactment in 2000 (AGOA, 2000). Designed as a non-reciprocal trade preference program, AGOA provided eligible SSA countries with tariff-free access to the US market for a wide range of products. Over more than two decades, the agreement has supported the expansion and diversification of African exports, facilitating nearly \$500 billion in trade flows to the US between 2002 and 2022 (CSIS, 2025). Beyond its trade impact, AGOA has been widely recognised as a catalyst for industrial development, employment generation, and foreign investment in several African economies, particularly in sectors such as textiles and apparel, where preferential market access has been critical.

Despite these achievements, the expiration of AGOA in September 2025 has introduced significant uncertainty into the future of US-Africa trade relations. Although US policy makers and African governments have discussed potential extensions—including a proposed short-term rollover (IATP, 2025)—no definitive agreement had been secured at the time of writing this paper. The lapse of AGOA raises immediate and tangible concerns for the beneficiary economies, including the potential loss of preferential access for over 1,800 products, exposure to higher tariffs, and disruptions to established export-oriented industries. These developments threaten to undermine decades of progress, particularly in labor-intensive sectors that depend heavily on continued access to the US market.

The potential economic consequences are substantial. Many SSA economies have developed production structures closely aligned with AGOA preferences, resulting in significant employment and investment tied to export activities under the scheme. The re-introduction of tariffs could erode competitiveness, reduce export volumes, and lead to job losses, particularly in sectors such as textiles and apparel that face strong global competition and relatively high protection in developed markets. Moreover, the broader uncertainty associated with evolving US trade policy further complicates economic planning and investment decisions in SSA, where long-term stability is essential for sustaining growth (UNCTAD, 2025).

In response to these challenges, policy discussions have increasingly shifted from a narrow focus on renewal toward broader considerations of reform and reinforcement. While a temporary extension of AGOA could preserve existing benefits, it may also introduce stricter eligibility criteria or lead to the exclusion of certain countries. At the same time, more ambitious proposals have emerged that aim to modernise the agreement by expanding its scope and addressing persistent barriers to trade. These proposals include the elimination of remaining tariffs and the reduction of non-tariff measures (NTMs), which continue to impose significant costs on exporters despite preferential tariff treatment.

NTMs, such as rules of origin (ROO), technical barriers to trade, and regulatory requirements, represent a particularly important constraint on the effectiveness of AGOA. While tariffs have been largely reduced or eliminated under the agreement, compliance with NTMs can increase production costs, limit market access, and reduce the overall utilisation of preferences. As a result, addressing these barriers is increasingly viewed as a key avenue for enhancing the developmental impact of AGOA. However, the economic implications of such reforms are complex and not yet fully understood, particularly in terms of their economy-wide effects across different sectors and regions.

Motivated by these considerations, this study seeks to provide a preliminary assessment of alternative policy options aimed at reinforcing AGOA. Specifically, the analysis focuses on two counterfactual scenarios: (i) the complete elimination of bilateral tariffs between the US and SSA economies, and (ii) a substantial reduction—by up to 50%—in NTMs affecting bilateral trade. By examining these scenarios, the study aims to shed light on the potential benefits and trade-offs associated with different approaches to reforming the agreement.

To conduct this assessment, the study employs a computable general equilibrium (CGE) model—in particular, the standard version of Global Trade Analysis Project (GTAP) model (Corong et al., 2017)—along with the GTAP Data Base (Aguar et al., 2022). Given the objective of capturing economy-wide effects, the analysis aggregates the standard 65 GTAP sectors into 10 broader categories. This level of aggregation is consistent with literature and allows for a comprehensive evaluation of structural changes across the economy.

Incorporating NTMs into the modelling framework presents several methodological challenges. Unlike tariffs, which are directly represented in GTAP, NTMs must be approximated through *ad valorem equivalents* (AVEs), which are not readily available for all sectors and regions. Furthermore, NTMs vary widely in their nature and impact, ranging from technical standards to administrative procedures. To address these challenges, this study adopts the methodology proposed by Kravchenko et al. (2022), which provides econometric estimates of AVEs across commodities and regions. In particular, the analysis focuses on rules of origin and assumes that technical barriers primarily affect trade costs. These effects are implemented in the model using an ams mechanism, allowing for a consistent representation of NTM reductions.

Overall, this study contributes to the ongoing policy debate of the future of AGOA by providing evidence on the potential economic impacts of alternative reform strategies. As discussions continue regarding the extensions, re-design, or replacement of the agreement, understanding the relative effectiveness of tariff and non-tariff policy instruments is essential. The results underscore the importance of moving beyond traditional tariff preferences to address deeper structural barriers to trade, thus, enhancing the long-term benefits of US-Africa economic cooperation.

The rest of the paper is structured as follows: Section 2 describes the modelling framework to conduct the economic experiment, Section 3 describes the policy scenarios fed into GTAP model, and Section 4 includes the main economic impacts. Finally, Section 5, concludes the paper.

2. Model setting

In this section, we describe the modelling set-up used to conduct the economic shocks. To capture economy-wide effects and, also, to ensure tractability, the 65 sectors of the standard version of the GTAP Data Base were further aggregated in 10 broader classes, as mapped in Table 1, with reference year 2017.

Table 1. Sectoral mapping.

GTAP sector	Aggregation	GTAP sector	Aggregation
Paddy rice	Grains and crops	Basic pharmaceutical products	Heavy Manufacturing
Wheat	Grains and crops	Rubber and plastic products	Heavy Manufacturing
Cereal grains nec	Grains and crops	Mineral products nec	Heavy Manufacturing
Vegetables, fruit, nuts	Grains and crops	Ferrous metals	Heavy Manufacturing
Oil seeds	Grains and crops	Metals nec	Heavy Manufacturing
Sugar cane, sugar beet	Grains and crops	Metal products	Light Manufacturing
Plant-based fibers	Grains and crops	Computer, electronic and optic	Heavy Manufacturing
Crops nec	Grains and crops	Electrical equipment	Heavy Manufacturing
Bovine cattle, sheep and goats	Livestock and Meat Products	Machinery and equipment nec	Heavy Manufacturing
Animal products nec	Livestock and Meat Products	Motor vehicles and parts	Light Manufacturing
Raw milk	Livestock and Meat Products	Transport equipment nec	Light Manufacturing
Wool, silk-worm cocoons	Livestock and Meat Products	Manufactures nec	Light Manufacturing
Forestry	Mining and Extraction	Electricity	Utilities and Construction
Fishing	Mining and Extraction	Gas manufacture, distribution	Utilities and Construction
Coal	Mining and Extraction	Water	Utilities and Construction

Oil	Mining and Extraction	Construction	Utilities and Construction
Gas	Mining and Extraction	Trade	Transport and Communication
Minerals nec	Mining and Extraction	Accommodation, Food and service	Transport and Communication
Bovine meat products	Livestock and Meat Products	Transport nec	Transport and Communication
Meat products nec	Livestock and Meat Products	Water transport	Transport and Communication
Vegetable oils and fats	Processed Food	Air transport	Transport and Communication
Dairy products	Processed Food	Warehousing and support activities	Transport and Communication
Processed rice	Grains and crops	Communication	Transport and Communication
Sugar	Processed Food	Financial services nec	Other Services
Food products nec	Processed Food	Insurance	Other Services
Beverages and tobacco products	Processed Food	Real estate activities	Other Services
Textiles	Textiles and Clothing	Business services nec	Other Services
Wearing apparel	Textiles and Clothing	Recreational and other service	Other Services
Leather products	Light Manufacturing	Public Administration and defense	Other Services
Wood products	Light Manufacturing	Education	Other Services
Paper products, publishing	Light Manufacturing	Human health and social work activities	Other Services
Petroleum, coal products	Heavy Manufacturing	Dwellings	Other Services
Chemical products	Heavy Manufacturing		

Concerning regional aggregation, we consider the following scheme: United States of America (US), European Union (EU), United Kingdom (UK), Rest Western Europe (RWEurope), North Africa (NAfrica), Middle East and Rest North Africa (RMENAFr), Sub-Saharan Africa (SSA), and the Rest-of-World.

While we consider a 8 regions x 10 commodities aggregation, our focus is on the trade between US and SSA. The closure is set up for a wage responsive supply of labor as follows:

$\text{swap } qe(\text{"UnSkLab"}, \text{REG}) = \text{pefactreal}(\text{"UnSkLab"}, \text{REG});$

$\text{swap } qe(\text{"SkLab"}, \text{REG}) = \text{pefactreal}(\text{"SkLaB"}, \text{REG});$

3. Simulations

In this study, the core research question is to assess how tariffs and NTMs interact with the AGOA to influence the trade dynamics between US and SSA, particularly, in relation to the rules of origin (ROO). More precisely, the aim is to assess the potential implications of this interaction in terms

of economic growth, trade, and jobs, especially for SSA. To this, we consider two policy scenarios: (i) full removal of tariffs, and (ii) NTMs reduced by 50%.

For the first policy simulation (S1), we use the following shocks in RunGTAP:

shock tms (all products, “USA”, “SSA”) = target rate 0;

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All services sectors are excluded from the experiment, as per AGOA.

For the sake of completeness, Table 2 provides the initial tariffs by commodity, as extracted from the GTAP 11 Data Base.

Table 2. Reference tariffs by commodity.

SSA imports from the US		US imports from SSA	
Sector	rTMS	Sector	rTMS
Grains and crops	8.12	Grains and crops	0.08
Livestock and meat products	18.42	Livestock and meat products	0.13
Mining and extraction	1.12	Mining and extraction	0.00
Processed food	14.38	Processed food	3.46
Textiles and clothing	20.00	Textiles and clothing	0.24
Light manufacturing	10.06	Light manufacturing	0.03
Heavy manufacturing	5.54	Heavy manufacturing	0.11
Utilities and construction	0.00	Utilities and construction	0.00
Transport and communication	0.00	Transport and communication	0.00
Other services	0.00	Other services	0.00

In the second simulation (S2), we assume that NTMs are reduced by 50%. Ad valorem equivalents of NTMs are estimated through the method developed by Kravchenko et al. (2022) and presented in Table 3. Iceberg cost is assumed to represent 30% of the total NTM (technical barriers impact cost, e.g. health safety, environment protection). Finally, we reduced the ams value by 50% compared to its initial value.

Table 3. Reference NTM rates by commodity (AVE values).

SSA imports from the US		US imports from SSA	
Sector	NTM-AVE	Sector	NTM-AVE
Grains and crops	10.39	Grains and crops	1.21
Livestock and meat products	71.04	Livestock and meat products	4.82
Mining and extraction	7.01	Mining and extraction	0.13
Processed food	8.06	Processed food	50.06
Textiles and clothing	10.46	Textiles and clothing	0.69
Light manufacturing	31.63	Light manufacturing	3.29
Heavy manufacturing	7.63	Heavy manufacturing	2.78
Utilities and construction	0.00	Utilities and construction	0.00

Transport and communication	0.00	Transport and communication	0.00
Other services	0.00	Other services	0.00

African has strategic importance as the fastest-growing continent in both economic output and population. AGOA, launched in 2000, is a preferential trade program that enables around 40 countries in Sub-Saharan Africa to export tariff-free goods to the US. It is important to note that only Sub-Saharan African countries qualify for AGOA benefits—North African countries are excluded from participation—and the agreement covers only commodities. The current agreement expired in 2025, although the Senate considered its extension by 2041. Recent economic research highlighted the declining trade ties between US and SSA, and needs for alternative policy. For instance, the report by Baskaran, G., & Ramkolowan, Y. (2023) utilises the GTAP model to assess the potential GDP impact of the end of AGOA.

AGOA preferences currently apply to approximately 6,500 tariff lines (at the HS8-digit level). To qualify for AGOA and GSP benefits, a product must either be listed as GSP-eligible, classified as a new AGOA product, or qualify as a textile or apparel item. It must be imported directly from an AGOA beneficiary country, meeting specific ROO requirements for general or apparel items. If foreign materials are involved in its production, at least 35% of the product's value must come from local materials and processing costs. For apparel products, compliance with specific ROO is required instead of adhering to the 35% rule. The alignment with ROO in the model simulation results were checked by using the DXQS values.

4. Results

Under scenario S1, the impact on the real GDP is positive both for US and SSA (0.02% and 0.03% respectively)—close, but slightly higher for the African countries (Table 5). The overall impact on jobs is positive. EV is positive for US, reaching 5.7 billion USD. The main contributors are: return to endowments (2.1 billion USD), allocative efficiency (1.8 billion USD), and terms of trade (1.5 billion USD). EV is negative for SSA (17.5 million USD). Although the impact on returns to endowment is positive (0.6 billion USD), allocative efficiency (84 million USD), terms of trade (483 million USD), and net savings (78 million USD) are negative. Therefore, the compounded effect is negative.

Table 4. S1 impact.

	USA	SSA
Real GDP (%)	0.02	0.03
Terms of trade (%)	0.07	-0.12
EV (\$ million)	5,755	-17,5
Employment (%)	Unskilled: 0.038 Skilled: 0.033	Unskilled: 0.09 Skilled: 0.13

Under scenario S2, the impact on real GDP is positive both for US and SSA—0.004% and 0.046% respectively—but slightly higher for the African countries (Table 6). The overall impact on jobs is slightly positive. Skilled labor in SSA benefits the most (0.053%). EV is positive around 1.1 billion USD for US. The main contributors are as follows: return to endowments (432 million USD), allocative efficiency (344 million USD), and terms of trade (273 million USD). EV is also for SSA, much higher than S1, around 626 million USD. The main contributors are as follows: technological change (362 million USD), return to endowments (216 million USD), and allocative

efficiency (140 million USD). The impacts on terms of trade and net savings are slightly negative (77 million USD and 15 million USD, respectively).

Table 5. S2 impact.

	USA	SSA
Real GDP (%)	0.004	0.046
Terms of trade (%)	0.012	-0.019
EV (\$ million)	1,094	626
Employment (%)	Unskilled: 0.008 Skilled: 0.006	Unskilled: 0.025 Skilled: 0.053

Under S1, both regions are exporting more, since qwxreg increases by 0.09 and 0.58 for US and SSA, respectively. On research question is where intermediates goods come from. In terms of ROO, the products must originate from an AGOA country. It is observed that imports of SSA from other regions decline, while its exports to the US increase as part of the AGOA. This would mean that with the full removal of import tariffs between US and SSA, ROO requirement is likely to be verified (DQXS decreased between SSA and all regions except with the US, as presented in Table 7).

Table 6. DQXS (million USD) under S1.

	USA	EU	UK	RWEurope	NAfrica	RMENAfr	SSA	ROW
Grains & crops	474.49	-37.41	-0.23	-0.32	-0.66	-6.56	-28.71	-199.36
Livestock & meat products	946.81	-163.73	-10.07	-0.32	-1.16	-11.30	-103.98	-177.72
Mining & extraction	20.52	-0.43	-0.01	-0.02	-0.02	-2.81	10.85	-0.86
Processed food	430.79	-84.59	-7.89	-4.68	-7.57	-32.71	-31.52	-159.82
Textiles & clothing	608.03	-32.08	-6.98	-0.57	-0.99	-14.76	-13.61	-417.63
Light mfg	3138.60	-581.44	-69.10	-16.41	-8.62	-111.84	-160.79	-1422.77
Heavy mfg	3797.82	-884.97	-98.20	-44.13	-28.83	-379.37	-202.00	-1498.51
Utilities & construction	-4.31	-9.37	-1.43	-0.97	-0.52	-2.41	12.85	-10.97
Transport & communication	-43.82	-37.98	-9.61	-3.57	-1.27	-9.19	11.54	-51.74
Other services	-59.67	-22.12	-11.95	-3.54	-0.30	-4.13	5.05	-29.33

Under scenario S2, again both regions are exporting more, since qwxreg increases by 0.029 and 0.06 for US and SSA, respectively. Similar to S1, all imports of SSA from non-USA region blocs decline although the exports increase. Therefore, ROO clause seems to be satisfied also under scenario S2. To this, the resulted DQXS values are presented in Table 8.

Table 7. DQXS (million USD) under S2.

	USA	EU	UK	RWEurope	NAfrica	RMENAfr	SSA	ROW
Grains & crops	69.85	-6.54	-0.04	-0.06	-0.12	-1.17	5.36	-35.31
Livestock & meat products	368.44	-81.62	-5.02	-0.16	-0.58	-5.64	-54.14	-88.48
Mining & extraction	20.02	-0.21	-0.01	-0.01	-0.01	-1.36	-2.15	-0.33
Processed food	24.31	-8.15	-0.77	-0.46	-0.74	-3.22	2.72	-15.71
Textiles & clothing	-0.26	-0.52	-0.13	-0.01	-0.02	-0.25	3.73	-7.48
Light mfg	1141.27	-245.38	-29.08	-6.90	-3.66	-47.54	-89.41	-598.37

Heavy mfg	-7.37	-4.82	-0.74	-0.36	-0.15	-2.14	29.75	-11.01
Utilities & construction	-0.55	-0.79	-0.13	-0.09	-0.05	-0.22	2.83	-0.97
Transport & communication	-5.71	-3.20	-0.87	-0.33	-0.11	-0.83	2.64	-4.57
Other services	-8.04	-1.87	-1.10	-0.34	-0.03	-0.38	1.17	-2.62

In terms of production output (qo) for S1, the results are presented in Figure 1, while, for S2, it is presented in Figure 2.

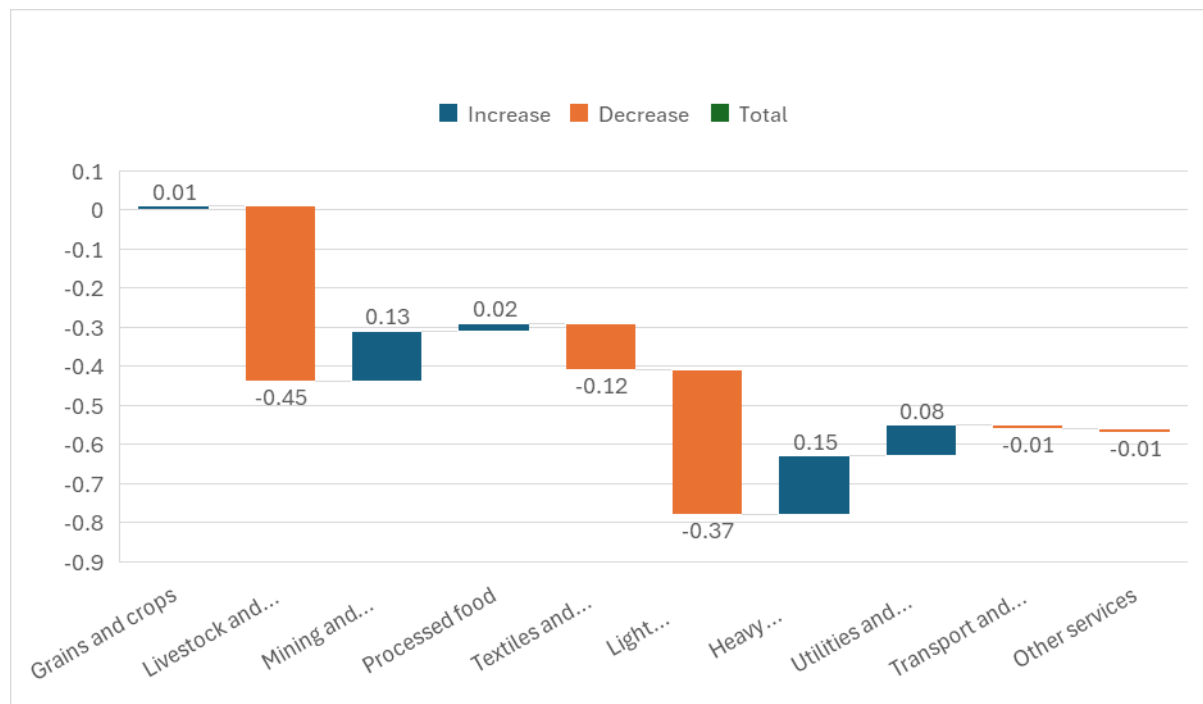


Figure 1. % change for SSA production output under S1.

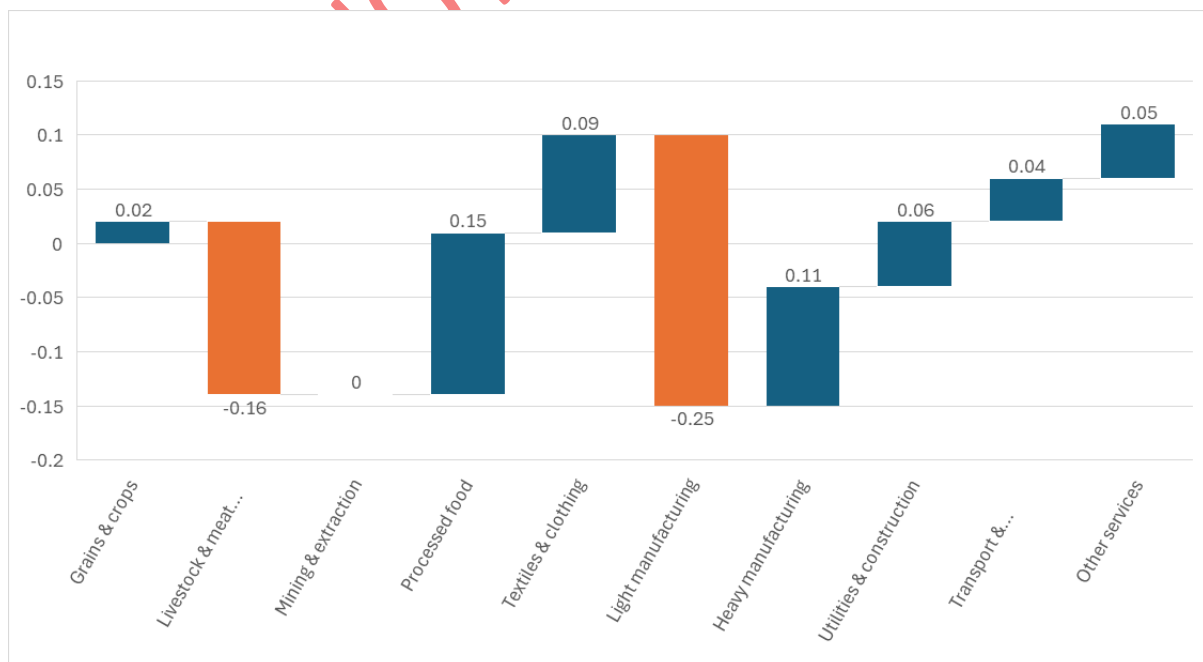


Figure 2. % change for SSA production output under S2.

5. Conclusions

This paper assessed policy options for strengthening a potential post-2025 framework of the African and Opportunity Act (AGOA) by moving beyond a simple renewal toward deeper trade facilitation measures. Using the GTAP computable general equilibrium model, two counterfactual scenarios were examined: (i) full bilateral tariff elimination between the US and Sub-Saharan Africa (SSA), and (ii) a substantial reduction in non-tariff measures (NTMs). The analysis focused on economy-wide outcomes, employment effects, welfare changes, and trade reallocation patterns between the two partner regions.

The results show that both reform pathways would generate positive macroeconomic gains for both regions, with relatively stronger GDP and employment effects for SSA. Full tariff elimination increases real GDP in both regions and stimulates export expansion, especially for SSA. However, welfare gains are unevenly distributed, as SSA records a marginally negative equivalent variation due to mainly adverse terms of trade effects. This indicates that tariff preferences alone may not be sufficient to maximize developmental gains for African economies. In contrast, reducing NTMs seems to deliver more balanced benefits. Scenario S2 produces positive welfare outcomes for both partners, with particularly notable gains for SSA through better resource allocation and returns to factor endowments. Skilled labor in SSA benefits the most, reflecting the expansion of manufacturing and higher-value activities.

The analysis also indicates that rules of origin requirements remain broadly compatible with both reform scenarios, as SSA imports from non-US partners tend to decline while exports to US rise. This suggests that deeper liberalization under AGOA would not necessarily undermine origin compliance.

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