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How do sanctions shape intra-African trade? Implications for AfCFTA implementation

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Abstract

This study examines the role of sanctions in shaping intra-African trade. Despite efforts to boost intra-African trade, Africa's share of global trade remains low, stagnating at around 15 percent. Using an augmented gravity model and Poisson Pseudo Maximum Likelihood (PPML) estimation, this study analyzes the effects of various sanctions (trade, financial, arms, military, and travel) on bilateral exports among African countries. The findings reveal that trade sanctions significantly reduce exports within the continent. Financial sanctions, restrictions on military assistance, and travel bans also negatively affect trade, though to varying degrees. The results underscore the need for African nations to mitigate the adverse effects of sanctions by strengthening economic resilience, enhancing trade facilitation measures, and fostering diplomatic engagement. This study provides policymakers with valuable insights on how to navigate geopolitical challenges while maximizing the benefits of the AfCFTA.

1. Introduction

In the past decade, African countries have placed emphasis on boosting intra-African trade through initiatives such as border management reforms, improved customs processes, and prioritised infrastructure investments. However, minimal or near-zero progress has been realized in many countries (Chibira and Moyana, 2017). Among the probable impediments are weak socio-economic integration, geopolitics, and weak policies and legislative frameworks (ibid). In geopolitics, sanctions are a major component of international diplomacy, used to coerce certain governments into responding in a desired manner.

In many instances, sanctions are used under the presumption that the sender country is ready to interfere in another country's sovereignty, but diplomatically, without necessarily resorting to military force. It is also common for countries that impose sanctions to be big nations pursuing a vigorous foreign policy to exert global influence. However, there are exceptions in which collective action is used by international organizations, for instance, the United Nations (UN) worldwide or the African Union (AU) in Sub-Saharan Africa (Bergeijk and Marrewijk, 1994).

During the Cold War, for example, the UN imposed major sanctions on African countries like Southern Rhodesia and South Africa, castigated for their apartheid governments (Charron and Portela, 2015). To date, Africa continues to bear the highest number of sanctions imposed by the UN, the AU, and the Economic Community of West African States (ECOWAS), and about 50 percent of these sanctions are imposed by the European Union (EU) (ibid). The AU, in particular, and regional economic blocs have issued against member states such as Sudan, Mali, Burkina Faso, and Niger, among others, by suspending their membership. It is important to note, however, that the imposition of

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sanctions is less effective in the present, owing to the increasing interdependence of world markets and the difficulty of identifying products that can harm the country imposing sanctions without affecting the imposing countries. For Africa in particular, coups and other non-democratic activities still manifest on the continent despite the enforcement of sanctions and other restrictive measures.

In light of the African Continental Free Trade Agreement (AfCFTA), African economies are striving to optimally benefit from regional integration. However, geopolitics remains a critical and probable threat to the success of its implementation. The AfCFTA was established in 2018 to eliminate trade barriers and boost intra-African trade and presents a unique opportunity to integrate 1.2 billion people across 55 African economies, with a combined gross domestic product (GDP) of approximately US$3.4 trillion (TRALAC, 2018). By 2035, the World Bank estimates that the AfCFTA has the potential to lift 30 million people out of extreme poverty, boost incomes by US$450 billion (a 7 percent increase), and expand exports by US$560 billion (World Bank, 2020). The AfCFTA came into force at a time when Africa is grappling with low levels of intra-continental trade. UNCTAD (2022) reveals that intra-African trade is nearly 15 percent of Africa's global trade, which is much lower than Asia (58 percent) and Europe (68 percent). Notably, intra-African trade as a share of Africa's global trade peaked at 21 percent between 2015 and 2016 but declined to 15 percent in 2022 (Fundira, 2023). In addition, although the value of intra-African trade increased from US$98 billion in 2022 to US$102 billion in 2023, it has generally exhibited a stagnating, if not a downward, trend.

This study puts emphasis on investigating how sanctions affect intra-African exports. Specifically, how sanctions in the form of sanctioning states (senders) deploy sanctions to "punish, deter, and rehabilitate" or compel sanctioned states (targets) to change their behaviour on matters of economic and political nature affects the value and volume of trade in Africa. This study is relevant in providing empirical evidence to policymakers and trade experts regarding the effects of sanctions on trade flows within Africa and provides recommendations on how African State parties can optimally benefit from the AfCFTA amidst geopolitical turmoil on the continent.

The rest of the paper is organized as follows: Section 2 provides a review of the literature on the nexus between sanctions and international trade. Section 3 presents the data, estimation model, and analytical technique employed by the study. Section 4 presents and discusses the empirical findings, and Section 5 concludes the study.

2. Literature review

There is a vast amount of literature on the use of sanctions as a tool for foreign policy. The discussions revolve around what determines the success or failure of sanctions and how they affect economies. This study draws on economic theory to show the linkage between sanctions and trade. Hufbauer et al. (1985) argue that there is a likelihood of economic sanctions being successful if applied in a multilateral setting, imposed quickly, focusing on a particular sector, and targeting vulnerable economies. Economic sanctions are characterized by policies that restrict trade between sovereign nations, such as 'boycotts' and 'embargoes.' Boycotts usually pertain to the rejection of goods and services from a given supplier, whereas embargoes relate to situations where no goods and services are supplied to a specific buyer. Therefore, the nature of sanctions imposed differs on a case-by-case basis, including isolation policies to cut off economic ties or trade relations with particular countries. According to Hufbauer et al. (2007), the use of economic sanctions sometimes fails to achieve its intended goals but can nonetheless change economic decisions. For example, sanctions allow elites who control the shadow market to be enriched, and market forces reduce the effect of trade sanctions while increasing the effect of financial sanctions.

Another approach is the liberal view, which argues that norms and legal guidelines should take precedence over sanctions before they are imposed, as they constitute rules that govern the practice of legislative coercion (Filipenko et al., 2020). The liberals further argue in favour of free trade and free markets to realize harmonized interests among states through the free exchange of goods and services and mutual cooperation.

Empirically, Dai et al. (2021) investigated the evolution of the effects of sanctions on international trade over time. Using the gravity model and the Global Sanctions Database (GSDB). They found that the simultaneous effects of sanctions on trade flows between countries are largely negative and statistically significant. Felbermayr et al. (2019) similarly studied the impact of sanctions on international trade and welfare. They employed the new global database from 1950 to 2015 and found that the effects are significant but also vary across sanctioning countries and depend on the direction of trade.

Afesorgbor (2019), in his study on the impact of economic sanctions on international trade, analyzed the likelihood of differential effects arising from various sanctions tools and whether these effects are unique to specific products. He employs the gravity model and qualitative and quantitative data on sanctions from 1960 to 2009. He found that the impact of threatened sanctions differs from imposed sanctions in the sense that, while imposed sanctions result in a reduction of trade flows between the sender country and its target, threatened sanctions, on the other hand, lead to increased trade flows. Ghodsi and Karamelikli (2022) analyzed the impact of sanctions imposed on Iran by the European Union (EU) on their bilateral trade. Using the gravity model, the study employed quarterly data from 1999 to 2018. They found that the EU's general sanctions had a strong impact on trade flows between the two trading partners in nearly all sectors, apart from the primary sectors.

Drapkin et al (2022) further analyzed the effect of sanctions on bilateral trade between the European Union and the Russian Federation between 2015 and 2019, using the gravity model. Their findings show that trade sanctions and countersanctions imposed on specific commodities affected trade flows in all sectors between the EU and Russia. Russia's exports to Europe reduced in all the basic industries, with the exception of the petroleum industry, which comprised 91.2 percent of the total losses.

There is substantial literature on sanctions and their impact on trade, focusing on individual countries and bilateral relations among countries in the US and Europe. The findings show that the effects are significant but generally mixed and depend on the nature of the sanctions imposed, the sender and target countries, and the direction of trade. To the best of our knowledge, anecdotal evidence exists on how the imposition of sanctions affects trade in Africa. This study attempts to close this gap by focusing on the different types of sanctions and how they impact trade flows in Africa on a case-by-case basis, in the context of the AfCFTA agreement. This will rule out generalizations and provide context-specific findings to draw lessons for deeper integration under the AfCFTA.

3. Methodology and data

This study leveraged the theoretical foundations of the structural gravity model to investigate the effect of sanctions on intra-African trade. The gravity model has widely been used as a framework for trade policy analysis (Yotov et al., 2016; Felbermayr et al., 2019; Doan and Tran, 2023). Notably, it postulates that trade flows between two countries (i and j) are proportionate to each country's economic mass (proxied by GDP), divided by the weighted distance between their capital cities (Tinbergen, 1962; Anderson, 1979).

Following Felbermayr et al. (2019) and Doan and Tran (2023), the study extends the conventional gravity model to obtain the partial equilibrium estimation effects of sanctions on intra-African trade. The study specifies an augmented gravity model denoted as:

$$Trade_{ijt} = \exp[\alpha\ SANCT_{ij,t} + \beta\ GRAV_{ij,t} + \mu_{ij} + \chi_{j,t} + \pi_{i,t}] + \varepsilon_{ijt.} \qquad (1)$$

Where $Trade_{ijt}$ denotes bilateral exports from country i (exporter) to j (importer) at a given time (t). Most important in this study, the sanction-dummy $SANCT_{ij,t}$ is a vector of sanctions proxied by indicator variables, which equals to one (1) if there is an active sanction imposed by country i (sender) on country j (target) at time (t) and equals to zero (0) otherwise. The study considers different types of sanctions, including trade, arms, travel, financial, military assistance, and other sanctions. The vector $GRAV_{ij,t}$ captures the traditional gravity variables, including GDP, population, weighted bilateral distance, landlockedness, contingency, and common language. Whereas μ_{ij} represents country-pair fixed effects, the terms $\chi_{j,t}$ and $\pi_{i,t}$ denote importer-time fixed effects (inward multilateral resistances) and exporter-time fixed effects (outward multilateral resistances), respectively. Lastly, ε_{ijt} denotes the stochastic error term.

3.1 Data sources

To investigate the effect of sanctions on intra-African trade, the study employs annual data of 54 African countries between the period 1992 – 2022. The data on sanctions was obtained from the Global Sanctions Database (GSDB) version 3, which classifies sanctions by type in six categories that cover: trade, financial activity, arms, military assistance, travel, and other sanctions. Additional secondary data were obtained from different sources, including the Centre d'Études Prospectives et d'Informations Internationales (CEPII); Direction of Trade Statistics (DOTS) database from the International Monetary Fund; and the World Bank's database on World Development Indicators (WDI), as shown in Table 1.

Table 1: Variable description and data sources

Variable	Description	Expectation	Source
Bilateral Exports	Exports from the exporting to importing country proxied as Goods, Value of Exports, Free on Board (million US$)	N/A	DOTS
GDP_i	Exporter's GDP (current US$).	Positive	WDI
GDP_j	Importer's GDP (current US$).	Positive	WDI
Population_i	Exporter's total population (millions).	Positive	WDI
Population_j	Importer's total population (millions).	Positive	WDI
Distance	Bilateral distances between the cities of the two countries, weighted by the share in the country's total population (Kms)	Negative	CEPII
Landlocked	Dummy variable = 1 if the country is landlocked, 0 otherwise.	Negative	CEPII
Contingency	Dummy variable = 1 if the trading partners share a common border, 0 otherwise.	Positive	CEPII
Common language	Dummy variable = 1 if the trading partners share the same official language, 0 otherwise.	Positive	CEPII
Arms sanctions	Indicator variable equal to 1 for arms sanction.	Negative	GSDB
Military sanctions	Indicator variable equal to 1 for military Assistance sanction.	Negative	GSDB
Trade sanctions	Indicator variable equal to 1 for trade sanction.	Negative	GSDB
Financial sanctions	Indicator variable equal to 1 for financial sanction.	Negative	GSDB
Travel sanctions	Indicator variable equal to 1 for Travel sanction.	Negative	GSDB
Other sanctions	Indicator variable equal to 1 for other sanction.	Negative	GSDB

Note:
DOTS- Direction of Trade Statistics (DOTS) database
World Development Indicators (WDI)
CEPII - Centre d'Études Prospectives et d'Informations Internationales
GSDB - Global Sanctions Data Base (GSDB) version 3

3.2 Estimation procedure

Following Silva and Tenreyro (2006), the study employs the Poisson Pseudo Maximum Likelihood (PPML) estimator to estimate the augmented gravity model in Equation 1 above. The PPML estimation technique has widely been used in trade policy analysis (Frank, 2018; Felbermayr et al., 2019; Doan, and Tran, 2023) and has proven to be more robust than other estimation techniques, including the Ordinary Least Squares (OLS), Random Effects (RE) and Fixed Effects (FE). The choice and justification of employing the PPML estimator is based on several reasons, including its applicability and robustness in the presence of heteroscedasticity, overdispersion in trade data (i.e., the PPML is robust enough to handle large scale and magnitude differences in the data) and zero value trade flows (Silva and Tenreyro, 2006, 2011). To control unobserved heterogeneity amongst the trading partners, the study adopts the PPML with High-Dimensional Fixed Effects (PPML - HDFE), which takes into consideration both time and country fixed effects.

4. Study findings

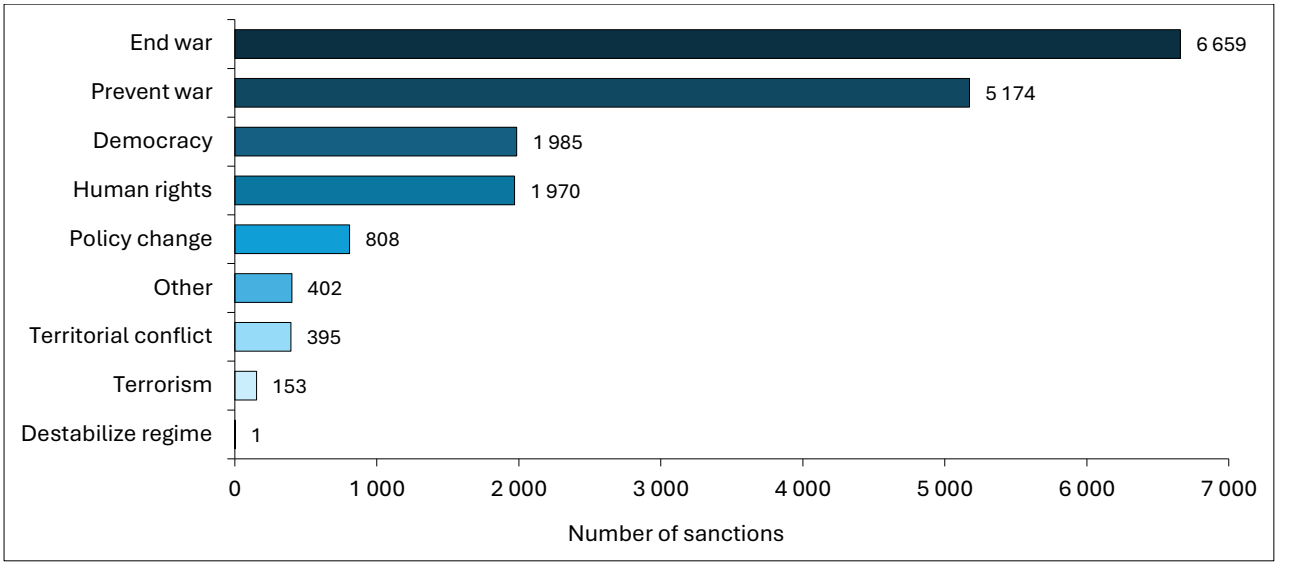
This section presents and discusses the empirical results of the study. First, it provides an overview of sanctions imposed by African countries on other states within the continent between 1992 and 2022. Second, the study conducts a descriptive analysis, followed by an examination of the effects of sanctions on bilateral exports between the sanctioning and target states.

4.1 Overview of intra-Africa sanctions

Over the past three decades, intra-Africa sanctions have been mostly imposed to resolve conflicts, promote stability, and encourage governance reforms. In particular, Figure 1 reveals that between 1992 and 2022, the most common reasons behind the imposed sanctions were to end wars (6,659 cases) and prevent conflicts (5,174 cases), reflecting the continent's long history of armed struggles and political instability. Also, sanctions were frequently leveraged to promote democracy

(1,985 cases) and uphold human rights (1,970 cases), often targeting governments accused of electoral injustice or human rights violations.[2]

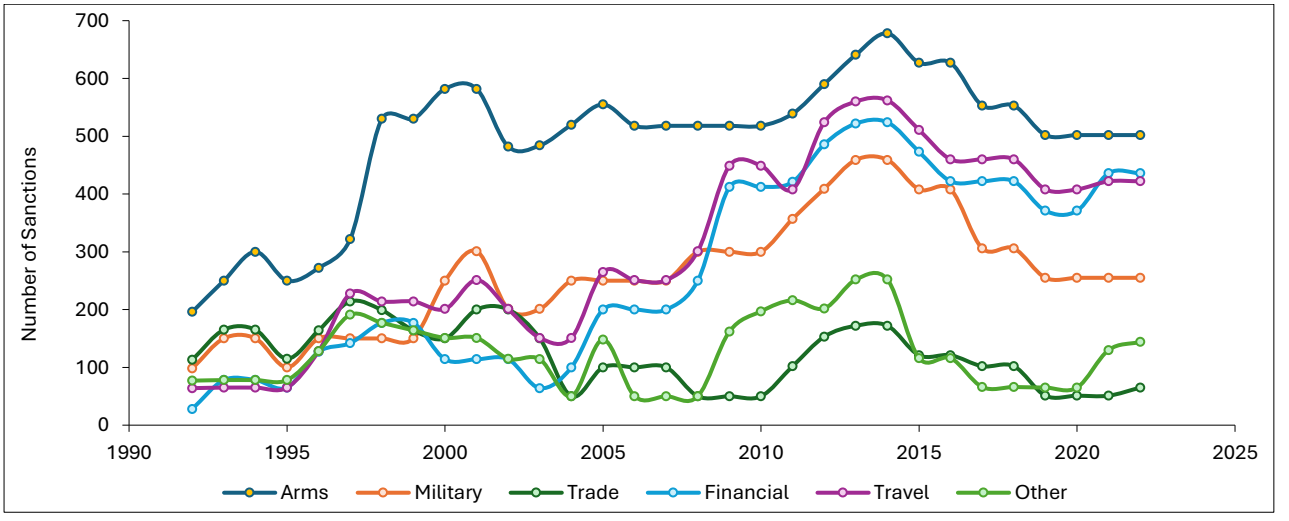
Figure 1: Objectives of intra-Africa sanctions imposed (1992 – 2022)



Source: Authors' construction using GSDB Ver. 3

Similarly, Figure 2 provides the trends in the different intra-Africa sanctions imposed between 1992 and 2022. In particular, arms embargoes have been the most frequently imposed sanctions, steadily rising from 196 cases in 1992, reaching a peak of 678 cases in 2014, before slightly declining to 502 in 2022. Financial and travel sanctions have become more prominent in recent years, reaching a peak of 524 cases and 562 cases in 2014, respectively.

Figure 2: Evolution of intra-Africa sanctions (1992 – 2022)

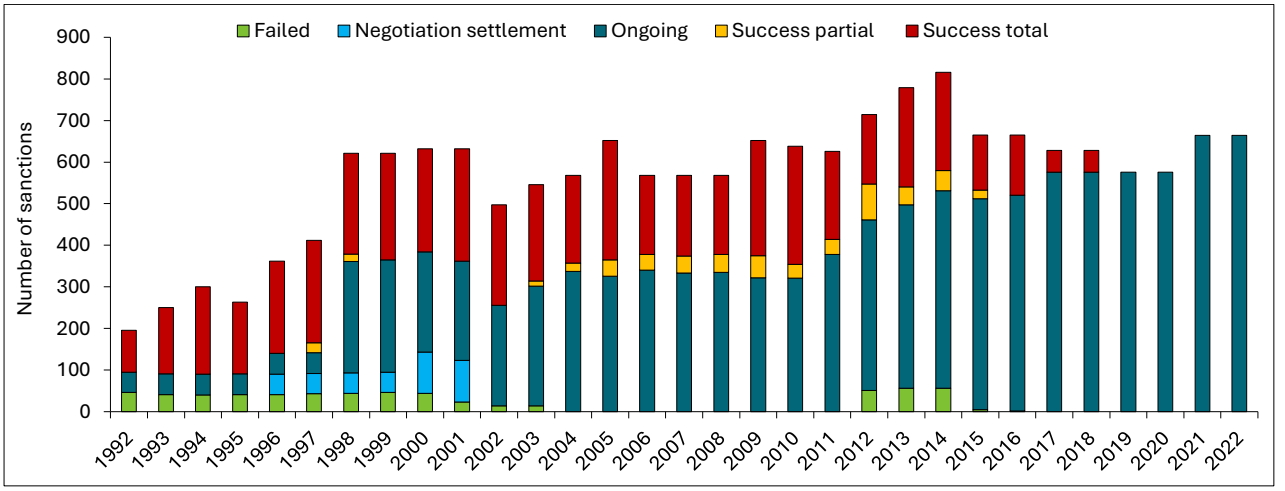


Source: Authors' construction using GSDB Ver. 3

[2] Other objectives of imposing sanctions include the desire for policy change (i.e., 808 cases), territorial conflicts (395 cases), terrorism (153 cases) and regime destabilization (1 case), during the same time period.

Considering the status of intra-Africa sanctions between 1992 and 2022, Figure 3 reveals a significant increase in ongoing sanctions, surging from 49 in 1992 to 664 in 2022. This implies that many sanctions remain unresolved or continue to be imposed over prolonged periods.

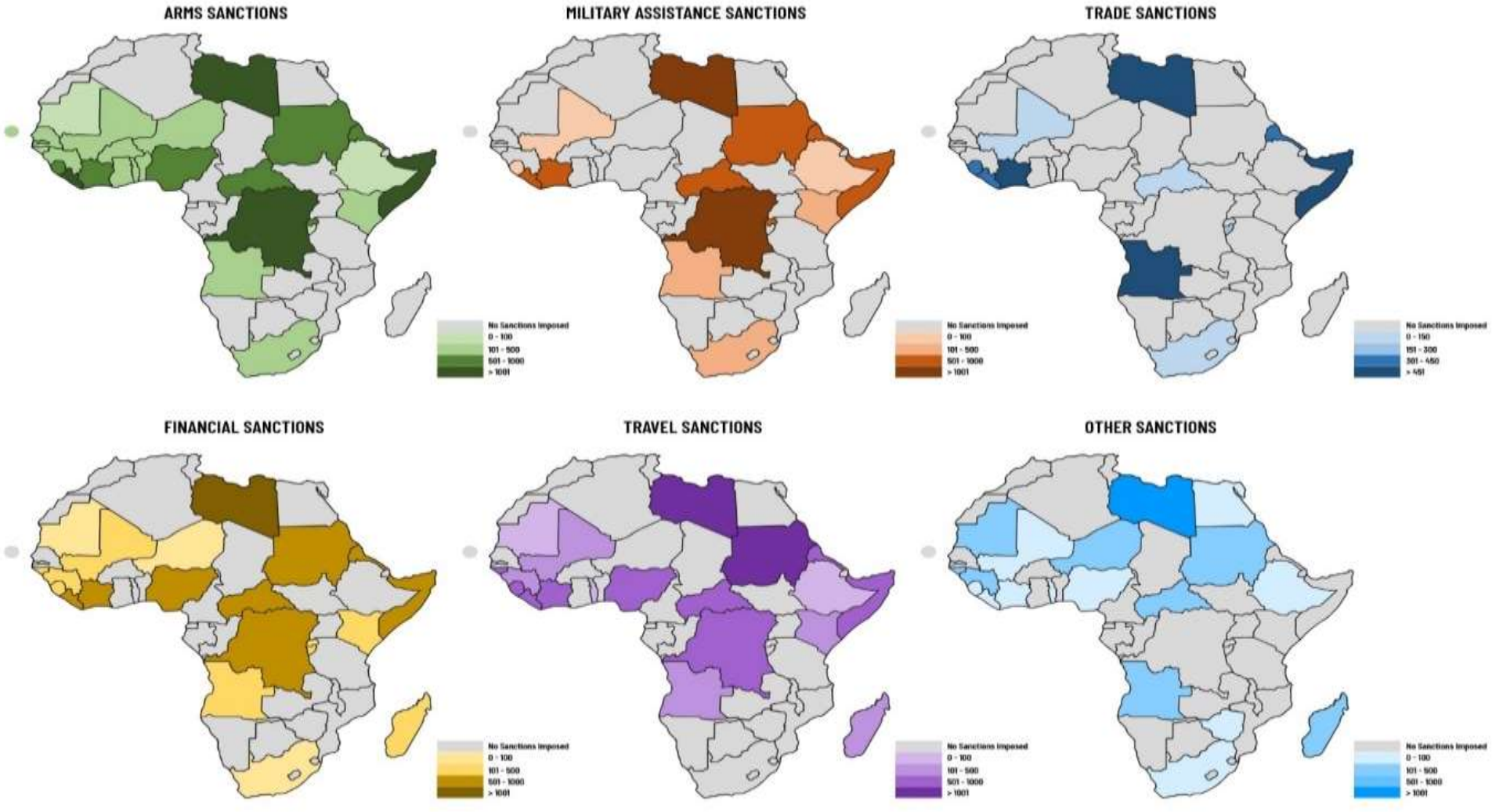
Figure 3: Status of the intra-Africa sanctions imposed (1992 – 2022)



Source: Authors' construction using GSDB Ver. 3

Figure 4 shows that Somalia, Liberia, Sudan, Libya, and the Democratic Republic of Congo have faced the highest number of sanctions in Africa. These countries have experienced prolonged political instability, conflicts, and governance issues, prompting sustained foreign interventions.

Figure 4: Overview of sanctioned states in Africa (1992 – 2022)



Source: Authors' construction using GSDB Ver. 3

4.2 Sanctions and intra-African trade

Table 2 provides the descriptive statistics of the variables analyzed for the 54 African countries between 1992 and 2022. The variable on bilateral exports between the sender and target states has 9434 observations with an average value of US$36.234 million. The high standard deviation of 143.686 reflects a significant variability in export values amongst the African trading parties, with some countries having very high bilateral exports of nearly US$4594.01 million in comparison to others that are barely trading within the continent.

Regarding the gravity model variables, the average values of the GDP and population of the sender states are nearly US$32 billion and 86 million people, respectively. On the contrary, the average values of the GDP and population for the target states are approximately US$23 billion and 16 million people, respectively. In addition, the average distance between the sender and target countries, weighted by the share of their population, is approximately 3005 kilometers (km), with some countries having a shorter weighted distance of 162 km and others very far apart (i.e., 8980 km). Distance has a significant effect on trade costs and the likelihood of trade, with more trade occurring between countries having shorter distances between them due to lower transportation costs.

Lastly, the gravity model time-invariant dummy variables (landlockedness, contingency, and common language) take on the minimum and maximum values of 0 and 1. More succinctly, Table 2 shows that nearly 13 percent of country pairs (sender-target pairs) share a common land border and 41 percent share a common language. Furthermore, the key variables of interest (arms, military assistance, trade, financial, travel, and other sanctions) have 17547 observations and take on minimum and maximum values of 0 and 1, respectively. Table 2 reveals that a significantly large number of country pairs (sender-target pairs) are under some form of sanctions, which hinder trade, diplomatic ties, and economic relations.

Arms sanctions are particularly prevalent, as shown by their high average value of 0.87 in Table 2. This implies that nearly 87 percent of country pairs are under arms sanctions and mainly restrict the trade of military equipment or technology between the countries involved. Relatedly, approximately 46.1 percent of country pairs are subject to military assistance sanctions during the period under consideration (1992-2022). With regard to trade, nearly 21.4 percent of country pairs are subject to trade sanctions, which entail restrictions on imports and exports. In addition, during the same period, 47.6 percent of the country pairs are subject to financial sanctions, which often encompass restrictions on access to financial markets, assets, or banking services. Similarly, almost 54.5 percent of country pairs in Africa faced travel sanctions during the period under consideration, which restricts the movement of individuals. Lastly, other sanctions make up nearly 22.2 percent of the country-pair sanctions.

Table 2: Summary statistics of the study variables

Variable	Obs.	Mean	Std. Dev.	Min	Max
Bilateral exports	9,434	36.234	143.686	0	4594.01
GDP_i	17,367	3.287e+10	7.782e+10	1.008e+08	5.742e+11
GDP_j	17,316	2.380e+10	6.974e+10	1.322e+08	5.742e+11
Population_i	17,542	86109239	2.172e+09	72253	1.470e+11
Population_j	17,461	16829903	19388113	440214	1.111e+08
Distance	17,428	3004.927	1830.143	162.182	8980.018
Landlocked	17,547	0.263	0.44	0	1
Contingency	17,547	0.129	0.336	0	1
Common language	17,547	0.41	0.492	0	1
Arms sanction	17,547	0.87	0.337	0	1
Military assistance sanction	17,547	0.461	0.498	0	1
Trade sanction	17,547	0.214	0.41	0	1
Financial sanction	17,547	0.476	0.499	0	1
Travel sanction	17,547	0.545	0.498	0	1
Other sanction	17,547	0.222	0.416	0	1

Source: Authors' computation.

In addition, the study proceeds to examine the nature of the linear relationship among the study variables using a correlation analysis and Variance Inflation Factors (VIFs). As shown by the correlation matrix in Table A.1 (see appendix), the estimated gravity model does not suffer from the problem of multicollinearity, since the correlation coefficients of the study variables fall within the acceptable threshold below the value of 0.8 (Studenmund, 2014). This

is corroborated using an analysis of VIFs, which reveals that since the VIF values are below the rule of thumb threshold value of 10, the model does not possess a high degree of collinearity amongst the study variables, as shown in Table A.2 in the appendix (O'Brien, 2007).

4.3 Gravity model estimation analysis and discussion

This subsection presents and discusses the effects of different sanctions on bilateral exports within Africa between 1992 and 2022. The study estimated models (1), (2), (3), and (4), each of which appended to the gravity model variables different types of sanctions and interactions between the trade sanction and the other sanction types, leveraging the PPML-HDFE estimation technique. Based on the Akaike's information criterion (AIC) and Bayesian information criterion (BIC) model selection, model (4) is the most preferred and optimal gravity model specification since it has the lowest AIC and BIC values (see Table A.3 in the appendix). Notably, lower AIC and BIC values are preferred, as they indicate a better balance between parsimony and goodness-of-fit, thereby providing insights into model performance by penalizing overfitting whilst warranting accurate estimation.

As shown by the results in Table 3, Model (4) provides the estimates of the traditional gravity model and its time-invariant gravity covariates (including weighted bilateral distance, contingency, common language, and colonial relationships) on bilateral exports on the African continent. Overall, the findings reveal that the estimated coefficients of the traditional gravity model variables conform to the theoretical foundations and expectations of the gravity model. More succinctly, whereas economic growth (proxied by GDP), population growth, sharing a common language, and border (contingency) have a positive and significant effect on bilateral exports, distance and landlockedness have a negative effect. However, it is important to note that the magnitude effect of the gravity variables on bilateral exports is relatively minimal.

Table 3 shows that trade sanctions significantly reduce intra-African exports. In particular, Model (4) reveals that imposing trade sanctions decrease exports by 2.284 units on average, in comparison to when no trade sanctions are imposed (at the 1 percent level of significance). This result corroborates the empirical findings of Shirazi et al. (2016), Crozet and Hinz (2020), and Larch et al. (2024), which suggest that trade sanctions significantly impact exports by restricting trade flows, altering market dynamics, and igniting broader economic repercussions for both sanctioning and sanctioned countries.

Notably, the findings suggest that arms sanctions have no significant effect on exports within the continent. However, when trade and arms sanctions are jointly imposed, intra-African exports decrease by 1.056 units on average, holding other factors constant (at a 10 percent level of significance). Similarly, financial sanctions have a negative and significant effect on intra-African exports. The results suggest that, holding other factors constant, imposing financial sanctions decreases exports by 0.521 units on average (at the 1 percent significance level). This implies that financial restrictions affect payments and access to credit, hence posing as a trade barrier (Doan and Tran, 2023; Tyuleneva and Yang, 2024). Travel sanctions, on the other hand, significantly hinder trade on the continent by limiting interactions and negotiations among countries (Khalid et al., 2024).

Table 3: Regression estimates of the gravity model

Dependent variable:	**Estimation technique: PPML - HDFE**			
Exports	*Model 1*	*Model 2*	*Model 3*	*Model 4*
GDP_i	5.98e-12***	6.05e-12***	6.02e-12***	5.96e-12***
	(24.73)	(25.04)	(24.62)	(24.75)
GDP_j	2.47e-12***	2.59e-12***	2.24e-12***	2.08e-12***
	(6.50)	(6.73)	(5.33)	(4.72)
Population_i	8.01e-12	-2.62e-12	-5.22e-12	9.03e-12
	(0.34)	(-0.10)	(-0.20)	(0.37)
Population_j	2.03e-08***	2.12e-08***	2.27e-08***	2.41e-08***
	(13.93)	(13.91)	(12.67)	(13.51)
Distance	-0.000567***	-0.000582***	-0.000554***	-0.000543***
	(-15.83)	(-15.67)	(-12.41)	(-12.64)
Landlocked	-0.554***	-0.547***	-0.541***	-0.541***
	(-6.72)	(-6.66)	(-6.63)	(-6.67)
Contingency	0.780***	0.784***	0.801***	0.810***
	(8.92)	(9.08)	(8.76)	(8.89)

Common language	0.351***	0.345***	0.352***	0.341***
	(4.33)	(4.24)	(4.31)	(4.11)
Trade sanction		-0.386**	-0.337**	-2.284***
		(-3.29)	(-2.61)	(-5.42)
Arms sanction			0.672	0.802
			(3.86)	(4.63)
Military assistance sanction			-0.286*	-0.453**
			(-2.07)	(-2.97)
Financial sanction			-0.349***	-0.521***
			(-3.40)	(-3.66)
Travel sanction			-0.131	-0.268*
			(-1.26)	(-1.98)
Other sanction			0.217	0.307
			(1.95)	(2.32)
Trade_arms sanction				-1.056*
				(-1.98)
Trade_military sanction				-0.940
				(-1.93)
Trade_financial sanction				-0.124
				(-0.52)
Trade_travel sanction				-0.828**
				(-2.96)
Trade_other sanction				-0.245
				(-1.06)
Constant	3.261***	3.200***	2.468***	2.333***
	(31.17)	(31.00)	(10.81)	(10.44)
Observations	9,266	9,266	9,266	9,266
Pseudo R^2	0.4188	0.4220	0.4270	0.4312
Time Fixed Effects	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes

Note: *t* statistics in parentheses; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.
Source: Authors' computation.

5. Conclusion and policy recommendations

This study provides empirical evidence on how geopolitical sanctions impact intra-African trade within the AfCFTA framework. While the AfCFTA aims to enhance economic integration and reduce trade barriers, sanctions, whether imposed by African states, regional bodies, or international actors, continue to obstruct trade flows and economic growth. The findings confirm that trade sanctions have the most substantial negative impact on intra-African exports, significantly reducing trade volumes. Financial sanctions, travel restrictions, and military assistance sanctions further exacerbate trade disruptions by limiting access to financial resources, restricting movement, and weakening diplomatic relations. These constraints disproportionately affect smaller and landlocked economies, which already face trade challenges, and the collective effect of these restrictions weakens Africa's ability to fully leverage the benefits of AfCFTA, undermining the progress made towards deeper economic integration. Despite these challenges, however, there are opportunities for African countries to mitigate the impact of sanctions through strategic policy interventions and ensuring that the AfCFTA delivers on its promise of economic transformation and sustainable growth. Based on the empirical findings, the study recommends the following. 1) African states and the AU should strive to promote stable diplomatic engagements and stability efforts aimed at preventing political tensions from escalating into sanctions that undermine market integration and intra-African trade flows. 2) The diversification of intra-African trade partners and products should be promoted to reduce countries' exposure to sanctions-related disruptions affecting a small number of key markets. 4) Since travel sanctions significantly reduce exports (directly and through interaction with trade sanctions), there is a need to ensure that essential business mobility and trade facilitation processes remain operational during periods of political or diplomatic tension. 5) The strong negative effect of distance on exports highlights the need to lower transport and logistics costs, including improving transport corridors, border efficiency, and cross-country connectivity to make distant African markets more accessible.

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Declaration of interest

The authors declare no competing interests.

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Appendix

Table A.1: Pairwise correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) Exports	1.000													
(2) GDP_i	0.301	1.000												
(3) GDP_j	0.054	-0.014	1.000											
(4) Population_i	0.004	0.018	-0.003	1.000										
(5) Population_j	0.106	0.038	0.152	-0.005	1.000									
(6) Distance	-0.153	0.138	-0.024	0.014	0.104	1.000								
(7) Landlocked	-0.058	-0.192	0.027	-0.015	0.083	-0.055	1.000							
(8) Contingency	0.179	-0.056	-0.061	-0.012	-0.008	-0.462	0.115	1.000						
(9) Common language	0.007	-0.103	-0.080	0.002	-0.007	-0.024	0.084	0.134	1.000					
(10) Arms sanction	0.061	-0.047	0.042	0.014	-0.011	-0.273	-0.017	0.093	0.025	1.000				
(11) Military Ass. sanction	-0.009	0.053	-0.121	0.019	0.332	0.284	0.024	-0.068	0.018	0.311	1.000			
(12) Trade sanction	-0.029	-0.027	-0.084	0.069	-0.137	0.151	-0.030	-0.054	0.011	0.137	0.378	1.000		
(13) Financial sanction	0.014	0.092	0.116	-0.001	0.288	0.268	0.020	-0.094	-0.014	0.062	0.599	0.283	1.000	
(14) Travel sanction	-0.007	0.100	0.084	-0.002	0.231	0.350	0.017	-0.119	-0.050	0.017	0.557	0.301	0.746	1.000
(15) Other sanctions	-0.034	0.002	-0.046	0.046	-0.119	0.190	-0.013	-0.041	-0.070	-0.434	0.005	0.154	0.175	0.202

Source: Authors' computation

Table A.2: Analysis of the variance inflation factor

Variable	VIF	1/VIF
Financial sanction	4.044	0.247
Travel sanction	3.834	0.261
Military Ass. sanction	2.479	0.403
Arms sanction	1.724	0.58
Distance	1.721	0.581
Other sanctions	1.415	0.707
Population_j (target)	1.38	0.725
Trade sanction	1.341	0.746
Contingency	1.333	0.75
GDP_j (target)	1.154	0.867
GDP_i (sender)	1.08	0.926
Landlocked	1.067	0.937
Common language	1.052	0.95
Population_i (sender)	1.009	0.991
Mean VIF	**1.76**	

Source: Authors' computation

Table A.3: Model selection information criterion

Model	N	ll(null)	ll(model)	df	AIC	BIC
Model_1	9,266	-714427.7	-415249.2	8	830514.3	830571.4
Model_2	9,266	-714427.7	-412924.4	9	825866.8	825931
Model_3	9,266	-714427.7	-409332.8	14	818693.6	818793.5
Model_4	9,266	-714427.7	-406392.3	19	812822.6	812958.2

Source: Authors' own computations