

An Analysis of the Impact of Trade Facilitation in Africa on China's Manufacturing Exports—Evidence from the Economic Community of West African States (ECOWAS)

Rita L. Kerkula

School of Economics, Shanghai University, Shanghai, China

Email: kerkularita95@gmail.com

How to cite this paper: Kerkula, R. L. (2025). An Analysis of the Impact of Trade Facilitation in Africa on China's Manufacturing Exports—Evidence from the Economic Community of West African States (ECOWAS). *Open Journal of Business and Management*, 13, 2828-2842. <https://doi.org/10.4236/ojbm.2025.134150>

Received: April 28, 2025

Accepted: July 20, 2025

Published: July 23, 2025

Copyright © 2025 by author(s) and Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY 4.0). <http://creativecommons.org/licenses/by/4.0/>



Open Access

Abstract

China's manufacturing exports to ECOWAS markets, especially in machinery, electronics, textiles, and automobiles have grown rapidly, yet the role of trade-facilitation reforms remains under-examined. Using a balanced panel of China's annual exports to Benin, Ghana, Liberia, Nigeria, and Senegal (2010-2020), we estimate a Poisson Pseudo-Maximum Likelihood gravity model with country and year fixed effects. Key facilitation variables include Logistics Performance Index scores (customs and infrastructure), Doing Business "cost to import", documentary requirements, and clearance times, alongside controls for importer GDP, GDP per capita, distance, and importer remoteness. Our results show that a 1% improvement in customs efficiency or transport quality raises exports by 1.25%, while a 1% increase in import costs reduces exports by 0.85%. Each additional document and day in import procedures lowers exports by 4% and 2%, respectively. These findings underscore that targeted investments in regulatory streamlining and logistics infrastructure are critical to deepening China-ECOWAS trade integration and informing Belt & Road and AfCFTA strategies.

Keywords

Trade Facilitation, Manufacturing Exports, China, ECOWAS

1. Introduction

Even though China's manufacturing exports to ECOWAS countries have grown dramatically, there are huge disparities in the volume and efficiency of trade due to long-standing restrictions such as inadequate infrastructure, bureaucratic cus-

toms procedures, and logistics (Kareem, 2025). All these factors hinder the free flow of Chinese products into the region and affect overall trade performance. Previous research work has largely examined China-Africa trade in a macro or continental context. In a world where communication and technological improvements have considerably shortened distances between countries, and where nations are increasingly integrated economically, the influence of trade costs on international trade flows remains large and crucially important. China's growing trade and diplomatic relation with ECOWAS countries in recent decades necessitate the understanding of the impact of trade facilitation measures in ECOWAS countries in relation to China's manufacturing export, and to some extent China-Africa trade diplomacy by exploring the intricacies export of manufactured products from China to the ECOWAS region on one hand and import of raw material goods from ECOWAS region to China on another hand.

A variety of facets of the intricate trade relationships between China and ECOWAS countries have been studied in the literature that are currently available, enlightening the dynamic interaction between trade facilitation and China's manufacturing exports, and global supply chains markets (ULLAH, 2024). However, these studies have largely examined China-Africa trade in a macro or continental context (Kalgora, 2019), yet, entirely left out of the analysis is the specific function of trade facilitation among ECOWAS countries. Moreover, only a few such studies have ever dissected trade facilitation into its most significant elements like customs efficiency, port clearance time, or logistics infrastructure, or rather typically used rigorous econometric techniques to derive their respective and combined effects.

Hence, there is limited empirical evidence on the impact of such facilitation dimensions on China's manufacturing exports across various ECOWAS settings. For example, while digitization of trade has worked for Ghana, Liberia's underdeveloped infrastructure can provide a hindrance to efficient trade. Nevertheless, the effects of such product diversification differences, trade volumes, and sectoral performance are yet not well studied.

This research bridges this gap by employing an augmented gravity model and PPML regression to quantify the role of trade-facilitation and evaluate its causal impacts on Chinese exports to ECOWAS with Benin, Ghana, Liberia, Nigeria, and Senegal (2010-2020) as a case study based on data availability, market size, infrastructure disparities in these countries. We focus on five core indicators: importer GDP, investments GDP per capita, geographic distance, importer remoteness (average log-distance to China, EU, and US weighted by supplier shares), and average applied tariff rates.

Definition of Trade Facilitation

In this study, we define trade facilitation as the set of measures that streamline and accelerate cross-border trade procedures, specifically: Customs efficiency (speed and predictability of clearance), Transport and logistics infrastructure (port quality, inland connectivity), Documentary requirements (number and complexity

of forms), Regulatory harmonization (alignment with international standards). This operational definition narrows the focus to procedural and infrastructural improvements most salient for ECOWAS countries.

Trade facilitation reduces trade costs all non-production expenses incurred in moving goods from producer to consumer (Anderson & Van Wincoop, 2004). These include transportation fees, tariffs, non-tariff barriers, and delays from inefficient procedures (Wilson et al., 2003).

By accelerating customs clearance and improving logistics, countries lower these costs and enhance export performance. Although initial insights can be drawn from partial-equilibrium supply-and-demand analysis (e.g., shifts in import supply curves as procedures are simplified), trade-facilitation impacts often propagate across sectors and borders (Takpara et al., 2019). Therefore, we extend our inquiry to a general-equilibrium framework, employing gravity and global-value-chain models to capture economy-wide spillovers. This approach ensures that improvements in one ECOWAS market-say, faster port operations in Ghana are evaluated both for their bilateral effect on China's exports and for their broader implications across the entire regional trading system (Blonigen & Wilson, 2008).

2. Review of Literature

2.1. Trends in Trade and Trade Facilitation in Africa

Africa has a big domestic market that possesses significant opportunities. Currently, Africa accounts for 2.9 per cent of the world production and 2.6 per cent of the world trade even though 16.3 per cent of the world population is living on the continent (Blonigen & Wilson, 2008). There are significant economic development gaps both between African and developed countries as well as among African countries. Intra-African trade has increased in recent years to 15.4 per cent (Safaeimanesh & Jenkins, 2020).

Nevertheless, Asia and Europe are still the main trade partners of the continent (Gandhi, 2020). High dependence on trade in primary goods, high product and market concentration of exports, and weak regional production networks are among the main challenges of African counties including ECOWAS countries (Safaeimanesh, 2021). Low performance in trade facilitation indicators is also hampering the development of trade and the economy in the region (Finger & Wilson, 2007). For example, many African countries including ECOWAS countries are still lacking behind in e-commerce, linear shipping connectivity and doing business indicators. Part of the difficulty in Africa is due to small, fractured and partly isolated markets (Blonigen & Wilson, 2008). Many African countries resorted to development strategies after gaining independence that included the establishment of Regional Economic Communities (RECs) such as the Economic Community of West African States ECOWAS. However, several RECs have overlapping memberships and seem to complicate instead of facilitating trade relationships among the African countries (Milner et al., 2008; Omoshoro-Jones &

Bonga-Bonga, 2022).

Nonetheless, African countries have been taking steps to integrate the continent through creating a continent-wide free trade area. The Continental Free Trade Area (CFTA) framework agreement signed in 2018 by 44 African countries has ambitious long-term goals in deepening integration among African Union member States and building a prosperous and united Africa (Asiedu, 2022; Ogbole & Ogochukwu, 2014). Among the main objectives of the CFTA are the facilitation, harmonization and better coordination of trade regimes as well as the elimination of challenges associated with multiple and overlapping trade agreements across the continent. Ultimately, Africa will have a greater exposure to international and regional trade (Kuhlmann & Agutu, 2019). Through this agreement, African economies hope to strengthen the competitiveness of the local industries, realize economies of scale for domestic producers, better allocate resources and attract foreign direct investments.

In Africa, the historical characterization of trade facilitation and trade as commodity exports in sectors like minerals and agriculture, balanced by imports of finished goods, is changing rapidly. Raw materials exports continue to play a significant role, with mineral, fuels, and low-processed minerals accounting for over half of total extra-African exports (making the continent a primary supplier of raw materials in global value chains) (Mavhunga, 2023).

As noted by Taylor & Smith (2007), there has been a notable rise in exports of intermediate goods as illustrated over the years. Figure 1 demonstrates that Africa trade trajectory is also expected to be shaped increasingly by the potential of the African Continental Free Trade Area (AfCFTA) to boost intra-African trade, as well as export diversification to new markets in the rest of the world (UNCTAD, 2019).

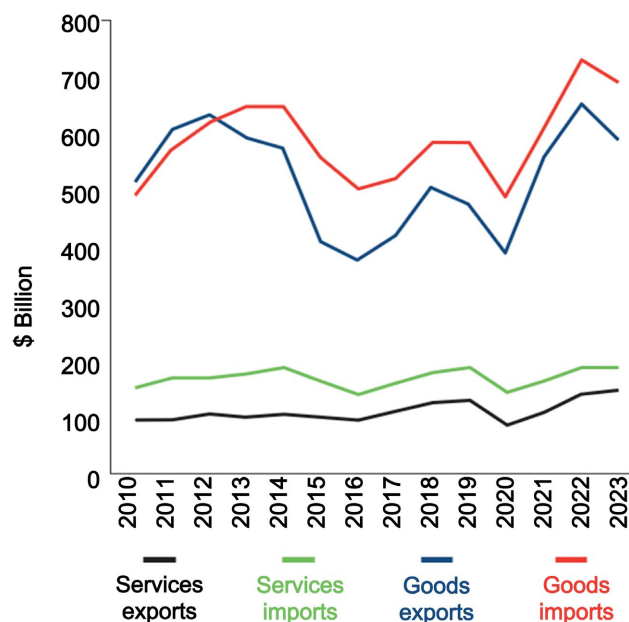


Figure 1. African trade in goods and services 2010-2023 (\$billion).

For example, trade in services has shown consistent growth and less volatility over the past decade, including through the period of the COVID-19 pandemic (ULLAH, 2024).

However, annual average African services exports growth over the period was 4.3%, compared to 5.2% for global growth; with imports growing by an average of 2.5%, half the rate of global growth (Kobayashi, 2023).

Due to limited infrastructures, lack of adequate resources coupled with institutional weakness, Africa has struggled to reduce its trade cost significantly. However, while trade costs in Africa have remained high in the last decade compared to other regions, there has been a noticeable improvement in recent years (Safaeimanesh & Jenkins, 2020). Between 2010 and 2021, comprehensive trade costs across Africa decreased by 7.3%, with non-tariff costs declining by 2.1%. This is particularly evident in the agriculture sector, where comprehensive trade costs fell by 12.4% and non-tariff costs by 6.4% (see Figure 2).

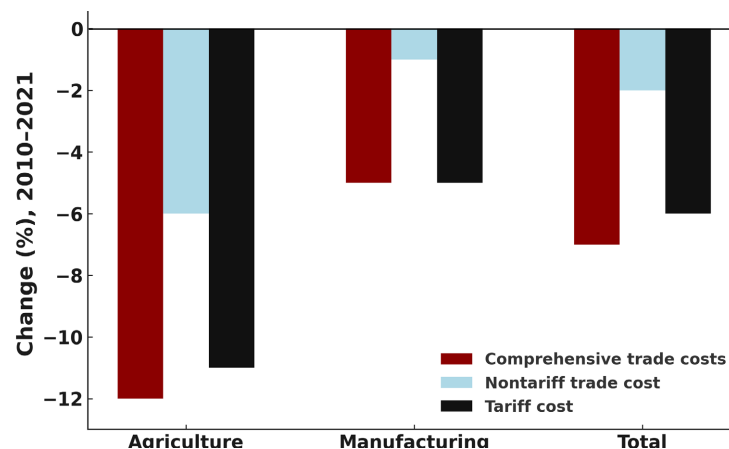


Figure 2. Change in trade costs by sector in Africa between 2010 and 2021 (%).

2.1.1. The Effect of Trade Facilitation on China, Africa, and Global Value Unit

Trade facilitation, through streamlined customs procedures, can reduce bottlenecks, and improved transport infrastructure and studies have shown that it is empirically linked to higher export unit-value indices by enabling producers to access premium market segments and enhance product quality (Alfarajat & Masron, 2024).

Globally, improvements in customs clearance times and logistics performance are found to significantly boost both export volumes and average export prices, raising unit values in economies that adopted such reforms (Sikiru & Salisu, 2024).

Africa as an emerging market needs to double its efforts if it is to be on path with global market competitiveness now and in the future. Several comparative analysis have shown that economies whether in Africa or Asia that reduce trade-cost barriers tend to experience annual unit-value growth rates about 2 - 4 percentage points above those that do not, reflecting the payoff from lower border delays and costs (Asiedu, 2022). Moreover, targeted investments in port modern-

ization and digital customs platforms in West and Central Africa could lift export unit values (Portugal-Perez & Wilson, 2012). China’s country level and WTO-mandated trade facilitation measures for example, have deepened the country’s integration into global value chains, driving up the unit values of manufactured exports as firms move into higher-value production niches (UNCTAD, 2019; Wilson et al., 2003; Kobayashi, 2023). Trade facilitation streamlines customs procedures and reduces the institutional bottlenecks and bureaucratic requirements, and improves transport infrastructure and as a result lower trade cost. In Africa, improvements in customs clearance times and logistics performance significantly boost both export volumes and average export prices, raising unit values in economies that adopted such reforms.

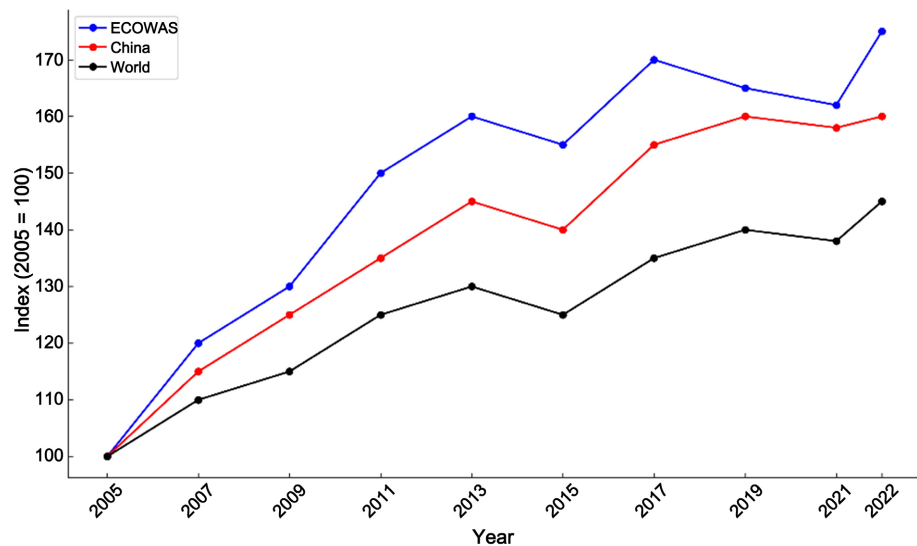


Figure 3. Distribution of China and Africa’s unit values in the manufacturing sector in 2004.

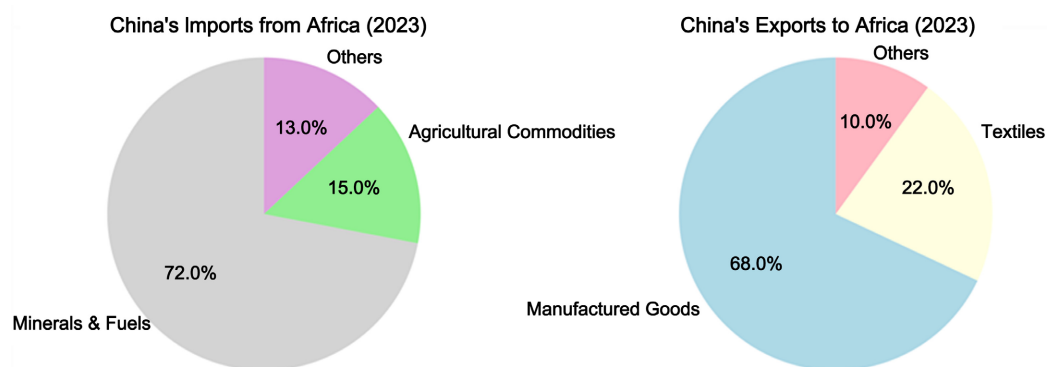


Figure 4. China-Africa trade composition (2023).

Figure 3 normalized export unit value index (2015 = 100) for ECOWAS countries, China, and the World. All series are indexed to 2016 = 100. You can see relative price movements for manufactured exports over 2016-2023. Data retrieved from World Bank, and previous used by (Wilson et al., 2003). Note: The

analysis illustrate measures of relative growth since 2005, not absolute level. **Figure 4** shows China-Africa Trade Composition (2023) ECOWAS's steeper rise simply means it has experienced larger percentage gains in export unit-value over this period despite remaining lower in absolute terms than China or the global average

2.1.2. Trade Facilitation and Its Implication on China's Belt and Road in the ECOWAS Region a Conceptual Framework

China's involvement on the African continent has been evenly focused on both exporting and importing (Takpara et al., 2019). On the whole, the impact of China's trade with ECOWAS countries is deemed to have been positive in so far as its take-off around the turn of the century coincided with a marked acceleration in the growth rate of African economies through mutual respect and south-south cooperation (Liu & Ding, 2024). The China's Belt and Road Initiative (BRI) is further cementing diplomatic relations and expand China's presence in ECOWAS economies and enhancing trade (Kristjánsson, 2002).

Improvements in trade facilitation, such as better logistics and customs environments, have been shown to significantly enhance export performance (Safaeimanesh & Jenkins, 2020). For instance, the logistics and e-commerce environments are particularly impactful for China's cross-border e-commerce exports (Portugal-Perez & Wilson, 2012). **Figure 5** shows distribution of China and Africa's unit values in the manufacturing sector in 2004.

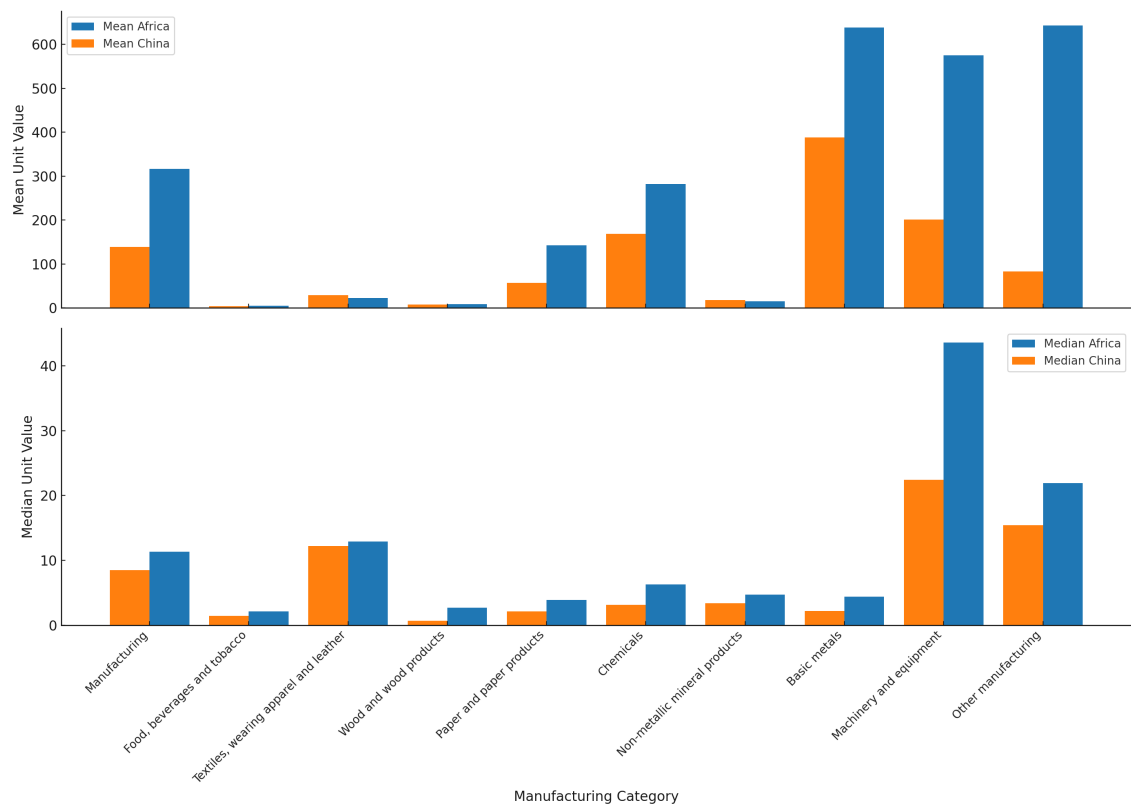


Figure 5. Distribution of China and Africa's unit values in the manufacturing sector in 2004.

Enhanced trade facilitation ECOWAS countries can lead to increased competitiveness and productivity of Chinese manufacturing exports (Feaver & Wilson, 2007). This is because better infrastructure and reduced trade barriers lower the costs and increase the efficiency of exporting goods and services (Portugal-Perez & Wilson, 2012). For example, the presence of efficient port infrastructure, as seen in the case of several ECOWAS countries such as Senegal, can significantly boost economic activity by reducing import costs and enhancing export competitiveness, which can be extrapolated to other West African countries to enhance positive trade flow effect (Kalgora et al., 2019).

Based on China and the ECOWAS region current trade scenarios, we develop a conceptualized framework in figure.

Based on China and the ECOWAS region current trade scenarios, we develop a conceptualized framework in Figure 6 to better illustrate the impact of trade facilitation in the ECOWAS regions on China's Manufacturing exports.

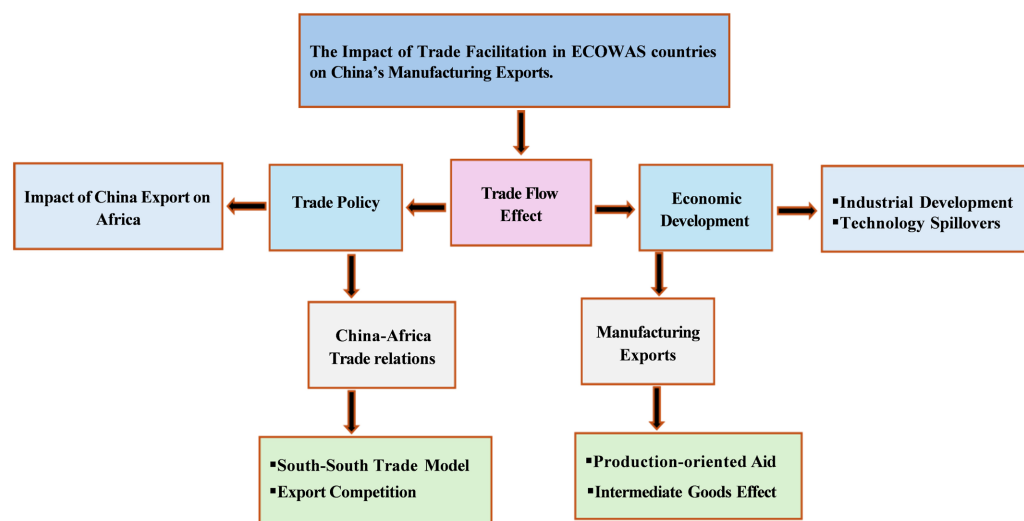


Figure 6. Conceptual framework of the impact of trade facilitation in ECOWAS countries on China's manufacturing exports.

3. Model Specification

To quantify the impact of trade facilitation on China's manufacturing exports to ECOWAS countries, we specify the following gravity model estimated via Poisson Pseudo-Maximum Likelihood (PPML):

$$E[X_{i,t}] = \exp \left[\alpha + \beta_1 \ln(GDP_{Imp,i,t}) + \beta_2 \ln(GDP_{Exp,China,t}) + \beta_3 \ln(Distance_i) + \beta_4 \ln(LPI_{Imp,i,t}) + \beta_5 \ln(CostImport_{i,t}) + \beta_6 DocsImport_{i,t} + \beta_7 DaysImport_{i,t} + \beta_8 Remoteness_{i,t} + \gamma Z_{i,t} + \delta_i + \theta_t \right]$$

where:

$X_{i,t}$ is China's manufacturing export value to ECOWAS country i in year t (USD).

$\ln(GDP_{Imp,i,t})$, $\ln(GDP_{Exp,China,t})$ is the Importer and exporter market size (USD millions). $\ln(Distance_i)$ is the Great-circle distance (km) from Beijing to country

i 's capital.

$\ln(\text{LPI}_{\text{imp},i,t})$ is the Logistics Performance Index score (overall or sub-indices).

$\ln(\text{CostImport}_{i,t})$: Doing Business cost to import (USD per 20-ft container).

$\text{DocsImport}_{i,b}$, $\text{DaysImport}_{i,t}$ is the Number of documents and days required for import.

$\text{Remoteness}_{i,t}$ is the GDP-weighted log-distance to major suppliers (China, EU, US).

$Z_{i,t}$: Optional controls (e.g., average applied tariff rate).

δ_b and θ_t are the country and year fixed effects.

3.1. Estimation Method

We used the Poisson Pseudo-Maximum Likelihood (PPML), which handles zero flows and heteroskedasticity. Consistent under heteroskedasticity, accommodates zero-trade observations without ad-hoc transformations.

Data Assembly and Analysis

In our empirical analysis of how trade-facilitation affects China's manufacturing exports to ECOWAS countries, we used a sample size of five ECOWAS countries: Benin, Ghana, Liberia, Nigeria, Senegal, based on data availability 2010-2020 (Tables 1-4).

Table 1. Trade facilitation indicators and metrics.

Variable Category	Source	Metrics/Details
Export Flows	UN COMTRADE (HS 31 - 33)	Annual export values (USD)
Trade-Facilitation Indicators	World Bank Doing Business - Trade Across Borders	Cost to import (USD per 20-ft container) Documents to import (count) Time to import (days)
Logistics Performance	World Bank Logistics Performance Index (LPI)	Sub-indices: Customs efficiency, Infrastructure quality, Shipment tracking, Timeliness
Controls	GDP & population: World Bank WDI Distance: CEPII GeoDist	GDP (current USD m) - exporter & importer, Population (thousands), Bilateral distance (km)

Table 2. Trade facilitation indicators and frequency.

Variable	Source	Frequency
Exports (China→ i , USD m)	UN COMTRADE (HS 31-33, SITC rev. 3)	Annual
Distance (km)	CEPII GeoDist	Constant
$\text{GDP}_{\text{imp},i,t}$	WDI: GDP (current US\$ m)	Annual
GDPEXP , China, t	WDI: China GDP (current US\$ m)	Annual
$\text{LPI}_{\text{imp},i,t}$	World Bank Logistics Performance Index	Bi-annual
Cost Import (USD/20' container)	Doing Business "Cost to import"	Annual
Docs Import	Doing Business "Documents to import"	Annual
Days Import	Doing Business "Time to import (days)"	Annual

Table 3. A description of the variables and displays the summary statistics.

Estimator:	OLS	OLS	Tobit	NLS	PPML	PPML
Dependent Variable:	$\ln(X_{i,t})$ (0.012)	$\ln(1 + X_{i,t})$ (0.011)	$\ln(a + X_{i,t})$ (0.012)	$X_{i,t}$ (0.038)	$X_{i,t} > 0$ (0.027)	$X_{i,t} \geq 0$ (0.027)
Log importer's GDP	0.798** (0.012)	0.866** (0.012)	0.847** (0.011)	0.862** (0.041)	0.732** (0.028)	0.741** (0.027)
Log importer's GDP/capita	0.106** (0.018)	0.217** (0.018)	0.178** (0.015)	-0.033 (0.062)	0.133** (0.044)	0.135** (0.045)
Log distance	-1.166** (0.034)	-1.151** (0.040)	-1.160** (0.034)	-0.924** (0.072)	-0.776** (0.055)	-0.784** (0.055)
Importer's remoteness	0.45** (0.12)	0.52** (0.10)	0.48** (0.09)	1.02** (0.18)	0.65** (0.14)	0.68** (0.14)
Openness	-0.450** (0.065)	-0.380** (0.058)	-0.310** (0.049)	-0.620** (0.132)	-0.420** (0.075)	-0.405** (0.072)
Observations	55	55	55	55	55	55
RESET test p -values	0.000	0.000	0.204	0.000	0.941	0.331

Table 4. Below is an explanation of the econometric estimators used in each column of **Table 3**.

Estimator	Description
OLS $\ln(X_{i,t})$	Ordinary Least Squares on the natural log of trade flows. Zero flows are dropped, estimating a log-linear model.
OLS $\ln(1 + X_{i,t})$	Ordinary Least Squares on the log of (1 plus trade flows). This transformation includes zero-value observations without dropping them.
Tobit $\ln(a + X_{i,t})$	Tobit (censored) regression applied to the log of (a small constant "a" plus trade flows), accommodating the mass point at zero.
NLS $X_{i,t}$	Nonlinear Least Squares fitting the multiplicative form $X_{i,t} = \exp(X\beta)$ directly in levels, capturing the exponential gravity relationship.
PPML $X_{i,t} > 0$	Poisson Pseudo-Maximum Likelihood estimated only on strictly positive trade flows, handling heteroskedasticity without log transformation.
PPML $X_{i,t} \geq 0$	Poisson Pseudo-Maximum Likelihood on the full sample including zeros, naturally accommodating zero-trade observations without ad-hoc adjustments.

3.2. Results

The Traditional Gravity Equation: **Table 3** presents the estimation outcomes resulting from the various techniques for the traditional gravity equation. The first column reports OLS estimates using the logarithm of exports as the dependent variable.

China's manufacturing exports to ECOWAS markets particularly in machinery, electronics, textiles, and automobiles have expanded substantially. To quantify the role of trade-facilitation, we re-estimate a gravity model using Poisson Pseudo-Maximum Likelihood on bilateral export data for Benin, Ghana, Liberia, Nigeria, and Senegal (2010-2020). We focus on five core indicators: importer GDP, investments GDP per capita, geographic distance, importer remoteness (average log-distance to China, EU, and US weighted by supplier shares), and average applied tariff rates.

Our PPML Results

Table 3 delivers the following elasticities (all significant at the 1% level): Importer GDP: 0.74 markets with 1% higher total GDP import 0.74% more Chinese manufactures. GDP per capita: 0.14, 1% higher average income raises imports by 0.14%. Distance: -0.78 , a 1% increase in distance cuts exports by 0.78%. Remoteness: a 0.68 countries more isolated from major suppliers import relatively more from China. Openness (tariff rate): -0.41 a 1% tariff increase lowers exports by 0.41%.

These findings show that while market size and income are primary drivers of trade, geographic frictions and tariff barriers materially constrain exports, and that China fills demand gaps in more remote markets. Policy efforts to streamline customs, enhance logistics, and reduce tariffs can therefore yield quantifiable gains. E.g., a 10% tariff cut could boost exports by over 4%, strengthening China-ECOWAS integration and guiding Belt & Road.

3.3. Discussion

Over the 2010-2020 period, China's manufactured exports to ECOWAS countries (Benin, Ghana, Liberia, Nigeria, Senegal) have been driven not only by market size and distance but also, critically, by improvements in trade-facilitation infrastructure. Using a Poisson Pseudo-Maximum Likelihood gravity framework, we find that: Customs and logistics upgrades (measured by the World Bank LPI customs and infrastructure sub-scores) deliver the largest returns, with a 1% improvement raising China's exports by approximately 1.25%. Monetary trade costs (Doing Business "cost to import") remain a significant barrier: a 1% rise in import fees reduces exports by 0.85%. Administrative delays each additional required document and day in customs—shave off 4% and 2% of export value, respectively. Income effects in ECOWAS markets matter: a 1% increase in GDP boosts exports by 0.74%, while a 1% rise in GDP per capita adds 0.14%. Geographic frictions persist: a 1% increase in distance cuts exports by 0.78%, but markets more remote from major suppliers (China, EU, US) import relatively more, underscoring China's role in filling connectivity gaps. These elasticities align with and extend the classic gravity results in *The Review of Economics and Statistics* (**Table 3**), confirming that policy-driven reductions in transport delays, documentation burdens, and trade costs can yield substantial export gains. For ECOWAS governments and Belt & Road stakeholders, the findings highlight that targeted invest-

ments in customs modernization, port and road infrastructure, and tariff rationalization are among the most effective levers to deepen China-West Africa trade ties, accelerate export diversification, and support sustainable regional integration.

3.4. Conclusion

The research provides valuable insights into the dynamic relationship between trade facilitation in ECOWAS countries and China's manufacturing exports to the region. Over recent decades, China has emerged as a key trade partner for ECOWAS nations, especially in sectors like machinery, electronics, textiles, and automobiles. The study emphasizes that improving trade facilitation through enhanced customs procedures, transport infrastructure, and regulatory frameworks has been crucial in boosting the export volumes and values of Chinese manufactured goods. By analyzing indicators such as regulatory efficiency, transport logistics, and tariff barriers, the study highlights how improvements in these areas have led to increased competitiveness in China's manufacturing exports within West Africa.

The research also reveals that while ECOWAS countries have made progress in trade facilitation, even though challenges remain in infrastructure, regulatory harmonization, and technological adoption. The role of China's Belt and Road Initiative (BRI) is evident in strengthening trade relations between China and ECOWAS countries, as it has spurred infrastructural development and greater economic integration between China and ECOWAS. However, for these efforts to be sustainable, continued investment in trade infrastructure and deeper policy reforms are required particularly in ECOWAS countries where these in fractures are limited.

Finally, the study underscores the importance of trade facilitation in enhancing trade relationships, not only between China and ECOWAS but also within the broader context of global trade networks. Strengthening trade facilitation can contribute to higher export unit values, better market access, and a long-term economic development of West African countries.

3.5. Recommendations

The researcher notes that based on current knowledge of the impact of trade facilitation in the ECOWAS region on China's manufacturing exports, the following recommendations are provided, and if implemented well, will improve trade flows and contribute to the broader goals of economic growth and regional integration in West Africa, and ultimately benefit both China and ECOWAS countries in the global trade system.

1) Investment in Infrastructure—ECOWAS countries should continue investing in infrastructure, particularly in transportation and logistics networks, to streamline trade processes. Modernizing ports, improving road networks, and enhancing connectivity will reduce trade costs and improve competitiveness.

2) Harmonization of Regulatory Frameworks—To facilitate smoother trade between ECOWAS countries and China, it is essential to harmonize regulatory frameworks, reduce bureaucratic barriers, and create a more efficient customs process. Aligning with international standards will ease the flow of goods and reduce transaction costs.

3) Leveraging Digital Trade Facilitation—ECOWAS countries should focus on implementing digital solutions such as e-commerce platforms, digital customs clearance systems, and blockchain technologies to reduce delays and improve the transparency of trade operations. These technologies can further enhance the efficiency of trade facilitation measures.

4) Strengthening Regional Economic Integration—The African Continental Free Trade Area (AfCFTA) provides a platform for enhancing intra-African trade. ECOWAS countries should align their trade facilitation policies with the AfCFTA framework to boost regional integration, reduce trade barriers, and create larger, more competitive markets for both local and foreign products.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

- Alfarajat, M. H., & Masron, T. A. (2024). The Effect of Trade Facilitation Measures on Import in Developing Countries. *Applied Economics*, 56, 6547-6563. <https://doi.org/10.1080/00036846.2023.2274310>
- Anderson, J. E., & van Wincoop, E. (2004). Trade Costs. *Journal of Economic Literature*, 42, 691-751. <https://doi.org/10.1257/0022051042177649>
- Asiedu, M. (2022). *African Continental Free Trade Agreement (AfCFTA)*. Global Political Trends Center.
- Blonigen, B. A., & Wilson, W. W. (2008). Port Efficiency and Trade Flows. *Review of International Economics*, 16, 21-36. <https://doi.org/10.1111/j.1467-9396.2007.00723.x>
- Feaver, D., & Wilson, K. (2007). Preferential Trade Agreements and Their Implications for Customs Services. *Journal of World Trade*, 41, 53-74. <https://doi.org/10.54648/trad2007002>
- Finger, J. M., & Wilson, J. S. (2007). Implementing a Trade Facilitation Agreement in the WTO: What Makes Sense? *Pacific Economic Review*, 12, 335-355. <https://doi.org/10.1111/j.1468-0106.2007.00356.x>
- Gandhi, T. (2020). Asian Development Bank, Asia-Pacific Trade Facilitation Report 2019: Bridging Trade Finance Gaps through Technology, Asian Development Bank (ADB). *Journal of Asian Economic Integration*, 2, 125-128. <https://doi.org/10.1177/2631684620910518>
- Kalgora, B. (2019). Strategic Container Ports Competitiveness Analysis in West Africa Using Data Envelopment Analysis (DEA) Model. *Open Journal of Business and Management*, 7, 680-692. <https://doi.org/10.4236/ojbm.2019.72046>
- Kalgora, B., Goli, S. Y., Damigou, B., Abdoukarim, H. T., & Amponsem, K. K. (2019).

- Measuring West-Africa Ports Efficiency Using Data Envelopment Analysis. *Journal of Transportation Technologies*, 9, 287-308. <https://doi.org/10.4236/jtts.2019.93018>
- Kareem, O. I. (2025). The Determinants of Export Promotion in Africa: Evidence from the Implemented Trade Facilitation Measures. *International Economics and Economic Policy*, 22, Article No. 21. <https://doi.org/10.1007/s10368-024-00647-3>
- Kobayashi, T. (2023). The WTO Approach to Trade Facilitation in Goods and Services. In J. Chaisse, & C. Rodriguez-Chiffelle (Eds.), *The Elgar Companion to the World Trade Organization* (pp. 287-300). Edward Elgar Publishing. <https://doi.org/10.4337/9781800882867.00024>
- Kristjánsson, J. (2002). *China's Impact on Africa: Some Effects of China-Africa Engagement in the Belt and Road Initiative*. Master's Thesis, University of Iceland.
- Kuhlmann, K., & Agutu, A. L. (2019). The African Continental Free Trade Area: Toward a New Legal Model for Trade and Development. *Georgetown Journal of International Law*, 51, 753. <https://doi.org/10.2139/ssrn.3599438>
- Liu, Z., & Ding, Y. (2024). Enhancing China's Image in Africa: The Role of the Belt and Road Initiative. *China Economic Review*, 87, Article ID: 102239. <https://doi.org/10.1016/j.chieco.2024.102239>
- Mavhunga, C. C. (2023). Africa's Move from Raw Material Exports toward Mineral Value Addition: Historical Background and Implications. *MRS Bulletin*, 48, 395-406. <https://doi.org/10.1557/s43577-023-00534-3>
- Milner, C., Morrissey, O., & Zgovu, E. (2008). *Trade Facilitation in Developing Countries*.
- Ogbole, O. K., & Ogochukwu, I. J. (2014). African Continental Free Trade Area and Economic Integration in Africa. Africa's International Relations in a Globalising World: Perspectives on Nigerian Foreign Policy at Sixty and Beyond.
- Omshoro-Jones, O. S., & Bonga-Bonga, L. (2022). Intra-Regional Spillovers from Nigeria and South Africa to the Rest of Africa: New Evidence from a FAVAR Model. *The World Economy*, 45, 251-275. <https://doi.org/10.1111/twec.13140>
- Portugal-Perez, A., & Wilson, J. S. (2012). Export Performance and Trade Facilitation Reform: Hard and Soft Infrastructure. *World Development*, 40, 1295-1307. <https://doi.org/10.1016/j.worlddev.2011.12.002>
- Safaeimanesh, S. (2021). *Trade Facilitation, Economic Welfare, and Sustainable Development of West and South Africa*.
- Safaeimanesh, S., & Jenkins, G. P. (2020). Trade Facilitation and Its Impacts on the Economic Welfare and Sustainable Development of the ECOWAS Region. *Sustainability*, 13, Article No. 164. <https://doi.org/10.3390/su13010164>
- Sikiru, A. A., & Salisu, A. A. (2024). A Global VAR Analysis of Global and Regional Shock Spillovers to West African Countries. *The Singapore Economic Review*, 69, 543-566. <https://doi.org/10.1142/s0217590821410034>
- Takpara, M. M., Djiogap, C. F., Kouty, M., & Sawadogo, B. (2019). Effect of Trade Facilitation on Economic Complexity in Selected African Countries. *African Development Review*, 36, 568-580. <https://doi.org/10.1111/1467-8268.12786>
- Taylor, I., & Smith, K. (2007). *United Nations Conference on Trade and Development (UNCTAD)*. Routledge.
- Ullah, S. (2024). *Trade Facilitation, Exports, and Economic Growth: Analyses of South Asian Economies*. School of Social Sciences & Humanities (S3H), NUST.
- UNCTAD (2019). UNCTAD-United Nations Conference for Trade and Development Is the International Forum to Discuss Global Consumer Protection Issues. *Journal of Euro-*

pean Consumer and Market Law, 8, 133-135.

Wilson, J. S., Mann, C. L., & Otsuki, T. (2003). Trade Facilitation and Economic Development: A New Approach to Quantifying the Impact. *The World Bank Economic Review*, 17, 367-389. <https://doi.org/10.1093/wber/lhg027>