

TRADE FACILITATION AND TRADE EXPANSION IN THE ECOWAS: IMPLICATIONS FOR REGIONAL ECONOMIC INTEGRATION

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Abstract

The ultimate goal of regional trade and economic cooperation is to create a common beneficial economic space that will accelerate the economic growth and development of member countries in the bloc. Such cooperation largely evolves from trade links, the process, which entails the harmonization and coordination of trade policies, as well as appropriate institutional framework, warranting this study. Utilizing panel data and system Generalized Method of Moments (GMM) econometric techniques for the period 2008-2022, the empirical results demonstrate that complex documents to trade, time delays and high international trade transaction cost undermine trade expansion in the sub-region. Customs efficiency in the clearance process and other border control agencies (a measure of soft infrastructure) and ICT (a measure of hard infrastructure) are found to be trade drivers, although the impact of the latter is weak a weak. The nominal exchange rate variable is positively connected to trade expansion, but not robust, due to production and exportation of narrow range of primary commodities. Based on the foregoing findings, the paper recommend measures to reduce international trade transaction costs, such as the provision of trade logistics and regional infrastructure development to boost connectivity and improving the business environment, the synchronisation of trade policies, such as tariff and non-tariff harmonization as well as the implementation of competitive and stable exchange rate through export diversification policy among member countries to drive trade expansion and economic integration in the sub-region.

Keywords: Trade facilitation, Trade expansion, Efficiency of the Custom clearance process, Economic integration

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1. INTRODUCTION

The importance of facilitating trade to encourage trade expansion and greater regional growth has occupied the front burner of empirical research among trade economists. Standard trade theory emphasized the need to promote trade by removing all impediments to trade. By opening up domestic economies to external markets, there will be better and efficient allocation of resources, including the promotion of the orientation of trade towards the exporting sectors. These exporting sectors are believed to be hindered by restrictive trade policies that result to considerable distortions in the optimal allocation of resources (Hammouda & Jallab, 2005). The promotion and expansion of trade is thus, largely hinged on the removal of all impediments to trade, particularly through trade facilitation, which is the current focus and international trade institutions, by means of the simplification, coordination, harmonization and modernization of trade policies that reduce international trade costs. For instance, high international trade costs, multiplicity of documents to trade and delays in processing trade documents in terms of the time required to trade, all have considerable negative effects on trade expansion and the quest to achieved greater regional trade and economic integration (Ozekhome, 2019). Studies on trade (see Mbekeani, 2010; Amoako-Tuffor et al., 2016; Ozekhome & Oaikhenan, 2019) have shown that specific country and regional variations connected with such as international cost of trade., documents as well as time to trade significantly explain country or regional differences in trade performances.

Overall, the growth rate in trade, in terms of exports and imports have, on the average, assumed a lackluster performance in the ECOWAS sub-region. The decline in trade performance considerably led to a decline in international competitiveness and exchange of goods and services, product diversification, economies of scale, dynamic regional value chain and consequently, economic growth (Ozekhome, 2017). The explanation for the poor trade performance is not unconnected to the high and destabilizing trade transaction costs, unnecessary delays in processing trade documents and complex clearance process by border agencies, including customs and multiple of documents required to trade (Ozekhome, 2019). These sharply contrast with the situation in other regions of the World, including world averages (African Competitive Report, 2016). Regional export was USD 122.7 billion in 2014 from a previous USD 100 billion in 2009, representing a growth rate of 22.7 percent and declined to 1.8 percent growth in the period 2018-2019 (UNCTAD, 2019). The comparative export growth in other regions of the world for the same period for East Asia and Pacific countries was 175.3 percent, Europe & Central Asia, 142.3 percent, Latin America & Caribbean, 89.7 percent, Middle East & North Africa, 65.2 percent, OECD High Income, 172.3 percent, with an overall world average of 92.6 percent (World Bank, 2016). The relatively poor export growth is explained, among other factors, to be due to prohibitive international costs, a fundamental trade facilitation factor, include poor efficiency of customs and poor trade policies (World Bank, 2015). Added to this, a very low supply response to market opportunities and competitiveness in export as a result of poor logistics, infrastructure, institution and policy implementation combine to limit intra-ECOWAS trade (Ozekhome & Oaikhnena, 2029). Between 2009- 2020, for instance, intra-regional exports fluctuated on an average of 12.5 percent, while that of import was 16.2. Specifically, a less than 0.7 percent was recorded for intra-ECOWAS exports within the 1999-2020 period, with imports also accounting for a less than 1.3 percent. The combined intra-regional exports and imports was less than 20 per cent in the period; a pointer to the fact that nearly over 80 percent of ECOWAS trade is carried out with other regions (IMF Trade Statistics, 2020).

While greater empirical focus has been directed toward artificial policy –induced as well as non-trade obstructions (see Oaikhenan & Udegbonam, 2008; Ozekhome, 2015), the nexus between trade facilitation and trade expansion has not been given prominence at the sub-regional level. In view of this, the current study attempts to bridge the lacuna in the literature, focusing on this issue. The current study would therefore be relevant in providing evidence-based policy recommendations anchored on efficient trade facilitation and creation of a supportive environment for economic integration. While there are deficiencies in trade facilitation, the clear justification for considering trade facilitation, especially given the region's reputation for high bureaucracy and customs procedures as reported by recent World Bank Doing Business Reports is that trade facilitation lies at the root of any policy responses, initiatives and strategies currently aimed at promoting inter or intra-trade. In this regard, the paper addresses issues of policy relevance to the sub-region in the light of the ongoing policy discussions to create the enabling environment to promote trade integration in the ECOWAS region.

Thus, understanding the trade facilitation- trade-expansion nexus is imperative and fundamental the formulation of appropriate policies and strategies towards expanding trade in the region through the harmonization and coordination of trade policies. Of specific importance, this study examines the trade facilitation-trade expansion nexus in the ECOWAS, decomposing trade facilitation into its relevant components and examining the individual impacts on trade expansion and the implications for regional economic integration, which, no previous study in the region, to the best of the researcher's knowledge has been carried out. This study employs panel data and system Generalized Method of Moments (GMM) estimation techniques to examine the nexus between trade facilitation and trade expansion in the ECOWAS for the period 2008-2022, based on data availability. The period has also seen increased policy discussions to enhance regional trade and integration in the ECOWAS. The choice for the system GMM estimator lies in ability to account for unobserved period and country specific effects, including endogeneity of regressors, measurement error and omitted variable bias, and in so doing, achieving highly precise, less biased, asymptotically efficient and consistent estimates of parameters (see Blundell & Bond, 1998).

The remaining section of this paper of this paper is organized as follows. The stylized facts are presented in section 2 and the review of the pertinent literature is presented in Section 3. Section 4 contains the methodology, empirical model, data and methods of estimation. The results and discussion are contained in Section 5, while the conclusion as well as the evidenced- founded policy recommendations is presented in Section 6

2. Stylized Facts

The ECOWAS sub-region, has, in the last decade, experienced considerable low trade performance and trade integration. For instance, in 2016, intra-regional economic community trade for ECOWAS was \$11.4 billion (UNCTAD, 2019). The average growth rate of trade declined by 7.5 percent during the period 2016-2019, while intra-regional exports and imports, fell to less than percent 15 percent during the period, due to poor trade facilitation reflected in prohibitive trade transaction costs, high number of days to process or execute trade (i.e. time to trade as regard days trade documents processing time), manifesting in time delays, and manifold number of documents required to trade. This is in sharp contrast to other sub-regions/ regions of world. Four evolutionary periods and development of trade facilitation exist in the literature i.e. 2006, 2008, 2010, and 2012. Statistics, for instance, show that the average number of documents to trade in the ECOWAS sub-region was 9 in 2006 and 2008, respectively, while the corresponding averages for 2010

and 2012, was 8 documents, respectively. These values were higher than that of the East Asia and Pacific region of 6 documents; 7 documents for Europe and Central Asia; 7 documents for Latin America and Caribbean, 4 for the OECD; as well as 7 for Middle East and North Africa.

Table 1 : Average Regional Comparison of Export Trade Facilitation Indicators

Year	2006			2008			2010			2012		
Region	DTE (No)	TTE (Day s)	CTE (Per Con-tainer USD (\$)	DTE (No)	TTE (Day s)	CTE (Per Con-tainer USD (\$)	DTE (No)	TTE (Day s)	CTE (Per Con-tainer USD (\$)	DTE (No)	TTE (Days)	CTE Per Con-tainer USD (\$)
East Asia & Pacific	6	22	865	6	20	821	6	20	804	6	19	839
Europe & Central Asia	6	21	1,254	6	20	1,398	6	19	1,431	5	18	1,610
Latin America & Caribbean	6	22	1,045	6	19	1,137	6	18	1,146	6	17	1,224
Middle East & North Africa	7	24	997	6	23	1,003	6	20	1,035	6	19	1,079
OECD-High Income	4	12	917	4	11	1,038	4	11	1,045	4	11	1,053
South-Asia	8	35	1,110	8	33	1,269	8	33	1,570	8	33	1,600
Sub-Saharan Africa	8	37	1,642	8	35	1,872	8	32	1,992	8	31	2,100
West Africa (ECOWAS)	8	30	1,290	8	29	1,455	7	27	1,484	7	26	1,488
World Average	7	26	1,225	6	24	1,336	6	23	1,390	6	22	1,484

Note: DTE = Documents to export, TTE= Time to export, CTE= Cost to export.

Source: Author's Compilation from the World Bank World Development Indicators (WDI)

Table 2: Average Regional Comparison of Import Trade Facilitation Indicators

Region	2006			2008			2010			2012		
	DTM (No)	TTM (Day s)	CTM (Per Con-tainer USD (\$)	DT M (No)	TTM Days)	CTM (Per Con-tainer USD (\$)	DT M (No)	TTM (Days)	CTM (Per Con-tainer USD (\$)	DTM (No)	TTM (Days)	CTM (Per Con-tainer USD (\$)
East Asia & Pacific	7	23	965	7	21	869	6	21	856	7	20	871
Europe & Central Asia	7	22	1,362	7	21	1,505	6	19	1,533	6	19	1,738
Latin America & Caribbean	7	26	1,393	7	21	1,448	7	19	1,498	7	18	1,599
Middle East & North Africa	9	30	1,151	8	26	1,184	8	23	1,205	8	23	1,235
OECD High Income	5	11	985	5	11	1,086	4	11	1,084	4	10	1,085
South Asia	10	39	1,332	9	33	1,424	9	33	1,718	9	34	1,730
Sub-Saharan Africa	10	46	2,001	9	41	2,303	9	38	2,569	9	39	2,719
West Africa (ECOWAS)	10	39	1,664	9	36	1,851	9	33	1,900	9	32	1,917
World Average	8	30	1,448	7	27	1,564	7	25	1,657	7	25	1,781

Note: DTM = Documents to Import, TTE= Time to Import, and CTM= Cost to Import.

Source: Author's Compilation from the World Bank World Development Indicators (WDI)

For time to trade (number of days), the corresponding average number of days for the ECOWAS sub-region in 2006, 2008, 2010 and 2012 were 35, 33, 30 and 29 days respectively (World Bank, 2015). These values exceeded that of the East Asia and Pacific, which had an average of 21 days in 2006 and 2008, and 19 days in 2010 and 2012, respectively. For Latin America and Caribbean, the average number of days to trade was 24 in 2006, 20 in 2008, 19 in 2010 and 18 in 2012 (see Tables 1 & 2 in the Appendix). In the Middle East and North Africa, it was 27 days in 2006, 25 days in 2008, 22 days in 2010 and 21 days in 2012; while the comparable average figures for the OECD High-income countries throughout the reference period was 11 days. A glean from these statistical facts clearly show that the ECOWAS sub-region was the worst performer among other comparable regions of the world (World Bank, 2015). The corresponding values in terms of cost to trade (export, for instance), for the ECOWAS sub-region was US\$1,290 in 2006, US\$1,455 in 2008, US\$1,484 in 2010 and US\$1,488 in 2012. Comparing this to other regions of the world, it was US\$865 in East Asia and Pacific in 2006, US\$821 in 2008, US\$804 in 2010 and US\$839 in 2012.

For Latin America and The Caribbean, the cost to export was US\$1,045 in 2006, US\$1,137 in 2008, US\$1,146 in 2010 and US\$1,224 in 2012. In the case of the Middle East and North Africa, the corresponding values were US\$997 in 2006; US\$1,003 in 2010; US\$1,035 in 2010; and US\$1,079 in 2012. For the OECD, the cost to export in 2006, 2008, 2010 and 2012 were US\$917, US\$1,038, US\$1,045 and US\$1,053, respectively (World Bank, 2015) (see Tables 1 & 2 in the Appendix). These exorbitant costs of international trade has made international trade burdensome in the ECOWAS sub-region, putting her at a disadvantaged position compared to other regions of the world. In fact, cost to export is and cost to import are both higher in the ECOWAS relative to other regions of the world. Furthermore, given the cumbersome custom procedures in terms of documents required to trade and time to trade, the sub- region remains has one of the most complex customs clearance procedures in the world. The combination of these factors explain the low volume of trade in the region (World Bank, 2015).

At the regional level, Sub-Saharan Africa (which includes ECOWAS), and Europe and Central Asia had the highest international trade transaction cost in the period 2006, 2008 and 2012. Document requirement apparently seems to be particularly burdensome by international standard, with an average of 8 different documents necessary to export. In terms of cost, exporting activities are unduly disadvantaged in Sub-Saharan Africa, where on the average 31 days are required to export one standard container, with a cost to export of USD 2,100. For East Asia, it is 19 days and USD 839, and 11 days and USD 1,053 for OECD countries (see Table 1). Although the sub-region's documents to export, time to export and cost to export figures are higher than the world average, including that of East Asia and Pacific, the OECD- countries, Europe and Central Asia, as well as Middle East & North Africa,, it is however lower than that of South Asia and Sub-Saharan African averages. The cost to export (per container) in the ECOWAS sub-region in 2006 was US\$1,290, and US\$1,455, US\$1,484, and US\$1,488 in 2008, 2010, and 2012, respectively, with US\$865, US\$821, US\$804 and US\$839 in the same periods for East Asia & Pacific. The respective period figures in same periods for the OECD- High income were US\$917, US\$1,038, US\$1,055 and US\$1,053. The corresponding average for the world for those periods were US\$1,225, US\$1,336, US\$1,390 and US\$1,484, respectively (see Tables 1 & 2).

As regard cost to import, Sub-Saharan Africa's average stood a US\$2,303, US\$2,569 and US\$2,719 in 2008, 2010 and 2012, respectively, while the corresponding average figures for the ECOWAS sub-region in the

same periods were US\$1,851, US\$1,900 and US\$1,917, against a world average of US\$1,569, US\$1,657 and 1,781 for the same periods (see Table 2). All other regions examined had figures lower than the world average, with the performance of East Asia & Pacific surpassing all other regions and the world average, with the lowest figures of US\$869, US\$856 and US\$871 for the reference periods, followed by OECD High income countries, the Middle East and North Africa, and Europe and Central Asia (see Table 2). A report by the Economic Development in Africa (2019) also show that on the average, applied tariff rate was 5.6 percent as regard intra-regional economic community members, compared to an average of 1.93 % in the four other regions. The report further had it that 35% of the most complex and problematic non-tariff measures applied by partner countries to manufacturing exports pertaining to rules of origin and related documentation are in 23 developing countries (13 of which are in Africa) (UNCTAD, 2019).

Based on these statistical evidences, it can be concluded that the ECOWAS sub-region performed poorly in terms of the trade facilitation indicators, and this invariably explains their unimpressive share in world trade performance and world trade growth (Ozekhome, 2019). As regard intra-ECOWAS trade trends, intra-regional exports oscillated between 9.5 percent and 15.3 percent within the period 2012-2022, while that of import was hovered within a range of 12.7 and 19.8. Similarly, on indicators reflecting economic integration, the share of ECOWAS imports hovered within 11.7-17.1 percent and 10.5-15.6 percent, and that of the share of exports stretching within 8.5–13.9 percent, and 5.3–11.6 percent (African Competitive Reports, 2023).

Recent developments in the ECOWAS region's trade landscape and trade initiatives have also been embarked upon. They include regional infrastructure development programme involving Lagos to Dakar, as well as the proposed Transport Facilitation Scheme from Lagos to Abidjan, both of which are expected to contribute to the reduction of transaction costs of the trade in a bid to enhance intra-regional trade (Ozekhome & Oaikhenan, 2020). Some reforms in the institutional and security architecture to enhance the safety of the trade and business environment are also ongoing such as the Joint Military Task Force of the ECOWAS. Nevertheless, some unique challenges unique faced by these countries are terrorism and violent extremism, porous borders, political instability, weak economic fundamentals (e.g output, inflation, exchange rates and unemployment), economic and structural imbalance among member countries, violation of trade protocols due to weak implementation and absence of legally-binding frameworks to enforce such trade agreements.

3. Literature Review

3.1. Conceptual Issues

Trade facilitation deals with the process and procedures that reduce trade costs, including border and beyond border issues in order to maximize the benefits of trade. It involves the simplification, harmonization standardization and modernization of trade procedures. Facilitation of trade encompasses border transparency by customs as well as beyond-border procedures, in addition to infrastructure, domestic regulations including institutions that promote trade and all other formalities required in the collection, presentation, communication and processing of data to facilitate international trade (Amoako-Tuffor et al., 2016). According to Maur (2008), facilitating trade involves the simplification of the trade interface between/ among trading partners. Interface involves compliance to government rules, rules enforcement by authorities (including taxes), information exchange, financing, insurance, legal services, ICT, including transport, measurement and handling as well as storage. Trade facilitation also addresses issues that pertain to customs, border and transit manage-

ment, in addition to trade-related services that are critical to the reduction of trade costs in the entire trading chain, cross-border barriers and in-country barriers to trade. It includes the provision of transport and communication services, competition and regulation, infrastructure (hard and soft), trade impediments, market entry, e.g mandatory or voluntary quality and safety standards (Ozekhome, 2019). Trade infrastructure (e.g ICT, port facilities, roads, railroads) are important to the expansion of trade at both country and regional levels as they make they trade process easier and reduce transaction costs of trade (Mbekeani, 2010; Kessides, 2012). While trade is a level variable, trade expansion is a change-induced variable. To this end, an expansion in trade entails growth trade capacity that leads to increased competitiveness and greater market prospects, as well as up-to-date products, which further increase trade.

Soft infrastructure involves the removal of non-tariff barriers that are associated with trade procedures, customs simplification and harmonization or joint realization of standards and other non-tariff processes. These activities are veritable tools that portray the credibility of economic reforms in the trade environment (Jouanjen et al., 2015). Transaction costs are costs associated with customs procedures, documents requirement, costs and time to process documents, amongst others. Trade facilitation encourages trade expansion by means of manifold channels involving the inputs costs reduction and capital machineries required for production, thereby enabling the competitiveness of goods and services in new markets as well as promotion of the exportation of new, improved and innovative products that eventually encourage diversification (Ozekhome, 2019). It also stimulates economies of scale and enhances efficiency, engenders greater international competition, and export diversification into new products and new markets, enables more efficient simplified, harmonized, modernized and transparent process of customs' clearance, and enabling the integration into international value chain. Through simplified and synchronized customs procedures and lower international trade transaction costs, there is market expansion in market access and the associated opportunities leading to greater diversification of products for export. Also, trade facilitation encourages dynamic regional value chain, stimulating the international delivery of goods and services. In so doing, new markets, and new products are offered , with better competitive edge and growth (Amoako-Tuffor, et al. 2016).

3.2. Theoretical Literature

The theoretical link between trade facilitation and the expansion of trade is rooted in the classical trade theses (i.e. Absolute advantage theory by Adam Smith and Comparative advantage theory by David Ricardo) as well as the genre of new trade theories- gravity theory of trade by Timbergen (1962), Heckscher-Ohlin's Factor Endowment theory as well as the Hymer-Kindleberger theory of monopolistic competition. The theoretical underpinnings trade under imperfect competition, notably, the intra-industry trade theory articulated by Helpman (1987), and Bergstrand (1989) and applied in empirical works e.g. Dell'Ariccia (1998) are also prominent in this regard. These theories argued that the removal of impediments and other distortionary forces to trade would lead to trade expansion, particularly, the orientation of trade towards exports, adumbrated in the export-led growth theory. Removing all obstructions and distortions to trade will, accordingly, engender efficient and optimal resource allocation. Trade obstacles, in the form of high trade transaction costs, weak infrastructure and institutions and complex trade procedures emanating from custom and other border agencies tend to discourage trade. Improved and efficient trade facilitation, will, therefore, encourage considerable trade expansion and greater regional integration (Lee, 1996; Portugal-Perez, & Wilson, 2008;

Hoekman & Nicita, 2011).

Regional trade expansion, integration and growth, that embody the establishment of a customs union, and common market, would not materialize without first simplifying trade to a considerable level, as poor trade policies, lack of policy synchronization and coordination have the capacity to undermine regional integration efforts (IMF, 2015,b). In lieu of this submission, Member States in a regional trade and economic co-operation need to harmonize their trade policies, with a view to removing trade distortions caused by unnecessarily high number of documents to trade, arbitrary delays in trade processing, in addition to unreasonable transaction cost of trade. The culminating objective of this is to ensure a greater level of efficiency in the allocation of resources within the community, engender greater trade and economic integration and regional economies of scale (Diakité et al., 2017). Trade-oriented policies and strategies will promote regional trade expansion, greater productivity and output, increased competition, greater employment, high inter-sectoral complementarities in economies of scale with positive spillovers and greater endogenous regional growth and employment (Ozekhome, 2019).

In theory, efficient and enhanced trade facilitation anchored on trade simplification, harmonization, coordination and modernization, including the efficiency of customs and other border control agencies, will, encourage greater degree of external trade and competition, more resource allocation efficiency and expansion of trade. Given economic openness, trade expansion is promoted as the simplification and harmonization of trade processes will eventually reduce complex trade formalities in terms of number of documents to trade, time to trade and cost to trade (Amoako-Tuffor et al., 2016). Greater trade orientation and trade facilitation would lead to increased welfare gains through optimal resource allocation, reduction of prices, exposure to foreign competition, transfer of goods and services, technology and knowledge spillovers and international market access (Cho & Diaz, 2011; Todaro & Smith, 2012). Greater significant differences in trade formalities in the form of trade competition, transaction costs, custom clearance procedures and institutions among countries in a sub-region would lead to lower regional trade and hence lower economic integration. Accordingly, substantial differences in trade procedures tend to foot-drag regional and economic integration. Thus, by facilitating trade, trade is not only enhanced, but also regional integration and growth is fostered.

The literature also stress the significance of complementarity in hard infrastructure (transport and communication), including information technology) and soft infrastructure (i.e custom clearance process and regulations) through customs harmonization, coordination and transparency in order to reduce trade costs, promote trade and regional economic integration (Hoekman, & Nicita; 2011; Melo & Tsikata, 2014; Jouanjen, et al, 2015, Ozekhome, 2021). Aside trade facilitation being a driver of trade, structural issues could also constitute a binding constraint. For instance, aside from commodities, ECOWAS can explore the exportation of labour to the rest of the world. *The Institutionalist Theory of State Intervention* emphasizes that government has a key role in the structural change process. According to Chang's theory, supported by welfare economics and neoliberalism, two key roles of the state that facilitate structural change are entrepreneurship and the establishment of new institutions. Trade expansion may remain a mirage without such structural transformation and the necessary institutional framework that facilitate change and achieve outcomes. Thus, a positive nexus exist between institutional quality and structural transformation (Ozekhome, 2020).

3.3. Empirical Literature

Recent empirical works have shown the importance of advanced and innovative ICT as an important varia-

ble influencing international trade costs and trade expansion. Using telecommunications development (number of mainlines) as indicator of infrastructural development Calderón and Servén (2010) find ICT an important determinant of trade and vertical integration. Other studies that found communication infrastructure a significant determinant of trade expansion and regional integration include Limao and Venables (2001); Mbekeani (2010) and Joanneau et al (2015). Studies such as Dollar and Kray (2004); Rodrik et al (2004); Kessides, (2012); and François, and Machin (2013) find empirical evidence that corroborates the significance of institutions and infrastructure-being trade facilitation variables for trade expansion. The authors find evidence that countries lagging behind in trade are associated with weak trade and transport-related infrastructure. The study by Coulibaly and Fontagné (2006), using panel dynamic panel data technique evaluate the elasticity of trade expansion with respect to endowment of infrastructure in seven countries of the WAEMU covering 1996-1998. By this, they are able to calculate the additional trade flows (i.e trade growth) generated through an improvement in such provision. The results show evidence that trade flows would increase by 3.2 times higher, given a 100% road connectivity in the region.

De (2004), using panel data, show that poor trade facilitation weakens the potential integration of African countries in terms of increased trade flows and this reduces the rate of economic growth. According to the author, the in-country barriers in terms of weak trade infrastructure constitute a higher impediment. Buys, Deichmann, and Wheeler, (2010) assess the effect of a pan-African project, involving road infrastructure development on intercity ways. Using GMM to estimate the parameters of the model, they simulate the impact of good road infrastructure network, including the monetary expenditure of the project to a workable level. The findings show that infrastructure engenders a supplementary US\$254 billion trade flows within a 15 year period, involving a US\$32 billion cost, taking cognizance of initial investment and maintenance costs.

The study by Nodas, Pinali & Geloso (2006) examine the relationship between time to import and export procedure, logistic services and trade in the OECD countries. The study specifically examine logistics, infrastructural constraints and time to trade as a barrier to trade. The evidence show that time delays result in low trade volume, and this reduces the propensity and intensity of firms that will enter the export market. Examining the overall impact of this on growth, the findings show that low volume of international trade result to slow economic growth. Hildegunn (2006), using evidence from a group of low-income countries find evidence of the negative effect of time delays on trade. Investigating the effect of time delays on trade flows transaction costs with respect to the six groups of countries in the African, Caribbean and Pacific regions discussing economic cooperation with the European Union (EU), Persson (2007) finds that that time delays and high trade costs reduces trade growth, and this consequently, affects economic growth negatively. Specifically, he estimates the time take for a ship to leave the harbour from a production plant to a desired destination and finally berth. The results show that time delays reduces trade volume and growth.

The study by Francois and Machin (2007) examine the relationship between institutions, infrastructure and trade in selected emerging market economies. Specifically, they use principal components to construct two-fold indicators on the quality of institution, as well as two indicators on infrastructure based on measures from the World Development Indicators (WDI). Their result show that institutions and trade infrastructure stimulates export, although the impact is not significant. In a related study, the link between trade facilitation

and international trade is assessed by Francois and Machin (2008). They incorporate infrastructure factors into a gravity model and maintain that variation in quality and size of infrastructure in different countries explain their dissimilar level of international competitiveness. They also find evidence that the enhancement of infrastructure through the indirect effect on transportation cost affects trade positively. Using a sample of European countries, their results validated the Dornbush-Fisher-Samuelson (DSF) Ricardian trade model, which shows that infrastructure has a positive effect on trade flows.

Bouët et al. (2008) assess the impact of several logistics and trade facilitation on trade, underlining the complementarity among various types. Their findings confirm that insufficient transport and communication infrastructure explain a large portion of Africa's low trade performance. Other studies that examine the link between trade facilitation and trade growth include; Martinez-Zarzoso and Marquez-Ramos (2008); who examine the growth impact of trade facilitation using a data set from a group of developing and developed economies, and Njinkeu, et al (2008), that employed examine reforms in trade, customs and regulatory environment, efficiency of ports as well as infrastructure on selected African countries' trade. In general, the results indicate that improved infrastructure service and port efficiency remain key drivers of intra-African trade. According to the authors, since trade is the principal channel through which trade facilitation affects growth, this will positively influence growth.

Using aggregate trade facilitation measures and infrastructure, and a mean estimation of the measures of 'Doing Business and World Development Indicators', Iwanow and Kirkpatrick (2008) estimate a dynamic gravity model that incorporate these indicators. Findings reveal positive link between these indicators and trade. Some other studies (see for instance, Francois & Machin, 2008; Marque-Ramos, 2011; Ramli and Ismail, 2014) investigate the effect of logistics-infrastructure on transaction cost of trade. The findings reveal that the quality of infrastructure is a significant contributory factor to trade costs, in developing countries. They further incorporate infrastructure factors into a gravity model and found that variation in quality and size of infrastructure in different countries explains their dissimilar level of international competitiveness. They also find evidence that enhancement of infrastructure through indirect influence on transportation cost influences trade. Accordingly, trade facilitation stimulates trade, while trade barriers reduce trade growth.

Abe and Wilson (2009, a), employing cross-sectional data, examine the impact of institutional policy-oriented trade facilitation indicators on output growth within the Asia Pacific Economic Cooperation (APEC) region. Specifically, they examine the relationship between governance and corruption variables and trade output. The findings show that the reduction of corruption and transparency improvement to observed comparable mean value, leads to expansion in trade by approximately 11 percent, while the overall welfare in terms of growth expands by US\$400 billion. In a related study, Abe and Wilson (2009, b) carried out a cost-benefit investigation due to a decrease in transport cost, arising from investment of port infrastructure in East Asia. They find that trade infrastructure investments leads to an US\$8million trade consumer surplus for a cost below US\$3million per year. Going further to evaluating the channels through which the link between trade facilitation and the benefits of trade can be maximized, Li and Wilson (2009) use evidence from firm-level data. The findings show that trade facilitation enables the maximization of trade benefits in the presence of trade infrastructure and institutions.

In a quantitative assessment on trade reforms encompassing improvement of the quality of transport and ICT infrastructure on trade, the Asia Development Bank (2009), using evidence from a group of South-East Asian countries, finds a significant effect of transport infrastructure on trade growth. Specifically, a 1 percent infrastructure development generates a 5 percent expansion in trade activities. The findings by Shepherd and Wilson (2008) show that development in port facilities in the Southeast Asia has the capacity to increase trade flows, on the average, by 7.5%, equaling US\$22 billion. Increased efficiency of ports triggers trade expansion. According to the findings, 50 percent of the 21% growth in intra -Asia-Pacific Economic Cooperation (APEC) trade, translating to US\$254 billion realized through trade facilitation reforms, are due to better port efficiency.

A study by UNECA (2013) investigates the transaction trade costs effect of Africa's trade base on document time and cost to export and import indicators. The findings demonstrate that increased cost of trade transaction represent significant hindrances to Africa's regional integration. Jouanjean, Gachassin & Velde (2015) find that trade facilitation helps in the reduction of trade costs in Africa, which in turn, expansion of trade. Substantial border reforms may lead to wide trade variation in the region (Jouanjean, et al, 2015; Ozekhome & Oaikhenan, 2019). Regional infrastructure, harmonization and coordination of custom clearance procedures and processes have the capacity to stimulate trade in the African -region (Sakyi, et al., 2017). Amoako-Tukkor et al (2016) assess the impact of trade facilitation using trade and transport related-infrastructure, such as ICT, ports, railroads and roads on economic transformation in Africa. The findings suggest that improved hard and soft infrastructure are trade drivers. Gani and Scrimgeour (2016) explore the impact of good governance and infrastructure on New Zealand's trade with Asia. They employ factor decomposition method and find that improved governance and infrastructure support greater trade relation. The policy implications of the paper include the provision of good governance and increased investment on infrastructure to enhance trade between the two trading partners.

The connection between logistics and trade, based on panel data methodology on ten selected ECOWAS countries for the period 2008-2017 is investigated by Ozekhome and Oaikhenan (2019) examine the Using panel data fixed effect model and the Hausman-Taylor estimation techniques, the empirical findings show a positive but weak impact of logistics on trade in the sub-region. The authors recommend increase logistics base, sound socio-political and macroeconomic environments, as well as the harmonization and coordination of trade policies to increase trade in the sub-region. In another instance, Ozekhome (2020) investigates the international trade costs impact on the flow of trade across the countries of the West African Monetary Zone (WAMZ). The empirical results from using panel data and the fully modified ordinary least squares and system Generalized Method of Moments estimation techniques demonstrate that international trade costs have a negative and significant impact on WAMZ'S trade flows. Based on the empirical findings, the author recommends efficient and result-oriented policy measures bring a substantial decrease in international trade costs with a view to expanding the sub-regions' trade

Safaeimanesh and Jenkins (2021) investigate the potential economic gain derivable as a result of trade facilitation, in term of enhanced regional trade integration by the coastal countries of the ECOWAS. They utilized

a welfare economics partial equilibrium framework that uses export arrays of supply and import demand elasticities for each country via a general equilibrium estimation approach. The findings show that excessive trade compliance costs (documentary compliance costs) results to yearly regional economic in the range of US\$1.6 billion - US\$2.7 billion (2019 prices). This value amounts to about 0.24% and 0.42% of the combined GDPs of the concerned countries. The welfare gain is estimated to be around 6-10% of the total government budgets allocated to education, and represents 33%-58% of their sectoral budgets to health. The evidence further revealed that in the absence of reform, the associated inefficiencies result to a waste of between 15% and 26% of the annual net development assistance to these countries. In a recent findings, the World bank (2022) estimates that trade reforms that simplifies trade processes and procedures by reducing documentary compliance time and transaction costs has the potential to stimulate regional trade and integration in Africa by over 50%, and even double within ten years, if the trade and economic opportunities inherent in the reform are fully exploited. Similar findings are made by the UNCTAD (2023) on the benefits of trade facilitation reforms on trade expansion.

3.4. Gap (s) in Literature

Established on the empirical review, it can be observed that there is dearth of specific studies on the trade facilitation- trade expansion nexus in the ECOWAS sub-region. The very few related studies that exist were either based on other regions/sub- regions of the world or on the African continent. Specific ECOWAS – based studies on the trade facilitation-trade growth nexus are important when viewed against the backdrop that considerable trade variations exist across due to asymmetries in trade facilitation, policy and environment, for which the current study is important in terms of empirical literature and policy discourse. Besides, while the focus of previous studies was on investigating the effect of a specific/particular trade facilitation variable on trade (e.g time to trade on trade), (see Nordas, et al., 2006; Lall et al., 2009), and international cost to export (see Ozekhome & Oaikhenan, 2020), this study uses a disaggregated approach to investigate the effects of the individual components of trade facilitation on trade expansion. Furthermore, to the best of the researcher's' knowledge, no previous study has included the efficiency of the clearance process by customs in the modeling of the nexus between trade facilitation and trade expansion. This soft infrastructure variable is particularly important considering the structural peculiarity of the region in terms of its reputation for high bureaucracy and customs procedures as reported by recent World Bank Doing Business reports. The recognition of the aforementioned, are clear motivation for this study in the light of literature and policy imperatives.

4. Methodology

4.1. Empirical Model

In view of the literature, the specification of the stylized trade facilitation- trade expansion model follows a migration model from the Pooled OLS to the static panel model and finally to the dynamic panel model in the form:

The pooled-OLS is captured in the form:

$$y_{it} = \alpha_{it} + \beta_{it} + x_{it} + e_{it} \quad \dots\dots\dots (1)$$

y_{it} represents the dependent variable x_{it} , while β_t and represent k -vectors non-constant regressors and param-

ters for $i = 1, 2, 3, \dots$, with N cross-sectional units representing countries..

In the case of the fixed-effect estimator α_{it} differs considerably across country units, through the estimation of different constants for individual country, implemented by means of the subtraction of the “within” mean from every one variable as well as its estimation using transformed data by means of OLS.

$$y_t - \bar{y}_t = \beta(x_t - \bar{x}_t) + (e_t - \bar{e}_t) \dots \dots \dots (2)$$

$$\bar{y}_t = \sum_{i=1}^T \frac{y_{it}}{T}; \bar{x}_t = \sum_{i=1}^T \frac{x_{it}}{T}; \bar{e}_t = \sum_{i=1}^T \frac{e_{it}}{T};$$

Where,

Finally, the dynamic model that captures the link between trade facilitation and trade expansion is captured in the functional form

$$TE_{i,t} = f(DTT_{it}, TTT_{it}, CTT_{it}, EFC_{it}, INFR_{it}, EXR_{it}) \quad (3)$$

where TE = Trade expansion (measured as the growth rate of total trade) (see Behars, et al., 2011)

DTT= Documents to trade (measured as required no of documents to execute international trade per unit of cargo)

TTT= Time to trade captured as no of days required to process trade documents in terms of custom and order border agencies)

CTT= Cost to trade –measured as cost (in USD) per container/consignment in trade transactions.

EFC= Customs’ efficiency clearance process including border control agencies (a measure of soft infrastructure) - is measured using an index score that ranges between 1 - low and 5 -high, such that high custom efficiency takes the value of 5, in accordance with World Bank standard measurement. The customs and other border control agencies efficiency clearance process denotes the swiftness, simplicity as well as expectedness of formalities by border control agencies, including customs. It also includes all reforms and regulations on customs clearance process and procedures.

INFR= Infrastructure -measured as information communication technology (ICT infrastructure) – (i.e number of telephone mainlines, mobile subscribers and internet penetration per 1000) (a measure of hard infrastructure).

EXR = Nominal exchange rate to the US Dollar

Considering the above, the empirically model is represented as:

$$TE_{i,t} = \alpha_0 + \alpha_1 TE_{i,t-1} + \alpha_2 DTT_{it} + \alpha_3 TTT_{it} + \alpha_4 CTT_{it} + \alpha_5 EFC_{it} + \alpha_6 INFR_{it} + \alpha_7 EXR_{it} + \varepsilon_{it} \quad (4)$$

where the previous definition of the variables still holds; i represent number of countries (i.e. 15)

$TE_{i,t-1}$ is the lag of the dependent variable, indicating the dynamic structure of the model.

A country specific fixed effect is assumed for the disturbance term as follows:

$$\varepsilon_{it} = e_i + \mu_{it} \dots\dots\dots(5)$$

Where ε_{it} represents error term. It entails e_i , which represents country-specific fixed effects that are time invariant, while, μ_{it} is assumed to be independent and normally distributed with mean zero (0) and constant variance σ_μ^2 both over time and across firms, that is, $\mu_{it} \approx n(0, \sigma_\mu^2)$. The model therefore indicates a dynamic panel approach with the System-Generalized Method of Moment (S-GMM) estimator.

Apriori, the presumptive signs are $\alpha_1, \alpha_2, \alpha_3 < 0$; $\alpha_4, \alpha_5, \alpha_7 > 0$.

$\alpha_1 - \alpha_7$ are the parameters to be estimated, and ε_t is the unobserved error term.

4.2. Rationale for the Included Variables in the Model

Several essential indicators of export facilitation are important to export expansion, in line with the recent literature on trade (Amoako-Tuffor et al., 2016, Ozekhome and Oaikhenan, 2019). Documents to trade, time to trade and cost to trade are three core indicators of trade facilitation in line with the current stance by the World Bank. The literature posits that the traditional openness variables in the context of trade obstacles considered in the literature may not actually drive trade in the presence of poor trade facilitation like exorbitant trade costs, time delays, complex document requirements and poor trade infrastructure. Measures to reduce the number of document requirements to trade, enhance speedy trade process and reduce trade costs, will thus enhance exports (Ozekhome & Oaikhenana, 2020). The inclusion of these variables is therefore justified on theoretical and empirical.

Efficiency of the customs' clearance process, as a soft infrastructure is a core factor in the modeling of export trade, that seamless border clearance process devoid of bureaucratic customs procedures will enhance trade. As a critical driver of trade in the region, better and less complex border clearance process will significantly encourage trade. Its inclusion is thus based on strong economic theory and evidence (see World Bank, 2017; Ozekhome & Oaikhenan, 2019). The exchange rate variable is an important determinant of trade since it facilitates international transactions and exchange through the conversion of currencies to a common denominator. Furthermore, a depreciation of the exchange rate is expected to boost exports through increased production for exportable commodities that have become cheaper in the international market, given an elastic demand for the exportable products, thereby engendering greater international competition (see Ozekhome & Oaikhenan, 2019).

4.3. Estimation Technique

The study estimates variants of panel estimators- pooled OLS, panel random effect, fixed effect as well as the dynamic system-GMM. The latter method considerably improves upon the shortcomings of the former. Although the OLS provides some econometric estimation evidence, it does not however address issues of individual country time-invariant effects. The pooled OLS is based on the assumption of constancy of the coefficients of the intercept and slope over the period and countries. Such assumption is naive, given that it is una-

ble to address peculiarities of the individual countries. The fixed effect model addresses this shortcoming since it account for time-invariant observations, as well as those that vary with time but common among countries. Although the fixed effect technique eliminates the problem of heterogeneity, it is however not capable of addressing issues of potential, omission bias and simultaneity, which may lead to loss of precision in the estimation results, necessitating the adoption of the System Generalized Method of Moments (System-GMM). This technique has the potential to attend to the triple-problem of regressors' endogeneity, measurement error, as well as omitted variables (Blundell & Bond, 1998). It also adequately accounts for unobserved period and country specific effects as well as cross-dissimilar effects across countries and simultaneity problem. The system GMM is chosen over other types of GMM estimators like the first difference GMM because it is more robust for missing data and addresses the issue of heteroscedasticity. The system GMM estimator is more dynamic version of the first-differenced GMM estimator that offers an effective mechanism of retaining critical aspect of the information embedded in levels equation, plausibly yielding extremely exact, more efficient and consistent estimates (Blundell & Bond, 1998)..

4.4. Data

Panel data covering the period 2008-2022 for all 15 ECOWAS countries is utilized. The source of the data is from the World Bank's World Development Indicators (WDI), the reason for the period of estimation is availability of data as well as characterizing a period of increased trade facilitation, policy responses and initiatives aimed at increasing trade in the region.

5. Empirical Results and Analysis

5.1. Descriptive Statistics

The summary statistics of the data on the variables are presented in Table 3 shows. Average trade expansion in the ECOWAS is 7.50 percent. Given a median value of 7.82 percent, trade appears to be dissimilar among the ECOWAS countries over the study period. Also, the observed wide difference between the maximum and minimum values is a reflection of the variation in trade growth in the sub-region, assuming a heterogeneous pattern across the ECOWAS countries over the period. The dispersion/variability in trade expansion is indicated by standard deviation value of 5.87. Similarly, the average values for indicators of trade facilitation - documents to trade (import and export), time to trade (import and export), cost to trade (export and import), the efficiency of clearance customs and other border control agencies, infrastructure and exchange rate are 9.20 documents, 31.50 days, US\$1,537.9, 2.52, 45.70, and 183.20, respectively. Apparently, documents required to trade, time (days) required to process trade documents and the cost to import and export a unit cargo (consignment) are on the high side; an indication of poor trade facilitation, in addition to the weak efficiency of custom clearance process and poor ICT infrastructure, which are the explanations for the poor trade performance in the sub-region.

Table 3: Descriptive Statistics

	Mean	Median	Max.	Min.	Std. Dev.
TE	7.50	7.82	23.40	-1.06	5.87
DTT	9.20	9.72	13.35	4.00	2.63
TTT	31.50	32.26	69.15	11.40	4.63
CTT	1,537.85	1,590.2	2,875.1	922.1	10.60
EFC	2.52	2.46	4.10	1.75	0.47
INFR	45.70	46.30	61.80	23.30	7.45
EXR	183.32	198.62	365.22	6.72	5.42

Source: Author’s computation

5.2. Correlation Analysis

To further examine the nature and degree of association among the variables, correlation matrix is used. The pairwise correlation matrix is presented in Table 4. Time to trade and cost to trade are negatively associated with trade expansion. Invariably, time delays and high transaction cost of trade tend to dampen trade expansion in the sub-region. The correlation between the efficiency of the clearance process by customs and other border control agencies with trade expansion is positive, an indication of a positive co-movement between them. Apparently, improved custom clearance and less cumbersome administrative border procedures tend to stimulate trade and regional integration, given simplified, harmonized, standardized and more transparent trade procedures. The result of the matrix of correlation coefficients suggests that the model may not have to grapple with the multi-collinearity problem, given the low correlation coefficient.

Table 4: Correlation Matrix

	TE	DTT	TTD	CTD	EFC	INFR	EXR	
TE	-							
DTT	0.13	-						
TTT	-0.11	0.28	-					
CTT	-0.17	0.15	0.13	-				
EFC	0.23	0.31	0.25	0.09	-			
INFR	0.07	0.24	0.19	0.17	0.27			
EXR	0.07	0.45	0.16	0.40	0.32	0.013	0.15	-

Source: Author’s computation

5.3. Main Results

Prior to estimation of the model using the dynamic GMM technique, the pooled OLS estimation and the static panel results, comprising the random and fixed effects strategy are presented. A choice is made between these results obtained using these two approaches based on relevant diagnostics statistics. On the basis of the evidence that the pooled OLS results not explicitly capable of accounting for the country-specific idiosyncrasies, the estimates are likely to be biased, unreliable and inconsistent since individual country's structural peculiarity, fixed and time varying effects could have pronounce effects on the outcome, given that country individualities are embedded in the error-term. Accordingly, the static panel result comprising the fixed and random effects result yields better estimates than the pooled OLS regression technique.

A choice is once again made between the random and the fixed effect results using the Hausman test and other relevant diagnostics, making the fixed effect result adjudged as the best method. The results in Table 5 corroborates this assertion, as the fixed effect results yield better parameter estimates than the both the pooled OLS and random effect. The dynamic system GMM on the other hand, adequately addresses the problem of endogeneity and reverse causality, and yields more efficient and consistent estimates ((Blundell & Bond, 1998). The results of the fixed effect and dynamic system- GMM results are therefore presented and analyzed, with emphasis and policy inferences drawn from the estimates of the system-GMM.

Table 5: Trade Expansion and its Explanatory Variables

Dependent Variable:	Trade Growth			
Variables	Pooled OLS	Panel Random Effect	Panel Fixed Effect	Two Step-System-GMM
Constant	0.163 (1.028)	0.063 (0.071)	2.040 (1.470)	
TE(-1)				0.410* (1.79)
DTT	-0.144 (-1.602)	-0.160* (-1.89)	-0.172** (-2.07)	-0.128** (-2.14)
TTT	-0.233* (-1.835)	-0.057* (-1.92)	-0.074 (-1.85)*	-0.169 (-2.21)**
CTT	-0.051* (-2.103)	-0.175** (-2.123)	-0.190** (-2.274)	-0.155** (-2.41)
EFC	0.016 (1.01)	0.187 (1.19)	0.082 (1.34)	0.136* (1.85)
INFR	0.015 (0.85)	0.021 (0.873)	0.022 (0.96)	0.043 (1.38)
EXR	-0.060 (1.262)	0.048 (1.42)	0.051 (0.73)	0.071* (1.05)
Adjusted R ²	0.180	0.78	0.903	
Durbin-Watson	0.873	1.54	1.624	
F-statistics	2.16**	27.3(0.000)	30.06 (0.000)	
Hausman Test			12.20(0.02)	
Post-Diagnostics: Mean VIF			7.28	
Breusch-Pagan LM Test			4.25 (0.58)	
Instrument Count				10
Hansen-J Stat				3.16 (0.782)
Sargan Test				2.94 (0.712)
AR(1)				-2.86(0.004)***
AR(2)				-0.605 (0.54)

Note: *** Significant at 1% level; ** Significance at 5 % level; * significance at 10% level

Robust t-statistics in parenthesis; Relevant diagnostics tests used to choose between Pooled OLS & Fixed Effect Models.

Source: Author's computation

The fixed effect result show that the adjusted R² value is 0.90, indicating that 90 percent of the systematic changes associated with trade expansion in the ECOWAS region are explained by the regressors. The explanatory variables are therefore pertinent factors that explain trade expansion in the sub-region. The model therefore, has a good predictive power and accuracy. Given an F-statistic that is 30.1 with a corresponding p-value that stands at 0.000); indicating significance at the 1% level; the model's reliability is not in doubt, in addition to the confirmation that a significant linear relationship does exist between trade expansion and the regressors. Trade expansion variable lagged one period (a measure of trade expansion in the previous period)

is positively related to trade expansion and significant at the 10 percent level for system-GMM. This suggests that past trade realisation has a moderate impact on current trade, justifying the dynamic nature of the model. Accordingly, given trade-facilitating structures (i.e leaning on previous trade simplification, harmonization and coordination successes), future trade can be enhanced. For the dynamic- GMM, a 1 percent increase in past trade expansion is associated with further expansion in trade by 0.41.

Documents to trade exhibit a negative and significant impact in with presumptive expectation at the 5 percent level for the panel the fixed panel effect system-GMM, and that of time to trade and cost to trade achieving statistical significance at the 5 percent level for the system-GMM. This implies that the higher the number of documents required trade, time to trade and cost to trade as regard the import and export of a unit consignment, the potential for trade expansion tend to diminish. This could be explained by the weak trade infrastructure (hard and soft), poor trade facilitation and other trade processes in the sub-region that has made the region experience low volume of trade, and even lagging behind in terms of trade expansion. The results supports the findings of Hildegunn (2006), Nordas et al. (2006), Njinkeu et al (2008) Li and Wilson (2009) and UNECA (2013) and Amoako-Tuffor et al (2016) and Ozekhome (2020) that time delays due to high number of days required to trade, complex documents to trade and high international cost to trade tend to diminish trade. A 1 percent rise in the number of documents to trade, time to trade (i.e time delays) and cost to trade dampens trade growth in the sub-region by 0.13 percent, 0.17 percent and 0.16 percent, respectively.

Efficiency of the clearance process by border control agencies, including customs is expectedly positive in line with apriori expectation and passes the significance test only at the 10 percent level for the system-GMM. Since the t-ratio exceeds unity, it can be inferred that improved custom clearance procedures and other border control agencies facilitates trade but the effect is not robust, ostensibly arising from the low level of improvement and reforms in the custom clearance processes and procedures that is characterized by bureaucratic tendencies. This finding is consistent with the results of findings of Amoako-Tuffor et al (2016) and Ozekhome and Oaikhenan (2019). Greater commitment in this direction has been made with the recent launch of the customs harmonization and coordination strategy, in addition to the ECOWAS Trade Liberalization Scheme (ETLS) and other trade protocols targeted to enhance trade in the sub-region The coefficient indicates that a 1 percent improvement in the custom clearance process will trigger trade expansion in the sub-region by 0.14 percent.

ICT infrastructure is positively related to trade expansion but fails the significance test. Invariably, ICT infrastructure is a critical trade-enhancing variable, but the effect is weak in the sub-region because of infrastructural bottlenecks and low level of technology and innovation. This finding confirms the earlier findings of Francois and Machin (2007), Mbekeani (2010), Kessides (2012) and Jouanjean et al. (2015). Infrastructure variable (measured by ICT) is considered by foreign enterprises as an important prerequisite for trade (Caladeron & Serven, 2010). Addison and Heshmati (2003, cited in Ayanwu, 2015) provide evidence that ICT infrastructure is a critical variable required for the integration of domestic producers into international technological and communication network, and in attracting international trade and investment and vertical integration. Improved infrastructure is thus, a critical for enhancing foreign trade. A 1 percent improvement in ICT infrastructure will encourage trade expansion in the sub-region by 1.04 percent.

Although the nominal exchange rate variable exhibits a positive direction, aligning with international trade theory, it does not yield robustly statistically significant results but only at the 10 percent level for the GMM estimates. Thus, currency depreciation or devaluation has a modest impact on ECOWAS trade. This observation stems from the predominant focus of African economies on the production and export of a limited range of primary products that are largely undiversified and suffer from secular deterioration in terms of trade, in addition to a weak elasticity of demand. These products have synthetic substitutes, rendering them volatile in the international market. Furthermore, the composition of ECOWAS output and trade is highly susceptible to exogenously generated and transmitted shocks that mirror global developments and uncertainties. The combination of these factors collectively diminish the anticipated economic benefits associated with the depreciation or devaluation of the currency as enshrined in international trade theory, particularly in terms of fostering increased domestic production and exports (Ozekhome, 2023). Also depreciation could increase production costs, given excessive reliance on the importation of intermediate products. The findings of Balami, Ahmed and Tukur (2016), and Wondemu and Potts (2016) support the efficacy of an appropriate exchange rate policy to engender economic diversification.

The post-diagnostic robustness and validity test of results show a D-W statistic of 1.62 for the fixed effect model, a confirmation that problem of autocorrelation is mild and not severe enough to undermine the reliability of the parameter estimates. This position is supported Bryman and Cramer (2005) that the Durbin-Watson is not a fundamental issue in ascertaining overall level of significance and reliability of results in static panel data estimation, as in this case, when undertaking analysis in time series studies. Accordingly, the failure to reject the assumption of absence of serial cross-sectional dependence as well as contemporaneous correlations, with a Breusch-Pagan LM statistic of 4.25, and a probability of 0.05 is validated and sustained. With a mean variance inflation factor (VIF) of 1.28, it is certain that there is no multi-collinearity in the model results. Both the Hansen –J and Sargan tests of over-identifying restrictions verify the validity of the instruments utilized in the estimation. The model specification can therefore not be disallowed as it is well-specified with appropriate and valid instruments, a confirmation of the consistency of the system-GMM estimator. The results therefore provide good certification for the choice of the choice of the exogeneity of the levels and difference instruments as required for the system-GMM. As a furtherer diagnostic test, the study checks the applicability of the Hansen J-statistic and Sargan tests, in line with Arellano and Bond (1991), that moment conditions of a system-GMM can only be valid if there is no evidence of serial correlation amongst the idiosyncratic errors of the model. The post-estimation evidence using the Arellano-Bond serial correlation, as evidenced in the table leads to the rejection of the null hypothesis of no serial correlation at order one in the first –differenced errors, but a failure to reject same at order two {with $AR(1) = -2.86 (0.004) ***$ and $AR(2) = -0.605 (0.54)$ }. There is thus, no evidence to invalidate the model, considering that according to Arellano and Bond (1991), the GMM estimates are robust in the presence of first-order serial correlation but not in the second-order serial correlation in the error terms. The, estimated model is thus robust for structural and policy analysis.

5.4. Policy Implications of Findings

Important policy implications emanate from the findings. First, enhanced and efficient trade facilitation is important to trade expansion in the sub-region. The excessively high number of documents to trade, time to

trade and prohibitive trade transaction costs account for the low trade in the sub-region. To this end, better trade facilitation that simplifies the trade processes and procedures to less documentation, reduction of time delays as well as lower trade transaction costs and other trade formalities are critical to driving trade in the region. In view of the above, ECOWAS countries should develop strong capacities trade and transport infrastructure such as roads, ports, ICT, railroads, which constitute hard infrastructure) to significantly bring trade costs to a lower level that will encourage trade and integration in the region. Some measures and policy initiatives and responses embarked upon to facilitate trade and regional integration in this regard are the Common External Tariff (CET), as well as the ECOWAS Trade Liberalization Scheme (ETLS), hinged on customs unification process to address border post surveillance, inspection duplication, corruption and other trade deterrents in the sub-regional.

Secondly, improved custom clearance and other border agencies procedures (i.e soft infrastructure) is imperative to trade expansion in the sub-region. The poor trade facilitation prevalent in the sub-region especially given the region's reputation for high bureaucracy and cumbersome customs procedures as reported by recent World Bank Doing Business reports have contribute to the regions unimpressive trade performance. In this respect, policy coordination and harmonization pertaining to trade policies via the simplification, transparency, standardization and modernization of custom clearance and other border control agencies are imperative. Above all, the regulatory and institutional environment needs to be harmonized to enhance trade integration in the sub-region.

Thirdly, although ICT is an important trade facilitation device as it encourages trade expansion, the impact is not robust, arising from the poor infrastructure development and deficiencies in technology in the region. For instance, electronic connectivity that reduces cost of doing business is imperative to driving trade expansion in the sub-region. Given the weak connectivity in the sub-region, there is need for increased investment in trade infrastructure, as ICT and other trade-enhancing infrastructure are relevant for economic integration in the sub-region. The bold steps by Benin and Nigeria customs to coordinate border management operations in order to facilitate trade through the adoption of single goods declaration procedure is commendable in this direction. With this new system, import declarations on goods transiting from both partner countries is electronically shared through modern tools for inter-border clearance of goods to deal with corrupt tendencies and other artificially- imposed border complexities. The deployment of non-intrusive equipment such as scanners as well as electronic connectivity to facilitate a reduction in cost of doing business, while boosting security against trans-border crimes and insurgencies, have also been important. In Nigeria for instance, as part of terminal upgrade and expansion project initiative, sufficient cargo handling equipment at terminal to improve the efficiency of the port as well as modern and efficient scanning machines have been acquired to complete existing efforts. The move is to enhance trade and sub-regional economic integration.

Finally, a sound exchange rate that promotes greater competitiveness in international trade is imperative. Critical to achieving this, is the development of effective trade and production-enhancing capacities that will enhance the competitiveness of ECOWAS member countries' currencies, vis-a vis other world currencies. The exchange rate is a potential key macroeconomic driver of economic diversification, given that a competitive and stable exchange rate or an appropriate exchange rate is analogous to output and trade diversification. The articulation of result-oriented exchange rate macroeconomic policies that will fast-track the

proposed single currency drive for the sub-region's monetary and economic integration is imperative in this regard.

6. Conclusion

This study investigated the impact of trade facilitation measures on trade expansions within ECOWAS, and the implications for regional trade and economic integration, using data on all 15 ECOWAS member countries and the system Generalized Method of Moments (GMM) econometric technique for analysis during the period 2008-2022, based on data availability. The empirical results show that complex documents to trade, time delays and prohibitive trade transactions cost (import and export) act as barriers to trade expansion; thus diminishing the potential for trade expansion in the region. The efficiency of customs' clearance, including border control agencies is identified as a critical driver of trade in the region, and infrastructure (measured by ICT) variable is positively related to trade expansion, though not statistically significant, aligns with expectations, emphasizing the importance of infrastructure for trade growth. The evidence suggests that a higher level of trade facilitation corresponds to a larger extent of trade flows in ECOWAS. These results carry significant implications for policy initiatives aimed at reducing trade costs to foster intra-ECOWAS trade and promote economic integration within the region.

Overall, substantial contribution is provided by this paper by means of elucidating how institutional trade barriers hinder trade expansion in the ECOWAS region. This underscores the importance of reducing trade costs across borders through effective trade facilitation and advocating for targeted interventions to overcome barriers that impede regional trade. The emphasis on promoting the harmonization of trade policies aligns with the broader goal of facilitating trade expansion and economic integration within ECOWAS, offering valuable insights for policymakers and stakeholders committed to creating a more seamless and efficient intra-ECOWAS trade environment. Trade and economic integration in the region can only be achieved under a simplified, coordinated, harmonized, modernized and reformed policy environment, rather than differential and multiplicity of trade processes and procedures that make trade difficult. The European Union (EU) provides ample evidence of regional trade economic integration fostered by trade expansion through the simplification, coordination and harmonization of trade processes and procedures, supported by strong political will and commitment, and legal and institutional mechanisms. The ECOWAS sub-region can sufficiently achieve trade and economic integration through proper articulation and implementation of favourable trade policies geared towards achieving such.

Against the backdrop of the importance of increased trade to regional integration and growth, efforts should be made by government and policy makers in the ECOWAS sub-region to simplify, harmonized and modernize trade processes and procedures. This will require a number of policy responses and initiatives, as well as appropriate and supporting institutional framework. The initiatives, responses and strategies also encompass greater level of transparency and trade reforms. Without doubt, economic integration in the ECOWAS sub-region cannot be achieved without improved trade facilitation that will significantly simplify and reduce trade costs. The sub-region therefore needs to do more in providing a friendly trade environment that will significantly launch her into the global trade architecture. In this wise, massive investment in hard infrastructure, particularly ICT, port facilities, roads, rail, as well as soft infrastructure (i.e border clearance processes, including customs) is imperative. Such initiative can be realized through the simplification, harmonization,

transparency and modernization of trade processes, alongside a competitive and stable exchange rate will promote international competitiveness, scale economies, efficiency, greater regional integration, economic growth, employment generation and poverty reduction in the ECOWAS sub-region.

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