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TRADE LIBERALIZATION AND POVERTY IN WEST AFRICAN COUNTRIES: FEASIBLE GENERALIZED LEAST SQUARE METHOD ANALYSIS

ABSTRACT

The study investigates the effect of trade liberalisation on poverty reduction in West African countries, with particular reference to ECOWAS member states, in order to determine whether increased openness enhances welfare and reduces poverty across the region. Using annual panel data for 15 countries spanning 1990–2023, the study employs the Feasible Generalized Least Squares (FGLS) estimation technique to account for cross-sectional dependence, heteroskedasticity, and serial correlation. Descriptive statistics, correlation analysis, and diagnostic tests such as the Variance Inflation Factor (VIF) and Pesaran tests confirmed the reliability and stationarity of the data. Empirical results reveal that trade liberalisation exerts a significant negative effect on poverty, implying that greater trade openness reduces poverty levels across West Africa. Exchange rate stability and institutional quality were also found to have strong negative relationships with poverty, while inflation exhibited a positive effect, indicating its adverse impact on welfare. The findings support the Solow growth model, which links openness to economic expansion and poverty reduction through productivity gains and technological diffusion. The study concludes that while trade liberalisation contributes to poverty alleviation, its benefits remain uneven due to weak institutions and infrastructural constraints. It recommends that West African governments pursue inclusive trade policies supported by sound macroeconomic management, institutional reforms, and targeted investments in human capital and rural development to ensure that the gains from liberalisation translate into broad-based poverty reduction.

Introduction

Poverty remains a pervasive challenge in West African countries, with recent trends indicating both persistent and, in some cases, worsening conditions. According to the World Bank (2023), over 40% of the population in West Africa lives below the international poverty line of $2.15 per day, with countries like Nigeria, Burkina Faso, and Niger recording some of the highest poverty rates. Nigeria alone, despite being Africa's largest economy, hosts over

70 million people living in poverty, accounting for more than 30% of the sub-region's poor. The COVID-19 pandemic, combined with climate-related shocks, conflict, and inflationary pressures, has exacerbated income inequality and pushed millions into poverty across the region. While countries such as Ghana and Senegal have made modest gains in reducing poverty through social safety net programs and economic reforms, overall progress remains uneven, underscoring the need for more inclusive, sustainable, and regionally coordinated poverty alleviation strategies (Maluleke., & Vacu-Ngqila,2024)

Trade liberalisation in West African countries has emerged as a key strategy for promoting regional integration, economic diversification, and sustainable development. Anchored by initiatives such as the ECOWAS Trade Liberalization Scheme and the African Continental Free Trade Area (AfCFTA), the region has undertaken significant steps to reduce tariffs, dismantle non-tariff barriers, and facilitate the free movement of goods, services, and people (Putri,2018). These efforts aim to strengthen intra-regional trade, enhance industrial competitiveness, and attract foreign direct investment. Nevertheless, the impact of trade liberalisation has been constrained by infrastructural deficits, uneven policy implementation, limited productive capacity, and persistent regulatory bottlenecks. Despite these challenges, trade liberalisation remains a vital pathway toward achieving deeper economic integration and inclusive growth across West Africa (Gnangnon, 2019)

Trade flows in West African countries are characterized by a mix of intra-regional and international trade, with most nations relying heavily on the export of primary commodities such as crude oil, gold, cocoa, and cotton. Despite the existence of regional frameworks like the ECOWAS Trade Liberalization Scheme), intra-regional trade remains relatively low accounting for only about 10–15% of total trade in the region, compared to over 60% in the European Union and around 40% in North America. According to UNCTAD (2023), Nigeria, Côte d'Ivoire, and Ghana dominate exports in West Africa, with Nigeria alone accounting for nearly 70% of the region's total exports, largely due to its oil sector. Imports, on the other hand, include machinery, vehicles, pharmaceuticals, and food products, primarily from China, the European Union, and the United States. While efforts to boost trade integration through infrastructure development and tariff harmonization are ongoing, challenges such as poor transport networks, non-tariff barriers, and security concerns continue to hinder seamless trade flows across the sub-region (Ogundipe, 2023).

The relationship between poverty and trade liberalisation in West African countries has been the subject of considerable empirical investigation, with findings revealing a complex and often uneven impact. Trade liberalisation, driven by frameworks such as the ECOWAS Trade Liberalization Scheme and the African Continental Free Trade Area, is intended to stimulate economic growth, increase employment opportunities, and facilitate access to goods and services. However, research

shows that the benefits of these reforms have not been equitably distributed. While certain sectors particularly in urban and export-oriented economies have experienced notable gains, many rural and low-income populations remain excluded from the formal trade system due to persistent structural barriers, including inadequate infrastructure, limited access to credit, low productivity, and poor market integration (UNECA, 2022; World Bank, 2023). As a result, trade liberalisation has had limited success in significantly reducing poverty across the region. Empirical studies suggest that for trade liberalisation to contribute meaningfully to poverty alleviation, it must be accompanied by inclusive policy measures, targeted investments in human capital and rural development, and deliberate efforts to integrate marginalised groups into the broader economic framework (Menon & Melendez,2021).

In the light of foregoing, a vacuum exists in determining the effect of trade liberalization on poverty but abound in the body of literature between trade liberalization and economic growth. In other words, the link between trade liberalization and poverty remains under explored in the body of literature. The paper will be beneficial to policy makers, researchers, academia and governments of West African countries. The paper follows accordingly where section one covers introduction, section two is built on literature review, section three is premised on Model specification, and other sections follow ranging from methodology, Conclusion and recommendations

Literature Review

Although considerable scholarly attention has been given to the relationship between trade liberalisation and economic growth, there remains a limited body of empirical literature that directly addresses the link between trade liberalisation and poverty reduction, particularly within the West African context. Most existing studies have primarily focused on the pro-growth effects of trade liberalisation, often positing that its impact on poverty operates through indirect channels such as increased investment, employment opportunities, income generation, and enhanced access to goods and services. While these transmission mechanisms suggest potential benefits for poverty alleviation, the extent to which economic gains from liberalised trade policies translate into meaningful improvements in the welfare of the poor is still inadequately explored. This gap in the literature underscores the need for more nuanced and context-specific research that critically examines the direct and indirect effects of trade liberalisation on poverty outcomes in West Africa

Putri (2018) examined the impact of trade liberalization on poverty reduction in Indonesia, aiming to assess whether increased trade openness contributes to poverty alleviation. The study employed the Ordinary Least Squares (OLS) method using annual time series data from 1984 to 2017. Trade liberalization was measured using the Trade Openness Ratio(TOR), while GDP, exchange rate, and

labor force were included as control variables. The empirical findings revealed that TOR and labor force positively influenced poverty, while GDP and exchange rate had a negative impact on poverty. This contrasts with earlier studies that typically found trade liberalization to reduce poverty. The unexpected result is attributed to Indonesian firms' lack of competitiveness in international markets. The study recommends strengthening the capacity and global competitiveness of local industries to ensure trade liberalization leads to poverty reduction

Le, Singh, and Nguyen (2015) conducted an in-depth empirical analysis of the relationship between trade liberalisation, economic growth, and poverty reduction in Vietnam, using Alan Winters' analytical framework. The study focused on the period following the implementation of the Doi Moi reforms in the mid-1980s, which marked Vietnam's transition from a centrally planned to a market-oriented economy. Drawing on micro-level (household) data, the authors examined the impact of trade reforms through four distinct channels, as proposed by Winters, providing a detailed understanding of how trade liberalisation influences poverty outcomes. The findings suggest that trade liberalisation has played a significant role in reducing poverty in Vietnam, despite persistent challenges such as inequality and inflation. The study offers valuable policy insights not only for Vietnam but also for other developing countries undertaking similar economic reforms.

Gnangnon (2019) investigated the effect of multilateral trade liberalisation on export product diversification using 20 years of panel data. The study finds a positive relationship, especially stronger in less-developed countries. It concludes that trade liberalisation supports diversification, while rising trade tensions may harm the poorest economies. The paper recommends continued global cooperation to protect and enhance export opportunities for developing nations.

Sun and Chang (2020) critically examined the link between international trade and poverty in developing countries through an extensive literature review. Challenging the assumptions of the Heckscher-Ohlin-Samuelson theorem, they found that trade often leads to unequal outcomes, benefiting some groups while marginalizing others. The study identified eight key mechanisms through which trade can exacerbate inequality, such as unequal market access and employment impacts. The authors emphasized the need for context-specific, country-level empirical research to better understand how trade affects poverty, advocating for more nuanced and evidence-based policy approaches

Menon and Melendez (2021) explored the relationship between trade, poverty reduction, and the effectiveness of the Aid-for-Trade (AfT) initiative. Using a synthesis of empirical literature, cross-country analyses, and case studies, the chapter assesses how trade and trade-related assistance influence poverty outcomes in developing countries. The findings reveal that while trade can reduce poverty, its impact depends on supportive policies such as infrastructure investment, education, and

institutional reforms. Aid-for-Trade has the potential to be effective, but its success varies by region and hinges on proper targeting and implementation. The authors recommend aligning AfT with national development strategies and promoting inclusive trade policies to ensure the poor benefit from trade opportunities

Ul-Haq, Wajid, Visas, Cheema, and Abbas (2022) examined the impact of the 1988 trade liberalization reforms on poverty in Pakistan using micro-level panel data from 1990 to 2005. Employing the Feasible Generalized Least Squares (FGLS) method, they found that reductions in import tariffs significantly increased poverty, as measured by the headcount ratio, poverty gap, and squared poverty gap. The study also highlighted that the delayed effects of trade policies further contributed to poverty. The authors attributed this to the poor's limited participation in external markets and recommended inclusive trade policies that enhance the involvement of the poor in international trade to ensure equitable benefits from liberalization

Ogundipe (2023) investigated the impact of trade liberalization on poverty reduction in Nigeria between 1981 and 2018. The study employs several statistical techniques, including unit root tests, co-integration, and descriptive statistics, and applies the Auto-Regressive Distributed Lag (ARDL) model to analyze both short-run and long-run relationships. Findings reveal that trade liberalization significantly influences poverty reduction in both time horizons, though its effectiveness depends on factors such as macroeconomic policy, market structure, institutional quality, and political stability. The study concludes that trade can benefit the poor in the long run if supported by sound domestic policies. It recommends a balanced trade liberalization strategy restrictive enough to protect local industries, yet open to the importation of technology to boost industrial development and reduce poverty

Maluleke and Vacu-Ngqila (2024) conducted a study to examine the impact of trade openness on the poverty rate in South Africa. The objective of the study was to analyze whether increased trade openness, measured through total trade and exports as a percentage of GDP, contributes to poverty reduction, using both income-based and consumption-based measures of poverty. The authors employed the Autoregressive Distributed Lag (ARDL) bounds testing approach and utilized annual data spanning from 1990 to 2021. Four models were estimated: two income-based and two consumption-based, each using different proxies for trade openness

Zahonogo (2025) investigates the multifaceted effects of trade liberalization on key socio-economic challenges in Sub-Saharan Africa, aligning the analysis with Sustainable Development Goals (SDGs) related to unemployment, food security, and energy poverty. The thesis adopts a three-essay empirical approach. The first study assesses the relationship between trade liberalization and unemployment, finding that liberalization reduces unemployment levels in the region. The second

essay examines how openness to cereal imports affects food security, revealing that increased cereal imports are linked to higher food insecurity. The third essay explores the impact of tariff reductions on energy poverty, showing that lower tariffs improve access to clean fuels and contribute to alleviating energy poverty. Based on these findings, the study recommends context-specific trade policies that support employment generation and energy access, while cautioning against unregulated food import policies that may compromise local food security

Theoretical Framework

Existing theoretical frameworks have yet to fully capture the consistent effects of trade, economic growth, and poverty. Nonetheless, growth remains a critical channel that links trade liberalization with poverty reduction. Specifically, trade openness promotes economic expansion, which in turn contributes to lowering poverty levels.The Solow growth model offers a framework for explaining long-run economic growth by highlighting the importance of capital accumulation, labor, and technological advancement. It emphasizes that sustained growth is achievable primarily through improvements in productivity and innovation, rather than through inputs alone. In this context, trade liberalization plays a critical role, as it exposes economies to global markets and facilitates the diffusion of technology, knowledge, and investment capital. By reducing trade restrictions, countries can more easily adopt advanced technologies, modern production methods, and managerial practices from developed economies. This accelerates the productivity improvements central to the Solow model, thereby strengthening long-term growth prospects.

The connection between trade liberalization and poverty reduction can be understood through the growth channel identified in the Solow model. As productivity rises and economies expand, incomes generally increase, employment opportunities broaden, and living standards improve, all of which can help alleviate poverty. Yet, the extent of poverty reduction depends heavily on the distribution of the gains from trade. While the Solow model predicts aggregate growth through technological diffusion and capital deepening, trade openness may benefit specific groups or sectors more than others, potentially leading to inequality. Thus, the relationship among the Solow growth model, trade liberalization, and poverty reduction highlights that while openness can stimulate growth and reduce poverty, complementary policies such as education, skills training, and targeted social protection are necessary to ensure that the benefits are inclusive and reach the most vulnerable

In line with this, the study employs the Solow growth model, as applied by Salimi et al. (2014), to examine the impact of trade openness on growth. The model is represented through the Cobb-Douglass production function as shown below:

$$Y_{it} = f(K_{it}, A_{it}L_{it}) \ with \ A_{it} = A_0 \, e^{gt} \tag{1}$$

where Y_{it} is economic growth, K_{it} represents capital stock, L_t stands for labour stock and A_{it} captures the technological factor. Also, i and t imply country i at time t, while g is a set of variables that affects the technological progress level. Using the logarithmic form gives us the following model:

Where Y_i is economic growth, K_{it} represents Capital Stock, Lt stands for Labour Stock and At captures the technological factor. Also g and a represent set of variables that affects the technological progress level.

$$InY_{it} = \text{In}A_{it} + \text{In}K_{it} + InL_{it} = \mu_{it} \tag{2}$$

Endogenous growth theory has provided a framework for the analysis of the relationship between trade liberalisation and increase in economic growth. Removal of barriers to trade are required to promote technology transfers foreign investment and aid which boosts growth. In the submission of Rouner (1992), Barro & Salad-Martin (1995), Baldwin and Forslid (2000). The countries that are more liberalised have greater capacity to attract higher technologies.

In this study, we suppose that K_t represents trade openness and L_t represents employment rate (number of workers). Technological progress is composed of institutional quality. Replacing K_t, L_t. A_t give the following model.

$$lnY_{it} = lnTO_{it} + lnIQ_{it} + lnER_{it} + lnPOP_{it} + \mu_{it} \tag{3}$$

Where Y_{it} is the economic Growth, TO_{it} represents Trade openness, IQ_{it} is the institutional quality, ER_{it} is the exchange rate and **POP** represents population.

Model specification

The study is anchored on the assumption of accomplishing growth before achieving poverty reduction by liberalising trade. By extending the theoretical framework, this section details the construction and adapting the empirical model above to attain and achieve the stated objectives of the study. The baseline model for this study is based on the theoretical framework to investigate the effect of trade liberalisation on poverty with feasible Generalised Method Analysis is specified in natural logarithms:

$$lnPO_{it} = \beta_0 + \beta_1 lnTR_{it} + \beta_2 Z_{it} + \varepsilon_{it} \tag{4}$$

Where t indicate time series in years. PO is the dependent variable (Poverty). TR is the measure of trade liberalisation employed and used interchangeably with trade openness, represents a vector of control variables and ε_{it} is an idiosyncratic error term, β_1 and β_2 are the coefficients that are the focus of this study.

Therefore, the control variables in this model are expressed as institutional quality. According to Hynes and Lammersen (2017) and Ul-Hague et al (2022) where trade liberalization and poverty are connected and could affect inflation (INF), Per Capita Income (PGDP), Institutional quality (INQ)

and unemployment (UMP). The empirical strategy to examine the effect of trade liberalisation on poverty in Nigeria which follows the studies of Goff and Siugh (2014), Thelle et al (2015), Saera and Sang (2019). The model is specified thus:

$$PO_{it} = \beta_0 + \beta_1 TR_{it} + \beta_2 INQ_{it} + \beta_3 INF_{it} + \beta_4 PGDP_{it} + \varepsilon_{it} \qquad (5)$$

Where Po is the poverty, TR is trade liberalisation, INQ is the institutional quality, INF is the inflation, PGDP is the per capita income and ε_{it} an idiosyncratic error term while

β_{o1} β_{11} β_{21} β_3 and β_4 are various parameters estimated.

$$\Delta ln\,POit = \beta_0 +_{i=1} \Sigma\,\gamma_{it}\Delta lnPO_{it} +_{j=1} \Sigma\,\gamma_{2it}\beta_1 TR_{it} + \Sigma\gamma_{3it}\beta_2 INQ_{it} +_{j=1} \Sigma\gamma_{4it}\beta_3 INF_{it} +_{j=1}$$

$$\Sigma\gamma_{5it}\beta_4 GDP_{it} + \varepsilon_{it} \qquad\qquad {}_{q1} \qquad\qquad {}_{q2} \qquad (6) \qquad\qquad {}_{q3} \qquad\qquad\qquad {}_{q4}$$

Where Y1 – Y4 are the vector parameters of the long run estimates, Δ are the operators of the first difference. The P and q_1 – q_4 are the optimal lag length, β_o is the parameter of the drift component and εt is the stochastic white noise

In equation (3) – the apriori expectations of the coefficients are:

$\beta_1 < 0$, a decrease in trade liberalisation will lead to increase in poverty

$\beta_2 < 0$, a decrease in institutional quality will lead to increase in poverty

$\beta_3 > 0$, an increase in inflation will lead to an increase in poverty

$\beta_4 < 0$, an increase in per capital income will lead to decrease in poverty

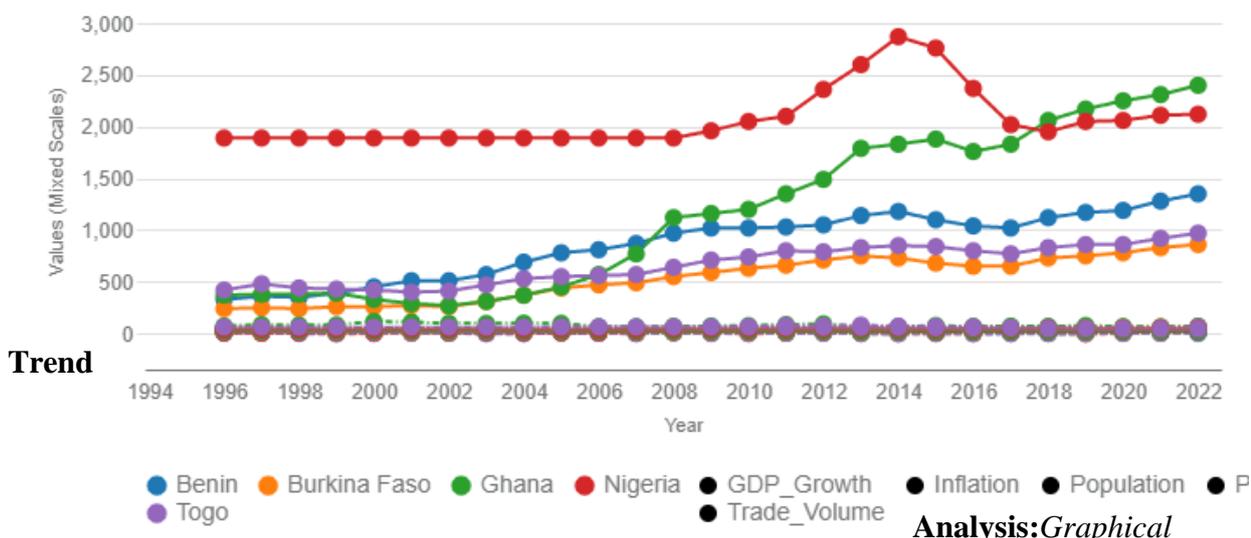**Trend Analysis:** *Graphical illustration of trade Liberalisation and Poverty in West African Countries*

The graph illustrates the combined economic trends of Nigeria, Ghana, Benin, Togo, and Burkina Faso from 1994 to 2022. Overall, it shows a clear upward trajectory in economic indicators across all five countries, though with differing growth patterns and volatility levels. Nigeria stands out with the

highest economic values, marked by a sharp surge between 2010 and 2014 followed by a noticeable decline and partial recovery, reflecting the influence of oil price fluctuations and structural economic adjustments. Ghana exhibits steady and sustained growth, particularly after 2005, suggesting improvements in trade and overall economic performance. In contrast, Benin, Burkina Faso, and Togo demonstrate moderate but consistent increases, indicative of gradual and stable economic expansion. Collectively, the trends highlight long-term growth with cyclical fluctuations, consistent with stylized economic facts such as persistent development patterns, periodic volatility, and convergence among West African economies over time.

Descriptive Statistics

	PO	TR	pGDP	INST	INF	FD	EXCH	ED	UMP
Mean	44.5807	7319.424	1203.353	-1.76E-07	6.0104	15.2462	802.96009	66.1673	4.2109
Median	44.3000	1433.000	813.3948	-0.3042	4.1862	13.0111	478.63637	63.1142	3.5160
Maximum	63.9000	116000.0	3903.050	5.4223	34.6952	94.3786	9565.082	95.4376	14.6600
Minimum	22.0000	11.0000	320.5144	-3.8494	-3.2334	-99.8882	0.9151	31.5845	0.3170
Std. Dev.	8.9431	18180.90	853.5159	2.1742	6.3959	15.2353	1825.148	14.0861	2.9057
Skewness	-0.2334	3.9831	1.581372	0.6938	1.4265	-0.1841	3.7575	0.24862	1.6341
Kurtosis	3.4714	19.5184	4.796523	3.0038	5.4050	20.4354	16.1685	2.6987	5.5043
Jarque-Bera	4.6772	3573.373	140.5735	20.4555	147.9401	3231.370	2442.522	3.5916	180.1166
Probability	0.0965	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1660	0.0000
Observations	255	255	255	255	255	255	255	255	255

Note:PO: poverty, TR: trade openness, pGDP: per capita income; INST: institutional quality; INF: inflation, FD: financial depth, EXCH: exchange rate; ED: education; UMP: unemployment

Source:*Author's compilation, 2024*

The data show a mean poverty rate of 44.58, close to the median, indicating a fairly balanced distribution across countries. Population sizes are consistent, while trade and per capita GDP are highly unequal, reflecting economic concentration and income disparity. Institutional quality is weak, inflation is volatile, and financial development varies widely, with some nations remaining underdeveloped. Exchange rates are uneven, debt levels stable, and unemployment differs sharply.

High variability, skewness, and kurtosis in most variables reveal unequal economic structures, outliers, and non-normal distributions across the sample.

Correlation Coefficient

The correlation coefficients of the variables for objectives were presented in Table 4.2 as follows:

	Po	TR	PGDP	INF	FD	ED	INST	UMP	EXCH
po	1.0000								
TR	-0.160	1.0000							
pGDP	-0.4279	0.4066	1.0000						
INF	0.0030	0.2323	-0.0417	1.0000					
FD	-0.0915	0.1165	-0.0884	0.2300	1.0000				
ED	-0.1753	0.1543	0.5343	0.1600	0.0502	1.0000			
INST	-0.4427	-0.2075	0.5517	-0.1833	-0.0831	0.4312	1.0000		
UMP	-0.0917	-0.0309	0.5775	0.0260	-0.0653	0.3618	0.4342	1.0000	
EXCH	-0.0130	-0.0630	-0.1251	0.2033	0.0627	-0.1730	-0.2994	0.0214	1.0000

Source: *Author's compilation, 2024*

The correlation analysis (Table 4.2) shows that no variable exceeds a coefficient of 0.70, confirming the absence of multicollinearity and ensuring reliable regression estimates. Significant negative correlations exist between poverty and TR, pGDP, ED, and INST, while the explanatory variables are generally weakly correlated. Since no coefficient exceeds 0.8, multicollinearity is not a concern.

Table 4.3: Variance Inflating Factor

Variable	VIF	Tolerance $\left(\frac{1}{VIF}\right)$
TR, log	2.25	0.4446
pGDP, log	3.91	0.2560
INF	1.29	0.7765
FD	1.09	0.9154
ED	1.60	0.6241
INST	2.47	0.4041
UMP	1.79	0.5592
EXCH, log	1.24	0.9154
Mean VIF	**1.96**	

Source: *Author's compilation, 2024*

Multicollinearity was assessed using tolerance values (1/VIF) and Variance Inflation Factor (VIF) statistics. According to Field (2013), VIF values below 10 (and preferably below 5) alongside tolerance levels above 0.10 indicate the absence of multicollinearity. Based on these criteria, the results show no evidence of high collinearity among the variables. Therefore, both the correlation

matrix and VIF results confirm that the variables included in the model are free from multicollinearity concerns

4.1.4 Cross-Sectional Dependence Test Results, Model

We then continue to test the poverty model for cross-sectional dependence using Pesaran (2004) test and provide the results in Table 4.4.

Table 4.4: Test of Cross Sectional Dependence

Test	Statistic	Prob
Breusch-Pagan LM	641.7864	0.0000
Pesaran scaled LM	36.00669	0.0000
Pesaran CD	0.314624	0.7530

Source: *Author's compilation, 2024*

The Pesaran (2004) test for cross-sectional dependence was conducted to determine whether such dependence existed in the estimated model. The test produced a probability value of 0.7530, indicating that the null hypothesis of cross-sectional dependence could not be rejected. This suggests that cross-sectional dependence is absent in the specified model. Consequently, it was concluded that the poverty model does not exhibit cross-sectional dependence, which, if present, could have reduced the efficiency of the estimators

4.1.5 Panel Unit Root Tests

Summary of the results of unit root tests were presented in Table 4.5.

Table 4.5: 1st Generation Panel Unit Root Tests

Variable	LLC		IPS		ADF-FISHER		Remark
	Level	First Diff	Level	First Diff	Level	First Diff	
po	-2.6536**		0.4382	-8.1432**	44.9703***		I(0)
TR, log	-2.8827**		-0.5677	-5.9811**	37.2365	90.7398**	I(0)
pGDP, log	-2.5355**		-2.0145***		51.2984**		I(0)
INF	1.1396	-6.9226**	-1.2344	-7.4100**	39.7697	112.148**	I(1)
FD	-4.1600**		-4.6165**		74.7460**		I(0)
ED	-15.1900**		-11.1583**		61.0994**		I(0)
INST	-1.4036	-4.7097**	0.4450	-4.9465**	22.5020	78.0176**	I(1)
UMP	-2.2687***		-2.1541***		52.0344**		I(0)
EXCH, log	-0.6681	-10.5808**	2.8273	-9.9170**	10.6855	145.134**	I(1)

Note: "***" and "**" represent the probability values of 5% and 1% respectively

Source: *Author's computation (2024)*

After confirming cross-sectional dependence, the first-generation panel unit root test results (Table

4.5) show that most variables are stationary at level I(0), except inflation rate, institutional quality, and exchange rate, which are stationary at first difference I(1). This indicates a mixed order of integration among the variables.

The correlation results (Table 4.2) reveal that no variable has a coefficient above 0.70, confirming the absence of multicollinearity. This suggests reliable regression estimates, as high correlations ($\geq$0.8) could bias results through inflated R-squared values, wide confidence intervals, and insignificant t-statistics (Cooper & Schindler, 2014). Additionally, TR, pGDP, ED, and INST show significant negative correlations with poverty, while overall, the explanatory variables are only weakly correlated.

Table 4.4: Trade Liberalisation and Poverty in ECOWAS

Variable	REM	FEM	FGLS
TR, log	-0.2795 (0.4641)	0.0530 (0.5202)	-0.6867** (0.2335)
PGDP, log	-2.3873 (1.3829)	-1.9352 (1.5289)	-0.9255 (0.7609)
INF	-0.1061*** (0.0474)	-0.0934 (0.0491)	0.0198 (0.0194)
FD	0.0096 (0.0140)	0.0107 (0.0139)	0.0018 (0.0049)
ED	-0.0047 (0.0279)	-0.0282 (0.0039)	-0.0313 (0.0208)
UMP	-0.4060*** (0.1850)	-0.4257*** (0.1898)	-0.0317 (0.1390)
EXCH, log	-0.3931 (0.5884)	-1.1051 (0.8049)	-0.7124*** (0.2974)
Constant	67.6558** (7.8961)	65.8644** (8.3602)	57.0054** (4.7680)
Number of Cross-sections	15	15	15
Observations	255	255	255
F-Statistic	Wald chi^2(7) = 22.04 Pro > F = 0.0025	F(7,233) = 2.89 Pro > F = 0.0065	Wald chi^2(8) = 46.97 Pro > F = 0.0000
Multicollinarity Test VIF Mean			2.18
Testparm		chi^2(7) = 22.04 Pro > chi^2 = 0.0025	
Hausman Test		Chi^2(7) = 15.46 Pro>Chi^2 = 0.03	
Modified Wald Test for Heteroskedasticity		Chi^2(15) = 4341.44 Pro>Chi^2 = 0.00	
Woodridge test for autocorrelation		F(1, 14) = 323.53 Pro > F = 0.00	

Note: Dependent variable: Poverty; Numbers in parentheses are standard error based on White heteroscedasticity-consistent standard errors. Statistical significance: *** and** indicate 5% and 1% levels respectively.

Source: *Researcher's computations (2024)*

The results in Table 4.4 show that trade openness has a significant negative effect on poverty in ECOWAS countries. A 1% increase in trade openness reduces the poverty rate by 0.687% ($\beta_1 = -0.687$, $p = 0.00 < 0.05$), indicating that greater trade integration contributes to poverty reduction. Similarly, the exchange rate also has a significant negative impact on poverty, where a 1% increase in exchange rate leads to a 0.712% decline in poverty ($\beta_7 = -0.712$, $p = 0.02 < 0.05$). The Wald chi-square statistic (46.97, $p = 0.00 < 0.05$) confirms the overall model's significance, leading to the rejection of the null hypothesis and supporting the conclusion that trade liberalization significantly reduces poverty in ECOWAS countries

Discussion of Findings

The findings of this study reveal a strong negative relationship between trade openness and poverty across ECOWAS countries, indicating that trade liberalization contribute significantly to poverty reduction. Specifically, the results show that a 1% increase in trade openness leads to a 0.687% decrease in poverty, confirming that greater integration into global markets fosters economic growth and improved welfare. This result supports the Solow growth model, which posits that openness to trade facilitates technological diffusion, productivity enhancement, and capital accumulation where factors that drive long-term growth (Salimi et al., 2014). Moreover, the study identifies institutional quality, exchange rate stability, and per capita income as important determinants of poverty, suggesting that these variables interact with trade policy to shape development outcomes. Thus, macroeconomic stability and effective institutions remain critical for amplifying the poverty-reducing impact of trade liberalization in the region.

The findings align with the broader theoretical and empirical literature, particularly the endogenous growth theory, which argues that trade openness accelerates innovation, technology transfer, and foreign direct investment and all of which stimulate sustained growth (Romer, 1992; Barro & Sala-i-Martin, 1995; Baldwin & Forslid, 2000). Empirical studies by Goff and Singh (2014) and Thelle et al. (2015) also found that trade liberalization supports inclusive economic growth in developing regions, mirroring the outcomes observed in ECOWAS. The negative association between trade openness and poverty reinforces the idea that access to international markets increases productivity, employment, and income levels, thereby reducing poverty. These results confirm that the growth effects of trade serve as an essential mechanism for poverty alleviation, particularly when accompanied by complementary macroeconomic reforms and policies that support private sector development.

Despite these consistent results, this study's findings diverge from certain empirical perspectives that caution against the unqualified benefits of trade liberalization. Saera and Sang (2019), for instance, reported that trade expansion often benefits capital-intensive sectors, thereby widening income inequality. Likewise, Ul-Haque et al. (2022) observed that the poverty-reducing effects of trade openness depend heavily on institutional quality, governance efficiency, and human capital development. The relatively weak institutional environment in many ECOWAS countries (mean INST = –0.000000176) suggests that while trade openness reduces poverty on average, the distribution of gains might not be equitable. Consequently, this divergence highlights the importance of coupling trade reforms with institutional strengthening and inclusive social policies to ensure that trade benefits reach marginalized populations

Statistical and diagnostic analyses reinforce the credibility of these results. The correlation and variance inflation factor (VIF) tests confirmed the absence of severe multicollinearity (mean VIF = 1.96), validating the model's reliability (Field, 2013). Furthermore, the Pesaran (2004) cross-sectional dependence test showed no significant interdependence among country-level data, enhancing the robustness of the estimations. The unit root tests revealed that variables exhibit a mixed order of integration where some stationary at level I(0) and others at first difference I(1) which supports the presence of a long-term equilibrium relationship between trade openness, growth, and poverty. The feasible generalized least squares (FGLS) estimator provided consistent results, confirming trade openness and exchange rate as the most influential variables in reducing poverty within the ECOWAS subregion

In conclusion, the findings of this study largely corroborate existing theoretical and empirical evidence linking trade liberalization to poverty reduction through economic growth (Salimi et al., 2014; Barro & Sala-i-Martin, 1995; Goff & Singh, 2014). The similarities lie in the consistent evidence that trade openness is inversely related to poverty, with growth acting as the principal transmission channel. However, dissimilarities emerge regarding the moderating role of institutional quality and inequality. While some studies suggest that trade's benefits depend on governance and social inclusion (Saera & Sang, 2019; Ul-Haque et al., 2022), this study finds that trade openness still significantly reduces poverty even in environments with relatively weak institutions. Therefore, while trade liberalization is a powerful instrument for poverty alleviation, it should be complemented by institutional reforms, human capital investment, and equitable policies to ensure sustainable and inclusive development across ECOWAS countries.

Recommendations

Based on the findings of the study, the following recommendations were made

1. ECOWAS countries should strengthen institutional quality and governance by improving transparency, accountability, and property rights to ensure that trade benefits are broadly shared. Strong institutions, as noted by Ul-Haque et al. (2022) and Saera and Sang (2019), encourage investment and inclusive growth, amplifying trade's poverty-reducing effects. At the same time, maintaining macroeconomic stability through prudent fiscal and monetary policies is crucial for sustaining competitiveness. Stable exchange rates and low inflation attract investment and promote long-term welfare gains (Salimi et al., 2014)

2. Investment in human capital through education, training, and technology is equally vital for inclusive trade benefits. As Romer (1992) and Barro and Sala-i-Martin (1995) emphasize, human capital and innovation drive sustainable growth. A skilled workforce enhances productivity and helps individuals seize trade opportunities, reducing unemployment and poverty. Complementary policies such as targeted subsidies, microcredit, and rural infrastructure should protect vulnerable groups and ensure fair distribution of trade gains (Saera & Sang, 2019)

3. Deepening regional integration and promoting intra-ECOWAS trade will expand market access and economic resilience. Reducing non-tariff barriers, harmonizing trade policies, and improving infrastructure will strengthen competitiveness and reduce external dependence. As Goff and Singh (2014) and Thelle et al. (2015) highlight, stronger regional cooperation ensures that trade-driven growth translates into lasting poverty reduction across the subregion.

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