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TRADE LIBERALIZATION AND ECONOMIC GROWTH IN SELECTED WEST AFRICAN COUNTRIES: 1976-2023

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Abstract

This research examines the relationship between trade liberalization and economic growth in selected West African countries (Cote d"Ivoire, Ghana and Nigeria) the choice of these countries is as a result of steady GDP growth over the years, using secondary data in a multivariate panel framework for the period 1976 - 2023. The main objective was to establish the effects of trade liberalization on economic growth in these countries. The Autoregressive Distributed Lag (ARDL) bound tests and other diagnostic tests were employed for data estimation. The results indicated long run relationship between trade liberalization and economic growth in Cote d"Ivoire, Ghana and Nigeria. The relationship is positive and significant for the three countries. In the long run, the combination of other macroeconomic variables like investment, human capital, net inflow of FDI and the exchange rate complement the contribution of trade to economic growth. Therefore, these countries should promote appropriate trade policies devoted to foster increased local production of manufactured and agricultural goods to reduce importation and stimulate exports, as a strategy to boost economic growth

Keyword: Trade Liberalization, Economic Growth, Gross Domestic Product, Panel Estimation, FDI

Introduction

Trade Liberalization reflects countries" integration into the world economy. It can potentially increase economic growth by increasing efficient allocation of resources and improving total factor productivity through technology adoption and knowledge dissemination. trade liberalization around the globe is mainly adopted through mutual international trade negotiations, either multilaterally under the umbrella of the World Trade Organization (WTO) or bilaterally

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through regional trade agreements. As more countries join international economic system through trade, it is expected to be beneficial to developments of economies all over the world. Increasing trade will generate more exchanges of goods and services, skills and knowledge among countries. Pugel (2007) points out that developing countries will have the chances of increasing their exports and thus they will be able to raise their income and wealth, as their openness to external trade increase by the help of more liberalized trade.

Trade liberalization is the openness of the exchange of goods and services across borders through increased integration among countries. These countries are joined together in terms of free movement of capital and labour, and free foreign trade and finance (Igudia, 2004).

Trade liberalization started in 1947, after the Second World War with the inception of the General Agreement on Tariffs and Trade (GATT). The main purpose of the GATT was to lower trade barriers, and was later replaced by the World Trade Organization (WTO) in 1994 (UNCTAD, 2016). Most of the African countries adopted structural reforms enunciated in the GATT, which was made up of rapid and extensive liberalization, deregulation and privatization of economic activity to open up their economies in search of a solution to the stagnation and decline (UNCTAD, 2016). Though the effect of trade Liberalization and economic growth have been in the limelight since the existence of trade, attempts to establish statistical causation between trade Liberalization and growth have had mixed success, or more accurately, as there is debate regarding the limits of some of the measures of trade Liberalization on economic growth in cross-country studies.

While trade theorists (Ricardo, 1817; Heckscher, 1949) considered trade liberalization as a catalyst to economic growth, economic growth theorist (Solow, 1956; Romer, 1989; Sarkar, 2005) explained growth in terms of factor productivity, with trade Liberalization as a reinforcing factor towards income convergence at higher levels of capital flows.

several attempts and programs have been established in the quest to accelerate economic growth in West African countries. Among them are; the United States Agency for International Development (USAID) and West Africa Trade Program (WATP), West African Economic and Monetary Union (WAEMU) and Economic Community of West African States (ECOWAS) with the aim of improving product and service quality.

The objective of this study is to examines the exact impact of trade Liberalization on economic growth of Cote d'Ivoire, Ghana and Nigeria. the literature on liberalization to international trade does not tell us whether West African countries are better off or worse off in the comity of nations as they become more outwardly-oriented in their trade policies. The significance of this study to academic knowledge can be categorized into policy, theory and empirical contributions. On policy, the findings of this study will aid researchers, in understanding the responsiveness of trade liberalization on economic growth. On theoretical and empirical perspectives, the study would add to the understanding of the theoretical debate between international trade theories and economic growth theories on the effects of trade liberalization on economic growth, and the degree to which Nigeria, Ghana and Cote d"Ivoire are more open to international trade

The rest of the paper is structured as follows: Section 2 focuses on theoretical framework and empirical literature. Section 3 covers methodology while section 4 deals result and discussions of Findings. Section 5 concludes the paper.

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THEORETICAL FRAMEWORK

The interrelationship of the theoretical paradigms of international trade based on the results of the Ricardian comparative advantage theory and the Solow"s (1956) economic growth theory with its extension by the endogenous growth model is the theoretical framework on which this study is based. The international trade theories consider trade liberalization as a catalyst to economic growth, while economic growth theories approach the liberalization -growth from the perspective of factor productivity.

The Ricardian Comparative Advantage Theory

Ricardo (1817) developed the theory of comparative advantage and showed rigorously in his published book Principles of Political Economy and Taxation (1817), that on assumptions of perfect competition and full employment of resources, countries can reap welfare gains by specializing in the production of those goods with the lowest opportunity cost over domestic demand. Ricardo further argued that even when one country has an absolute advantage in the production of two goods against another country; it might still be more beneficial to both countries if each of them specializes in the production of only one of the goods. Ricardo opined that a country can produce and export a particular commodity in which it has comparative advantage, while importing a commodity in which it has comparative disadvantage and thereby maximize its welfare.

Economic Growth Theories The study of economic growth and development has been dominated by the traditional neoclassical growth theories. One of the principal strategies of development necessary for any take-off was the mobilization of domestic and foreign saving in order to generate sufficient investment to accelerate economic growth. The economic mechanism by which more investment leads to more growth can be described in terms of the Harrod-Domar growth model (Todaro & Smith, 2009).

Solow's Economic Growth Theory Robert Solow, an American economist, in his treatise, A contribution to the theory of economic growth published in 1956, expanded on the Harrod-Domar formulation by adding a second factor, labour, and introducing a third independent variable, technology to the growth equation. Solow postulates a continuous production function linking output to the inputs of capital and labour which are substitutable. Technological progress became the residual factor explaining long-term growth, and its level was assumed by Solow to be determined exogenously of all other factors.

The Solow"s growth theory is a multi-factor productivity model which assumes only one commodity, output as a whole, whose rate of production is designated Y (t). This output can unambiguously be referred to as the community's real income. Part of each output produced at any given time is consumed and the rest is saved and invested. The fraction of 47 output saved is constant, so that the rate of saving is sY (t). The country's stock of capital K (t) takes the form of an accumulation of the composite commodity. Net investment is then just the rate of increase of this capital stock dK/dt or K, so we have the basic identity at every instant of time: K = sY …… (2.1)

Output is produced with the help of two factors of production, capital and labour, whose rate of input is L (t). Technological possibilities are represented by a production function

Y = f (K, L) …… (2.2)

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Output is to be understood as net output after providing for the depreciation of capital. Constant return to scale is the natural assumption of Solow"s theory of growth.

Endogenous Growth Theories The endogenous growth theory holds that investment in human capital, innovation, and knowledge are significant contributors to economic growth (Romer, 1994). The theory also focuses on positive externalities and spillover effects of a knowledge-based economy which will lead to economic development Abstracting from all detail and focusing on the simplest case with three factors of production, we have

$Yt = Kt^{\alpha} Ht AtLt^{1-\alpha-\beta}$ ……. (2.3)

where Yt is output in time t, Kt is capital in time t, Ht is the stock of human capital in time t, At is the level of technology in time t, and Lt is labor in time t. MRW assume that $\alpha+\beta<1$, which means there is decreasing returns to all capital. (If $\alpha+\beta=1$, there are constant returns to scale in the reproducible factors). The evolution of the economy is determined by

$kt = skyt - (n + g + \delta kt)$ …… (2.4a)

$ht = Shyt - (n + g + \delta ht)$ ……..(2.4b)

Where y = Y/AL, k = K/AL, and h = H/AL are quantities per effective unit of labour. Sk the fraction invested in human capital. L and A is assumed to grow exogenously at rates n and g, δ is the rate of depreciation of physical capital stock.

EMPIRICAL REVIEW

Economic theory does not offer clear predictions on the relationship between Liberalization and growth; it therefore remains an empirical question.

Mullings and Mahabir (2015) found both cross-country and panel-data evidence of the causal factors driving the turnaround in Africa"s growth, and take the unique approach of examining the separate growth impacts of Africa"s trade with china, Europe and America for the sample period 1990 to 2009. The result indicated that trade with china has positive effect on economic growth in African countries; foreign aid and bilateral trade openness to Europe are found to have growth-reducing effects, while Africa-US trade has no significant impacts.

Hakimi and Hamdi (2016) suggested that trade liberalization boosted the economies of Morocco and Tunisia by creating new employment opportunities, but liberalization has harmed the ecological environment. Using annual time series data for the period from 1971 to 2013, the study applied a VECM and co-integration tests for single country case study and a panel VECM and panel co-integration for both countries as a group.

Claire E, & Joseph A., (2021) conducted a study to examine the relationship between trade liberalization, economic growth and poverty in selected Sub-Saharan African countries within the period 1990 – 2017. Findings from the study show that trade liberalization have positive impact on the economic growth of a country in the long-run. However, in the economic short-run, trade liberalization both have adverse effect on economic growth.

Banday, Murugan, and Maryam (2021) used the pooled mean group (PMG) ARDL model and concluded that economic growth in BRICS countries is negatively influenced by trade liberalization in the long run, while in the short run, trade promotes economic growth. The link between trade and economic growth in the BRICS economies is also shown by Soomro,

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Based on causality analysis, Mtar and Belazreg (2023) revealed two-way causal connections exist between economic growth and trade in European countries. Concerning India, however, Singh (2023) argued for the existence of a strong unidirectional causal relationship running from trade liberalization to economic growth. Furthermore, the study of Sunde and Tafirenyik (2023) for Namibia found that trade openness positively influences economic growth

Sunde, T., Tafirenyika, B., & Adeyanju, A. (2023). Testing the impact of exports, imports, and trade Liberalization on economic growth in Namibia: Assessment using the ARDL cointegration method. The result show positive effect on Economies growth, 11(3), 86. doi: https://doi. org/10.3390/economies11030086

Kodjane (2013) examined the relationship between exports and economic growth in selected ECOWAS member states of Cote d"Ivoire, Ghana and Nigeria for the period from 1980 to 2011. Using the ordinary least squares estimation technique, the result indicated a positive and significant relationship between exports and economic growth in Nigeria, Ghana and Cote d"Ivoire. The study recommended export expansion programs for the three (3) countries which is desirable to stimulate growth in their respective economies. The focus of the study, like Andrew (2015) and Alaoui (2015), is limited to the impact of exports on economic growth.

Khobai, Kolisi and Moyo (2018) investigated the relationship between trade liberalization and economic growth for Ghana and Nigeria covering the period between 1980 and 2016 incorporating trade openness, investment, exchange rate and inflation as regressors. The results also showed that trade liberalization have a positive and significant effect on economic growth in Ghana while trade openness indicated a negative but insignificant effect on economic growth in Nigeria. The study recommended imports reduction and exports promotion strategies for Nigeria.

In an empirical investigation of the determinants and effects of trade liberalization on economic growth in Africa, Mbogela (2015) employed panel data technique using two-staged least squares (2SLS) and system generalized method moments for estimation of data for the period from 1989 to 2008 on a sample of 49 African countries. The results indicated positive and significant relationship between trade liberalization and economic growth in Africa.

METHODOLOGY

The study areas have consistent growth in GDP over the years, hance the major economies of the West African sub-region which are Coted"Ivoire, Ghana and Nigeria. The study used panel data from 1976 to 2023. This study relied essentially on secondary data from World Bank and the International Monetary Fund (IMF). Below are Brief explanation of variables:

Table 1: explanation of variables

Variables	Type	Individual Indicator	Measurement/Definition	Data Source
EG	Dependent	Annual Growth Rate (%)	Economic Growth is the annual increase in the real per capita income in an economy, annual real GDP is the monetary value of all final goods and services at market prices in US dollars	World Bank 1976-2023

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TL	Independent	Trade (%GDP)	Trade Liberalization is trade between two or more countries. It is measured in this study as total trade expressed as percent of GDP.	WDI 1976-2023
FDI	Independent	FDI Net incomes (%GDP)	Foreign direct investment is measured by the net inflows of investment in an enterprise operating in an economy other than that of the investor, it is divided by GDP. FDI It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital.	WDI 1976-2023
EXC	Independent	Real exchange rate	Real effective exchange rate is the nominal effective exchange rate (a measure of the value of a currency against a weighted average of several foreign currencies) divided by a price deflator or index of costs.	WDI 1976-2023
LF	Independent	Human Capital	(% of gross secondary school Enrollment ratio) education brings about Higher incomes for individuals and societies.	WDI 1976-2023
INV	Independent	capital formation	Capital accumulation results when some proportion of present income is saved and invested in order to augment future output and income	WDI 1976-2023

Model Specification

The baseline model for this study is adapted from the works of Mankiw, Romer & Weil (1992) and Robert Solow (1956) Thus for this study the model is specified as:

$RGDP$=f(TL,INV,HK,FDI,EXR,+μ)…. .....(3.1)

Transforming equation (3.1) into an econometric model gives:

$LnRGDP_{i,t}$ =β_0+ln$\beta_1 TL_{i,t}$+lnβ_2INV$_{i,t}$+lnβ_3HK$_{i,t}$+ln$\beta_4 FDI_{i,t}$+ln$\beta_5 EXR_{i,t}$ + μ..(3.2)

Where:

$RGDP$= real gross domestic product (GDP)

TL**=** the degree of Liberalization (sum of total exports and total imports to the GDP)

INV=rate of investment (gross fixed capital formation)

HK= human capital (% of gross secondary school enrollment ratio)

FDI= the foreign direct investment net inflow

EXR= real exchange rate, μ = stochastic error term, β_0 = Intercept

ln = logarithm operator, β_1 to β_5 = Parameters of the independent variables.

The subscript i,t is time t in country i. βi's (i = 1, 2, 3, 4 & 5), are the parameters to be estimated that measures the rate of change in the explanatory variables. The a priori expectations are

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algebraically summarized as; β_1, β_2, β_3, β_4 & $\beta_5 > 0$, this implies that all the independent variables are expected to be positively related to the dependent variable (RGDP)

Thus, equation (3.2) can be transformed into ARDL model of the form:

$$\Delta \mathrm{L}RGDP_{\alpha} = \alpha \sum_{I=1}^{p} \alpha_{1i}\ \Delta LGDP_{t-1} + \sum_{I=1}^{p} \alpha_{2i}\ \Delta LTL_{t-1}$$

$$+ \sum_{I=1}^{p} \alpha_{3i}\ \Delta INV_{t-1} + \sum_{I=1}^{p} \alpha_{4i}\ \Delta HK_{t-1} + \sum_{j=0}^{p} \alpha\ \Delta In\ TL_{i,t-j}$$

$$+ \sum_{I=1}^{p} \alpha_{5i}\ \Delta FDI_{t-1} + \sum_{I=1}^{p} \alpha_{6i}\ \Delta EXR_{t-1} + \lambda \mathrm{ECM} + \emptyset$$

Where λ is the speed of adjustment parameter and ECM is the residuals obtained from model

RESULTS

Panel Descriptive Statistics

Descriptive statistics allows us to have a greater idea of the data and the distribution of the variables used in the study. The descriptive statistics result for individual countries is presented below in table 1, 2,3, while that of grouped countries is presented in table 4.

Table 1: Descriptive statistics for Cote D'Ivoire.

	LRGDP	LTL	LINV	LHK	LFDI	LEXR
Mean	23.67633	4.295706	21.12299	14.82458	18.64173	5.961258
Minimum	23.01483	3.962526	19.60676	13.19049	16.50017	5.353184
Std. Dev.	0.278291	0.152994	0.729017	0.826292	1.090836	0.383285
Skewness	-0.124892	-0.215697	0.279417	-0.301166	-0.345741	-0.124037
Kurtosis	3.263861	2.317873	3.131243	2.103657	1.762221	1.601434
Jarque-Bera	0.258529	1.275654	0.645312	2.283875	3.936730	3.950992
Probability	0.878741	0.528440	0.724223	0.319200	0.139685	0.138693
Observations	47	47	47	47	47	47

Source: Authors Computation (2024) using E-view.

Table 2: Descriptive Statistics for Ghana

	LRGDP	LTL	LINV	LHK	LFDI	LEXR
Mean	23.48242	3.871828	20.81287	15.57004	18.26723	-0.790401
Minimum	22.84490	1.843719	18.77507	13.16487	14.50866	-4.605170
Std. Dev.	0.538472	0.682583	1.377403	0.704037	2.247767	1.583498
Skewness	0.685770	-0.980807	0.326152	-1.288002	0.303620	-1.121232
Kurtosis	2.208696	3.494016	1.921931	6.617550	2.086171	3.094385

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Jarque-Bera	4.910097	8.013468	3.109312	38.62317	2.357492	9.865208
Probability	0.035859	0.018193	0.211262	0.000000	0.307664	0.007208
Observations	47	47	47	47	47	47

Source: Authors Computation (2024) using E-view.

Table 3: Descriptive Statistics for Nigeria

	LRGDP	LTL	LINV	LHK	LFDI	LEXR
Mean	25.73342	3.807902	23.97279	16.78287	17.68399	2.026838
Minimum	25.22836	2.821974	23.20540	14.71923	14.50866	-0.597837
Std. Dev.	0.371016	0.407957	0.569992	0.995705	1.900499	2.244958
Skewness	1.402661	-0.726704	0.432272	-0.763393	0.490583	0.116783
Kurtosis	4.146408	2.569178	1.792512	2.327321	2.761227	1.392648
Jarque-Bera	15.68948	3.925756	3.767665	4.755274	1.741986	4.506812
Probability	0.000392	0.140454	0.152006	0.092770	0.418536	0.105041
Observations	47	47	47	47	47	47

Source: Authors Computation (2024) using E-view.

A comparative of the descriptive statistics of individual countries (Cote D'Ivoire, Ghana and Nigeria) was conducted in table 1, 2, and 3 above. The mean of the real gross domestic product of Nigeria which is valued at 25.73342 is greater than that of Cote D'Ivoire, and Ghana (23.67633, 23.48242) respectively, it implies that from 1976 to 2023 Nigeria has potential for economic growth, high economic output, economic size, investment opportunities, and a larger market size in terms of trade compared to Ghana and Cote D'Ivoire. In addition, the high rate of real gross domestic product could indicate a relatively higher standard of living, assuming the wealth is distributed evenly among the population. The minimum value of Cote D'Ivoire are all having a positive sign, while that of Ghana and Nigeria are also having positive sign except for the EXR of both countries are found to have a negative value of (-4.605170, -0.597837) respectively. The standard deviation of all the three countries indicates that it does not deviate from the mean because the values are less than the mean value of all the three countries under study. The kurtosis shows a mixture of some variables been platukurtic because of the values are less than three, while those that are exactly three are mesokurtic while the values greater than three are leptokurtic. Skewness of some of the variables tailed toward the right with positive values, while some tailed to the left having a negative value. The Jarque-Bera of Cote D'Ivoire shows that the series are not normally distributed because the P-value is greater than the critical values of 0.05, but for Ghana and Nigeria the series are normally distributed since values like LRGDP, LTL, LHK and LEXR are having P-values which are less than 0.05.

Table 4 Panel Descriptive Statistics.

Variable	Obs	M	SD	Min	Kurto	Skewness	JB	Prob
LRGDP	135	24.2335	1.0781	22.844	2.0479	0.6373	14.238	0.0008
LTL	135	3.9999	0.5151	1.8437	5.3690	-1.450	78.913	0.0000
LINV	135	21.880	1.6944	18.775	1.905	0.140	7.184	0.0275
LHK	135	15.678	1.1547	13.164	2.644	0.054	0.777	0.0070
LFDI	135	18.220	1.836	14.508	2.605	0.164	1.484	0.0476

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LEXR	135	2.4157	3.2367	-4.6051	1.710	-0.194	10.203	0.0060

Note: Ho: they are normally distributed, Hi: they are not normally distributed
Source: Authors Computation (2024) using E-view.

From the above result in table 4, LRGDP has the average mean value of 24.2335 for the period 1976 to 2023, while LTL, LINV, LHK LFDI, and LEXR with average mean value of (3.999, 21.880, 15.678, 18.220, and 2.4157). The minimum (min) values of the variables are having a mixture of negative and positive values. The standard deviation value of the variables indicated that it does not deviate from the mean because their values are less than the mean value, From the above result the kurtosis of LRGDP, LINV, LHK, LFDI and LEXR are less than three indicating that the series are platokurtic, while only LTL value is greater than three this implies that the variable is leptokurtic denoting that the series is slim or long tail, indicating that the distribution is peaked relative to normal distribution. Skewness of all the variables tailed toward the right with positive values, only but LTL and LEXR that tailed to the left having a negative value of -1.450 and -0.194 respectively. The Jarque-bera value of the variables associated with the probability value of 5% level of significance shows that all the variables (LRGDP, LFDI, LEXR, LINV, LHK and LTL,) are normally distributed from 1976 to 2023.

Table 5: Cross Sectional Dependency Test

Variable	Breuch Pagan LM	PersaranScaled LM	Bia- Corrected Scaled LM	Pesaran CD
LRGDP	27.51821*** (0.0000)	10.0095*** (0.0000)	9.9769*** (0.0000)	3.626*** (0.0003)
LFDI	95.39*** (0.0000)	37.68*** (0.0000)	37.68*** (0.0000)	9.71*** (0.0000)
LEXR	111.95*** (0.0000)	44.48*** (0.0000)	44.44*** (0.0000)	10.56*** (0.0000)
LHK	85.16*** (0.0000)	33.54*** (0.0000)	33.51*** (0.0000)	9.04*** (0.0000)
LINV	27.46*** (0.0000)	9.98*** (0.0000)	9.95*** (0.0000)	4.67*** (0.0000)
LTL	11.08*** (0.0113)	3.29*** (0.0010)	3.26*** (0.0011)	3.12*** (0.0018)

Source: Authors Computation (2024) using E-view.

Note: Null hypotheses states that there is no cross-section dependence or correlation. *** indicates rejection of the null hypotheses at 1 percent level of significant. The Breusch-Pagan LM, follows a chi-square distribution, Bias-corrected scaled LM and Pesaran CD follow standard normal distribution.

The result in table 5 above shows the Breusch-Pagan LM, Bias-corrected scaled LM and Pesaran (2023) cross section dependence test. The test shows that there is cross section dependence in all the variables among the selected African countries. This basically implies that a shock in one of the

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selected west Africa countries tends to be transmitted to other countries within the same region. Therefore, the second-generation unit root will be appropriate for the study, the study will utilize the use of the second-generation unit roots such as Bai and Ng (2004) and Moon and Perron (2004), the result will be presented in table 5 below.

Table 5: Panel Unit Root Test Results

Variables	LRGDP	LOPNES	LINV	LHK	LFDI	LEXTR
Level **Bai and NG-PANIC**	-1.209***	1.96***	-5.269***	-0.893	-1.947***	7.436
	-3.672	-1.413	-4.949***	-1.682***	-2.504***	-3.524***
Remark	1(0)	1(0)	1(1)	1(1)	1(1)	1(1)
First Difference						
Moon and	-10.837***	-10.84***	-13.892***	-9.036***	-11.353***	-9.036***
Perron	-12.345***	-11.82***	-13.911***	-8.884***	-11.645***	-4.114***
Remark	1(1)	1(1)	1(1)	1(1)	1(1)	1(0)

Note: *** the hypotheses of a unit root is rejected at 1% significant level. H_1: individual unit root process

Source: Authors Computation (2024) using E-view.

The summary of the panel unit root test for the variables used is presented in table 5 above, the second-generation unit root such as Bai and Ng-Panic, and Moon and Perron was conducted to have a robust and accurate stationarity of the variables. The table reveals that some of the variables are stationary at level 1(0), while some are stationary at first difference 1(1), the null (H_0) of a unit root process is strongly rejected at 1% significance level. To justify for the cross-section dependence, the panel cointegration test was conducted to observe whether long run relationship exist between the dependent variable and explanatory variables.

Table 6: Panel Cointegration Test Results

Statistics	Without trend Statistics	Prob	With trend statistics	Prob
Panel V- Statistic	-1.268	0.8977	-1.342	0.910
Panel rho-statistic	-0.556	0.2890	-0.650	0.257
Panel PP-Statistic	-4.742***	0.0000	-4.367***	0.0000
Panel AD-Statistic	-2.260***	0.0000	-1.719***	0.0000
Group rho-Statistic	0.082	0.532		
Group PP-Statistic	-4.603***	0.0000		
Group ADF-Statistic	-0.951***	0.0010		

Note: Null hypotheses states that there is no panel long-run relationship between the dependent and independent variables. *** represents statistical significance at 5% level.

Source: Authors Computation (2024) using E-view.

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Table 6 shows the panel cointegration test of the five variables; LRGDP, LFDI, LEXR, LTL, and LHK & LINV respectively. Based on the panel cointegration test result, long run relationship exists between the dependent and independent variable, because six statistical variables out of eleven are significant at 0.05 significance level. Implying that LFDI, LEXR, LOPNES, LHK, and LINV have long run effect on real gross domestic product (LRGDP) in the selected west African countries. The result is explicitly presented as thus;

Table 7: ARDL Test Results

Panel A: Long Run coefficient – dependent variable LRGDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LTL	0.056157	0.035744	1.571083	0.1207
LINV	0.612369	0.066699	9.181040	0.0000
LHK	-0.041199	0.078649	-0.523839	0.6020
LFDI	-0.110117	0.030291	-3.635305	0.0005
LEXR	0.076658	0.033904	2.261033	0.0269
	Panel B: Short Run Equation			
COINT(ECM)	-0.144754	0.091836	-1.576220	0.0095
D(LRGDP)	0.074231	0.155416	0.477628	0.6344
D(LTL)	-0.047613	0.070024	-0.679954	0.4988
D(LINV)	-0.031304	0.037195	-0.841613	0.4029
D(LHK)	-0.481435	0.263723	-1.825534	0.0722
D(LFDI)	-0.012616	0.004483	-2.814050	0.0063
D(LEXR)	0.003816	0.032833	0.116222	0.9078
C	2.009275	1.196030	1.679954	0.0974

Source: Authors Computation (2024) using E-view.

The estimated coefficient of the long run relationship is presented in panel A, while the short run is presented in panel B. Both long run and short run of each variable will be discussed simultaneously. In the short run LRGDP was found to have a positive relationship with itself and is not significant to itself. LTL in the long run has a positive relationship with LRGDP and is found not to be statistically significant, while in the short run it has an inverse relationship with LRGDP and is also not significant this does not conform to the aprori expectation, it implies that a unit increase in LTL is connected with a decrease of 49 percent in LRGDP. It is not in consonance with the Solow Swam growth model (1956) which states that there is a relationship between trade openness and increase in economic growth. Elimination of trade barriers are anticipated to promote transfer of technology, foreign investment and aid, which can increase growth. On the other hand, in the long run LINV was found to be positive with a coefficient of (0.61) and is found to be statistically significant to LRGDP with P-value of (0.0000) while in the short run it was found to have a negative relationship but was not statistically significant (0.4029) to LRGDP this does not conform to our apriori expectation and is not consistent with economic theory. LHK in both long run and short run

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has an inverse relationship with LRGDP and is found not to be statistically significant. The long run and short run result shows that LFDI is negative but is statistically significant to LRGDP, this implies that a unit increase in FDI will lead to an increase in GDP growth rates annually in the selected west Africa countries this conform to our apriori expectation. In the long run LEXR was found to a positive relationship with LRGDP, but it is found to be statistically significant with LRGDP with the P-value of (0.0269) in the long run which is less than the critical value of 0.05 while in the short run it was found to be positive also but is not significant, therefore in the short run and long run the sign conform to the apriori expectation.

ECM met the three conditions of being negative, less than one (1) and significant. Therefore, in the above table the ECM with value of (-0.144754) and P-value of (0.0095) indicated that there is a short run equilibrium relationship between the dependent variable with the independent variables, this implies that it takes an average of 14.47% to return back from the short run to the long run, if there is a disequilibrium it takes an average speed of 14.47% to adjust back from the short run to the long run. Implying that there is a high speed to adjust if there is any disequilibrium in the period 1976 to 2023.

Statistical Test of Hypothesis

The null hypothesis stated in the study were tested with the use of Wald test and the associated P-value. The decision rule for rejecting and accepting the null hypothesis is based on the P-values. If the P-value is less than 5% or 0.05 (that is P<0.05), it implies that the repressor in question is statistically significant at 5% level; otherwise, it is not significant at that level.

H_{01} – Foreign direct investment has no significant impact on economic growth.

Table 8: Result of Wald Test of LFDI on LRGDP.

Test Statistic	Value	df	Sig (p)
F-statistic	0.002307	(1, 70)	0.9621
Chi-square	0.002307	1	0.9617

Source: Authors computation from E-views result output, (2024).

In the above table 8, the Wald test result indicated that the F-statistics is 0.0023 and the probability value is 0.96 which is greater than the level of significance of 0.05. It implies that it falls in the acceptance region, and thus, the first null hypothesis was accepted which indicate that FDI has no significant impact on economic growth.

H_{02} – Exchange rate have no significant impact on economic growth.

Table 9: Result of Wald Test of LEXR on LRGDP.

Test Statistic	Value	df	Sig (p)
F-statistic	50382.96	(1, 70)	0.0000
Chi-square	50382.96	1	0.0000

Source: Authors computation from E-views result output, (2024).

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The result of the Wald test in table 9 indicated that exchange rate has a significant impact on economic growth this is because the P-value of (0.0000) is less than the level of significance of 0.05. Hence, the null hypothesis was rejected and the alternate accepted.

H_{03} – Labor has no significant impact on economic growth in west Africa.

Table 10: Result of Wald Test of Labor on LRGDP.

Test Statistic	Value	df	Sig (p)
F-statistic	10542.12	(1, 70)	0.0000
Chi-square	10542.12	1	0.0000

Source: Authors computation from E-views result output, (2024).

The result of the Wald test in table 10 above revealed that the F-statistic of 1.66 and the P-value of 0.0000 which is less than the level of significance of 0.05. indicate that the null hypothesis was rejected and the alternate accepted which denote that LHK has a significant impact on LRGDP.

H_{04} – Trade liberalization has no significant impact on economic growth in west Africa.

Table 11: Result of Wald Test of LTL on LRGDP.

Test Statistic	Value	df	Sig (p)
F-statistic	125286.6	(1, 70)	0.0000
Chi-square	125286.6	1	0.0000

Source: Authors computation from E-views result output, (2024).

From the above table 11 of the Wald test result it was discovered that the F-statistic is 125286.6 and the P-value is 0.0000 which is less than the level of significance of 0.05. Hence the null hypothesis is rejected and the alternate accepted which denote that LTL has a significant impact on LRGDP in west African.

H_{05} – Investment has no significant impact on economic growth in west Africa.

Table 12: Result of Wald Test of LINV on LRGDP.

Test Statistic	Value	df	Sig (p)
F-statistic	13390.90	(1, 70)	0.0000
Chi-square	13390.90	1	0.0000

Source: Authors computation from E-views result output, (2024).

From the above table 12 of the Wald test result it was discovered that the F-statistics is 13390.90 and the P-value is 0.0000 which is less than the level of significance of 0.05. Hence the null hypothesis is rejected and the alternate accepted which implies that LINV has a significant impact on LRGDP in the selected west African countries.

DISCUSSION OF FINDINGS

This research was undertaken to investigate the effects of trade Liberalization on economic growth in three (3) selected West African countries of Nigeria, Ghana and Cote d"Ivoire employing

several econometric techniques to achieve the research objectives. The ADF unit root test was applied to examine if the time series data set exhibit unit root properties, that is, if the data set is stationary. Having established stationarity of all the time series, the next step was to select the number of lags for the ARDL estimation. The Autoregressive Distributed Lag (ARDL) bound test was employed to investigate the long run co-integrating relationship between trade Liberalization and real GDP growth. the result of the ARDL test confirms the existence of short-run equilibrium relationship between trade Liberalization and economic growth of the three countries. This is inline with work of Khobai, Kolisi and Moyo (2018) The results also showed that trade liberalization have a positive and significant effect on economic growth.On the other hand, in the long run LINV was found to be positive with a coefficient of (0.61) and is found to be statistically significant to LRGDP with P-value of (0.0000) the result conform with the Sunde, T., Tafirenyika, B., & Adeyanju, A. (2023). Testing the impact of exports, imports, and trade Liberalization on economic growth in Namibia:LHK and LFDI long run and short run result shows that LFDI is negative but is statistically significant to LRGDP, is contrary to the work of Sunde, Tafirenyika, and Adeyanju (2023) for Namibia found that trade liberalization and FDI positively influences economic growth

CONCLUSION

Based on the regression result the study concludes that Trade liberalization has positive effect on economic growth of the three west African countries. Hence the study recommends that policymakers should implement strategies to sustain and enhance economic growth through effective trade liberalization policies and these countries should promote appropriate trade policies devoted to foster increased local production of manufactured and agricultural goods to reduce importation and stimulate exports, as a strategy to boost economic growth

RECOMMENDATIONS

1. Enhance Regional Trade Integration through ECOWAS Framework: West African countries should strengthen regional trade agreements under ECOWAS to harmonize trade policies, reduce tariffs, and eliminate non-tariff barriers. This will foster intra-regional trade, enhance market access, and stimulate economic growth.
2. Invest in Infrastructure to Support Trade Competitiveness: Governments should prioritize investments in transport, energy, and digital infrastructure to reduce the cost of doing business. Efficient infrastructure will facilitate the movement of goods and services, attract foreign direct investment (FDI), and improve export competitiveness.
3. Promote Export Diversification and Value Addition: West African countries must reduce dependence on primary commodity exports by promoting value-added industries and diversifying their export portfolios. Incentivizing the development of manufacturing and agro-processing sectors will enhance resilience to global trade shocks.
4. Implement Trade Facilitation Measures and Capacity Building Programs: Simplifying customs procedures, enhancing border efficiency, and promoting e-governance will reduce trade delays and boost economic activities. Additionally, training programs to improve the capacity of small businesses and trade institutions will ensure inclusive participation in trade liberalization efforts.

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