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Institutional Quality in the Nexus between Foreign Trade and Economic Growth in Nigeria

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Abstract

International trade, a trade between a country and another is expected to spur socio-economic advantages for the participants according to international trade theories. The optimism in such economic interaction is that it will activate sustainable growth in the economy of the countries without due consideration for the state of the institutional structures available in the different economies. In this light, this study investigated the role played by institutional quality on the effect that international trade can have on the economic growth of Nigeria with data on the gross domestic growth rate, exchange rate, financial development, and institutional quality from 1991 to 2021. The study adopted the autoregressive distributed lag (ARDL) and Granger causality approaches as estimation techniques. The study found out that there is long and short run relationship among the variables. Foreign trade weakly affects economic growth negatively in the long run, but positively in the short run, financial development significantly affects economic growth positively in the long run. Institutional quality interacts positively with trade to affect economic growth significantly in the long run, while the exchange rate also influences economic growth in the short run. The study therefore, recommends that the Federal government of Nigeria should enhance the institutional quality in the country both in the short and long run, especially the control of corruption so that there will be a free flow of goods and services for international trade.

Keywords: Institutional Quality, Autoregressive Distributed Lag, Granger Causality, Sustainable Growth, and International Trade.

INTRODUCTION

International trade plays a crucial role in the development of national economies and the global economy as a whole. It allows companies to sell their wares to a wider audience, which in turn increases the likelihood of making a profit. In addition, it encourages competition, which may lower costs and raise standards. Trading internationally is crucial to national economies and the global economy as a whole (Alam & Murad, 2020). It opens the door to a bigger consumer base, which may result in higher product demand and higher sales and profitability for enterprises. Competition is encouraged, which may lower costs and raise standards for everybody involved. The exchange of goods and services across borders may also facilitate the dissemination of information and expertise, therefore boosting domestic output and international competitiveness. Additionally, foreign trade can provide access to capital and resources, which can help to finance investments and drive economic growth. However, foreign trade can also have potential negative effects, such as exposing the economy to external shocks and creating trade imbalances. Therefore, policymakers need to carefully manage foreign trade to maximize its benefits while minimizing its potential negative impacts (Alola, Bekun, & Sarkodie, 2019). The impact of international trade on a country's economy may be both beneficial and detrimental. On the positive side, foreign trade can provide access to larger markets for exports, increase competition, promote the transfer of technology and knowledge, and provide access to capital and resources. On the negative side, foreign trade can lead to dependence on foreign markets and suppliers, expose the economy to external shocks, and create trade imbalances (Mehmood, Ali, and Chani, 2013; Ali and Naeem, 2017; Ben et al., 2019).

Institutions like the World Trade Organization (WTO) and the International Monetary Fund (IMF) advocate for trade liberalization to accelerate growth, particularly in developing countries, recognizing the significant role of foreign trade in economic expansion (Tahir & Azid, 2015). Foreign trade is a vital component of gross domestic product (GDP), particularly in developed and emerging economies, contributing to overall economic growth. Nations worldwide employ various policies, including international trade policy, to foster sustainable economic growth, aiming ultimately to improve living standards (Tahir & Azid, 2015). International trade has been instrumental in providing developing countries access to expanded international markets, enhancing competitiveness.

The relationship between global commerce and GDP growth has been explored through different theories. The traditional principle of comparative advantage suggests that nations should focus on producing goods in which they excel and import those in which they lack comparative advantage. Endogenous growth theory posits that technical advancements, human capital, and foreign trade drive economic growth and can be influenced by policy intervention. The idea posits that foreign trade boosts GDP by enhancing knowledge sharing, fostering healthy competition, and opening up new markets for domestic producers (Audi and Ali, 2018; Kerr, 2020; Ahmad et al., 2022). The impact of international trade on GDP has been the subject of contradictory empirical findings. While some research has indicated a positive correlation between international commerce and GDP expansion, other studies have found either a negative one or no correlation at all. A country's degree of development, the types of commodities and services exchanged, the composition of the economy, and the rules and institutions controlling international trade may all influence the direction and strength of the link between foreign trade and economic growth (Khan et al., 2020). Institution forms the incentive structure of a society, and consequently, the political and economic force behind economic performance (Buchanan, Le, & Rishi, 2012; Falvey, Foster, & Greenaway, 2012).

Institutional quality refers to the quality of the systems of procedures, regulations, and customs that govern and shape the various socioeconomic activities and behaviors inherent in an economy. High quality of the institutional environment via government effectiveness and efficiency, property rights, the quality of contract enforcement, rule of law, political stability, etc. is well known to promote financial development. There are emphases laid on the overall positive significant effect of better institutions on trade (Daude & Stein, 2007; Levchenko, 2007). On the other hand, a low-quality institutional framework such as the presence of bribery and corruption, high bureaucracy, little confidence in the judiciary and property rights, and rent-seeking increase the transaction cost of doing business and stifle growth by discouraging investment (Fabro & Aixala, 2009; North, 1990).
It is in light of these assertions that this study aims to find out how the institutions in Nigeria contribute to or discourage the effect that foreign trade could have on the economic growth of Nigeria. This study contributes to the existing literature by considering the institutional quality impact on foreign trade in Nigeria which to the best knowledge of the author is quite limited in the literature. The paper is organized as follows. The next section presents an overview of the literature on the topic. Section 3 introduces the method, data, and econometric approach while section 4 presents the empirical results. Finally, section 5 concludes this study with a discussion of our findings.

LITERATURE REVIEW

Theoretical Framework

Several economic theories support the idea that foreign trade can have a positive impact on economic growth. In addition to these is the view of the institutional school of economic thought.
The first of the theories that support the idea that foreign trade can have a positive impact on economic growth is the theory of Comparative Advantage. This theory propounded by David Ricardo, suggests that countries should specialize in producing goods and services in which they have a comparative advantage and engage in trade to enhance production and lower prices. By focusing on key commodities, countries can exploit economies of scale to increase output while

reducing input costs (Nguyen, 2020). Another theory in this area is the Product Life Cycle Theory, pioneered by Raymond Vernon, which posits that as products mature, production shifts from developed to developing countries, leading to increased exports and economic growth in the latter. As developing countries acquire expertise in producing these goods, they may become exporters themselves, further fueling economic growth (Alam & Murad, 2020). Following these two economic views is the endogenous growth theory, developed by Paul Romer, which suggests that technological progress is endogenous to the economy and can be influenced by policies promoting innovation and knowledge creation. Through foreign trade, knowledge and technology sharing can boost productivity and economic development (Alola et al., 2019). The Economic Convergence Theory is another theory that is relevant in this stead. According to this idea, economic convergence will occur when nations with lower per capita income expand faster than those with greater per capita income. Foreign trade can facilitate this process by allowing countries to access larger markets and benefit from economies of scale, leading to increased productivity and economic growth (Khan et al., 2020). Overall, these theories suggest that foreign trade can have a positive impact on economic growth by increasing access to foreign markets, facilitating the transfer of technology and knowledge, and promoting economies of scale.

Concurrently, the institutional school of economic thought underscores the significance of a sound institutional framework in the growth process. Dating back to the work of Hamilton in 1919, the importance of institutional quality has been continually emphasized, with differences in institutional quality deemed fundamental to variations in economic development across countries (Acemoglu, Johnson & Robinson, 2005). Also, it has been widely recognized that "institutions matter" and that institutions are important in determining the development capacity of the economy (Bardhan, 2001). According to North (1990), "Institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction". Economic institutions are indispensable due to their influence on the structure of economic incentives. According to Acemoglu et al., (2005), economic institutions help to allocate resources to their most efficient use, as it guides against misallocation of resources. It was further emphasized that institutional quality facilitates and encourages factor accumulation and innovation and also ensures the efficient allocation of resources to productive activities (Ang, 2008; Acemoglu et al., 2005; Levine, 1997; King & Levine, 1993).

The institutional quality, according to North (1990), institutions is the humanly devised constraints or rules of the game that structure political, economic and social interactions. These factors are measured by recognized and standard indicators such as corruption control, bureaucratic quality, law and order, government stability and democratic accountability. Corruption control is an index of institutional quality which measures the extent to which public powers and people are being checkmated to forestall or reduce inducements and sharp practices against the norms in public services and private affairs. Another institutional measure is bureaucratic quality. This measures government effectiveness. It captures the perceptions about the quality of public services, civil services and their degrees of independence from political pressures in policy formulation and implementation. Bureaucratic quality also gives a detailed account of government's commitment and credibility to her policies. Law and order also known as 'rule of law' which has been tagged market-creating institutions is another institutional measure. This measures the extent or degree to which people within a country are willing and ready to accept the established institutions to make and adjudicate disputes (Das & Quirk, 2016). Sound rule of law ensures stakeholders have confidence and trust in the activities of the business environment. This tends to foster economic growth and development as legitimate activities in the business and trade sectors are encouraged and corrupt practices and shady dealings are checkmated to barest minimum. Another measure of institutional factor considered in this paper is government stability. This measures the extent of political stability and absence of violence/terrorism in an economy. The last measure of institutional quality looked into in this study is democratic accountability. This refers to the extent to which a

country's citizens are able to participate in selecting their government and reward or sanction officials in charge of setting and enacting public policy (Jelmin, 2012).

EMPIRICAL REVIEW

Safiyanu and Chua (2020) conducted a study on the short-run and long-run relationship between foreign trade and economic growth across 40 sub-Saharan African countries from 1992 to 2018. The study employed Cross-sectional Augmented Autoregressive Distributed Lag (CS-ARDL) panel data estimations to account for cross-sectional dependency and dynamic heterogeneity among the countries. The empirical results indicate that foreign trade significantly boosted the economic growth of sub-Saharan African countries in the short run but had a significant negative effect on economic growth in the long run. Additionally, total trade, imports, exports, and trade balance were found to Granger cause economic growth in these countries. To enhance the impact of trade on the economy, sub-Saharan nations should shift their trade structures from raw materials exports to high-value-added goods and prioritize investments in capital-intensive sectors and human development to absorb technological advancements from advanced countries.

Asamoah, Mensaha, and Bondzie (2019) explored the role of institutions as interactive factors in the relationship between foreign direct investment (FDI), trade, and growth in sub-Saharan (SSA). Using Structural Equation Modeling (SEM) with data from 34 SSA countries spanning 1996 to 2016, the study found that the effect of FDI on economic growth diminishes with the absence of institutions, while there is a positive effect of institutions on trade openness and economic growth. Moreover, human capital development, financial development, and resource rent were identified as positively influencing economic growth and development in SSA Sythongbay (2020) analyzed the effect of trade policy on economic growth in Laos before and after economic reform. Utilizing the ADF test, co-integration analysis, Granger causality test, and an error correction model, the study found a positive relationship between Lao's total trade, exports, and imports with its GDP in the long run. However, in the short run, total trade volume has a significant effect on GDP, with exports contributing positively and significantly, while imports have a negative effect. Kim, Lin, and Suen (2016) also show that increased trade openness contributes to economic growth as well as amplifies long-run growth volatility. On the contrary trade openness is not the main engine underlying the Asian growth transformation in the findings of Trejos and Barboza (2015). In assessing whether trade openness leads to productivity growth, Bresnahan, Coxhead, Foltz, and Mogues (2016) provide evidence to confirm that export intensity leads to higher productivity of firms in Ghana, Kenya, and Tanzania.

Rahim, Ibrahim, Shah, and Mehmood (2023) investigated the impact of Foreign Trade, foreign direct investment, exchange rate, and trade policies on economic growth in Pakistan using panel data from 2000 to 2022. Employing a random effect model, the study found that exports, imports, foreign direct investment, and trade policies significantly influenced GDP positively, while the exchange rate had an insignificant impact. The study underscores the importance of promoting export-oriented policies, attracting FDI, and adopting stable exchange rates and trade policies to boost economic growth in Pakistan.

Thanh, Canh, and Schinckus (2019) investigated the influence of economic institutions and economic openness on Vietnam's growth using data from 63 provinces spanning 2005 to 2015. Using system GMM estimators, the study found that the combined effect of FDI and trade openness had a substitute effect on economic growth, while they had a positive effect separately. Additionally, economic institutions significantly influenced the combined effects of FDI and trade openness in improving economic growth.

Singh and Kumar (2020) examined the long-run relationship among India's gross domestic product, exports, and imports with the use of time series data from 1995 to 2018. The result of the Johansen cointegration test revealed a long-run relationship among the variables. The VECM Granger causality test also revealed a bi-directional relation between India's gross domestic product and its imports. Hayat (2019) evaluated the direct impact of institutional quality on economic growth

through enhancing FD-induced economic growth. The study used a dataset of 104 countries in low, middle, and high-income countries and applied the general method of moments (GMM) estimation method. The study provides evidence that both FDI inflows and institutional quality cause stronger economic growth.

METHODOLOGY

The study adopted the Autoregressive Distributed Lag (ARDL) Bound Testing technique and ECM in line with Pesaran, Shin, and Smith (2001). This model can fix endogeneity and simultaneity problems, in addition to helping to draw inferences from the dynamic nature and behavior of economic variables. This approach presents at least three significant advantages over the two common alternatives used in the empirical literature: the single-equation procedure developed by Engle–Granger (1987) and the maximum likelihood method based on a system of equations postulated by Johansen (1991, 1995). First, both these approaches require the variables under study to be integrated of order 1; this inevitably requires a previous process of tests on the order of integration of the series, which may lead to some uncertainty in the analysis of long-run relations. In contrast, the ARDL bounds testing approach allows the analysis of long-term relationships between variables, regardless of whether they are integrated of order 0 [I(0)], of order 1 [I(1)], or mutually cointegrated. This avoids some of the common pitfalls faced in the time series analysis, such as the lack of power of unit root tests and doubts about the order of integration of the variables examined (Pesaran et al. 2001). Second, the ARDL bounds testing approach allows a distinction to be made between the dependent variable and the explanatory variables, an obvious advantage over the method proposed by Engle–Granger. At the same time, like the Johansen approach, it allows simultaneous estimation of the short-run and long-run components, eliminating the problems associated with omitted variables and the presence of autocorrelation. Finally, while the estimation results obtained by the methods proposed by Engle–Granger and Johansen are not robust to small samples, Pesaran – Shin (1999) show that the short-run parameters estimated using their approach are consistent and that the long-run parameters are super-consistent in small samples. The ARDL approach to cointegration is supported by Granger causality to investigate the direction of causal effect from each of the variables. The annual time series data used in this study, which spanned 32 years (from 1990 to 2021) were obtained from World Bank Development Indicators (2023) and Central Bank of Nigeria Statistical Bulletin (2023). The data on institutional quality is sourced from the International Country Risk Guide (ICRG) assembled by the Political Risk Services (PRS) group (2023). In line with Law, Lee and Singh (2017), the overall institutional factors are measured by five indicators such as (i) democratic accountability (ranging 0-6), (ii) government stability (ranging 0-12), (iii) bureaucratic quality (ranging 0-4), (iv) corruption control (ranging 0-6) and (v) law and order (ranging 0-6). Following Law et al (2018), an overall institution variable is constructed by summing the five ICRG indicators. Sub-indicators of the institutional quality index are rescaled from 0-10 to maintain comparability. A higher number indicates a higher level of institutional quality, whilst lower values indicate a lack of institutional features. The main idea behind rescaling institutional quality indicators is to make them follow the same pattern so that interpretations are consistent (Muye & Muye, 2017).

Model Specification

The implicit equation is:

$$GDPGR = f(TRD, EXCR, FD, INST, TRD*INST) \quad (1)$$

where:

GDPGR = gross domestic product growth rate (proxy for economic growth)
TRD = Trade (sum of exports and imports as a percentage of GDP
EXCR = exchange rate
FD = Financial Development (ratio of domestic credit to gross domestic product)
INST= Institutional quality

TRD* INST = interaction of institutional quality with trade

Further, the based-line regression equation of the implicit function in Equation (1) is expressed as:

GDPGRt = ∞0 + ∞1TRDt + βi Zit + μt

Zit is a vector of independent variables for the study

Further, converting the equation (1) in the ARDL framework according to Pesaran et al (2001) as follows:

$$\Delta GDPGR_t = \alpha_0 + \sum_{i=1}^{a}\alpha_{1i}\Delta GDPGR_{t-1} + \sum_{i=0}^{b}\alpha_{2i}\Delta TRD_{t-2} + \sum_{i=0}^{c}\alpha_{3i}\Delta EXCR_{t-1} + \sum_{i=0}^{d}\alpha_{4i}\Delta FD_{t-1}$$

$$+ \sum_{i=0}^{e}\alpha_{5i}\Delta INST_{t-1} + \sum_{i=0}^{f}\alpha_{6i}\Delta TRD*INST_{t-1} + \beta_1(GDPGR)_{t-1} + \beta_2(TRD)_{t-1} + \beta_3(EXCR)_{t-1}$$

$$\beta_4(FD)_{t-1} + \beta_5(INST)_{t-1} + \beta_6(TRD*INST)_{t-i} + \varepsilon_t \ldots\ldots(2)$$

Results

Before proceeding with the empirical analysis of the role played by institutional factors in the nexus between foreign trade and economic growth in Nigeria, the descriptive characteristics of the variables are examined in Table 1 to provide necessary information on them. Descriptive statistics provides the opportunity to have the feel of the data. The mean value which is the average value of the variables shows that EXCR, FD, GDPGR, INST, TRD, and TRD*INST has 137.819, 10.2709, 3.88906, 3.89719, 36.4438, and 142.4241 respectively. The average value of GDPGR (3.88906%) is less than the median value (4.215%) of the variable. It implies that the data distribution of GDPGR in Nigeria is skewed to the left. The Jarque-Bera statistic indicates that the GDPGR is normally distributed. Similarly, all other variables such as EXCR, FD, INST, TRD, and TRD*INST are normally distributed based on the p-values of their respective Jarque-Bera statistics. Furthermore, the data distribution of financial development, institutional factors, and TRD appeared skewed to the left, as their means were less than the median values. On the contrary, EXCR and TRD*INST maintain rightward skewness. Besides, the best institutional factor in Nigeria was 4.61 in 1998 while its lowest value was 2.68 in 1990. This shows evidence of an upward trend in the pace of institutional development in Nigeria. The comparison of standard deviation and mean values of all the variables suggests that the average values represent that data somewhat. The coefficients of skewness indicate that all the variables apart from INST are positively skewed. These suggest that all the variables portray elements of asymmetries in their data either by skewing to the right or the left, none is symmetrical in data distribution. In addition, the coefficients of Kurtosis suggest that EXCR, TRD, and TRD*INST are leptokurtic due to the premise that their coefficients are more than 3, implying that their data distributions are more heavily concentrated about the mean than a normal distribution. However, FD, GDPGR, and INST are platykurtic as their coefficients are less than 3, implying that their data distributions are less heavily concentrated about the mean than a normal distribution.

Table 1: Descriptive Statistics of the variables

	EXCR	FD	GDPGR	INST	TRD	TRDINST
Mean	137.819	10.2709	3.88906	3.89719	36.4438	142.4241
Median	128.935	9.395	4.215	4.00	36.54	137.56
Maximum	401.15	19.63	15.33	4.61	53.28	213.87
Minimum	8.04	4.96	-2.04	2.68	20.72	82.95
Std. Dev.	106.984	3.53697	3.93173	0.44447	8.90191	40.82928
Skewness	0.79203	0.82426	0.43815	-0.7396	0.0213	0.307369
Kurtosis	2.96083	3.36598	3.50016	3.15432	2.30312	1.982251
Jarque-Bera	3.34773	3.80204	1.3574	2.9489	0.64995	1.884954
Probability	0.18752	0.14942	0.50728	0.22891	0.72255	0.389661
Sum	4410.22	328.67	124.45	124.71	1166.2	4557.57

Sum Sq. Dev.	354812	387.814	479.213	6.12425	2456.56	51677.93
Observations	32	32	32	32	32	32

Correlation Matrix

It is important to check for the correlations between the variables before running the models to identify important explanatory variables and check for possible multicollinearity. The summary of the correlation matrix is shown in Table 3. The usual benchmark according to Gujarati and Porter (2003) is 80% or a coefficient of 0.80. The maximum value is 0.920 which is between TRD and TRD*INST which could be a result of their interaction.

Table 2: Correlation Matrix of the variables

	EXCR	FD	GDPGR	INST	TRD	TRDINST
EXCR	1.000					
FD	0.563	1.000				
GDPGR	-0.011	0.195	1.000			
INST	0.399	0.184	0.326	1.000		
TRD	-0.431	-0.224	0.410	0.108	1.000	
TRD*INST	-0.236	-0.146	0.487	0.484	0.920	1.000

Source: Author's Computation, 2024

Unit Root and Cointegration Tests

Unit Root Test It is commonly believed that the simple time series around a deterministic pattern is stationary or at least stable; this is not always accurate. Nevertheless, the co-integration technique of ARDL does not require unit roots to be pretested. However, to prevent ARDL from crashing in the presence of an embedded stochastic pattern of I(2), the study performs unit root tests to know the number of unit roots in the series. To verify the outcome properties of the time series, this study used augmented Dickey–Fuller (ADF) and Phillips–Perron (PP) tests. The null hypothesis for the test (both ADF and PP) asserts that the data series in question has a unit root while the alternative hypothesis asserts that the series is stationary. As shown in Tables 3 and 4 below, GDPGR TRD, and INST are stationary at levels, while EXCR, FD, and TRD*INST became stationary after first differencing, both under ADF and PP. This depicts that the series has a combination of I(0) and I(1) which makes ARDL appropriate for estimation.

Table 3: Unit Roots Test for Stationarity (Augmented Dickey-Fuller)

Variables	Level		First Differences	
	Intercept	Intercept and Trend	Intercept	Intercept and Trend
EXCR	1.8728	-0.2822	-3.7343***	-4.1412***
FD	-2.5750	-3.7587	-5.0519***	-5.0279***
GDPGR	-3.6858***	-3.5992**		
TRD	-2.7803*	-3.2449*		
INST	-3.4821**	-3.4035*		
TRD*INST	-2.8819	-3.0187	-5.0410***	-5.1420***

***,**, * denote levels of significance at 1%, 5% and 10% respectively

Source: Author's Computation, 2024

Table 4: Unit roots Test for Stationarity (Phillips Peron)

Variables	Level		First Differences	
	Intercept	Intercept and Trend	Intercept	Intercept and Trend
EXCR	2.1080	-0.4362	-3.6316***	-4.0002***
FD	-1.7309	-2.1111	-5.9862***	-6.0767***
GDPGR	3.8126***	3.8126**		
TRD	-2.7803*	-4.1775*		
INST	-3.6060**	-3.3513*		

TRD*INST	-2.8819	-2.9607	-8.1849***	-4.4167***

***,**, * denote levels of significance at 1%, 5% and 10% respectively

Source: Author's Computation, 2024

In estimating the long-run relationship, a two-step method is used: an initial analysis of the nature of a long-run relationship between the variables in Equation (2), which is accompanied by an approximation of the short-run and long-run parameters. Therefore, the bounds test method was used to determine the existence of a long-term relationship between the variables of interest by conducting an F-test for the coefficients of the lagged-level variables of the model. Also, Pesaran and Shin (1998) suggested two critical values to evaluate the relationship (lower and upper bound) due to the limitations of the traditional Wald-test F-statistic. The computed F-test is then compared with the critical values for the hypothesis test. Therefore, if the calculated F-statistic is less than the lower bound value, the null is not rejected. On the contrary, the existence of a long-term relationship between the variables is suggested if the calculated F-statistics exceeds the upper limit value. Finally, there is an inconclusive long-run relation between the variables if the calculated F-statistics are between the lower bound and the upper. Table 5 below depicts a presence of cointegration as the F-test value of 12.282 exceeds both lower and upper limit values at all critical values benchmarks.

Table 5: Bound Testing

Dependent Variables	F-test	Decision
F (GDPGR [TRD, EXCR, FD, INST, TRD*INST]	12.282	Cointegrated
Critical Values	Lower Bound I (0)	Upper Bound I (1)
1%	3.41	4.68
2.50%	2.96	4.18
5.00%	2.62	3.79
10.00%	2.26	3.35

Source: Author's Calculation from E-views

The Error Correction Models

After, confirming the presence of cointegration based on the ARDL approach, in the next step, the "error correction model" (ECM, hereafter) is estimated. There are two purposes for estimating the ECM. First, it helps to investigate the short-run dynamics. Second, the ECM also provides information about the speed of adjustment of the model. Keeping in mind the benefits, we have specified the following ECM models:

$$\Delta GDPGR_t = \beta_0 + \sum_{i=1}^{a} \beta_{1i} \Delta GDPGR_{t-1} + \sum_{i=0}^{b} \beta_{2i} \Delta trd_{t-2} + \sum_{i=0}^{c} \beta_{3i} \Delta EXCR_{t-1} + \sum_{i=0}^{d} \beta_{4i} FD_{t-1}$$
$$+ \sum_{i=0}^{e} \beta_{5i} \Delta INST_{t-1} + \sum_{i=0}^{f} \beta_{6i} \Delta TRD * INST_{t-1} + \gamma_1 ECT_{t-1} + \varepsilon_t \text{..}(3)$$

Where ECTt-1 is the EC term lagged by a one-time period and ᴪ is the speed of adjustment. Because of the numerous co-integrated variables, the existence of an EC term among several co-integrated variables implies that changes in the dependent variable are a function of both the level of disequilibrium in the co-integration relationship (represented by the ECM) and the changes in other explanatory variables.

Results of Long and Short Run Dynamics

One of the advantages of ARDL in line with Pesaran et al., (2001) is an estimation of both the short run and long run simultaneously in addition to estimating a time series equation with a combination of stationary and non-stationary order of I(0) and I(1) and its potentials of addressing

endogeneity and simultaneity problems. Table 6 presents the result of the estimated long-run and short-run dynamics of the specified below.

Table 6: Estimated Long run and Short-run Dynamics of ARDL Model (1,2,1,1,2,2)

Panel A: Dependent Variable: GDPGR (Long run))

Variable	Coefficient	Std. Error	t-Statistics	Prob.
TRD	-2.337765	1.173566	-1.992018	0.0649
EXCR	-0.005338	0.00549	-0.972201	0.3464
FD	0.553613	0.142139	3.894871	0.0014
INST	-16.217902	10.816684	-1.499341	0.1545
TRD*INST	0.635673	0.290469	2.188433	0.0449
C	57.294124	42.639575	1.343684	0.1990

Panel B: Goodness-of-it Measures

R2	0.901954
Adjusted R2	0.810444
F-statistics	9.856336
Prob. (F-statistics	0.000036
Durbin Watson stat	2.380091

Panel C: Diagnostic Statistical Checking

	Test Statistics	Probability
Serial correlation LM test (Breusch-Godfrey)	3.254052	0.1965
Heteroscedasticity test (Breusch-Pagan-Godfrey	10.49662	0.7250
Normality test (Jacque-Bera)	1.870146	0.392
ARCH test for Heteroscedasticity	0.017252	0.8955
Reset specification test	2.265696	0.1545

Panel D. Short Run Dynamics

D(TRD)	1.219919	0.717403	1.700465	0.1097
D(TRD(-1))	2.405857	0.722644	3.329241	0.0046
D(EXCR)	-0.065617	0.021099	-3.109972	0.0072
D(FD)	-0.203819	0.181694	-1.121773	0.2796
D(INST)	14.457188	6.733238	2.147138	0.0485
D(INST(-1))	19.040961	6.903859	2.758017	0.0146
D(TRD*INST)	-0.30881	0.181005	-1.706087	0.1086
D(TRD*INST(-1))	-0.607386	0.182869	-3.321434	0.0046
CointEq(-1)	-1.051104	0.133688	-7.862358	0.0000

Cointeq = GDPGR - (-2.3378*TRD -0.0053*EXCR + 0.5536*FD -16.2179 *INST + 0.6357*TRDINST + 57.2941)

Source: Author's Computation, 2024

Table 7: Granger Causality Estimates

Dependent Variables	Sources of Causality					
	GDPGR	TRD	FD	EXCR	INST	TRD*INST

GDPGR		1.55415	0.43113	0.37176	3.066***	3.946**
TRD	3.740**		0.94098	1.66798	0.0925	0.01439
FD	0.65082	0.03059		3.469**	1.07694	0.16848
EXCR	0.59286	1.08733	0.78903		0.72751	0.38654
INST	0.11504	0.38548	0.7795	0.21513		0.29926
TRD*INST	3.183***	0.00411	1.65902	1.53471	0.03726	

Source: Author's Computation, 2024

Robustness Check

The goodness-of-fit measures and the diagnostics tests of the results are in Part C of Table 6. The goodness-of-fit measures show the value of R2 as 0.90 (90%), Adjusted R2 as 0.81 (81%), F-statistic as 9.8563, and its corresponding p-value as 0.000 and the Durbin Watson stat as 2.38. which is above 2, shows the absence of autocorrelation. All these measures are favorable. The diagnostics tests showed the absence of serial correlation and heteroskedasticity in the residuals. The residuals are normally distributed according to the Jarque- Bera value and its corresponding p-value. The model is also free from wrong model specifications as depicted by the Reset specification value and its corresponding p-value. The stability of the model tests (Cusum and Cusum square tests - appendix 2) also confirms the stability of the model.

DISCUSSION OF FINDINGS

In Table 6, the EC term is negative and significant at a 1% level, a pre-condition for a long-run relationship. This reaffirms the evidence of a stable long-run relationship among the variables as confirmed earlier by ARDL-bound testing (Ntembe et al., 2017). This coefficient measures the speed of adjustment to stable and dynamic equilibrium after a series of shocks in the short run. The result suggests that the speed of convergence or adjustment to the stable and dynamic equilibrium after a shock within a year is 105.11 percent. It means that 105.11 percent of deviation from long-run equilibrium in the previous period is significantly corrected in the current year.

Also, Table 6 presents both the long-run and short elasticity coefficients of the estimated model along with its diagnostics and goodness-of-fit tests. The long-run coefficient of foreign trade (-2.3379) is negative and statistically significant at a 10 percent level (0.0649). This implies that in the long run, foreign trade weakly affects economic growth. The short-run elasticity coefficient (lag one, 2.4058) of the foreign trade indicator (TRD) is positive and statistically significant at a 1 percent level. This implies that foreign trade has a strong positive influence on economic growth in the short run.

The long-run elasticity coefficient (0.5536) of the financial development indicator (FD) is positive and statistically significant at a 1 percent level but has a statistically insignificant effect in the short run at the conventional levels. This implies that financial development has a strong positive influence on economic growth in Nigeria in the long run. It shows that as the financial sector develops, it provides a stimulus that contributes positively to enhancing the immediate and potential growth prospects of the Nigerian economy. This validates the findings of Tursoy and Faisal (2018). The position of theory, within the context of the endogenous growth model, is further reaffirmed that financial development is an impetus to economic growth (Pagano, 1993).

In the long- run, the institutional factor index (INST) reveals an insignificant effect on economic growth, but short-run elasticity coefficients (both lags zero and one, 14.4571 and 19.0409 respectively) of institutional factor indicator (INST) are positive and significant at 5 percent level. This implies that institutional factor only influences economic growth in Nigeria in the short run and not in the long run. This indication is that better institutions tend to increase economic growth in Nigeria in the short run. This corroborates the popular assertion that quality institutions are necessary ingredients of growth and concurs with the studies of Alexiou et al., (2018); Kebede and Takyi (2017); Law et al (2018); Gadzar & Cherif, (2015). This stands incongruent with the study of Ehigiamose & Lean (2018) and Iheanacho (2016) which found a strong negative effect of financial

development on economic growth in Nigeria. The long run coefficient (0.6356) of the interaction term between foreign trade and institutional factor (TRD*INST) yields a statistically significant and positive influence on the growth of the Nigerian economy at a 5 percent level of significance. The short-run lag one coefficient (0.6073) of the interaction term between foreign trade and institutional factors yields a statistically significant but negative influence on the growth of Nigeria at a 1 percent level of significance. The results indicate that in the long run institutional factors enhance the positive effect of foreign trade on economic growth (0.6357), but constitute drags to the growth effect of foreign trade in the short run (lag one, -0.6074). However, the exchange rate in the short run has a statistically significant inverse influence on economic growth (-0.0656). This implies that a reduction in the exchange rate brings about more foreign trade. This confirms the economic theory that lowering of exchange rate encourages export trade as the lower exchange rates bring cheaper exports.

The Granger causality results show that exchange rate granger causes financial development at a 5 percent significant level, and institutional quality granger causes gross domestic growth rate (economic growth) weakly at a 10 percent significant level. In addition gross domestic growth rate granger cause foreign trade at a 5 percent significant level; however, there is bidirectional causality between the interaction of foreign trade together with institutional quality and gross domestic product growth rate. The interaction of foreign trade and institutional quality granger causes a gross domestic growth rate at a 5 percent significant level, while gross domestic product granger causes the interaction of foreign trade and institutional quality at a 10 percent level. This suggests that the institutional quality enhances the foreign trade positively to impact the economic growth. No other causality exists between the variables again.

CONCLUSION

In estimating the nexus between foreign trade and economic growth in Nigeria and the role institutional quality can play, this study adopted the ARDL approach to cointegration as espoused by Pesaran et al., (2001) to estimate the effect of the selected variables on economic growth. This was supported by Granger causality to identify the causal relationship between the variables. The results indicate that in the long run, foreign trade (TRD) has a weakly negative effect on economic growth (GDPGR) at a 10 percent significant level, and financial development has a positive effect on economic growth at a 1 percent significant level. This suggests that the financial sector of Nigeria is positively enhancing economic growth. In addition, the interaction of trade and institutional quality enhances economic growth positively at a 5 percent significant level. This suggests that institutional quality is changing the negative effect of trade on economic growth.

In the short-run, trade lag one affected economic growth positively at a 1 percent significant level, exchange rate negatively affected economic growth at a 1 percent significant level, institutional quality (lag zero and lag one) positively affected economic growth at a 5 percent significant level, whereas the interaction of foreign trade and institutional quality is hurting economic growth at 1 percent level. This suggests that the institutional quality in Nigeria in the short run constitutes itself a drag to foreign trade in affecting economic growth. Besides the Granger causality suggests that the exchange rate Granger causes financial development at a 5 percent significant level, institutional quality Granger causes gross domestic growth rate (economic growth) weakly at a 10 percent significant level. In addition gross domestic growth rate granger cause foreign trade at a 5 percent significant level; however, there is bidirectional causality between the interaction of foreign trade together with institutional quality and gross domestic product growth rate. The interaction of foreign trade and institutional quality granger causes a gross domestic growth rate at a 5 percent significant level, while gross domestic product granger causes the interaction of foreign trade and institutional quality at a 10 percent level. This study recommends that the Federal Government of Nigeria should enhance the institutional quality in the country both in the short and long run, especially the control of corruption so that there will be a free flow of

goods and services both for export and import. The usual congestion and delay at the ports in the country should be worked upon as to encourage trade.

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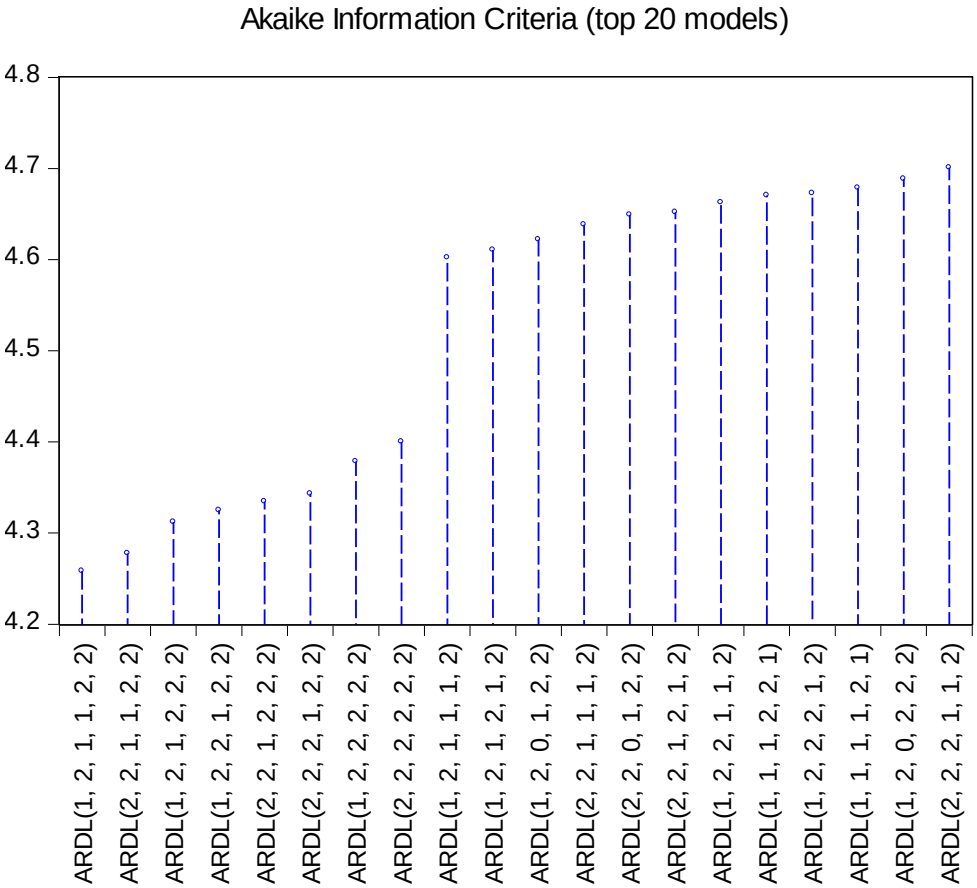
Appendix: 1



Appendix 2

Stability Test