International Trade, Institutional Quality and Poverty Level: A Case Study of Nigeria Economy

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Authors' contributions

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ABSTRACT

The study examined the differential and the interactive effects of disaggregated components of international trade and institutional quality on poverty level in Nigeria. The study employed ARDL Bound Test on the time series data spanning from 1981-2022. The findings of the study revealed mixed results both for the short run and long run. The short run result shows that (EXR) exchange rate has a positive and significant effect on poverty level with p-value of 0.0184; while the long run result shows no significant effect on poverty level in Nigeria. Also, the short run result of institutional quality (INQ) reveals a negative and significant effect on poverty level in Nigeria with the p-value of 0.0142; while the long run result shows a positive and significant effect on poverty level in Nigeria with the p-value of 0.0640. The short run results of (OM) oil import shows a negative and significant effect on poverty level with p-value of 0.0536; while the long run result shows a positive and significant effects on poverty level at p-value of 0.0808. The results of (NM) non-oil import had no significant effects on the level of poverty both in the short run and long run. The short run result of (NX) non-oil export shows a positive and significant effect on poverty level in Nigeria with p-value of 0.0230, while the long run result (NX) non-oil export shows a negative and significant effect on

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poverty level in Nigeria with the p-value of 0.0526. The short run and the long run results of (OX) oil export shows a negative and significant effect on poverty level at p-value of 0.000 and 0.0010 respectively. Furthermore, the results for interactive effects shows that EXR_INQ has a positive and significant effect on poverty at p-value of 0.0196 in the short run, while the long run result displays a negative and significant effect on poverty level in Nigeria at the p-value of 0.0609. The short run result of NM_INQ shows an insignificant effect on poverty level in Nigeria, while the long run result of NM_INQ shows a positive and significant effect on poverty level in Nigeria at the p-value of 0.0461. The short run result of NX_INQ shows a positive and significant effect on poverty in Nigeria with p-value of 0.0861; while the long run result of NX_INQ shows a negative and significant effect on poverty level with p-value of 0.0507. The short run and long run results of OM_INQ show no significant effect on poverty level in Nigeria. While, the result of OX_INQ shows a negative and significant effect on poverty level in Nigeria at p-value of 0.0562 and 0.0768 both in the short run and long run respectively.

In conclusion, the outcome of the study shows that international trade has a significant effect on poverty level both in short run and long run. However, the country (Nigeria) is yet to benefit fully from the expected benefits associated with international trade. Therefore, the study recommends that in order for the country (Nigeria) to benefits fully from international trade, the country needs to strengthen her weak institutional quality to come in as a strong force where necessary to put things right and set the pace for sustainable development that allay poverty.

1. INTRODUCTION

Poverty is a complex global issue that affects all nations on Earth in varying degrees and in different ways [1,2], (Okoli, 2016). [3,4] have noted that poverty is one of the greatest threats to peace and stability, even more so than terrorism and other well-publicized conflicts. East Asia, South Asia, and Sub-Saharan Africa accounted for 93% of the one billion people living in severe poverty in 2020, according to the United Nations Development Project (UNDP, 2020). In Nigeria, poverty has emerged as a significant issue of concern in recent times. The evidence that is currently available suggests that poverty is pervasive in Nigeria to the extent that most of its people are unable to pay for food, decent education, and a variety of other essentials [5,6]. According to World Poverty Clock [5], Nigeria is among the world's poorest countries.
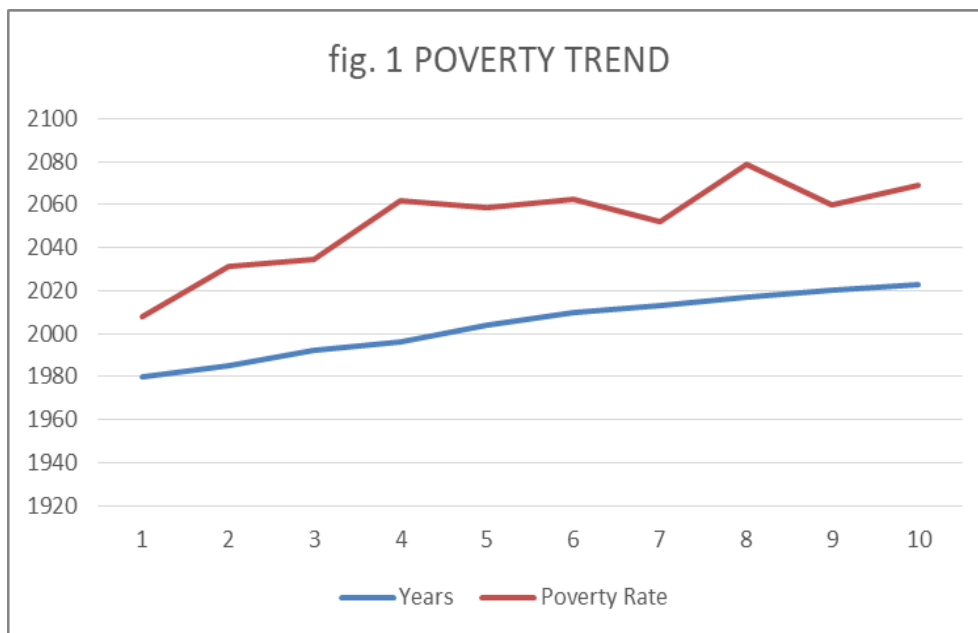

Fig. 1. Poverty Trend in Nigeria
Source: Author's computation 2024

However, International trade has grown in importance over the past several decades as a component of many nations' development goals to create equitable growth that reduces poverty [7]. Governments therefore often engage in trade with the goal of attaining a specific economic outcome for their nation, such as capital inflow, economic growth, or foreign direct investment, among others, since trade has always had an economic impact on nations, even up to the level of a country's civilization [7]. Furthermore, (Claire and Joseph, 2020) stated that African nations gained access to new technology, overseas markets, foreign aid, and other resources as a result of their economy opening up. This integration of global economies is a significant driver of growth, a reduction in income inequality, and a decrease in poverty within the state. Therefore, in light of the significance of international trade, the Nigerian government, like that of every other nation, has been developing various strategies and trade policies to raise her level of international trade. Some of these policies include the removal of import duties and tariffs, the devaluation of currencies to promote exports, the liberalization of exchange rates, and the removal of tariffs and non-tariff barriers (Olufemi et al. 2021).

Although trade has always played a significant role in the history of developing nations like Nigeria, it received increased attention in Nigeria in 1986 as a result of the structural adjustment program, which deregulated the economy. And since then, the nation has implemented a number of policies aimed at fostering more international trade, as previously mentioned. This is so because the 2030 Agenda for Sustainable Development (WBG & WTO, 2018) acknowledges trade as a catalyst for equitable economic growth and the fight against poverty. To this effect WTO and World Bank jointly published a publication in 2015 titled "The Significance of Trade in Winding-up Poverty," the publication provided more indication that trade has been a significant factor in reducing poverty and that the goal of ending extreme poverty by 2030 will require further integration of developing nations into an open global economy.

However, as good as international trade sounds; there has been a long-running debate over the years among the economists both in theories and in literatures on the impact of international trade on the national economy. To this effect the advocates of international trade such as Adam Smith 1723-1970 in his work titled "an inquiry into the nature and causes of wealth of nations", also

David Ricardo 1772-1823 in his theory titled "theory of comparative advantage" and Heckscher and Ohlin (1990) who built on comparative advantage theory to develop "Heckscher-Ohlin theory of international trade" among others argued that opening up local markets to foreign competition and foreign direct investment can lead to improvements in the productivity of domestic industries, resulting in a more efficient allocation of resources and greater overall output and increase in the welfare of the participating countries. While, the critics such as Young 1991 and Krugman [8] warned that domestic firms (i.e the infant industry argument) may not be able to realize efficiency gains from international trade because they are unable to successfully adapt foreign technologies to local methods of production or because domestic firms face binding credit constraints that prevent expansion of efficient industries as well as investments in new technology and therefore may not be able to compete favorably with the foreign firms and which may leads to their ultimate close up. In the same manner, Winters et al. [9] argued that "though international trade is beneficial because it affords a country the opportunity to trade in large market but it has its consequences of exposing the participating countries to foreign shock(s), but the intensity or otherwise of these shock(s) would depend on the nature of existing institutions, policy measures and the capacity of the country to absorb or counter the shock(s). Therefore, which of these two views is closer to the truth has important implications for trade policy that a country will adapt to allow international trade: if the latter holds, benefits of international trade may not be realized unless additional policies are devised to facilitate technology transfer or ease credit constraints".

In addition, in literature, the evidence on whether international trade brings increase to firm-level of efficiency and reduce poverty is mixed. Therefore, to build on the previous research on the subject matter and contribute to the on-going discussion, this study is unique and differs from the previous research works by examining the differential and the interactive effects of disaggregated components of international trade (i.e oil and non-oil import and export) and institutional quality on the poverty rate in Nigeria between the period of 1981-2022. This period was chosen because it covers the period when different policies and programs were implemented on international trade in Nigeria. Also, the study chooses to integrate institutional

value in order to serve as a intermediating variable that balance the economy system to reduce poverty and achieve inclusive growth and as well protect the national economy from external influence(s)/shock(s) especially as related to international trade given the Winters et al. [9] argument that " *that though international trade is beneficial because it affords a country the opportunity to trade in large market but it has its consequences of exposing the participating countries to foreign shock(s), but the intensity or otherwise of these shock(s) would depend on the nature of existing institutions, policy measures and the capacity of the country to absorb or counter the shock(s).*". "The inclusion of institutional quality was further needed given the importance of institutional value as a vital element in development process and poverty reduction in a country" (Barrett and Graddy, 2000; Alhassan and Kilishi, 2019). It is believed that economy with frail and ineffective institutions may be highly underdeveloped and lagging behind [10], Ajide and Osinubi, 2020; Khan, 2009) and; Lastly, the study decided to disaggregate the components of international trade in order to show the relative effects of each component of international trade on the poverty level in Nigeria, thereby helping the government, policy makers and all the necessary stakeholders to know the right steps of action and appropriate policy or policy mixed that will address the situation and pattern of the country's trade in order for the country to benefit maximally from international trade and in order to put the country on the path of sustainable development which allay poverty.

2. LITERATURE REVIEW

Adegoriola and Ben-Obi [11] used quarterly data from 2000 to 2022 to investigate the link between trade liberalization and the decrease of poverty in Nigeria. The results demonstrate that capital imports, trade openness, and foreign portfolio investment all positively affect the degree of poverty. While trade openness has little effect on the degree of poverty, it has a substantial influence on capital importation and foreign portfolio investments. The level of poverty is positively and significantly impacted by exchange rates, while it is negatively and insignificantly impacted by foreign direct investment. Using time series econometric analysis and data spanning 1980–2019, Umeh et al. [12] investigated "how international trade affected Nigeria's efforts to reduce poverty. The study findings indicate that there is a positive and substantial influence of

total export value (TEV) on poverty reduction, a negative and significant impact of total import value (TIV) on poverty reduction, and a positive but negligible impact of foreign direct investment (FDI) on poverty reduction in Nigeria. Similarly, the impact of trade liberalization on economic development was examined by Salami et al. [13] using the Gauss Markov Switching model, utilizing data gathered from the Central Bank of Nigeria's (CBN) Statistical Bulletin from 1985 to 2019. According to the research, trade liberalization has little influence on economic development under the first regime, but capital stock and exchange rates have a major beneficial impact. Under the second regime, trade liberalization and currency rates had a major detrimental influence on Nigeria's economic growth, but capital stock had a major beneficial impact".

In addition, Adegboyo et al. (2021) look at "how trade openness affected Nigerian poverty from 1985 to 2020. The study uses the Auto-Regressive Distributed Lag (ARDL) estimation technique, and the findings show that while GDP per capita stimulates poverty in Nigeria, domestic credit to the private sector as a ratio of GDP, electric power consumption, primary school enrollment rate, and KOF globalization index reduces poverty in Nigeria. Therefore, in order to further alleviate poverty, this research suggests opening up the economy to enable the export of commodities manufactured by the underprivileged. In addition, in order to lower poverty and illiteracy in Nigeria, the populace should be encouraged to enroll in school". In the same vein, Omoke and Opuala [14] investigate "the relationship between trade openness and economic growth in Nigeria from 1984-2017, taking institutional quality into account. The research uses total trade, import trade, and export trade as its three trade openness indices. Using the ARDL limits testing method, cointegration to examine the relationship among the variables investigated. The outcomes show that the variables have a long-term association, according to the analysis, import trade has a significant and negative influence on economic growth, but export trade has a significant positive impact. The findings also demonstrate that the negative long-run effects of import trade on economic growth in Nigeria decreases as institutional quality (quality of governance) improves". Also, ameogo and Omojolaibi [15] investigate "the connection between trade openness, economic development, and poverty levels in 40 countries in sub-Saharan Africa.

Three models were used: Panel Vector Auto-regression (VAR), Panel Autoregressive Distributed Lag (ARDL) model, and System of Generalized Method of Moments (SYS-GMM). There was also a robustness test used. Using the Panel ARDL model, the sensitivity analysis was conducted. The findings showed that while institutional quality reduces economic development in the short-run, trade openness, foreign direct investment, and institutional quality all considerably boost economic growth over the long run. In addition, while trade openness has negative short-term consequences, trade liberalization, institutional quality, and population growth rate all contribute to a reduction in poverty over time".

In order to contribute to the discussion, Komal and Madan [16] investigate "the relationship between India's export intensity and poverty outcomes between 1990 and 2012. So, in order to manage endogeneity and reverse causality in the model, classical Ordinary Least Squares (OLS) and the system Generalized Method of Moments (GMM) estimator were used. Based on basic OLS regression, the results indicate that poverty decreases with increasing exports. When the model is tested using the GMM approach, the empirical results do not demonstrate a significant relationship between poverty and exports for the basic model; however, the results vary when control variable interaction terms are included in the model. These findings thus imply that, when combined with appropriate domestic policies, international trade of goods may be an engine for poverty reduction in India". Duodu et al. [17] looked at "the effects of institutional quality and trade openness on Ghana's economic development from 1984 to 2018". According to the autoregressive-distributed lag model (ARDL) the short- and long-run estimates shows that trade openness and institutional quality appear to have a significant positive influence on economic growth, whereas the interaction between the two variables has no significant effect on growth. Also, Sheereen (2020) carried out "research to find out the effect of trade on poverty reduction on the small island of Mauritius, the study covers a period of 1990–2017. In particular, the study looked at how trade openness, import and export values, and trade openness affected the small island of Mauritius's ability to reduce poverty. The research design used in the study was ex post facto. According to the study, trade actually lowers poverty over time as opposed to just temporarily. Furthermore, the study demonstrates the significance of both economic growth and education in reducing the nation's poverty".

Furthermore, the effect of trade openness on the economic growth of Nigeria from 1970 to 2011 is examined by Nwadike et al. [10]. The analysis comes to the conclusion that, between 1970 and 2011, trade openness greatly boosted Nigeria's economic development. In the same vein, Modeste [18] highlighted the relationship between trade liberalization and poverty in Guyana by using the co-integration and error correction approaches. The study's data demonstrated that Guyana's trade liberalization increased the nation's export capacity and decreased the country's poverty rate. The study also demonstrated that increasing the nation's export capacity and lowering its poverty rate required improvements in the real effective exchange rate, economic growth, and agriculture sector growth. Still on the subject matter, Onakoya et al. [19] looked at the relationship between trade liberalization and poverty in 21 African nations between 2005 and 2014. The study employed the pooled OLS approach as its methodology. The results show that, at the five percent level, trade openness and exchange rates had a negative link with poverty, whereas foreign direct investment and inflation rate had a positive relationship with the human development index.

Further still, using information from developing and emerging market nations, Pickson, Agbenyo, and Tetteh [20] examined the connection between trade liberalization and economic development. This study made use of the autoregressive distributed lag (ARDL) model and the Granger causality test. The analysis found that while trade openness, inflation, and population increase have all had a long-term negative impact on Ghanaian economic growth, the exchange rate has had a significant and long-lasting beneficial impact. Long-term economic growth is unaffected by investment. The result further showed that the only factors that significantly affected economic development in the short term were population increase and inflation. Agbo et al. [21] also, assessed how international trade affected Nigeria's economic growth. To find out how trade affects Nigeria's economy both directly and indirectly was the aim of this study. The different components of international trade were estimated using the multiple regression analysis approach. The study's data came from the CBN statistics bulletin's 2012 edition, which covered the years

1980 to 2012. The study's findings demonstrated a significant effect of export trade on Nigeria's economic development. Additionally, the analysis showed that import trade had no significant effect on Nigeria's economic growth, and

Lastly with particular attention to the manufacturing and agricultural sectors, Ojeyinka and Adegboye [22] investigated the effects of trade liberalization on the performance of the Nigerian economy. The study was conducted using the Generalized Method of Moment (GMM) approach. Results of the study indicated that trade liberalization had a considerable beneficial influence on the agricultural sector's production, whereas trade liberalization policies had a substantial negative link with Nigeria's industrial output. The research further indicates that although the influence of inflation on agricultural output is positive and significant over the study period, the exchange rate has a positive but negligible effect on agricultural output. Inflation and exchange rates have a negative effect on the manufacturing sector's production in contrast to agriculture. Lawal et al. [23] investigated if trade openness, financial development, and economic growth have a long-term relationship, using the Autoregressive Distributed Lag bounds (ARDL) estimate approach. The findings indicate that, in Nigeria, trade openness and economic growth have a negative and substantial long-run connection, but a positive and significant short-run association.

2.1 Theoretical Framework

The study is based on the Keynesian Model of Income Determination in an Open Economy. The model of income determination in an open economy was promulgated by John Maynard Keynes in 1936. The model involved the removal of assumption that there are no exports or imports and government spending in national income analysis. This means that imports and exports and government spending and taxation are added in the model of open economy national income analysis. The Government spending are like investment that raises the demand for goods and services in an economy; hence they are injections in the national income. On the other hand, taxes are leakages in the national income like savings because they tend to reduce the demand for consumer goods and services. The impact of exports and imports is similar to that of the government spending. Exports are injections because they increase the demand for goods in the same economy. Imports, on the other hand, are leakages in the

national income because they represent the supply of goods to the given economy.

Therefore, functional equation of an open economy theory is represented as:

$$Y = C + I + G + (X-M)$$

Where: Y=National Income, C= Consumption Expenditure, I= Investment Expenditure, G= Government Spending, X= Export, and M= import [24]

3. METHODOLOGY

This study adopts the Keynesian framework of income determination in an open economy. In a simple Keynesian framework, the desired aggregate demand relationship in the goods market in the Keynesian framework is expressed as follows:

$$Y = C + I + G + (X-M) \tag{1}$$

This study specifically adopts the model of Sheereen, (2020) to examine the differential and the interactive effects of disaggregated components of international trade and institutional quality on poverty level in Nigeria.

Therefore, improving on equation (1), the model is further modified and represented in a functional form as shown below:

$$POVERTY = f (OX, NX, OM, NM, INQ, EXR) \tag{2}$$

Where, POVERTY is poverty level, OX is oil export value, NX is non- oil export value, OM is oil import value, NM is non-oil import value, INQ is institutional quality, EXR is exchange rate.

Equation 2 can be further re-writing thus in econometrics form:

$$POVERTY = \beta_0 + \beta_1 OX + \beta_2 NX + \beta_3 OM + \beta_4 NM + \beta_5 EXR + \beta_6 INQ + \varepsilon_t ...3$$

Where: β_0 = Constant term, β_1 to β_6 = Regression coefficient, ε_t = Error Term, t = time

The following are the apriori expectations: β_0, $\beta_1 ..... \beta_6 < 0$. This indicates that poverty level should have a positive functional connection with the components of international trade.

3.1 ARDL Model Specification

To examine the differential and the interactive effects of the components of international trade and institutional quality on poverty level in Nigeria for the period covered by the study; this study employed the ARDL bound test designed by Paseran and Shin (1997, 1998, 2000) respectively and as specified below:

$$\Delta InPOV_t = \beta_o + \lambda_1 InPOV_{t-1} + \lambda_2 InOX_{t-1} + \lambda_3 InNX_{t-1} + \lambda_3 InOM_{t-1} + \lambda_4 InNM_{t-1} + \lambda_5 InEXR_{t-1} + \lambda_6 InINQ_{t-1} +$$

$$\lambda_2 (InOX_{t-1} * InINQ_{t-1}) + \lambda_3 (InNX_{t-1} * InINQ_{t-1}) + \lambda_4 (InOM_{t-1} * InINQ_{t-1}) + \lambda_5 (InNM_{t-1} * InINQ_{t-1}) + \lambda_6 (InEXR_{t-1} * InINQ_{t-1}) +$$

$$\sum_{i=1}^{n} \beta_1 \Delta InPOV_{t-1} + \left(\sum_{i=1}^{n} \beta_2 \Delta InOX_{t-1} * \sum_{i=1}^{n} \beta_i \Delta InINQ_{t-1} \right) + \left(\sum_{i=1}^{n} \beta_3 \Delta InNX_{t-1} * \sum_{i=1}^{n} \beta_i \Delta InINQ_{t-1} \right) +$$

$$\left(\sum_{i=1}^{n} \beta_4 \Delta InOM_{t-1} * \sum_{i=1}^{n} \beta_i \Delta InINQ_{t-1} \right) + \left(\sum_{i=1}^{n} \beta_5 \Delta InNM_{t-1} * \sum_{i=1}^{n} \beta_i \Delta InINQ_{t-1} \right) + \left(\sum_{i=1}^{n} \beta_6 \Delta InEXR_{t-1} + \sum_{i=1}^{n} \beta_i \Delta InINQ_{t-1} \right) + \beta_{7'} + \varepsilon_t \dots 4$$

The subsequent step would be to calculate the error correction mode that shows the dynamic parameters in the short term (adjustment parameters that measure correction speed to long-run equilibrium after a short-run disturbance). The ECM is calculated thus

$$\Delta InPOV_t = \beta_o + \sum_{i=1}^{n} \beta_1 \Delta InPOV_{t-1} + \left(\sum_{i=1}^{n} \beta_2 \Delta InOX_{t-1} * \sum_{i=1}^{n} \beta_i \Delta InINQ_{t-1} \right) + \left(\sum_{i=1}^{n} \beta_3 \Delta InNX_{t-1} * \sum_{i=1}^{n} \beta_i \Delta InINQ_{t-1} \right) +$$

$$\left(\sum_{i=1}^{n} \beta_4 \Delta InOM_{t-1} * \sum_{i=1}^{n} \beta_i \Delta InINQ_{t-1} \right) + \left(\sum_{i=1}^{n} \beta_5 \Delta InNM_{t-1} * \sum_{i=1}^{n} \beta_i \Delta InINQ_{t-1} \right) + \left(\sum_{i=1}^{n} \beta_6 \Delta InEXR_{t-1} + \sum_{i=1}^{n} \beta_i \Delta InINQ_{t-1} \right) + \beta_{7'} + \varepsilon_t \dots 5$$

Where,

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7 \, and \, \beta_8 =$ Coefficients illustrate the model's short-term dynamics.

$ECT_{t-1} =$ Error correction term which is lagged by one period.

$e_t =$ vector of error terms; $(n - g)$ represents the optimum lag length of each variable in the autoregressive process. While;

Represents Error correction parameter which measures the rate of adjustment leading up to long-term equilibrium.

The Error Correction Term (ECT) was calculated using the long-run model's coefficients, which were acquired by standardizing the equation. A normality test, serial correlation test, misspecification test, and heteroscedasticity test was performed after the long and short-run models were estimated to ensure the model's robustness. Microfit 4.1 and Eviews 9 statistical programs were used to analyze the models in equations 3 and 4, as well as to execute the diagnostic tests conducted before and after estimation.

3.2 Sources of Data

The data series spans the years 1981 through 2022. The choice of this time period was driven by the need to capture key trade liberalization initiatives of structural adjustment program of 1986 and the present gradual liberalization policy, which began in 2003. The data was taken from the Annual Report, Statistical Bulletin, National Account, and Bureau of Statistics publications of the Central Bank of Nigeria [25], World Bank Database Indicator (WDI), 2022 publication.

4. RESULTS

This section examines the differential effects of international trade components on poverty level and also, the interactive effects of institutional quality with the components of international trade on poverty level in Nigeria. To fulfill the goal of the section, the author firstly analyzed the descriptive characteristics of the variables, after then conducted the unit root and co-integration tests of the time series variables.

To examine the stationarity of the variables, the study employed the Augmented Dickey-Fuller (ADF) test by Dickey and Fuller [26]. Ascertaining the stationary level of time series data is a precursory activity in the regression analyses. This process provides useful information about the predictive power of estimated parameters in a model [27,28]. Importantly, the presence of a unit root means that the time series has a stochastic trend, which makes it difficult to analyse and model using standard techniques. Nonstationary time series is one that has a mean, variance, or autocorrelation structure that changes overtime. Therefore, to avoid spurious regression, it is important to test for stationarity of the time series data and transform the data, if necessary, to make them stationary [29]. The outcomes of the Augmented Dickey Fuller (ADF) unit root test revealed that lnEXR, lnINQ, lnPOVERTY, lnNM, lnNX, lnOX, lnOM, lnINQ*lnEXR, lnINQ*lnNM, lnINQ*lnNX, and lnINQ*lnOX are non-stationary in their level

form but the variables became stationary after first differencing except for lnINQ*lnOM, which was stationary both at it level form and at the first difference. Hence, the unit root tests results suggest that the study variables are at different orders of integration, that is, the variables are stationary at level I(0) and at first difference I(1).

Table 3 presents the outcome of the bound test and the crucial values provided by Pesaran et al. (2001). The F-statistic is then compared with the critical boundaries at a significance level of 5% with an unconstrained intercept and no trend (Upper bound is 3.24 and lower bound is 2.06). The F-statistic (5.1146) is higher than the upper bound (3.24). This suggests that there is evidence to reject the null hypothesis that there

is no long-term link between the variables while the alternative hypothesis, that there is a long-term relationship between disaggregated components of international trade, institutional quality, exchange rate and poverty level is therefore accepted [30,31,32].

4.1 The Result of the ARDL

The ARDL Result for the differential effects of international trade components on poverty level and also, the interactive effects of institutional quality with the components of international trade on poverty level in Nigeria. Hence, since there is co-integration among the variables, the estimated result of ECM is presented below;

Table 1. Unit root test results using augmented Dickey-Fuller

Variables	Adf at Level	Adf at F1rst Diffirence	Status
lnEXR	2.8495	-5.4312	I(1)
	[1.0000]	[0.0001]*	
lnINQ	-1.6832	-4.7084	I(1)
	[0.4316]	[0.0005]*	
lnPOVERTY	-2.17824	-6.8496	I(1)
	[0.2170]	[0.0000]*	
lnNM	6.84492	-7.6234	I(1)
	[1.0000]	[0.0000]*	
lnNX	6.0036	-7.9824	I(1)
	[1.0000]	[0.0000]*	
lnOX	1.70873	-6.5674	I(1)
	[0.9966]	[0.0000]*	
lnOM	8.55536	-7.8532	I(1)
	[1.0000]	[0.0000]*	
lnINQ*lnEXR	0.04503	-3.9329	I(1)
	[0.9573]	[0.0042]*	
lnINQ*lnNM	3.49166	-4.4347	I(1)
	[1.0000]	[0.0010]*	
lnINQ*lnNX	4.26605	-4.4297	I(1)
	[1.0000]	[0.0010]*	
lnINQ*lnOM	-2.7011	-3.34717	I(0)
	[0.0827]***	[0.0192]	
lnINQ*lnOX	0.96422	-4.2521	I(1)
	[0.9954]	[0.0017]*	

Note 1: Values in the square bracket [] are the probability values; (*) depicts significance at 1percent level, (**) depicts significance at 5percent level, while (***) depicts significance at 10percent level

Table 2. Bound test result

Null Hypothesis: No long-run relationships exist		
Variables	**F-Statistics**	**Co-integration**
F log(POV/ EXR, INQ, NM, NX, OX, OM, INQ*EXR, INQ*NM, INQ*NX, INQ*OM, INQ*OX)	5.1146	Co-integration
Critical Value	Lower Bound	Upper Bound
1%	2.54	3.86
5%	2.06	3.24
10%	2.54	3.86

Source: Author's computation, 2024
Note: The lag length k=2 was selected based on the Schwarz criterion (SC)

Table 3. The Result of the ARDL

ARDL Cointegrating And Long Run Form
Dependent Variable: POVERTY
Selected Model: ARDL(1, 0, 1, 1, 1, 1, 0, 1, 0, 0, 1)
Date: 04/04/24   Time: 20:00
Sample: 1 42
Included observations: 40

Cointegrating Form

Variable	Coefficient	Std. Error	t-Statistic	P-value
D(lnEXR)	0.208377	0.076422	2.726659	0.0184*
D(lnEXR_lnINQ)	0.105026	0.039000	2.692951	0.0196*
D(lnINQ)	-1.906164	0.665237	-2.865392	0.0142*
D(lnNM)	-0.000001	0.000003	-0.286903	0.7791
D(lnNM_lnINQ)	-0.000001	0.000004	-0.146972	0.8856
D(lnNX)	0.000072	0.000028	2.604202	0.0230*
D(lnNX_lnINQ)	0.000066	0.000035	1.869776	0.0861***
D(lnOM_lnINQ)	-0.000004	0.000010	-0.365438	0.7211
D(lnOM)	-0.000022	0.000010	-2.139564	0.0536**
D(lnOX)	-4.660064	I.180060	8.873610	0.0000*
D(lnOX_lnINQ)	-0.000002	0.000001	-2.113709	0.0562**
CointEq(-1)	-0.270968	0.132308	2.048000	0.0631***

Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	P-value
lnEXR	-0.135506	0.286093	-0.473644	0.6443
lnEXR_lnINQ	-0.626658	0.302995	-2.068211	0.0609***
lnINQ	10.097743	4.950167	2.039879	0.0640***
lnNM	0.000045	0.000028	1.591891	0.1374
lnNM_lnINQ	0.000150	0.000067	2.224529	0.0461*
lnNX	-0.001052	0.000489	-2.150947	0.0526**
lnNX_lnINQ	-0.001499	0.000691	-2.170896	0.0507**
lnOM_lnINQ	-0.000017	0.000045	-0.373625	0.7152
lnOM	0.000081	0.000043	1.906239	0.0808***
lnOX	-3.251006	6.451007	-5.046131	0.0010*
lnOX_lnINQ	-0.000013	0.000007	-1.936150	0.0768***
C	31.866868	7.000522	4.552071	0.0007*

R^2	0.89858			
Adj R^2	0.67038			
F-Statist	3.93778		0.00797	

Diagnostic Statistic Check

Test	Value	P-value		
X^2 Serial	5.5675	0.0618		
X^2 ARCH	2.79923	0.0943		

Source: Author's computation, 2024

Note 3: Values in the square bracket [] are the probability values; (*) depicts significance at 1percent level, (**) depicts significance at 5percent level, while (***) depicts significance at 10percent level

It is essential to determine the model's robustness by looking at few diagnostic tests among which are R^2, Adjust R^2, F-Statistic as shown in Table 3.

The R-square (the coefficient of determination) is the statistical measure in a regression model that shows how well the data fit the regression model (the goodness of fit). Hence, the R-square value of 0.89858 in Table 3 shows that the estimated data fit well into the regression model. Similarly, the Adjusted R- square is the modified version of

R-square that adjusted for the number of predictors in the model. To this effect, the value of Adjusted R-square increases when the new term improves the model more than would be expected by chance while the value decreases when a predictor improves the model by less than expected. However, the value of Adjusted R- square is expected to be positive and it is always lower than the value of R- square as we have it (0.67038) in table 3 above. Also, a large F-Statistics value proves that the regression model is effective in its explanation of the

variation in the dependent variable and vice versa. e.g an F-statistic value of zero (0) does not explain the variation in the dependent variable [33,34].

5. DISCUSSION

The results for differential effects show that (EXR) exchange rate has a positive and significant effect on poverty level in Nigeria in short run with p-value of 0.0184; while the long run result shows that the exchange rate has no significant effect on poverty level in Nigeria. Also, the short run result of institutional quality (INQ) reveals a negative and significant effect on poverty level in Nigeria with the p-value of 0.0142; while the long run result shows a positive and significant effect on poverty level in Nigeria with the p-value of 0.0640. The short run results of (OM) oil import shows a negative and significant effect on poverty level with p-value of 0.0536; while the long run result shows a positive and significant effects on poverty level at p-value of 0.0808. The results of (NM) non-oil import had no significant effects on the level of poverty both in the short run and long run. The short run result of (NX) non-oil export shows a positive and significant effect on poverty level in Nigeria given its p-value of 0.0230, while the long run result (NX) non-oil export shows a negative and significant effect on poverty level in Nigeria with the p-value of 0.0526. The short run and the long run results of (OX) oil export shows a negative and significant effect on poverty level at p-value of 0.000 and 0.0010 respectively.

However, interacting the variable of institutional quality with the components of international trade. The short run result shows that EXR_INQ has a positive and significant effect on poverty at p-value of 0.0196 while the long run result displays a negative and significant effect on poverty level in Nigeria at the p-value of 0.0609. The short run result of NM_INQ shows an insignificant effect on poverty level in Nigeria, while the long run result of NM_INQ shows a positive and significant effect on poverty level in Nigeriaat the p-value of 0.0461.. The short run result of NX_INQ shows a positive and significant effect on poverty in Nigeria with p-value of 0.0861; while the long run result of NX_INQ shows a negative and significant effect on poverty level with p-value of 0.0507. The short run and long run results of OM_INQ show no significant effect on poverty level in Nigeria. While, the result of OX_INQ shows a negative and significant effect on poverty level in Nigeria

at p-value of 0.0562 and 0.0768 both in the short run and long run respectively.

5.CONCLUSION

Given the results of this research study, it was found that international trade is beneficial to the countries involved e.g Nigeria in the context of this study as argued by Adam Smith (1723-1970), David Ricardo (1772-1823), Heckscher-Ohlin (1899-1979), Lam (2015). However, given the results of this study; Nigeria is yet to benefit fully from the expected benefits associated with international trade. As stated by (Obayori, 2016) that Nigeria's case on the benefits of international trade is a different thing altogether and some of the serious issues that has obstructed the accomplishment of poverty reduction in Nigeria have been credited to external aggregates such as; low FDI inflow, exchange rate instability and negative net export. For instance, fluctuations in Nigeria's currency (Naira) exchange rate, which is a good determinant of external trade, has led to economic instability in the country and so also, the corrupt practices and bureaucracy in government offices.

Therefore, in order for the country (Nigeria) to benefits fully from international trade, the country needs to strengthen her weak institutional quality to come in as a strong force where necessary to put things right and set the pace for development that allays poverty as said by (Megha et al, 2023) that institutions are critical economic pillars that influences not only growth but also the distributional outcomes that affect the speed of poverty reduction.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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