



Dynamics of Trade and Economic Growth in Nigeria: An insight from Simulations of Autoregressive- Distributed Lag (ARDL) Model

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Abstract

This paper examines the dynamics between foreign trade and economic growth in Nigeria using annual time series data for a period of 1979-2018. It uses Dynamic Simulations of Autoregressive-Distributed Lag Model. The empirical results show a positive and significant long run relationship between total trade, imports and economic growth in Nigeria. Increase in trade improves the current account balance of the country and results to rise in income and economic activities. However, the long run coefficient of trade balance and exports are positive and statistically insignificant. The coefficients of error correction term (L1_GDP growth) is negative and significant in all the models as such there is long run relationship among the variables. To sustain a long run economic growth in Nigeria through foreign trade, policymakers should regulate the exports and imports trade in the country through exports diversification and import substitution strategy.

Keywords: Trade, Economic, Growth, Dynamics, Simulation of ARDL

JEL Classification: C23, F10, F43.

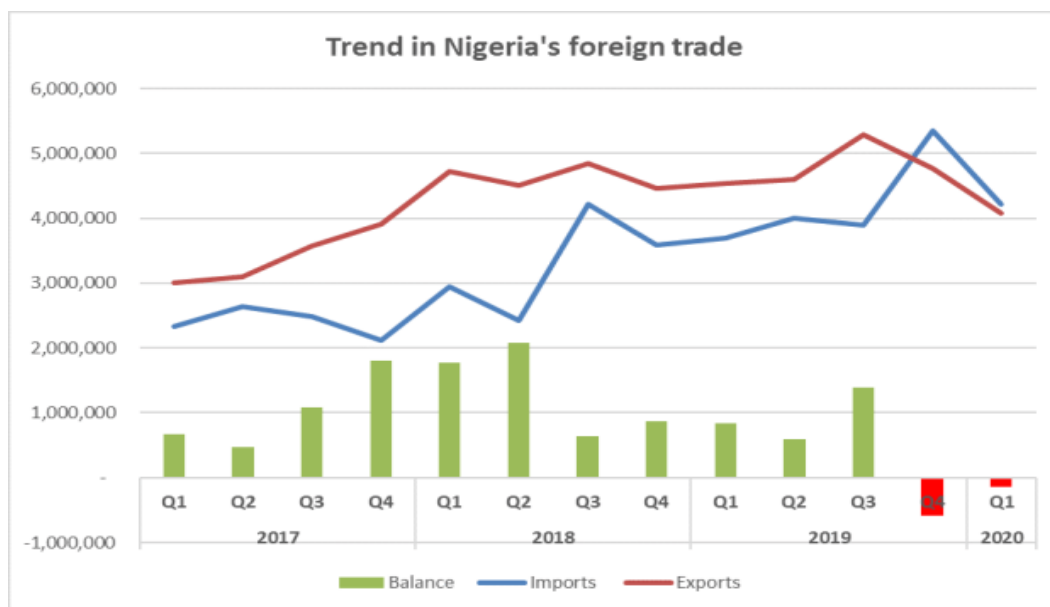
Contribution to/Originality Knowledge: This study contributes to the literature by adopting the novel Jordan and Philips (2018) dynamic simulations of ARDL model capable of examining the effect of the counterfactual changes in regressors on the response variable, which improves the complex nature and difficulty in the interpretation of the existing ARDL model. Secondly, previous literature used single trade dimension in examine the impact of trade on economic growth, this study however, utilizes four trade measurement (trade balance, exports, imports and total trade) as dependent variables for a better understanding of trade growth relationship.

1.0 Introduction

International trade is an activity in which businesses and individuals exchange goods and services or buy and sell goods and services on a worldwide scale. When goods and services are exchanged across international borders, is called international trade. International or foreign trade is an important component of the gross domestic product (GDP) particularly in developed and emerging countries, which trigger economic growth processes of a country. Theory of international trade suggests that trade openness contribute positively to economic growth of a country through gains from economies of scale especially in small countries (Helpman and Krugman, 1985); encouraged competition through efficiency (Balassa, 1978); and stimulating transfer of knowledge (Grossman & Helpman, 1991). Therefore, GDP growth and exports trade relationship are bi-directional as argued by Islam (1998) and Love and Chandra (2004).

Though, other researchers, argued that international trade could dampen the growth process of the economy, specifically developing countries where Nigeria belongs. They believed that trade protection policies in certain situations might increase local production and subsequently high economic growth (Chaudhuria & Marjit, 2017; Buongiorno et al., 2017).

Nigeria's total foreign trade (imports and exports) dropped by 18% in the first quarter of 2020, from N10.12 trillion in the 2019Q4 to N8.3 trillion at the end of 2020Q1. According to National Bureau of Statistics (NBS) report, the year-on-year total foreign trade increased by 0.8%, from N8.23 trillion in 2019Q1 to N8.3 trillion in 2020Q1, reflecting the early effects of disruption caused by Covid-19 pandemic. A glimpse looks into the data shows that Nigeria recorded its lowest export value in eight quarters since it recorded a total of N3.91 trillion in 2017Q4. A case which has clearly affected the value of crude oil exports and non-crude oil simultaneously. According to the report, crude oil export (N2.94 trillion) dipped by 18.9% in 2020Q1 compared to N3.63 trillion recorded in 2019Q4 and sloped to its lowest in 11 quarters since 2017Q2 when the total crude oil export was estimated at N2.43 trillion, while non-crude oil export (N1.14 trillion) was reduced marginally by 0.27% as against N1.14 trillion recorded in the preceding 2019Q4 (NBS, 2020). The figure below shows the trend in Nigeria's foreign trade.



Source: National Bureau of Statistics (2020)

In an attempt to promote rapid economic growth in Nigeria, efforts have been made by both fiscal and monetary authorities to strategize measures that tend to accelerate growth processes. These measures include launching of export processing zones across the country to increase exports production, trade liberalization policy to provide international free trade, privatization of publicly owned enterprises in order to ensure efficiency and effectiveness in operation, massive campaign towards attracting foreign direct investment (FDI) as enshrined in various development plans, specifically the Vision 20:2020, National Economic Empowerment Development Strategy (NEEDS), Transformation and seven points Agenda, among other policies. In spite of all these policies and actions of the government, the impact of international



trade on economic growth in Nigeria is not impressive. Over the years, several studies have been developed to justify the poor trade performance of African countries, Nigeria inclusive. Svedberg (1990) opined that the poor trade performance of African countries is attributed to external causes such as low capacity of world primary commodity markets growth and dwindling terms of trade. Moreover, as the debate on trade-growth nexus lingers, previous studies focus on the effect of individual trade dimension on the relationship between foreign trade and economic growth.

However, the effects of the four-trade dimensions (export, import, trade balance and total trade) on economic growth have not been empirically tested. Based on this consideration, this study seeks to identify the impact of international trade on economic growth in Nigeria and provide a policy implication that will improve macroeconomic stability and growth in the country. The motivation for this work lies in knowing whether or not there is a long-run relationship among economic growth, exports, imports, trade balance and total trade. The remaining sections of the paper are presented as follows: the second section briefly reviews the literature, the third section discusses the materials and method, the fourth section provides results and discussions, the fifth section presents the conclusion and policy implications.

2.0 Literature Review

2.1 Conceptual Clarifications

2.1.1 Foreign trade

Foreign trade is the exchange of capital, goods, and services across international borders or territories. Foreign trade is all about imports and exports. The backbone of any foreign trade between nations is those products and services which are being traded to some other location outside a particular country's borders. In most countries, it represents a significant share of gross domestic product (GDP).

2.1.2 Economic Growth

Economic Growth refers to persistent increase in output produced in an economy during a period usually one year. Basically, Economic growth classified into three parts, namely, accumulation of capital, increase in population and labour force, and technical advancement. Accumulations of capital occur when proportions of individuals' income are saved and invested to supplement future income and output.

2.2 Theoretical Literature

The relationship between international trade and economic growth has triggered a lot of unending debate by scholars and experts both in the theoretical and empirical literature around the world. Most theoretical and empirical literatures revealed high support for the benefits of trade on economic growth. They clearly argue that its benefits outweigh its disadvantages. Exploring the route of in-depth theoretical analysis from classical and new theories, Mwaba (1999) in his inferential theorizing, showed a two country – two goods model to explain gains from trade. The model shows that policies of protection in the form of quotas or tariffs could decrease export, output and overall economic welfare. The inference is that free trade is

mutually related with high growth rate. Furthermore, pro-trade scholars contend that the enormous benefits accrue from openness increase technological advancement, competition, domestic rivalry and thus, high innovation and productivity. Frankel and Romer (1999) stated the effect of trade openness on income per capita as a key to trade expansion and sustainability. More interestingly, they found out in their quest to unveiling the importance of foreign trade, which they realized that it increases growth rate through greater productivity, education and capital stock.

On the contrary, theoretical literature on the other hand suggest that foreign trade may be detrimental to economic growth in developing economies. For instance, as argued by Grossman and Helpman (1991), economic growth will be hindered if increasing trade makes a country to specialise in areas with comparative disadvantage in research and development activities. Similarly, as noted by Redding (1999), increasing trade might lower growth in the long-run if a country specialises in areas with dynamic comparative disadvantage in terms of potential productivity growth, or specialises in an area where learning by doing is mostly exhausted (Young, 1991).

2.3 Empirical Literature

Empirical evidence also revealed a positive and negative impact of international trade on economic growth. Balassa (1978) used regression techniques and found positive correlation between the foreign trade and economic growth in a sample of 10 countries from 1960 to 1973. In study of 23 Asian countries, Trejos and Barboza (2014) used both dynamic ECM estimation and static OLS models to determine the effect of trade openness on output growth. The findings of the study at country specific level shows robust evidence that increase trade openness does not spur Asian growth miracle. The country specific results further show that in the long run, physical capital accumulation increase output growth per worker. The authors observed from the findings of the aggregate data a clear disparity in the pre and post financial crisis of 1997 to 1998. Trade openness has a significant positive impact on output growth in post crisis period. The dynamic estimations results provide evidence that static OLS estimates underrate the impact of investment on output growth. Furthermore, the results reveal that higher trade openness could record rapid growth rate as a result of benefits in productivity connected to capital accumulation instead of trade technological spill over effect.

In a similar study, Sakyi, Villaverde, and Maza (2015) used non-stationary heterogenous panel cointegration approach to investigate the causal relationship between foreign trade and economic growth in a sample of 115 developing countries from 1971 to 2009. They also found evidence of positive bi-directional causality between foreign trade and economic growth. Were (2015) reported that foreign trade exerts a positive and significant impact on growth rate of both developed and developing countries over a period 1991 to 2011, but its effect is not statistically significant for least developed African countries. Musila and Yiheyis (2015) utilized time series data from 1982 to 2009 in investigating the effect of trade on growth case of Kenya. The authors found that aggregate openness to trade has positive effect on investment and growth, but the impact is insignificant on growth rate. Furthermore, the results of Granger



causality reveal that trade openness stimulates growth in the long run via interaction of physical capital growth.

Karam and Zaki (2015) using a dynamic panel estimation to investigate the sectorial and macroeconomic impact of trade in goods and service on Middle East and North Africa (MENA) countries economic growth from 1960–2011. The findings evinced a positive relationship between trade (goods and service trade) and real GDP. The coefficient of interaction between trade in services and trade in goods is negative, signifying that while trade in goods rises, the marginal effect of trade in services on real GDP falls. Nevertheless, the total effect of trade in services on real GDP is positive. Lawal, Nwanji, Asaleye, and Ahmed (2016) uncovered financial development, trade-growth relationship in Nigeria from 1981 to 2013 using ARDL bound test estimation. They reported a short-run positive impact of openness on growth, but a long-run negative impact was identified.

In a similar study conducted in Nigeria, Kahinde, Jubril and Felix (2012) used annual data from 1970 to 2010 to evaluate the impact of international trade on economic growth. They utilized Johansen cointegration to identify the existence of long run equilibrium or not. Empirical findings evince that export, exchange rate and foreign direct investment are positively related and statistically significant at 5% to real GDP. The results further show that openness, inflation rate and import are negatively related to real GDP in Nigeria during the period. The findings establish the fact that increase in global trade participation will enhance both dynamic and static foreign trade gain in Nigeria even though the openness coefficient is negatively related to real GDP. The country's trade structure of high export technology and international trade volume lead to positive effect on economy. Mohsen et al. (2017) examined trade liberalization, exports and imports in Syria over the period 1980-2010. The study utilized Granger causality test and found a bidirectional short run causal relationship trade openness and exports and also unidirectional short run causal relationship running from trade openness to imports. Furthermore, the study shows an evidence of long run unidirectional causality between exports and trade openness in Syria.

Using ARDL model, Kong, et al. (2020) examine the impact of trade openness on economic growth quality of China under exchange rate fluctuation over a period 1994-2018. The cointegration results indicate a long-run equilibrium between trade openness and quality of economic growth. The empirical findings evinced positive and significant influence of trade openness on economic growth quality in short and long-run. Moreover, When the short-run fluctuation diverged from the long-run equilibrium, stable economic growth quality can be achieved through automatic adjustment. In a study of 40 sub-Saharan African countries, Safiyanu and Chua (2020) examined the impact of foreign trade on economic growth using dynamic common correlated effects spinning 1992-2018. The results show a positive and significant effect of foreign trade on economic growth in short run. Moreover, the long run effect shows a negative and significant relationship among the variables.

Despite a growing body of literature on trade growth nexus, the concept remains unclear from econometrics perspective. This study contributes to the literature by adopting the novel Jordan and Philips (2018) dynamic simulations of ARDL model capable of examining the effect of

the counterfactual changes in regressors on the response variable, which improves the complex nature and difficulty in the interpretation of the existing ARDL model. Secondly, previous literature used single trade dimension in examine the impact of trade on economic growth, this study however, utilizes four trade measurement (trade balance, exports, imports and total trade) as dependent variables for a better understanding of trade growth relationship. The use of heterogeneous dimensions gives clear direction for policy measures and the robustness of the findings. Finally, the study contributes to the global debate on the impact of trade on growth by assessing the overarching nexus between the international trade and economic growth.

3.0 Methodology

3.1 Description and source of data

The descriptions of the variables and source of data series for Nigeria over the period 1979-2018 are given below:

Table 3.1: Data description and sources

Variables	Descriptions	Sources
GDP growth	GDP growth rate	WDI
Tbal	Goods, value of trade balance (USD)	IMF
Reer	Real effective exchange rate index	WDI
Gcfm	Gross capital formation (annual growth)	WDI
Hcap	Human capital: Secondary school enrolment rate	WDI
Labf	Labour force participation rate	WDI
Trade	Total trade: Summation of export & import (USD)	WDI
Exports	Exports of goods & services (USD)	WDI
Imports	Imports of goods & services (USD)	WDI

Remarks: WDI refers to World Development Indicators (2018) and IMF refers to International Monetary Fund (2018).

Table 1 presents the description of nine data series used in the model estimation. The nine (9) variables spanning period 1979 – 2018 include GDP growth as dependent variable, while trade balance, exports, imports and trade are the trade measurements. Other explanatory variables are real effective exchange rate, gross capital formation, human capital and labour force participation. Prior to the model estimation, a logarithmic transformation was applied to give the data series a constant variance.

3.2 Theoretical framework and empirical model specification

The starting point of theoretical framework on economic growth is the neoclassical theory propounded by Solow (1956) and Swan (1956) which comprises a series of equations depicting the relationship between capital goods, labour-time, output, and investment. The divergence in capital formations explains the differences in economic growth across countries. Traditional neoclassical trade theories believed that trade as an engine of economic growth. The new growth theory (endogenous) emphasizes on human capital development in forms of education, training and technological advancement for the world market and this account for its continued relevance. Empirical researches have attempted to study economic growth within the neoclassical framework. A production function is represented as output (Y) as a function of capital (K) and labour (L).

$$Y_t = A_t F(K_t, L_t) \quad (1)$$

This growth model was later extended by Mankiw, Romer and Wei (1992) to include human capital. The growth model appears in the general form as:

$$Y_t = A_t K_t + L_t + H_t + e_t \quad (2)$$

where Y_t is the aggregate output, A_t is the productive factor, K_t is the physical capital stock, L_t is the labour force employed, H_t is the human capital stock, e_t is the error term while t is the time period. The econometric model that investigates the impact of foreign trade on economic growth Nigeria is presented below:

$$GDPgr_t = \beta_0 + \beta_1 X_t + \beta_2 Reer_t + \beta_3 Gcfm_t + \beta_4 Hcap_t + \beta_5 Labf_t + \varepsilon_t \quad (3)$$

In equations (3), subscript t is the time period (where $t=1,2,3, 4,\dots,T$), ε_t is the disturbance term, β_0 is the constant parameter and β_s are coefficients to be estimated. While, GDPgr is the gross domestic product growth, X is the measurement of trade (trade balance, export, import and trade). Moreover, Reer is Real effective exchange rate, Gross capital fixed formation (Gcfm), Human capital (Hcap), and Labour force (Labf). The variables selected for the model are based on the growth theory and extant literature.

3.3 Estimation Techniques

To achieve the objective of this study, standard time series econometric techniques were adopted. For preliminary analysis, Phillip-Perron (PP), Augmented Dickey-Fuller (ADF) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) unit root tests were employed to identify the order of integration of the series. The ARDL bounds cointegration test was also used to check the long run relationship among the variables while Dynamic simulated ARDL models was used for estimation of the model specified in equation (3) above. The model is capable of estimating, stimulating and automatically plotting predictions of counterfactual change in one regressor on the dependent variable while holding other regressors constant.

4.0 Results and Discussion

4.1 Unit root

The first step of analysing the relationships between dependent variables and their regressors is to confirm that the data series, particularly the dependent variables are integrated of order one, $I(1)$. To check the time series properties, the study utilized Phillip-Perron (PP), Augmented Dickey-Fuller (ADF) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) unit root tests to identify the order of integration of the series. The Table 4.1 shows the results of PP, ADF and KPSS unit root tests. The PP and ADF are tested under the null hypothesis of a unit root, while KPSS, on the other hand, has a null hypothesis of stationarity. The results from PP and ADF shows that at 1% level of significance, the null hypothesis of a unit root or stationarity (KPSS) cannot be rejected at level values in almost all the series, though, rejected at first-difference. Implies that all the variables are integrated of order one, thus, it becomes appropriate to use ARDL bounds cointegration.

Table 4.1: Unit root tests

	Constant only	Constant trend	& None	Constant only	Constant trend	& None
Philips Perron (PP) Level Value			First Difference			
GDP gr	-2.4829	-2.4513	-1.5140	-6.8063***	-10.1488***	-6.9604***
Tbal	-1.8695	-1.9704	-0.9303	-5.4265***	-5.3931***	-5.5242***
Exports	-1.9617	-2.3815	-1.0720	-6.8937***	-14.4427***	-6.9453***
Imports	-2.4924	-2.9265	-0.9960	-6.7157***	-7.9285***	-6.7731***
Trade	-1.2694	-1.6475	-1.0006	-5.8871***	-9.4177***	-5.8742***
Reer	-2.6225	-2.6121	-0.7688	-4.7551***	-4.6949***	-4.8468***
Gcfm	-5.2650***	-5.2725***	-4.707***	11.0889***	-10.8741***	-11.4422***
Hcap	-1.8173	-1.2671	-1.0971	-5.8754***	-6.3293***	-6.0018***
Labf	-2.7847*	-1.3871	-1.0683	-3.0466**	-3.9977**	-3.0381***
Augmented Dickey Fuller (ADF)						
GDP gr	-2.4204	-2.3652	-1.6015	-6.7613***	-5.0296***	-6.9163***
Tbal	-1.8870	-1.9416	-0.9303	-5.4265***	-5.3921***	-5.5242***
Exports	-1.9617	-2.3815	-1.1411	-6.4837***	-5.6576***	-6.5347***
Imports	-2.5324	-2.9265	-1.0815	-6.0980***	-6.2175***	-6.1856***
Trade	-1.4374	-1.9299	-1.0352	-5.7283***	-5.5947***	-5.7564***
Reer	-2.5326	-2.6121	-0.7688	-4.7551***	-7.4720***	-4.8468***
Gcfm	-1.7713	-1.5216	-1.4119	-11.1785***	-11.1477***	-11.4445***



Hcap	-1.8173	-1.2671	-1.0971	-5.8754***	-6.3030***	-6.0018***
Labf	-2.3203	-1.3868	-1.4093	-3.0864**	-4.0915**	-3.0847***
Kwaitkowski-Philips-Schmidt-Shin (KPSS)						
GDP gr	0.1938	0.1741**		0.0778	0.0592	
Tbal	0.4292*	0.1082		0.1029	0.0669	
Exports	0.3549*	0.1743**		0.3157	0.5000***	
Imports	0.3303	0.1487**		0.2780	0.1619**	
Trade	0.3788*	0.1767**		0.3503*	0.5000***	
Reer	0.1036	0.0720		0.0821	0.0707	
Gcfm	0.2415	0.3423***		0.1812	0.1096	
Hcap	0.4641**	0.1588**		0.2808	0.1353*	
Labf	0.3755*	0.2028**		0.6463**	0.0755	

Note: a: ***, **, * denote significant at 1%, 5% and 10%; b: Lag length based on SIC. c: Probability based on Kwiatkowski-Philips-Schmidt-Shin (1992, Table1)

4.2 Co-integration

Since the variables are integrated of the same order, the next step is to investigate the relationships exhibited by the proposed models. The variables are integrated of order one if the current state of the series is a function of all past stochastic shocks plus to some extent, new innovations. While short-run perturbations may cause disequilibrium of the series, this disequilibrium is corrected over time as the series moves backwards to a stable long-run relationship (Jordan and Philips 2018). Therefore, such variables show a long run relationship or cointegrating relationship. The Table 4.2 depicts the outcome of the ARDL bounds cointegration test using response surface regression with accurate critical values and approximate p-values proposed by Kripfganz and Schneider (2018). The results of ARDL bounds cointegration test shows that the values of F-statistic of all variables at level and the coefficient of the lagged variable in the estimated models are above the upper bound critical values [I(1)], supported by statistically significant approximate p-values. Hence, confirming the long run relationships between I(1) variables in all the 4 estimated models. The results of Bayer-Hanck (2009) test for cointegration shows the existence of long run equilibrium in all the 4 models.

Table 4.2: ARDL bounds cointegration test

ARDL bounds test for cointegration with KS (2018) critical values and approximate p-values					
Models	Statistic	5% critical value		Probability value	
GDP gr =f (Tbal Reer Gcfm Hcap Labf)		I(0)	I(1)	I(0)	I(1)
F Statistics	1.929	3.363	5.131	0.225	0.539

T Statistics	-3.103	-2.901	-4.315	0.035	0.228
GDP gr = f (Exports Reer Gcfm Hcap Labf)					
F Statistics	2.656	3.363	5.131	0.103	0.319
T Statistics	-3.689	-2.901	-4.315	0.012	0.115
GDP gr = f (Imports Reer Gcfm Hcap Labf)					
F Statistics	3.890	3.363	5.131	0.030	0.124
T Statistics	-4.561	-2.901	-4.315	0.002	0.035
GDP gr = f (Trade Reer Gcfm Hcap Labf)					
F Statistics	3.281	3.363	5.131	0.054	0.198
T Statistics	-4.121	-2.901	-4.315	0.005	0.065
Bayer-Hanck (2009) Test for Cointegration					
Models	EG-J	5% C. V	EG-J- BDM	5%C. V	Remarks
GDP gr = f (Tbal Reer Gcfm Hcap Labf)	56.894	10.419	167.41	19.888	Cointg
GDP gr = f (Exports Reer Gcfm Hcap Labf)	55.543	10.419	112.00	19.888	Cointg
GDP gr = f (Imports Reer Gcfm Hcap Labf)	55.446	10.419	117.01	19.888	Cointg
GDP gr = f (Trade Reer Gcfm Hcap Labf)	55.549	10.419	119.25	19.888	Cointg

Note: The null hypothesis of no level relationship is rejected when the F-statistic is above the 5% upper bound critical values, supported by the p-value

4.3 Dynamic stimulated ARDL models

Contrary to the complications of existing ARDL models in investigating the effect of short- and long-run in complex model specifications, Jordan and Philips (2018) propounded a novel dynamic stimulated ARDL model capable of estimating, stimulating and automatically plotting predictions of counterfactual change in one regressor on the dependent variable while holding other regressors constant. To use the dynamic stimulated ARDL model, the data series for the model estimation should be integrated of order one and cointegrated, for which the series of this study meet the requirements. The dynamic ARDL error correction algorithm used for the four models adopt 5000 simulations of the vector of parameters from a multivariate normal distribution. The Table 4 below depicts the outcome of dynamic stimulated ARDL error correction models.

Table 4.3: Dynamic simulated ARDL (Short Run Estimates)

Variables	Dependent variable: Economic growth (gdp growth)			
	Model (1)	Model (2)	Model (3)	Model (4)
Δ_Reer	0,000501 (0.0401)	-0.00775 (-0.644)	-0.00169 (-0.142)	-0.00458 (-0.441)
Δ_Gcfm	0.0188 (0.615)	0.0195 (0.697)	0.0351 (1.371)	0.0216 (0.879)
Δ_Labf	-11.02 (-0.950)	-1.539 (-0.177)	-18.44* (-1.773)	-11.68 (-1.221)
Δ_Tbal	0.0223 (0.515)			
$\Delta_Exports$		-0.0574 (-0.691)		
$\Delta_Imports$			0.101 (0.540)	
Δ_Trade				-0.0856 (-1.299)
ECT	-0.717*** (-3.320)	-0.645*** (-3.261)	-0.916*** (-4.214)	-0.734***

***, **, * denote significance at 1%, 5% and 10%; ECT denotes the speed of adjustment, parenthesis () denotes the standard error.

Table 4.3 presents the results of the dynamic stimulated ARDL error correction models. The model comprises of dependent variable and five explanatory variables, GDP growth is used as a proxy for economic growth. Reer, Gcfm, Hcap, Labf and one of the measurements of trade (i.e, Trade balance, Export, Import and trade) are used as independent variables, and the results are contained in column 1, 2, 3 and 4 respectively. The short run coefficients of all the trade measurements are statistically insignificant, as such the variables are insignificant in determining the growth in Nigeria during the period. Moreover, the short run coefficients of Reer, Gcfm and Hcap are also statistically insignificant as well while Labf coefficient is negative and statistically significant in imports model. The coefficients of error correction term or speed of adjustment toward equilibrium (ECT) is negative and significant in all the models as such there is long run relationship among the variables.

Table 4.4 shows the long run estimates of the dynamic simulated ARDL model. The study found a positive and significant long run relationship between total trade, imports and economic growth in Nigeria. The results are consistent with the findings of Musila and Yiheli (2015) Karam and Zaki (2015) and Lawal et al. (2016) that evinced a positive relationship

between trade and economic growth. Increase in trade improves the current account balance of the country and results to rise in income and economic activities.

Table 4.4: Dynamic simulated ARDL (Long Run Estimates)

Dependent variable: Economic growth (GDP growth)				
Variables	Model (1)	Model (2)	Model (3)	Model (4)
L1_GDPgrowth	-0.717*** (-3.320)	-0.645*** (-3.261)	-0.916*** (-4.214)	0.734*** (-3.868)
L1_Reer	-0.0210 (-1.679)	-0.0283** (-2.465)	-0.0366*** (-3.167)	-0.0298*** (-2.857)
L1_Gcfm	-0.0169 (-0.402)	-0.00488 (-0.130)	0.000236 (0.00646)	-0.00781 (-0.228)
L1_Hcap	0.0146 (0.107)	-0.0503 (-0.648)	0.119 (1.380)	0.0194 (0.244)
L1_Labf	-10.35 (-1.458)	0.0888 (1.319)	-12.13* (-2.079)	-9.931* (-1.731)
L1_Tbal	0.0133 (0.213)			
L1_Exports		0.140 (1.437)		
L1_Imports			0.587** (2.686)	
L1_Trade				0.139** (2.123)
Constant	577.3 (1.478)	542.9 (1.544)	666.2* (2.075)	550.5* (1.742)
Observation	40	40	40	40
R square	0.632	0.663	0.748	0.755
Sims	5000	5000	5000	5000

***, **, * denote significance at 1%, 5% and 10%; L1_GDP growth denotes the speed of adjustment, parenthesis () denotes the standard error; Sims represents the number of simulations.

Consequently, boost in consumption and production which leads to increase in national income which propels economic growth. So, trade has significant positive impact on economic growth in Nigeria. This affirms the theoretical proposition that trade is regarded as an engine of economic growth. For instance, Grossman and Helpman (1991) trade model posits that trade leads to endogenous growth through diffusion of technology and knowledge. The findings are



related to the conclusion of the neoclassical models which shows that trade leads to welfare gains, increase income and ensure sustainable economic growth.

However, the long run coefficient of trade balance and exports are positive and statistically insignificant. This shows that when the dynamic component of the relationship between economic growth and its determinants are considered, trade balance and exports are insignificant in determining the rate of economic growth in the country. However, the long run coefficients of import and total trade are positive and significance as well. The finding is consistent with the result of Safiyanu and Chua (2020) that found the long run positive relationship between foreign trade and economic growth in sub-Saharan African counties. Furthermore, the long run coefficient of Labf is negative and statistically significant from imports and total trade models. The negative effect of the Labf reveals the prevalence of unproductive and unskilled labour force. Also, public sector, which is mostly ineffective, absorbs larger percentage of the labour force due to underdevelopment of the private and informal sector of the economies. This imposes huge running cost in the public sector and decline in economic growth with increase in the labour force participation.

5.0 Conclusion and Policy Implications

This study examines the mechanisms by which foreign trade affects economic growth in Nigeria using the novel Jordan and Philips (2018) dynamic simulations of ARDL model. The significance of long-run economic growth in the country's economic development processes cannot be over emphasized. This is a reason why the realization of long-run economic growth remains the crucial goal of country's macroeconomic policy, even though its achievement continues to be the ultimate challenges facing several developing economies. Consequently, developing countries are struggling to identify measures and policies of achieving long-run economic growth, one of such factors is trade. The long run positive effect of trade and imports implies that foreign trade increase economic growth in Nigeria. This is in tandem with the submission of several previous studies (Safiyanu and Chua, 2020; Kahinde et al., 2012).

The study provides significant policy implications. Firstly, the study found positive and significant impact of foreign trade on economic growth in Nigeria. To sustain a long run economic growth through foreign trade, policymakers should regulate the exports and imports trade in the country through exports diversification and import substitution strategy. Policies and programs towards enhancement of exports should be a government priority in order to have a favourable balance of payment and sustainable economic growth. However, economic growth is driven on the bases of capital accumulation and quality of labour force participation. The finding shows the long run negative and significant impact of labour force participation on economic growth. The negative effect of the labour force participation reveals the prevalence of unproductive and unskilled labour force. Thus, to maintain the long run economic growth, the policy makers should absorb the skills and productive labour into the private and public sectors to enhance productivity and general economic growth.

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