Trade openness, foreign investment and economic Growth in nigeria (1981-2021)

THANKGOD TONYE, PhD
Department of Economics, Faculty of Social Sciences
Ignatius Ajuru University of Education, Rumuolumeni, Rivers State, Nigeria

powerfulrugged@yahoo.com
PATIMI EBIKESEYE
Department of Economics, Faculty of Social Sciences
Isaac Jasper Boro College of Education, Bayelsa State, Nigeria
richardjoan210@gmail.com

Abstract
This study investigated the impact trade openness, foreign investment and economic growth in Nigeria spanning from 1981 to 2021. Data for the study were obtained from Central Bank of Nigeria Statistical bulletin and World Bank data. 2021. The formulated model was subjected to unit root test using the Augmented Dicey Fuller unit root approach. The ADF result revealed that the variables were not stationary at levels but became stationary after first difference. Based on this scenario the study adopted the Johansen co-integration technique to ascertain if there is long-run relationship between the variables. The result of the Johansen test revealed existence of long-run relationship. The Error correction modem (ECM) was used to ascertain the behaviour of the variables and the speed of adjustment. Thus, the result revealed that exchange rate (EXR) is negative but significant to influence real gross domestic product (RGDP), while trade openness (TOP) is positive and significant to influence real gross domestic product (RGDP). However, foreign direct investment (FDI) and foreign portfolio investment (FPI) have insignificant relationship with real gross domestic product (RGDP). It was recommended amongst others that in order to increase the contribution of foreign investment, government through the monetary policy authority (CBN) should make the exchange rate stable, attractive and available for investors. This will enable investors to access more foreign currency that will help them purchase both raw materials and finished goods. This situation will improve export of goods and service, investment across the border will equally increase. This will lead to increase in the country's economy. Investors should also source raw materials locally which will enhance activities of the domestic market. This situation will reduce the unemployment rate and contribute massively to the local economy.

Keywords: Foreign Direct Investment, Foreign Portfolio Investment, Exchange Rate, Trade Openness, Real Gross Domestic Product

1.0 Introduction

1.2 Statement of Problem

The growth of economy is the desire of both developed and developing countries. Therefore, the growth of an economy cannot be over-emphasized. For instance, a country with continues increase in productive activities, effective and efficient industrial sector, stable and attractive monetary policy rate and exchange rate which would lead to development can be perceived an growth of economy or economy growth. However when a country lack this vital ingredient, savings mobilization becomes difficult which will in turn affects investment. The Nigerian economy is confronted with shortage in domestic savings and foreign exchange requirement for capital formation.

As a result of this situation the government in most cases adopt fiscal policy measures in the guise of borrowing internally or externally. However it has been observed that borrowing in Nigeria has become a burden instead of instrument to development. Take for

instance, in 2004, Nigerian external debt stock was about $39.90 billion but by 2006 it has been reduced to $9.6 billion but by 2011, it has risen to $17.70 billion and by 2014, it had shut up to $24.75 billion and in 2016, the debt stock had become $31.16 billion (index mundi, 2017).

The continuous rise in external debt have affected the economic welfare of citizens. This is because majority of the income generated in the country are set aside to service debt instead of executing capital projects like road and bridge construction and supporting the industrial sector.

This situation has brought untold hardship to the citizens making most of them to resort to crime and other social vices. Based on this anomalies the present study reviewed related literature to ascertain the extent of work done. The reviewed literature reported mixed result. For instance, all the studies reviewed (Ilemona and Nwite (2021); Omesi, et al (2021); Muhammad and Abdullahi (2020); Obisesan, et al (2019); Charles and Abimbola (2018); Essien et al. (2016); Orjinta and. Nwadialor (2016); Uma et al. (2013); and Sulaiman and Azeez (2012) agreed that there is a relationship between the dependent and independent variable but disagreed in the direction of the relationship.

For example, Ilemona and Nwite (2021); Omesi, et al (2021); Muhammad and Abdullahi (2020); Obisesan, et al (2019); Charles and Abimbola (2018); Essien et al. (2016); Uma et al. (2013) all reported negative relationship between the variables while Sulaiman and Azeez (2012); and Orjinta and. Nwadialor (2016) in their own study reported positive relationship.

Also, it was found out that these studies used different techniques to evaluate the hypotheses. Some of the studies used Ordinary least square (OLS), while others used either auto-regressive distributive lag (ARDL) or error correction model (ECM) therefore a gap exist in literature which deserved to be filled.

To achieve this, the paper is organized into five sections. Following this introduction, this paper is organized as follows: Section two is the conceptual, theoretical, empirical and literature review, section three presents the methodology of the work, section four shows analysis of the study and discussion of findings, while section five concluded the study with relevant policy recommendation from the findings.

2.0 Literature Review

Theoretical Literature

Endogenous Growth Theory

The endogenous growth theory was pioneered by Romer (1986). The theory postulated that investment in human capital, perception and novelty are the key to accelerate economic growth. It is the improvements in productivity will increase the pace of innovation and extra investment in human capital. It was also said that the need for government and private sector institutions to encourage innovation and provide incentives for individual and business to be inventive. It is the central role of the assembling knowledge work as a determinant of growth i.e knowledge industries such as telecommunication, electronics, software or biotechnology are becoming increasingly important in developing countries. Blomstron and Sjoholm, (1999) agreed with this theory that foreign investment contributes to economic growth via novelty and technological transfer.

Multinational companies can transfer technology either directly to their Foreign Owned Enterprises (FOE) or indirectly to Domestic Owned Enterprises (DOE) in the host country. This study also supported this view due to its emphasis on innovations, knowledge and human capital development. This will assist in facilitating economic growth of the country because of the new innovations and knowledge brought by the foreign investors.

Portfolio Theory of International Capital Flows

The portfolio theory of international capital flows was postulated by Michael and Makoto (2006), the theory holds that the existence of nominal bonds and the portfolio composition of net foreign assets is an essential element in facilitating capital inflows between countries. National monetary policies make domestic and foreign currency denominated bonds differ in the degree to which they can hedge country specific consumption risk which leads countries to have distinct composition of currency- denominated bonds in their national portfolios. By adjusting their gross positions in each currency's bonds, countries can achieve an optimally hedged change in their net foreign assets (or their current account), thus facilitating international capital flows. Moreover, the risk characteristics of optimal portfolios ensures that current account movements are sustainable - net debtor countries pay lower rates of return on their gross liabilities than they receive on their gross assets. This ensures that the distribution of wealth across countries is stationary.

Empirical Literature Review

Abdulhamid et al (2022) examines the effect of foreign direct investment on economic growth in Sub-Sahara African countries. The methodology involves estimating augmented endogenous growth model using panel data for the period 1975-1999. The results indicate that foreign direct investment has marginally significant positive effect on economic growth. Domestic economic conditions such as macroeconomic policy, openness, and domestic investment have significant positive effect on economic growth.

Awa (2021) determine the Influence of Foreign Direct Investment in Economic Growth and Deployment of Nigeria. The study employed Ordinary Least Square (OLS) method of estimation using multiple regression analysis. The data generated for this study comprises of Foreign Direct Investment (FDI), Real Gross Domestic Product (RGDP) and Exchange Rate (EXR). The data was sourced from Central Bank of Nigeria statistical bulletin spanning the period of 1989-2019 (30years). We found that FDI has positive and significant influence on real economic growth. EXR also has positive and significant impact on economic growth in Nigeria. Results also showed that the overall regression is significant at 5% level of significance given that the F-statistic is 0.0000 which is less than 0.05. Based on the results, the study recommends an improvement in the level of institutional development on which the inflow of FDI is based. The study also recommends that government should as a matter of urgency takes appropriate measures in order to stabilize the exchange rate that may attract more investors in the country for desired economic growth and Development.

Adewunmi (2019) investigated Foreign Portfolio Investment (FPI) and Nigerian economic growth from 1988 to 2017. The Ordinary Least Square using the statistical tool of E-view 9 was employed in analyzing the data. The dependent variable is Gross Domestic Product proxied for economic growth while independent variables include Foreign Portfolio Investment, exchange rate and inflation rate. This data was sourced and obtained from CBN statistical bulletin. Findings through the empirical investigation identified that Foreign Portfolio Investment and inflation rate has no significant impact on the growth of Nigerian economy while exchange rate is the only variable which has a positive and significant impact on economic growth in Nigeria. The f-statistic results shows that all the explanatory/independent variables of in the specified model have significant effect on Gross Domestic Product. The study therefore concluded that Foreign Portfolio Investment has a significant effect on growth of economic growth in Nigeria considering the relative importance of portfolio investment to emerging market like Nigeria. Based on the findings, the study recommended that government should make favourable trade policies and investment conditions friendlier in order to boost continuous inflow of foreign portfolio investment in Nigeria.

Ezeanyeji and Ifeako (2019) explored the impact of foreign portfolio investment on economic growth in Nigeria from 1986 to 2017. The motivation for this study is driven by the new attention being given to the drive for foreign capital especially in developing economies in an attempt to stimulate economic growth. The study employed Augmented Dickey-Fuller (ADF) test, The Johansen cointegration technique and the Error Correction Mechanism (ECM) in the analysis. The variables employed include: Net foreign portfolio investment, real Gross Domestic Product (GDP), inflation rate, market capitalization and trade openness. The result revealed that foreign portfolio investments have positive significant impact on economic growth in Nigeria. It is therefore, recommended that government should initiate policies that will promote the long-rum growth of the capital market and the economy at large, the government must create a conducive business environment by providing constant power supply, good roads, security of life and property and maintains policy consistency in order to boost local investment in the country, the capital market should be further deepened through the introduction derivatives.

Muhammad and Benedict (2018) examined the impact of trade openness on economic growth in Nigeria for the period 1981-2017. Using degree of openness as independent variable, the ordinary least squares technique was used on series data to examine the impact of trade openness on Gross Domestic Product (GDP). The series data were extracted from World Bank data 2017. The result of the Analysis shows that all the variables Real Gross Domestic Product (RGDP) Degree of Openness (DOP), FX and Per Capita Income (PCI) were positive and statistically significant at first difference, the study found that the variables are cointegrated and unidirectional causality was found from RGDP to DOP. Therefore, the study recommends that policy makers should adopt policies on trade liberalization such as reduction of non-tariff barriers, reducing tariffs, reducing or eliminating quotas that will enable the economy grow at spectacular rates.

Egbulonu and Ezeocha (2018) examines empirically the relationship between Trade openness and Economic

growth in Nigeria. The study covered the period 1990 – 2015, using ARDL approach to cointegration. The ARDL result confirmed the existence of a long-run relationship between Economic Growth, Trade Openness, Foreign Direct Investment and Gross Capital Formation. It was found that Trade Openness and Gross Capital Formation had positive and negative impacts respectively on growth rate of GDP in the short run. Therefore, this study concludes by recommending that; (i) trade openness should be regulated by government; from our result an increase in trade openness caused a decrease in our GDP (ii) FDI should be encouraged as it was seen to have significantly improved economic growth in Nigeria.

Udeh and Odo (2017) examined the impact of foreign direct investment on economic growth in Nigeria from 1981 to 2013. Ex-post facto research design was adopted. Secondary data covering the period were collected from CBN statistical Bulletin, National Bureau of Statistics and World Bank Statistical data. (2013). Pearson Product Moment Correlation Coefficient was employed in the analysis of data. It was found among others, that there is a significant, strong and positive relationship foreign direct investment and gross domestic product between 1981 and 2013 in Nigeria. The study conclude that a very high, positive and significant relationship exist between foreign direct investment and economic growth in Nigeria. The study recommended amongst other, that government should create conducive business environment that would attract more foreign investment into the country.

Onyeisi, et al (2016) determine the impact of foreign portfolio investment inflows on stock market growth in Nigeria from 1986 to 2014. The study used co-integration, vector error correction model and Granger Causality econometric tools. The results obtained includes the following: the trace statistics indicates one(1) co-integrating equation at 5% level of significance, the vector error correction model indicates long-run significant impact of foreign portfolio investment on stock market growth in Nigeria, and the Granger Causality shows there is no causality between foreign portfolio investment and stock market growth in the Nigerian economy.

The implication of the results is that foreign portfolio investment (FPI) inflows may not contribute positively to the increase in stock market when there is no conducive business environment for foreign investments to thrive in Nigeria. The study recommends that Federal Government of Nigeria should strengthen the Security and Exchange Commission (SEC) to promote constant inflows of foreign portfolio investment to Nigeria. That Nigeria Government should develop capital markets so that domestic trade volume should increase more than foreign portfolio investment (FPI) because of the existence of huge risk premium in Nigeria and that Central Bank of Nigeria (CBN) should be proactive in regulating foreign exchange transactions in Nigeria since the country is import-dependent country.

Yaya (2017) examines the impact of trade openness on economic growth for Cote d'Ivoire over the period 1965–2014 in a multivariate framework including capital stock, labor and trade openness as regressors. It uses the Autoregressive Distributed Lag bounds test to cointegration and the Toda and Yamamoto Granger causality tests. The results show that trade openness has positive effects on economic growth both in the short and long run. Furthermore, they reveal a positive and strong complementary relationship between trade openness and capital formation in promoting economic growth.

Felix et al. (2013) examined the influence of trade liberalization on economic growth in Nigeria between1970 and 2012 with a view to examining whether a long term relationship exists between the two and also to check for structural change that may have occurred with the implementation of a free trade regime in 1986. The study adopts the ordinary least squares while time series data sourced from the World Development indicator (WDI) of the World Bank and the Central Bank of Nigeria (CBN) statistical bulletin and annual reports were analysed. Result shows that liberalization supports economic growth in Nigeria with an evidence of a long run relationship. Strong evidence was found to support a structural change taking place in 1986 with the adoption of free trade policy. However export was reported to be negatively related to growth. The study concluded by recommending that an enabling environment that will engender further growth such as better infrastructural base, adequate financing support adherence to international best practice in export and sound institutional structure be put in place for sustainability.

Constant (2010) examines the long-run impact of foreign direct investment and trade openness on economic growth in Cote d'Ivoire. To assess this purpose, the study uses the more recent data analysis technique the bounds testing cointegration approach (Pesaran *et al*, 2001) and the VAR Granger causality/Block Exogeneity Wald tests. The data span for the study is from 1980-2007. Amongst the key

results it is found: a long run relationship between the foreign direct investment, trade openness and output; and the VAR Granger causality/Block Exogeneity Wald tests reveals unidirectional causal relationship running from foreign direct investment, trade openness to output and from output, foreign direct investment to trade openness. Both foreign direct investment and trade openness are significant in explaining output growth in Cote d'Ivoire. Therefore this study concludes by recommending, among other things, the Cote d'Ivoire by the opportunities offered by world markets have to manage a good combination with a domestic investment and institution-building strategy to attract more inflows of foreign direct investment for output growth dynamics.

Aka (2006) examine the relationships between openness, globalization on economic growth in Côte d'Ivoire which adopted the openness of its economy as the basic way for development at the beginning of its economic history in 1960. Using a three-variable vector autoregressive (VAR) model, we find that the three variables are tied together in the long-run. Globalization does have a negative effect on economic growth, and although a positive effect of openness on growth is observed in the short-run, both increasing openness and globalisation do not have positively contributed to the long-run economic growth of this country, a finding that is in the opposite of the prediction of the new growth theory about the potential long-run effects of trade on growth.

Summary of Literature Reviewed

The empirical review of related literature with respect to debt burden on economic growth in Nigeria. The reviewed literature revealed an unsatisfying findings. For instance, all the studies reviewed (*Abdulhamid et al,* 2022: Awa, 2021; Adewunmi**,** 2019; Ezeanyeji and Ifeako*, (2019;* Egbulonu and Ezeocha, *2018;* Muhammad and Benedict, 2018; Udeh and Odo, 2017; Yaya, 2017; Onyeisi, et al*,* 2016; Felix et al, 2013; Constant, 2010; Aka, 2006;) agreed that there is a relationship between the dependent and independent variable but disagreed in the direction of the relationship. For example, *Abdulhamid et al, (*2022): Awa, (2021); Ezeanyeji and Ifeako*, (2019);* Muhammad and Benedict, (2018); Udeh and Odo, (2017); Yaya, (2017); Onyeisi, et al*, (*2016); Felix et al, (2013); Constant, (2010); and Aka, (2006); all reported positive relationship between the variables while Adewunmi**, (**2019); and Egbulonu and Ezeocha, (*2018)* in their own study reported negative relationship.

Also, it was found out that these studies used different techniques to evaluate the hypotheses. Some of the studies used Ordinary least square (OLS), while others used either auto-regressive distributive lag (ARDL) or error correction model (ECM) or even panel data, therefore a gap exist in literature which deserved to be filled.

3.0 Methodology

This study used secondary source of data, and were mainly annual time series data that were obtained from World Bank data and Central Bank of Nigeria Statistical bulletin, from 1981 to 2021. The dependent variable of the study is real gross domestic product (RGDP) as a proxy for economic growth while the explanatory variables are trade openness (TOP), foreign direct investment (FDI), foreign portfolio investment (FPI) and exchange rate (EXR), as proxy for trade openness and foreign investment). This study adopt the Ex-post facto research design. The ex-post facto research can be defined as an empirically based investigation which does not involve the researchers' direct control over the independent variables because they have already led to effects which cannot be manipulated.

Model Specification

The general bases for model specification is the portfolio theory which posit that the existence of nominal bonds and the portfolio composition of net foreign assets is an essential element in facilitating capital inflows between countries. By adjusting their gross positions in each currency's bonds, countries can achieve an optimally hedged change in their net foreign assets (or their current account), thus facilitating international capital flows. Therefore, the model of this study is based on the modification of Egbulonu and Ezeocha (2018).

The model is stated thus;

$$\Delta GRGDP = \beta_0 + \Delta\, GRGDP_{t-1} + \Sigma\beta_{1t}\Delta\, K_{t-1} + \Sigma\beta_{2t}\Delta L_{t-1} + \Sigma\beta_{3t}\Delta\, OP_{t-1} + \Sigma\beta_{4t}\Delta\, FDI_{t-1}\, \Sigma\beta_{5t}\, ER_{t-1} + U_t$$

Where, GRGDP = Growth Rate of Gross Domestic Product, K= Gross Capital formation, L= Labour force, FDI= Foreign direct investment, ER = Exchange rate.

The model would be modified by introducing foreign portfolio investment as new variable, thus;

RGDP = f (FDI, FPI, EXRTOP)

3.1

The mathematical form of the model is;

RGDP = βo+β1 FDI + β2 FPI +β3 EXR +β4 TOP

3.2

The econometric form of the model is stated below;
RGDP = βo+β1 FDI + β2 FPI +β3 EXR +β4 TOP +μ. 3.3

Where,
RGDP = Real Gross Domestic Product, **FDI** = Foreign Direct Investment, **FPI =** Foreign Portfolio Investment, **TOP** = Trade Openness, **EXR** = Exchange Rate. **μ =** Error term **βo =** Constant **β1-β4=** Estimated Parameters

4.0 Empirical Data Analysis Result

4.1.1: Unit Root Test on Debt Burden and Economic Growth

The Augmented Dickey Fuller (ADF) unit root test is use to establish the stationarity of the time series data used in the study. The result in table 4.3.1 are shown below:

	Levels			First Difference			
Variable	**ADF statistics**	**1% critical value**	**5% critical value**	**ADF statistics at First Difference**	**1% critical value**	**5% critical value**	**Order of integration**
LRGDP	-1.260112	-3.605593	-2.936942	-4.372425	-3.610453	-2.938987	1(1)
LFDI	-1.992905	-3.605593	-2.936942	-10.15035	-3.610453	-2.938987	1(1)
LFPI	-2.415109	-3.605593	-2.936942	-6.580913	-3.610453	-2.938987	1(1)
EXR	2.708427	-3.605593	-2.936942	-4.396347	-3.610453	-2.938987	1(1)
TOP	-2.487180	-3.605593	-2.936942	-8.497002	-3.610453	-2.938987	1(1)

Source: ***Author Computation 2022*** * Level of significance at 5%

This study employs the Augmented Dickey-Fuller (ADF) unit root tests to check the order of integration of the variables and the results are presented in Table 4-3.1a the results of Augmented Dickey-Fuller (ADF) showed that the variables were not stationary at levels 1(0) but became stationary after first difference 1(1).

Lag Selection Criteria

VAR Lag Order Selection Criteria
Endogenous variables: LRGDP LFDI LFPI EXR TOP
Exogenous variables: C
Date: 11/06/22 Time: 09:43
Sample: 1981 2021
Included observations: 38

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-620.9175	NA	1.40e+08	32.94303	33.15850	33.01969
1	-430.9834	319.8890	24009.83	24.26228	25.55511*	24.72226*
2	-404.3628	37.82928*	23689.39*	24.17699*	26.54718	25.02028
3	-382.2038	25.65776	33400.02	24.32652	27.77407	25.55313

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

C0-integratiion Test

Table 4.1.2a: Johansen Co-integration Result

Hypothesized no. of CE(s)	Eigen value	Trace statistic	0.05 critical value
None*	0.659650	88.43374	69.81889
At most 1	0.546382	47.47809	47.85613
At most 2	0.280114	17.43910	29.79707
At most 3	0.107847	4.949938	15.49471
At most 4	0.016015	0.613478	3.841466

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

Source: Author's computation from E-views 10

Table 4.1.2b. Test for Johansen co-integration using trace statistic

Hypothesized no. of CE(s)	Eigen value	Max-eigen statistic	0.05 critical value
None*	0.659650	40.95565	33.87687
At most 1*	0.546382	30.03899	27.58434
At most 2	0.280114	12.48916	21.13162
At most 3	0.107847	4.336461	14.26462
At most 4	0.016015	2.520548	3.841466

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

Johansen co-integration test in table 4.1.2 was conducted to determine if the trace statistics or max-Eigen values were greater than the critical values at 5%. Thus, the trace statistics results disclosed that there is co integrating equations existing in the model. Similarly, the Max-Eigen test results also confirm that the model has two co integrating equations. These findings are indicative that linear combinations of the series lead to long run relationship among them. Owing these findings, the relationships among the variables are represented in an error correction model.

Table 4.1.3: Parsimonious Error Correction Model

Variables	Coefficient	Std. Error	t-statistics	Prob
D(LFDI)	0.019633	0.032777	0.598973	0.5534
D(LFPI)	0.001923	0.014510	0.132545	0.8954
D)EXR)	-0.002976	0.001107	-2.688615	0.0160
D(TOP)	0.000768	0.000264	2.911545	0.0034
C	0.189680	0.023874	7.945045	0.0000
ECM(-1)	-0.030180	0.013798	-2.158798	0.0098

Adj R^2 = 0.309526, F-statistics =2.930175 (0.044530), D-Watson =1.939916

Source: Extracts from E-view 10. * Level of significance at 5%

Table 4.1.3 shows the short-run result of the model. It is indicated that the log of foreign direct investment (LFDI) have a positive (0.019633) with the log of real gross domestic product (LRGDP) as a proxy for economic growth. This implies that a unit increase in FDI will lead to about 2% increase in the log of real gross domestic product (LRGDP). However, the p-value of 0.5534 indicate that there is no statistical significant relationship between LFDI and LRGDP. Similarly, the log of foreign portfolio investment (LFPI) revealed a positive (0.001923) relationship with the log of real gross domestic product (LRGDP). This means that a unit rise in LFPI will result to about 0.01% increase in the log of real gross domestic product (LRGDP). The p-value of 0.8954 indicate that LFPI is insignificant to influence the log of real gross domestic product (LRGDP) as a proxy for economic growth.

However, the coefficient of exchange rate (EXR) reported a negative (-0.002976) relationship with the log of real gross domestic product (LRGDP) as a proxy for economic growth. This implies that a unit increase in FDI will lead to about 0.02% increase in the log of real gross domestic product (LRGDP). The p-value of 0.0160 shows that EXR is significant to influence the log of real gross domestic product (LRGDP).

Finally, the coefficient of trade openness (TOP) is positive (0.000768) with the log of real gross domestic product (LRGDP). This implies that a unit increase in TOP will lead to about 0.07% increase in the log of real gross domestic product (LRGDP). Also, the p-value of 0.0034 shows that there is a significant relationship between TOP and LRGDP.

The ECM (-1) which is the error correction term has a coefficient estimate which is negative and also significant at 0.05 level of significant. It indicates the model will adjust toward long run equilibrium at a speed of 3% annually. This implies that the previous year's error can be corrected with an adjustment speed of 3% annually.

The adjusted R-Square (R^2) value indicates that 30% of the total variation in the dependent variable (LRGDP) is explained by the independent variables (FDI, FPI, EXR & TOP). The F-statistics is statistically significant at 5% level of significance indicating the overall model is significant. The Durbin-Watson statistics of 1.939916 reveals the absence of serial correlation in the model.

Diagnostic Test

Table 4.1.4: Ramsey Reset Test, Serial Correlation LM Test and Homoscedasticity Test Results.

	F-Statistic	Prob.Value
Ramsey Reset Test	3.029247	0.0917
Breusch-Godfrey Serial Correlation LM Test	2.364844	0.1113
Breusch-Pagan-Godfrey Heteroskedasticity Test	1.117842	0.3707

Source: *Author's Computation using E-view 10*

From Table 4.1.4. above, the results of the diagnostic test shows that the linearity test using Ramsey reset test indicates that the f-statistic (3.029247) with computed p-value of 0.0917 which is greater than 5 percent (0.05) critical value, hence the study reject the null hypothesis and conclude that the model is correctly specified.

The result of the serial or autocorrelation test using Breusch-Godfrey Serial Correlation LM Test shows that the f-statistic is 2.364844, with a Chi-Square probability value is 0.1113. This indicates that the probability value of about 11 percent (0.1113) is greater than 5 percent (0.05) critical value; hence the study confirms no serial correlation in the model.

The result of the heteroscedasticity test using Breusch-Pegan-Godfrey test shows that the f-statistic is 1.117842 with a Chi-Square probability value of 0.3707. The result suggests that there is no evidence of heteroskedasticity in the model since the probability Chi-square value is more than 5 percent (P >0.05). So, residuals do have constant variance which is desirable in regression meaning that residuals are Homoscedastic.

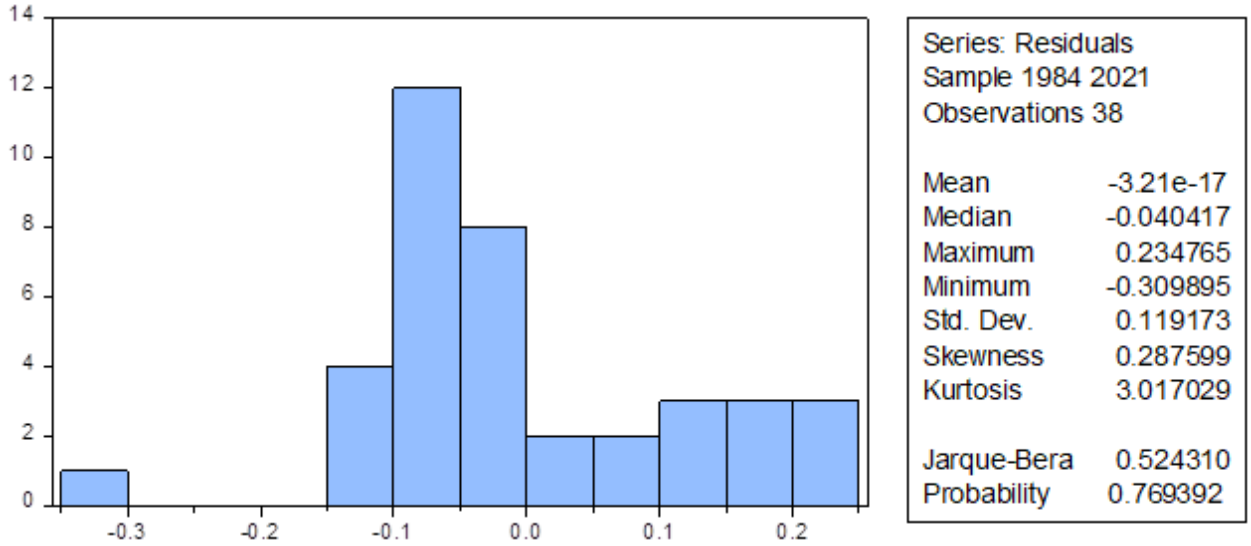

Figure 4.1, shows summary of the normality test with Jarque-Bara value of 0.524310 and a corresponding probability value of 0.769392 more than 0.05 level of significance, indicating that the residuals are normally distributed.

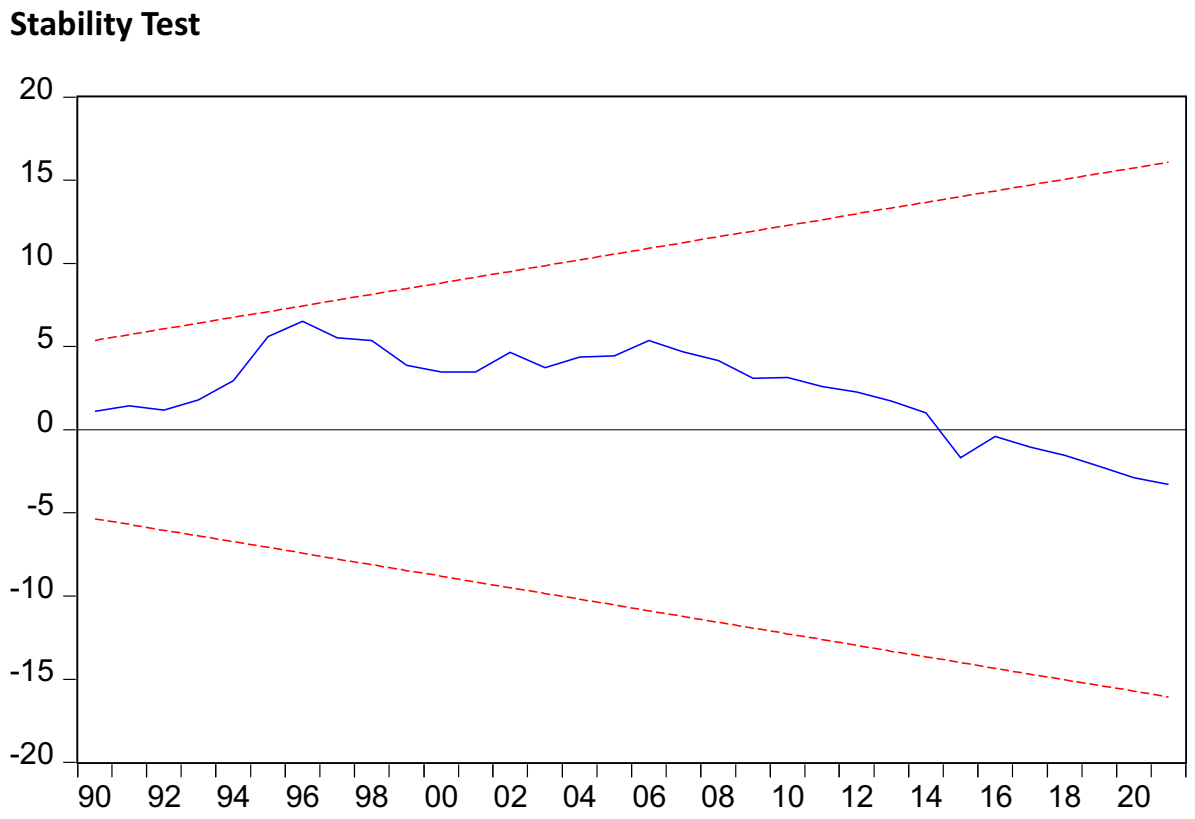

Figure 4.2, shows summary of the stability of the model. The graph showed that the model is stable, this is evident to the fact that, the blue line inside the graph is in between the two red lines. This also indicates that it is less than 0.05 level of significance.

5.0 Conclusion and Recommendations

Conclusion

This research discourse investigated the link between trade openness, foreign investment and economic growth in Nigeria. The dependent variables of the paper is, real gross domestic product (RGDP) as a proxy for economic growth, while the explanatory variables are, foreign direct investment (FDI), foreign portfolio investment (FPI), exchange rate (EXR) and trade openness (TOP).

The study employed secondary data from and ex-post facto research design for 41 years period (1981-2021). The Augmented Dickey Fuller (ADF) and Parsimonious Error Correction Model (ECM) technique was used in the study to analyses the variables. Thus, the result revealed that exchange rate (EXR) is negative but significant to influence real gross domestic product (RGDP), while trade openness (TOP) is positive and significant to influence real gross domestic product (RGDP). However, foreign direct investment (FDI) and foreign portfolio investment (FPI) have insignificant relationship with real gross domestic product (RGDP).

Recommendations

Based on the conclusion and findings of the study, the following recommendations are made: In order to increase the contribution of foreign investment, government through the monetary policy authority (CBN) should make the exchange rate stable, attractive and available for investors.

This will enable investors to access more foreign currency that will help them purchase both raw materials and finished goods. This situation will improve export of goods and service, investment across the border will equally increase. This will lead to increase in the country's economy. Investors should also source raw materials locally which will enhance activities of the domestic market. This situation will reduce the unemployment rate and contribute massively to the local economy.

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