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THE EFFECT OF FOREIGN DIRECT INVESTMENT AND EXCHANGE RATE ON THE GROSS DOMESTIC PRODUCT IN NIGERIA

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ABSTRACT

Foreign Direct Investment has traditionally been a crucial driver of economic growth in many nations, including Nigeria during a certain period in its history. Regrettably, the influence of this investment can vary based on the prevailing exchange rate. With this in view, this study employs econometric methods to empirically examine the relationship between foreign direct investment, exchange rates, and Gross Domestic Product (GDP) in Nigeria from 1981 to 2021. The annual data was sourced from the Central Bank of Nigeria's statistical bulletin and the World Bank Development Index. The time series data collected from the Central Bank of Nigeria was subjected to various tests to ensure its reliability, including stationarity testing and a sensitivity analysis that encompassed the Ramsey Reset specification, detection of serial correlation, identification of heteroskedasticity, and evaluation of multi-collinearity.

Using the Auto-Regressive Distributed Lag (ARDL) co-integration approach, the analysis revealed a significant long-term relationship between GDP and the exchange rate, while the relationship between GDP and foreign direct investment was not statistically significant. Furthermore, the models were found to be free from serial correlation and exhibited stability, making the results suitable for policy considerations. In light of these findings, it is recommended that policymakers explore diversifying their investments into other industries to attract foreign investors. Additionally, it is advised that the Central Bank of Nigeria implement stringent controls on foreign exchange policies to ensure the proper determination of the Naira's value relative to other currencies.

Keywords: Foreign Direct Investment, Exchange Rate, Inflation Rate, Real Gross Domestic Product, Foreign Aid.

1. Introduction

Nigeria possesses a wide array of resources, encompassing human, natural, and mineral resources. To fully harness the potential of these resources, financial capital is essential. While internally generated revenue can often suffice, in Nigeria's case, due to the substantial volume of these resources, seeking foreign aid has become a necessity. Abidemi (2019) also highlights another motive for attracting foreign investment: the increasing global integration across various domains such as sports, media, entertainment, education, and technology transfer.

Foreign Direct Investment (FDI) is the term used to denote the situation in which a party originating from one country invests in such a manner that it acquires a controlling stake in a company situated in another nation (Asiedu, 2002). FDI commonly takes place when an investor establishes business operations overseas or acquires foreign business assets, which may include obtaining ownership or a controlling interest in a foreign company. It encompasses more than just financial investment, often involving the sharing of managerial expertise, technological advancements, and business knowledge.

The World Bank defines Foreign Direct Investment (FDI) as the flow of direct investment equity into the host economy. It comprises equity capital, reinvested earnings, and other forms of capital. FDI represents a form of international investment where an entity from one country holds control or exerts significant influence over the management of a business located in another country. Consequently, the impact of FDI on an economy is contingent on the domestic circumstances of the host nation (Moura & Forte, 2013).

Galeza and Chan (2014) elaborate on the diverse manifestations of Foreign Direct Investment. It can take the form of vertical

integration, wherein firms invest to produce specific components of a product in the host country, often due to cost-effective factors such as labor or abundant natural resources. Alternatively, FDI can be horizontal, involving the replication of processes from the foreign country to serve the domestic market.

Conversely, the exchange rate refers to the relative value or quantity of one currency concerning another currency, signifying the amount of the domestic currency required to purchase a foreign currency.

In recent times, foreign direct investment (FDI) has gained increasing significance in the developing countries worldwide. Several developing nations, including Nigeria, have endeavored to attract substantial FDI to bolster their domestic resources, promote rapid industrialization, and enhance output in sectors like manufacturing. Therefore, the significance of FDI lies in its potential to boost the manufacturing sector in less developed countries. A conducive environment for FDI in Nigeria, for example, can lead to benefits such as job creation and increased sector turnover. FDI can influence the manufacturing output of a country, and conversely, manufacturing output can attract more FDI in developing nations.

Developing countries have been keen on FDI since the development of the manufacturing sector hinges on capital investment and technology infusion. Foreign investors bring these assets, contributing to increased sector turnover. These firms often possess competitive advantages and, through their interactions with local manufacturing industries, facilitate learning and improvement in productivity.

Twin (2022) highlights the significant role that exchange rates play in a nation's trade dynamics, a critical aspect of virtually every free market economy worldwide. These rates are influenced by various factors, such

as inflation rates, interest rates, public debt, and the economic performance of both involved countries. Additionally, they can serve as a tool for implementing monetary policy, and fluctuations in a country's exchange rates can have adverse effects on foreign investments, as noted by Akintayo (2022). Moreover, a well-managed exchange rate system can impact a country's imports and exports, a point that holds particular importance for import-dependent countries like Nigeria, which also relies heavily on one source, namely oil, for 80% of its export revenue. Consequently, exchange rates wield significant influence over Nigeria's revenue generation capacity.

Obaseki (1991) underscores the importance of effectively managing a nation's foreign exchange resources as a means to mitigate the adverse effects of foreign exchange volatility. In a broader economic context, a country's Gross Domestic Product (GDP) serves as a metric to gauge the value added through the production of goods and services within its borders during a specified time frame. Furthermore, GDP measures the total expenditure on finished goods and services, along with the income generated from this economic output.

Over the years, the Nigerian government has actively promoted foreign direct investment by pursuing trade openness policies, which led to a notable influx of FDI into the country, particularly during the 1990s. Notably, while there is existing literature exploring the relationship between foreign direct investment and exchange rates concerning Nigeria's GDP, these studies have yielded mixed results and have not comprehensively addressed the impact of foreign direct investment and exchange rates on the Nigerian economy.

2. LITERATURE REVIEW

Numerous studies have delved into the impact of both Foreign Direct Investment

(FDI) and Exchange Rates on Gross Domestic Product (GDP) and, consequently, Economic Growth. However, findings from these research efforts have exhibited considerable variation from one scholar to another. In the realm of Exchange Rates, some researchers assert a positive association with economic growth and GDP, while others argue that the relationship is inconsequential.

In their study, Al-Ashemi and Musa (2019) employed the Autoregressive Distributed Lag (ARDL) method and determined that Nigeria's GDP does not significantly respond to fluctuations in the exchange rate, even though they identified a statistically insignificant long-run relationship between GDP and Exchange Rates.

Akpan and Atan (2011), utilizing the Generalized Method of Moments, explored the connection between exchange rates and output growth in Nigeria. Their findings revealed no substantial direct correlation between exchange rate variations and output growth. Instead, they observed that Nigeria's economic growth is primarily influenced by monetary factors, which have sustained an unfavorable pattern of real exchange rates. Their study concluded that while enhancing exchange rate management is essential, it alone is insufficient to rejuvenate the Nigerian economy.

Aliyu, Yakub, Sanni, and Duke (2009) conducted research into the degree of exchange rate pass-through to import and consumer prices in Nigeria from 1986 to 2007, employing the vector error correction methodology. Their investigation found that exchange rate pass-through during this period was low, albeit slightly higher in import prices compared to consumer prices. The pass-through effect was significant and persisted over time.

Nnanna and Alireza (2015) scrutinized how exchange rate fluctuations influenced economic development in Nigeria from

2004 to 2014. They analyzed data using the Vector Autoregression (VAR) technique and concluded that Real Exchange Rate fluctuations were significantly associated with their positive relation to real imports and their negative relation to real GDP and foreign direct investment. They also observed that GDP was positively influenced by a depreciating exchange rate, an increase in the previous Gross Domestic Product, Foreign Exchange Rate, and Foreign Direct Investment.

Obansa, Okoroafor, Aluko, and Eze (2013) endeavored to empirically establish the relationship between Exchange Rates, Interest Rates, and economic growth in the Nigerian economy spanning from 1970 to 2010. They adopted the Vector Auto-Regression (VAR) technique, with a particular focus on Impulse Response Factors and Forecast Error Variance Decomposition. Their findings revealed that Exchange Rates had a more pronounced impact on Economic Growth compared to Interest Rates. In particular, the impact of Interest Rates was positive but diminished as the time horizon extended. It was noted that Interest Rates had a limited effect on Economic Growth during the period of regulation in contrast to the deregulation era.

Mireille (2007) in a separate study argued that the overvaluation of exchange rates had impeded the recovery process in both Nigeria and Benin Republic. The author suggested that devaluation, accompanied by well-targeted measures and an upward adjustment in the domestic prices of tradable goods, could help restore equilibrium in exchange rates and enhance economic performance.

Guellil, Marouf and Benbouziane (2017) examined the influence of exchange rate regimes on economic growth in developing countries, using time-series data from approximately 38 developing nations spanning from 1980 to 2013. The study

categorized the exchange rate regimes into fixed and intermediate regimes. The Fully Modified Least Squares (FMOLS) method was employed for analysis. Their results indicated a positive correlation between exchange rate regimes and economic growth, with a preference for fixed exchange rate regimes in achieving higher growth rates.

Ojo and Alege (2014), through a Panel data set encompassing 40 Sub-Saharan African countries from 1995 to 2007, utilized the dynamic generalized methods of moments (GMM) panel data framework. Their findings highlighted a bi-directional relationship between exchange rates and factors such as the consumer price index, degree of openness, and interest rates. They also emphasized that exchange rates were strictly exogenous concerning variables like real Gross Domestic Product, government expenditure, and foreign direct investment. The study underscored the importance of considering the potential consequences of variables such as Foreign Direct Investment, particularly in countries with a dominant mono-export sector like oil, which may benefit from diversifying their export base.

Shifting the focus to Foreign Direct Investment (FDI), the literature has exhibited division regarding its impact on Gross Domestic Product and Economic Growth. In a study by Danjuma (2021), the effects of terrorism, political violence, corruption, and religious tension on FDI inflows into various sectors in Nigeria were examined. The study employed empirical models estimated using the fully modified ordinary least squares (FMOLS) technique, covering the period from 2008 to 2017. The findings indicated that terrorism had an adverse effect on FDI inflows into the telecommunications sector, while corruption had a positive impact on the oil and gas sector. Consequently, the study recommended intensified efforts in

counterterrorism measures and the strengthening of anti-corruption agencies in Nigeria to enhance the country's appeal for FDI inflow.

Gui-Diby's (2014) examined the relationship between foreign direct investment (FDI) and economic growth in Africa. The study employed a panel data approach, which included data from 50 African countries, spanning the period from 1980 to 2009. The methodology chosen for estimation was the system generalized method of moment (SYS-GMM) estimators, a statistical technique initially introduced by Blundell and Bond in 1998. The study revealed that FDI inflows had a significant impact on economic growth in the African region during the specified time frame. Intriguingly, the research also indicated that the level of human resources in these countries did not act as a limiting factor for the influence of FDI on economic growth. In impact of FDI on economic growth exhibited a negative trend from 1980 to 1994, but this trend reversed, becoming positive from 1995 to 2009. These findings shed valuable light on the dynamic relationship between FDI and economic growth in the African context over the two-decade period examined.

Ugwuegbe, Okore, and John (2013) empirically examined the relationship between Foreign Direct Investment and economic growth in Nigeria, analyzing data spanning from 1981 to 2009. The study employed the Ordinary Least Square (OLS) Method and found that FDI had a positive but statistically insignificant impact on the growth of the Nigerian economy during the studied period. Interest rates were found to have a positive and insignificant effect, whereas the exchange rate had a positive and significant impact on Nigeria's economic growth.

Louzi and Abadi (2011) focused on the Foreign Direct Investment-led growth

hypothesis in the context of Jordan, using time series data from 1990 to 2009. They employed the econometric framework of co-integration and the error correction mechanism to explore the interconnections between variables of interest. Their analysis revealed that Foreign Direct Investment inflows did not independently influence economic growth in Jordan.

Encinas-Ferrer and Villegas-Zermeño (2015) conducted econometric analyses in the countries of Brazil, South Korea, Peru, and Mexico. Their findings indicated the absence of a causal relationship between FDI and GDP in these countries. Notably, the only exception was China, where such a relationship was identified. However, contrary to expectations, the direction of influence was reversed, with GDP growth leading to an increase in FDI, rather than the other way around.

Egwaikhide (2012) investigated the relationship between Foreign Direct Investment (FDI) and economic growth in Nigeria over the period from 1980 to 2009. This analysis utilized the Johansen Cointegration technique and Vector Error Correction Methodology. The findings suggested that the impact of disaggregated FDI on real growth in Nigeria was minimal.

3.0 METHODOLOGY

In order to investigate the relationship among Exchange Rate, Inflation, Foreign Direct Investment, Foreign Currency Reserves, and Gross Domestic Product in the context of Nigeria, a series of preliminary tests were conducted to assess the stationarity of the respective datasets. These tests were performed using the Augmented Dickey Fuller test (ADF) to prevent spurious regression outcomes.

To estimate the model parameters, the Autoregressive Distributed Lag method was applied. The research model employed is based on the framework introduced by

Anyanwu, Ananwude, and Okoye in 2017, with specific adjustments to tailor it to the requirements of this particular study. This model was established by considering the functional relationship between the dependent variable, which is Gross Domestic Product, and the independent variables, namely Exchange Rate, Inflation, and Foreign Direct Investment. Consequently, the model for this study is expressed as follows:

Y=f(x)----------(1)

Where y is the dependent variable GDP and x is the independent variables

GDP=f (FDI, EXR, IFR) ----------(2)

GDP = Gross Domestic Product, FDI = Foreign Direct Investment, EXR = Exchange Rate and IFR = Inflation Rate

In econometrics form, this model is expressed as;

$GDP = \beta_0 + \beta_1 FDI + \beta_2 EXR + \beta_3 IR + \mu$----------(5)

β_0- Intercept, β_1- β_3 – Regression Coefficients , μ- error term ,β_{1-3} represents the sensitivity of the independent variables to the dependent variable

ARDL expression

$$\ln RGDP_{i,t} = b_0 + b_1 \ln RDGP_{i,t-1} + b_2 EXR_{i.t-1} + b_3 FDI_{i,t-1} + b_4 IFR_{i,t-1} + \sum_{i=1}^{p} \alpha_1 \ln RGDP_{i,t-1} + \sum_{i=1}^{q} \alpha_2 EXR_{i,t-1} + \sum_{i=1}^{r} \alpha_3 FDI_{i,t-1} + \sum_{i=1}^{s} \alpha_4 IFR_{i,t-1} + u_i$$

lnRGDPit= natural logarithm of Real Gross Domestic Product, EXR= Exchange Rate

FDI= Foreign Direct Investment, IFR= Inflation Rate, βi's are coefficients for short-run and αi's are coefficients for long-run relationshi,. p, q, r and s= lag orders of the variables, t = time period , t – 1 = time lag.

4.0 RESULTS AND DISCUSSIONS

This section will show the results of all analysis implemented. It has a scope of 1981

to 2021 therefore utilizing 40 years of data on the variables. This is being done to accurately determine the impact of Foreign Direct Investment and Exchange Rate on the Gross Domestic Product of Nigeria.

Table 4.1: Augmented Dickey-Fuller and Phillipss-Perron unit root test

Variables	Augumented Dickey-Fuller				Phillips-Perron			
	ADF	5% Critical Value	Included in the equation	Remarks	PP	5% Critical Value	Included in the equation	Remarks
LNRGDP	-3.84	-3.53	Trend & Intercept	I (1)	-3.75	-3.53	Trend & Intercept	I (1)
EXR	-4.75	-3.53	Trend & Intercept	I (1)	-4.63	-3.53	Trend & Intercept	I (1)
FDI	-3.85	-3.53	Trend & Intercept	I (0)	-3.76	-3.53	Trend & Intercept	I (0)
IFR	-4.10	-3.53	Trend & Intercept	I (0)	-10.70	-3.53	Trend & Intercept	I (1)

Source: ***Authors Computation using E-views 12***

From Table 4.1 above, we see that using ADF Foreign Direct Investment and Inflation Rate were stationary at levels, this means that while testing stationarity at levels the value obtained was less than the 5% critical value, that is I (0) while Real Gross Domestic Product and Exchange rate were stationary at first difference meaning that the value obtained was less than the 5% stationarity level at first difference, that is I (1). Using Phillips-Perron, only Foreign Direct Investment was stationary at levels

while all other variables were stationary at first difference.

Due to the mixture in level of stationarity, the model will utilize the ARDL Bounds test to check for co-integration.

As previously explained, the ARDL Bounds Test is used to determine if co-integration exists among the variables when the stationarity test results are both at levels and at first differences. The result of the ARDL Bounds test is presented below.

Table 4.2: ARDL Bounds Co-Integration Test Results

Test-statistics	Value	Critical Value	Lower-Bound I (0)	Upper-Bound I (1)
F-statistics	6.047581	10%	2.37	3.2
K	3	5%	2.79	3.67
		1%	3.65	4.66

Source: ***Authors Computation using E-views 12***

In interpreting table 4.2 above, if the calculated F statistics is greater than the critical value of the upper bound I (1), then we can conclude that there is co-integration. However, if the calculated F statistics is less than the critical value of the lower bound I (0), then we can conclude that there is no co-integration. Since the F statistics of 6.05 is greater than the upper bound at 10%, 5% and 1% level of significance, we conclude that there is co-integration, implying that long run relationship exist between the variables. Thus, we proceed to the error-correction model (ECM) to estimate the long run coefficients of the model.

Table 4.3: Long run ARDL estimates

Variable	Coefficient	Standard Error	t-Statistic	Probability
EXR	-0.040341	0.014566	-2.741361	0.0119

FDI	-0.015567	0.003762	-4.138236	0.0004
IFR	-0.000654	0.000366	-1.785121	0.0880
CointEq(-1)	-0.087795	0.014686	-5.977935	0.0000

Source: ***Author's computation using E-views 12 (2023)***

The long run ARDL is shown in Table 4.3 above. In the analysis carried out it was observed that the coefficient of the log of Exchange Rate at -0.040341 has a negative effect on Real Gross Domestic Product in the long run. This means that a percentage increase in exchange rate will cause a corresponding decrease in real gross domestic product by -0.04%. This relationship is statistically significant. This agrees with the findings of (Schnabl, 2007) and (Mahmood, Ehsanullah, & Ahamed 2011) and contradicts the findings of (Akpan & Atan, 2011)

The coefficient of Foreign Direct Investment has a negative effect on Real Gross Domestic Product meaning that a percentage increase in Foreign Direct Investment will lead to a decrease in Real Gross Domestic Product by -0.01%. Foreign Direct Investment is found to be significant with Real Gross Domestic Product at 5% significance. This correlates with the findings of (Sharma, Kaur, Sharma & Sandhu, 2020)

The coefficient of Inflation Rate also has a negative effect on Real Gross Domestic Product meaning that a percentage increase in Inflation Rate will lead to a decrease in Real Gross Domestic Product by -0.0006%. Inflation Rate is found to be insignificant with Real Gross Domestic Product at 5% significance.

The Error-correction term is -0.087795 and significant showing long run causality among exchange rate, foreign direct investment and inflation rate to real gross domestic product. It is also negative which

is in line with theory indicating the ability to bounce back to equilibrium. This means that the explanatory variables maintain the real gross domestic product through time.

Table 4.4: Short run ARDL estimates

Variable	Coefficient	Standard Error	t-statistic	Probabilities
D(LINEXR)	0.007319	0.020176	0.362767	0.7202
D(FDI)	0.008095	0.004704	1.720877	0.0993
D(IFR)	-0.001227	0.000622	-1.971080	0.0614
C	0.956127	0.267108	3.579555	0.0017

Source: ***Author's computation using E-views 12 (2023)***

The short run coefficient of Exchange Rate is 0.007319 suggesting that exchange rate has a positive effect on Gross Domestic Product.This means that a percentage increase in exchange rate will cause a corresponding increase in real gross domestic product. It is statistically insignificant at 5% level of significance. The short run coefficient of Foreign Direct Investment is 0.008095 suggesting that foreign direct investment has a positive effect on real gross domestic product. It implies that a percentage increase in Foreign Direct Investment will lead to an increase in real gross domestic product by approximately 0.01%. It is statistically insignificant at 5% level of significance.

Similarly, the short run coefficient of Inflation Rate is -0.001227 suggesting that inflation rate has a negative effect on real gross domestic product. Therefore, a percentage increase in inflation rate will cause a decrease in real gross domestic product by 0.001%. It is statistically insignificant at 5% level of significance.

The coefficient of determination (R^2) is 0.848665. This means that about 84.9% of the total systematic mean variation of the dependent variable is explained by the explanatory variables.

F-statistic is meant to test the overall significance of the entire model as regards the dependent variable. It checks the joint variance of the explanatory variables. The level of significance to be used is 5%. Hence, if the probability is ≤ 0.05, the explanatory variables' parameter estimates will be jointly statistically significant. Any value greater than 5% makes them jointly statistically insignificant.

H_0: There is no joint significance

H_1: There is joint significance

Table 4.5: Representation of the F-statistics

F-Statistic	Probability	Decision Rule
1096.760	0.0000	Accept H0, Reject H1

Source: ***Author's computation using E-views 12 (2023)***

From table 4.5 above, the F-statistic is shown as 1096.760 with a probability value of 0.0000. This indicates that the model is statistically significant since the probability value is less than the 0.05 level of significance. Thus, we conclude that all the regressors are jointly significant in explaining the variations in the regressed.

The T-test is a test of individual statistical significance of the regressors. The hypotheses are stated as:

H0: The variable is not individually statistically significant

H1: The variable is individually statistically significant

The rule of thumb states that if the T-statistic is greater than the 0.05 level of significance, it is statistically significant. Any value below this is insignificant.

Table 4.6: Representation of T-statistics

Variable	Coefficient	Standard Error	t-statistic	Probabilities

D(LINEXR)	0.007319	0.020176	0.362767	0.7202
D(FDI)	0.008095	0.004704	1.720877	0.0993
D(IFR)	-0.001227	0.000622	-1.971080	0.0614
C	0.956127	0.267108	3.579555	0.0017

Source: ***Author's computation using E-views 12 (2023)***

From Table 4.6, we observe that exchange rate generated a t-statistic of 0.362767. This is less than 1.96 which is the critical value at 5% level of significance we therefore conclude that it is statistically insignificant.

Foreign direct investment generated a t-statistic of 1.720877. This is less than 1.96 which is the critical value at 5% level of significance we therefore conclude that it is statistically insignificant.

Inflation rate generated a t-statistic with an absolute value of 1.971080. This is greater than 1.96 which is the critical value at 5% level of significance we therefore conclude that it is statistically significant.

4.7 Adjusted Coefficient of Determination (Adjusted R^2)

Variable	Coefficient	Standard Error	t-statistic	Probabilities
D(LINEXR)	0.007319	0.020176	0.362767	0.7202
D(FDI)	0.008095	0.004704	1.720877	0.0993
D(IFR)	-0.001227	0.000622	-1.971080	0.0614
C	0.956127	0.267108	3.579555	0.0017

R-squared	0.848665	Mean dependent var	10.45573
Adjusted R-squared	0.827754	S. D. Dependent var	0.525412
S. E. of regression	0.024901	Akaike info criterion	-4.252292
Sum squared	0.013641	Schwarz criterion	-3.56278

resid.			2
Log Likelihood	96.79355	Hannan-Quin criter.	-4.006970
F-statistics	1096.760	Durbin-Watson stat	2.135248
Pro(F-statistics)	0.000000		

Source: ***Author's computation using E-views 12 (2023)***

The coefficient of determination is 0.848665 (84.9%) which implies that the explanatory variables accounted for 99.9% of the total variations in the dependent variable. This essentially means that 84.9% of the variations in Real Gross Domestic Product can be explained by exchange rate, foreign direct investment and inflation rate.

4.6 Discussion of the Findings

This study investigated the effect of Exchange Rate and Foreign Direct Investment on the GDP of Nigeria from 1981 to 2021. The study used secondary data obtained from main stream publications of Central bank of Nigeria (CBN) and World Bank.

It was discovered that exchange Rate has a negative effect on Real Gross Domestic Product in the long run. This means that a percentage increase in exchange rate will cause a corresponding increase in real gross domestic product by -0.04%. It was also found to be statistically significant at 5% significance. Foreign Direct Investment on the other hand has a negative effect on Real Gross Domestic Product in the long run meaning that a percentage increase in Foreign Direct Investment will lead to a decrease in Real Gross Domestic Product by -0.01%. Foreign Direct Investment is found to be significant with Real Gross Domestic Product at 5% significance.

Inflation rate also has a negative effect on Real Gross Domestic Product in the long run meaning that a percentage increase in Inflation Rate will lead to a decrease in Real Gross Domestic Product by -0.0006%.

Inflation rate is found to be significant with Real Gross Domestic Product at 5% significance.

Also, it was discovered in the short run that exchange rate has a positive effect on Gross Domestic Product. This means that a percentage increase in exchange rate will cause a corresponding increase in real gross domestic product. It is statistically insignificant at 5% level of significance

The short run coefficient of foreign direct investment is 0.008095 suggesting that foreign direct investment has a positive effect on real gross domestic product. It implies that a percentage increase in foreign direct investment will lead to an increase in real gross domestic product by approximately 0.01%. It is statistically insignificant at 5% level of significance.

Similarly, the short run coefficient of Inflation Rate is -0.001227 suggesting that inflation rate has a negative effect on real gross domestic product. Therefore, a percentage increase in inflation rate will cause a decrease in real gross domestic product by 0.001%. It is statistically insignificant at 5% level of significance.

The coefficient of determination is 0.848665 (84.9%) which implies that the explanatory variables accounted for 84.9% of the total variations in the dependent variable. This essentially means that 84.9% of the variations in real gross domestic product can be explained by exchange rate, foreign direct investment and inflation rate.

The study went further by carrying out post-estimation tests which included serial correlation test, heteroscedasticity test, normality test, linearity test and stability test. The Breusch-Godfrey test revealed that there was no autocorrelation. The normality test showed that the sample data was not statistically different from a normal distribution, implying that there exists normality in the model. The post estimation

test also revealed that there was no issue of heteroscedasticity.

5 Summary of Findings

This research focused on assessing the impact of Exchange Rate and Foreign Direct Investment on Nigeria's Gross Domestic Product. Data for the study was obtained from the Central Bank's Statistical Bulletin and the World Bank Development Index. Initial unit root tests were conducted using both the Augmented-Dickey Fuller and Phillip-Perron tests, revealing that the variables displayed mixed orders of integration.

To analyze the relationships among these variables, the study employed the Autoregressive Distributed Lag (ARDL) technique. The bounds co-integration test results indicated the presence of a long-term relationship between the variables, prompting the estimation of both long-term and short-term models.

The primary objective of this study was to explore how Exchange Rate and Foreign Direct Investment influence Nigeria's Gross Domestic Product, and a model was developed for this purpose. The findings indicated that Exchange Rate had a significant association with Real Gross Domestic Product in the long run, but its impact was insignificant in the short run. On the other hand, Foreign Direct Investment showed an insignificant relationship with Gross Domestic Product in both the long run and the short run.

5.2 Conclusion

In conclusion, the results indicate that both Foreign Direct Investment (FDI) and Exchange Rate (EXR) do not significantly affect Real Gross Domestic Product (GDP) in the long run, and EXR is also insignificant in the short run. These findings suggest that there might be other unexplored variables that could influence the observed relationship. Although this study has its

limitations, it offers valuable insights into the intricate dynamics of the connection between Real GDP and these factors in Nigeria. Further research is essential to develop a more comprehensive understanding of this relationship and to provide a solid foundation for informed policy decisions.

5.3 Recommendations

The Nigerian Government and Central Bank should prioritize fiscal and monetary responsibility and transparency when implementing measures to stabilize the economy and enact fiscal reforms, aiming to attract foreign investment. Achieving this goal requires a collaborative effort by government agencies to combat corruption, embezzlement, and fund diversion. The government should also diversify its domestic investment expenditure and concentrate on developing multiple sectors like manufacturing, mining, and agriculture. This approach will not only boost demand for local products but also enable the export of higher-quality goods. Notably, inflation has a substantial impact on Nigeria's Gross Domestic Product. This underscores the fact that the effectiveness of certain monetary and fiscal policies is hindered by issues such as corruption and bureaucracy. This, in turn, hampers progress in terms of increased output, poverty reduction, improved education, and wider access to essential goods and services. Therefore, the government should redouble its efforts to keep the inflation rate as low as possible. Additionally, it is advisable for the Central Bank of Nigeria to implement stringent control measures on foreign exchange policies to ensure the proper valuation of the Naira against other currencies.

References

Akintayo O. (2022) *Oil exports account for 80% of Total National Revenue* https://punchng.com/oil-exports-account-for-80-total-national-revenue/

Akpan, E.&Atan, J.A. (2011) Effects of exchange rate movements on economic growth in Nigeria *CBN Journal of Applied Statistics, 02* (2), 1-14

Alabi, K. (2019) The impact of foreign direct investment on economic growth: Nigeria experience. *Open Journal of Applied Sciences*, *9*(1), 372-385

Aliyu, S.,Usman R., Yakub, M., Sanni, G., & Duke, O. (2009). Exchange rate pass-through in Nigeria: Evidence from a vector error correction model. *University Library of Munich, Germany, MPRA Paper. 4*(1) 21-37

Asiedu E. (2002) On the determinants of foreign direct investment developing countries: Is Africa different? *World Development 30*(1)*:* 107-109

Danjuma, I. (2021) Insurgency, political risk, and foreign direct investment inflows in Nigeria: A sectorial analysis *CBN Journal of Applied Statistics 2*(12), 27-57

Encinas-Ferrer, C. & Villegas-Zermeño, E. (2015). Foreign direct investment and gross domestic product growth. *Procedia Economics and Finance. 24*(1). 198-207.

Galeza T. & Chan J. (2014). Coordinated direct investment survey, Washington.

International Monetary Fund (IMF)

https://www.imf.org/external/pubs/ft/fandd/basics/20_direct-invest.htm

Gui-Diby, S. L. (2014). Impact of foreign direct investments on economic growth in Africa: Evidence from three decades of panel data analyses. *Research in Economics*, *68*(3), 248–256.

https://doi.org/10.1016/j.rie.2014.04.003

Louzi, B.M. & Abadi, A. (2011) The impact of foreign direct investment on economic growth in Jordan. *International Journal of Recent Research and Applied Studies (IJRRAS), 8*(1), 253-258.

Mireille, L. (2007). The impact of the real exchange rate on manufacturing exports in Benin‖, Africa region. *Working Paper Series, 7*(1), 107-115

Nnanna P. A.& Alireza, N. (2015) EXR fluc tuation and sustainable economic gro wth in Nigeria, Journal *of Economics and Sustainable Development 6* (13) 347-362

Obansa, S, Okoroafor, D., Aluko, O. & Eze, M. (2013). perceived relationship between exchange rate, interest rate and economic growth in Nigeria: 1970-2010. *American Journal of Humanities and Social Sciences. 5*(4) 284-301

Twin A., (2022) 6 factors that influence exc hange rates. *Investopedia* https://ww w.investopedia.com/trading/factors-influence-exchange-rates/

Ugwuegbe, U, Amah O. & Onoh J. O. (2013), The impact of foreign direct investment on the Nigerian economy. *European Journal of Business and Management,.5(*2),107-134 ISSN 2222-1905.