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Impact of Exchange Rate on the Economic Growth in Nigeria from 1990-2025: An ARDL Approach

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Abstract: This paper examined the impact of exchange rate on Economic Growth in Nigeria for the period from 1990 to 2025 making use of annual time series data sourced from the database of World Development Indicator (WDI) and Central Bank of Nigeria (CBN) 2025 Statistical Bulletin. The method employed for this investigation was the Autoregressive Distributed Lag (ARDL) approach of estimation, the data analysis began with the finding out the unit root properties of the variables. The Philips-Perron (PP) unit root test was employed and the test revealed that the variables were either integrated of order I(0) or order I(1). This required the use of Bounds testing approach in finding out the co integration among the variables. Analysis using the Bounds testing approach for co integration revealed the existence of long run relation among the variables of the models. In determining the impact of exchange rate on the Economic Growth in Nigeria, the study estimated an ARDL model. The findings from the study revealed that exchange rate has significant positive effect on the exchange rate in Nigeria in the long and short run. The study recommends that government through CBN monetary policy instrument should make exchange rate stable so as to trigger the desired economic growth in the country.

Keywords: Autoregressive Distributed Lag, Economic growth, Exchange Rate

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INTRODUCTION

Exchange rate is the price of a particular currency in relation to the other. It can also be regarded as a means by which the prices of goods in two different countries are linked together. According to Obansa *et al.* (2013), exchange rate shows the extent of involvement of external sector in international trade. The issue of exchange rate system has been a key topic of debates in international finance especially in developing economies, with many economies trying to liberalize trade as means of achieving economic growth. Exchange rate can also be regarded as one of the vital and helpful macroeconomic variables which a country makes use of to achieve its macroeconomic objectives of economic growth.

The conventional school is of the view that depreciation of currencies will revamp trade balance; resolve the problems of balance of payment and increase output and employment if the Marshall-Lerner conditions are satisfied. The condition is that currency depreciation will result into the growth of output if the total sum of the price elasticity of demand for exports and price elasticity of demand for import is more than one. The basis of driving the direct effects is to boost the local production of tradable goods, strengthen the competitiveness of export firms in international markets and encourage local firms towards the utilization of more local raw materials (Iyoboyi & Muftau, 2014). One of the vital objectives of macroeconomic policy is significant

growth in the economy of a country which is determined in terms of incessant growth in gross domestic product.

The Nigerian economy was confronted with significant problems due to the instability in its foreign exchange rate market, characterized by notable volatility (Kelikume and Nwani, 2019; Osabuohien *et al.*, 2018). To address this issue, Nigeria's government initiated the Structural Adjustment Program (SAP) in 1986, receiving support from the International Monetary Fund (IMF) and the World Bank (Mordi 2006). The SAP aimed to achieve several objectives, including restructuring and broadening the economic base to reduce reliance on the oil sector and imports, ensuring fiscal and balance of payments viability in the medium term, and fostering non-inflationary economic growth. Nigeria's exchange rate policy has undergone significant shifts over distinct periods in its history.

Initially, post-independence, the nation maintained a fixed parity with the British pound. This persisted through the oil boom of the 1970s until 1986, when the country transitioned to a floating currency after a severe economic downturn between 1982 and 1985. Throughout these phases, the economic and political considerations guiding the exchange rate policy held crucial implications for the economy's structural development, inflation rates, balance of payments, and real income.

Growth is truly considered to have occurred when the productive capacity of a nation progresses (Akpan, 2008). Genuine production of goods and services enhances exports and sometimes requires the importation of inputs which involves transactions in foreign currencies (Oyovwi, 2012). Jin (2008) revealed that the implications of Nigeria's over-reliance on oil exportation is that the economy is extremely prone to external shocks since in the event of any significant drop in oil price, foreign exchange earnings will obviously fall and that will destabilize exchange rate as there will not be sufficient stock of foreign currencies to defend the local currency at the foreign exchange market. This major change in relative prices (exchange rate) would trigger in a near equal adjustment in the distribution of a country's local resources and eventually move the economic structure away from the production of commodities for exports especially agriculture into possibly the services sectors.

Foreign Direct Investment (FDI): FDI plays a fundamental role in shaping Nigeria's economic background. The country's attractiveness to foreign investors is closely linked to exchange rate stability, as a volatile currency can deter FDI inflows. Additionally, FDI can influence economic growth by injecting capital, technology, and expertise into the economy, leading to job creation and increased production (Aremu, Bolarinwa, & Usman, 2017). **Interest Rates:** The interest rate policy adopted by the Central Bank of Nigeria can significantly affect exchange rates and, consequently, economic growth. A higher interest rate can attract foreign investment, leading to an appreciation of the currency, while lower interest rates may encourage capital outflows and currency depreciation. These rate fluctuations can have implications for borrowing costs, investment decisions, and overall economic growth (Aminu, Owoeye, & Nwokoma, 2019).

The structural adjustment program (SAP) was introduced due to the critical economic situation in the 1980s which gave rise to implement the devaluation policy as part of the IMF conditions. This policy was introduced principally to discourage imports and encourage exports by rising the nations' productivity and income thereof; however there has not been visible increase in export since. The exchange rate of between the naira and United State dollar for instance continues to increase and imports also continue to increase which was not the original reason of implementing the devaluation policy. In addition, according to Nwosu (2016), exchange rates that come into view after the fall down of Bretton Wood System has been unstable and has made academics and professionals to be cynical about its efficiency in stimulating economic growth. For example, the naira to US dollar exchange rate was N4 in 1987 whereas the real GDP was about N204.8Billion. In 1995, it depreciated to N21 to one US dollar whereas the real GDP was N281.4B. As at 2014, the exchange rate was

N168 to one USD and the exchange rate depreciated to N365 in 2017.

However, a substantial policy reversal occurred in September 1986 when Nigeria adopted a flexible exchange rate regime following the implementation of the Structural Adjustment Program (SAP). During SAP, foreign exchange allocation and import licensing procedures were absent, and foreign exchange transactions operated on a market-based system (Oyejide and Ogun, 1995). This reform, an integral part of the Economic Recovery Program (ERP) in 1986, included financial sector reforms, notably shifting away from fixed exchange rates towards a free-floating regime in the late 1980s. This transition was predicated on the belief that flexible exchange rates would mitigate economic fluctuations and steer the country towards a path of growth.

In view of the above, it is imperative to develop a research whose objective is to evaluate the fundamental linkage between exchange rate and the inflow of FDI and Economic growth in Nigeria. This study bridges the literature gap by answering the relevant research question of "how does exchange rate affects the economic Growth in Nigeria" making use of the most latest available data. Results from the study will be helpful for policy making aimed at postering Economic growth from the exchange rate point of view.

LITERATURE REVIEW

Related Theories on Exchange Rate

Theories of exchange rate determination have changed since the transition from the fixed rate system to the floating rate system. Traditional theories that mainly addressed the real sector at the time of fixed exchange rates included the elasticity method and the absorption approach. But even in this era of fluctuating exchange rates, the monetary system continues to be a significant influence on exchange. The exchange rate is affected by a number of variables. On the basis of these characteristics, numerous theories have been established to forecast the rate of exchange between various currencies. This paper conducts a critical analysis of the impact of exchange on the inflow of FDI in Nigeria.

The Purchasing Power Parity Theory

The fascinatingly simple theory of purchasing power parity (PPP) positions that for a unit of currency from one nation to have the same purchasing power in another nation, the nominal exchange rate between the two currencies must be equal to the ratio of the aggregate price levels between the two nations (Krugman and Obstfeld, 2009). The cost of a common commodity that is the same in both nations is measured and compared to determine the purchasing power parity. Should there be a gap, demand should move from one nation to the next, pushing prices closer together. For example, a product of the same size and calibre is produced in both China and India. The hypothesis argues that when represented in

same currency, the price of the goods in China and India will be the same. Conversely, if the product is more affordable in China, demand will rise there and fall in India. Prices in India will progressively decline until they are equal due to the decreased demand (Abuaf, N. and Jorion P, 2014). There are two types of purchasing power parity: absolute and relative. This is one of the two main assumptions of economic theory. A basket of goods should have the same worth once two currencies have been exchanged, according to the basic Purchasing Power Parity principle. Absolute purchasing power parity is what this is (APPP). Usually, the theory depends on converting foreign currencies into US dollars.

The Balance of Payments Theory (BOP)

The amount at which one nation's currency is exchanged for another is determined by factors other than internal price level and money supply, according to the theory of exchange rates. It highlights the significant influence that a country's balance of payments situation has on the exchange rate (Bigman, 2012). A nation's balance of payments is considered to be in deficit when, at a certain exchange rate, the demand for foreign currency outstrips the supply. The demand for foreign money is driven by a desire for goods and services offered abroad. The supply of foreign exchange, on the other hand, comes from the home country's delivery of goods and services to the foreign country (Bigman, 2012). However, the excess of foreign exchange demand over foreign exchange supply is coincidental with the balance of payment (BOP) imbalance.

The Portfolio Balance Theory

Trading is specifically taken into account while examining the exchange rate using the portfolio balance approach. It sees local and foreign bonds and other financial assets as subpar alternatives. The essential assumption behind this technique is that the process of equilibrating or balancing the supply and demand of financial assets, of which money is only one type, determines the exchange rate (Clower *et al.*, 2014). The domestic currency increases as a result, appearing to have a trade surplus, partially offsetting the initial devaluation. As a result, the portfolio balancing technique also explains exchange overshooting.

Conceptual Review

The price of one currency in relation to another is known as the exchange rate. When countries employ gold or another accepted standard, and each currency is worth a particular amount of the metal or other standard, the exchange rate is "fixed." When demand and supply or speculation determine exchange rates, the exchange rate is "floating" (conversion units). When a nation imports a lot of products, the demand will drive up the country's exchange rate, increasing the cost of the imported products for domestic consumers. Demand drops when the price of the items rise, and the currency of that nation becomes less costly in comparison to the currencies of other nations. Then the price of the

country's goods drops to foreign consumers, demand grows, and exports grow. Today's global commerce relies on a controlled floating exchange mechanism. Governments take action to maintain the exchange rates of their nations by restricting imports, promoting exports, or depreciating currencies.

Empirical Review

The fluctuations and uncertainty in exchange rate appear to be significant factors investors consider in their decision to invest in a foreign country. Much of the scholarly writings on exchange rate and Economic Growth focus on two issues: the level of the exchange rate, and the volatility of the exchange rate. The empirical literature regarding the effect of exchange rate volatility on economic growth has been unsettled. For example, Innocent, Millicent, Abubakar, Benedict, Gabriel, Ekechi (2022) investigated on the impact of exchange rate volatility on exports in Nigeria utilizing data from 2005Q1 to 2020Q4. The variables used include volume of export, real gross domestic product, exchange rate volatility measured as nominal effective exchange rate and industrial production index. The ARCH model and its extensions of GARCH, TARCH and EGARCH models were employed to measure exchange rate volatility. The Autoregressive Distributed Lag (ARDL) Bounds test methodology was used to examine the short-run and long-run effects of exchange rate volatility on exports. The findings revealed that exchange rate volatility had a negative and insignificant impact on exports.

Anifowose (2021) presented an empirical test result on the effect of exchange rate on economic growth in Nigeria with emphasis on asymmetric relationship among the variables (gross domestic product, exchange rate and inflation rate). Applying the Non-Linear Autoregressive Distributed Lag model (NARDL) approach to examine asymmetric relationships among variables. The study found that in the long run economic growth was positively affected by positive shocks to exchange rate.

Ahiabo and Amoah (2019) used Fully Modified Ordinary Least Squares (FMOLS) method and annual time series data from 1980-2015 to examine the effect of real effective exchange rate volatility on economic growth in Ghana. Gross Domestic Product was used as the dependent variable while exchange rate, inflation rate, foreign direct investment and labour force were the explanatory variables. The regression results showed that the actual effective exchange rate volatility has a negative and statistically significant effect on economic growth in Ghana.

Robinson (2007) established a good evidence of weak countries' currency rising foreign direct investment. This is in the context of the model in imperfect capital market as currency depreciation (downward change in exchange rate) makes goods in a

host country less expensive than countries of export. Thapa (2002) opined that depreciation in exchange rate in host countries tend to increase inflows of foreign direct investment; also a strong exchange rate stimulates the incentives of foreign firms to make production at home for export instead of investing in a host country for export. Scholars such Adeniran, Yusuf and Ademeyi (2014) point out that the exchange rate system has not sustained an efficient policy that will increase inflow in foreign investment and foreign exchange. Regrettably, in Nigeria foreign exchange has witnessed inelastic of supply both in the foreign exchange and domestic market with its attendant destabilizing speculative activities when compared with her counterparts in Asia and America which Nigeria was ranked ahead in the 70s in terms of exchange rate stability.

Ufoeze, Okuma, Nwakoby and Alajekwu (2018) examined the effect of exchange rate fluctuation on economic growth in Nigeria using time series data spanning from 1970 to 2012. The study adopted exchange rate, inflation, money supply and oil revenue as the explanatory variables, while gross domestic product (proxy for economic growth) was used as the dependent variable. They made use of multiple regression technique based on OLS for the analysis of data. Their study revealed mixed findings, and concluded that floating exchange rate outperformed fixed exchange rate as a better indicator of a sustainable economic growth.

Akinmulegun and Falana (2018) investigated the effect of exchange rate fluctuation on industrial output in Nigeria using data covering between 1986 to 2015. The study adopted gross domestic product representing industrial output growth as the dependent variable, while the explanatory variables include exchange rate, inflation, interest rate and net exports. Statistical tools used for data analysis include ADF/PP unit root test, Johansen co-integration test, Pairwise Granger causality test and VECM. The results revealed a unidirectional causality from exchange rate to industrial output growth, that is, industrial output responded significantly and positively to exchange rate much more than the other variables. The study concluded that exchange rate had potentials of affecting industrial output growth in Nigeria.

Umaru, Aguda, and Davies (2018) also investigated the effects of exchange rate volatility on the economic growth of English-speaking countries of West Africa. The study applied three types of panel data namely, Pooled OLS model, Fixed Effect Model, and Random Effect Model used to analyze the data. The results obtained indicated that the independent variable (real exchange rate) is statistically significant and negatively related to the dependent variable (GDP) in West Africa's English-speaking countries, excluding time-invariant variables.

Iyeli and Utting (2017) examined the effect of exchange rate volatility on Economic Growth in Nigeria from 1970 to 2011 employing the Johansen Co-integration estimation technique to test for the short and long runs effect of the variables used. The model formulated used Real GDP as the dependent variable while Exchange Rate (EXR), Balance of Payment (BOP) Oil Revenue (OREV) and inflation rate (INF) became the independent variables. The ADF test revealed that all the variables were stationary. From the parsimonious model, the result showed that OREV and EXR are positively related to GDP, an increase in inflation (INF) will stimulate a reduction in GDP. Further findings revealed that there exist two equations at 5% level in both trace and Max – Eigen statistic. This implies that exchange rate volatility and oil revenue are positively significant to GDP in the long run.

Mahmood, Ehsanullah & Ahmed (2011) argued that instability in exchange rate of a country can influence the investment in that country negatively, creating an unfavorable atmosphere for investment in that country and requires that resources in that country should be reallocated among various sectors of the economy of that country. In another relevant investigation Benson, Eya and Yunusa (2019) studied the impact of exchange and interest rates on foreign direct investment in Nigeria 2006-2018. Annual time series data was employed for the study from period 2006-2018. The unit root property of the data was tested using the Augmented Dickey Fuller and the variables were all stationary after taking the first difference. In addition, Johansen Co-integration test statistics was employed to test the co-integrating nature of the variables while the short-run and long-run linkage between the variables under study were analyzed using the error correction model. The data was tested for normality using the Jarque-Bera test statistics. The findings of the study reveal that a positive relationship exists between exchange rate and foreign direct investment.

Eregba (2017) examined the influence of exchange rate policies and inflationary expectation on the flow of foreign direct investment to the West African Monetary Zone (WAMZ). The investigation made use of the Arellano Panel Correction for Serial Correlation and Heteroscedasticity option of the within estimator for five of the WAMZ countries chosen on the basis of availability of data for the period 1980-2014. Findings revealed that exchange rate uncertainty hindered flow of FDI while inflation expectation had an insignificant impact on the flow of FDI to WAMZ. The fixed exchange rate policy regime was found to hinder the flow of FDI in the zone while intermediate policy regime had a significantly positive effect in stimulating the flow of FDI with periods of current account imbalances and variations in foreign exchange reserves as the channels since most of these countries use their reserves from the limited export earnings to interfere in the foreign exchange market to preserve the official rate.

Morrissey and Udomkermongkol (2014) analyzed the effect of exchange rates on US inflows of foreign direct investment (FDI) to a sample of 16 emerging market countries making use of panel data for the period 1990-2002. Three variables were made use of to capture separate exchange rate effects. The bilateral exchange rate to the US dollar captures the value of local currency (a higher value signifies a cheaper currency and enhances FDI). Fluctuations in real effective exchange rate index (REER) proxy for expected changes in the exchange rate: an increasing (decreasing) REER is interpreted as devaluation (appreciation) being expected, so that FDI is postponed (encouraged). The transitory part of bilateral exchange rates is a proxy for volatility of local currency, which does not attract FDI. The findings affirm the 'Chakrabarti and Scholnick' hypothesis that, all things being equal, there is a negative linkage between the expectation of local currency depreciation and inflows of FDI. Cheaper local currency (devaluation) enhances FDI as volatile exchange rates don't encourage FDI.

Jaratin *et al.* (2014) examined the exchange rate fluctuations and foreign direct investment (FDI) linkage making use of annual data on ASEAN economies, that is, Thailand, Malaysia, Singapore, and Philippines. By making use of ARDL bounds test approach, the empirical findings reveal the existence of significant long-run co integration between exchange rate and FDI for the case of Malaysia, Singapore and the Philippines with all countries recording negative coefficient implying that the appreciation of Malaysian ringgit, Singapore dollar, and the Philippine peso has a positive effect on FDI inflows. Making use of the ECM based ARDL approach for causality test, both Philippines and the Singapore reveal long-run bidirectional causality between exchange rate and FDI while long-run unidirectional causality running from the exchange rate to FDI in Malaysia. In addition, this study also revealed the short-run unidirectional causality running from the exchange rate to FDI in Singapore.

Cambazoğlu and Güneş (2016) study examined the nexus between FDI inflows in Turkey and the real exchange rate level. Annual time series data for the period from January, 2007 to January, 2015 were used to examine the effect of real exchange rate on foreign direct investment in Turkey in a long run. For this reason, the study made use of a bound test co-integration approach that is based on the Autoregressive Distributed Lag Model (ARDL). The findings obtained from a long-term static analysis of estimated ARDL model showed that there is a co-integration linkage between the exchange rate level and inflows of FDI in Turkey.

METHODOLOGY

This paper made use of annual time series data from 1986 to 2020. The data were sourced from the database of World Development Indicators and Central

Bank of Nigeria (CBN), 2021 Statistical Bulletin. The study employed ARDL model to find out the impact of exchange rate on Economic growth in Nigeria.

Empirical Model Specification

In order to analyze the impact of exchange rate on foreign direct investment in Nigeria, a multivariate model is adopted from the empirical work of Morrissey and Udomkermongkol (2014) for this investigation, whereas the authors used FDI as a function of bilateral exchange rate and real effective exchange rate, this study expressed FDI as a function of exchange rate, inflation, economic growth and trade.

$$GDP_t = \alpha_0 + \beta_1 EX_t + \beta_2 INF_t + \beta_3 FDI_t + \beta_4 TRD_t + \mu_t \dots \dots \dots (1)$$

Where GDP_t is the Gross domestic product at time t; EX is the exchange rate at time t; INF stands for inflation; GDP is the gross domestic product; TRD is the trade and μ_t is the error term at time t. Expanding Equation 1 and expressing the variables in semi-logarithmic form leads to a base line models of equation 2.

$$LGDP_t = \beta_0 + \beta_1 EX_t + \beta_2 INF_t + \beta_3 FDI_t + \beta_4 TRD_t + \mu_t \dots (2)$$

Where L is the natural log; β_0 is intercept term; β_1 to β_4 are the slope coefficients. The equation above assumes that GDP at a time t depends on current exchange rate, current inflation rate, current FDI and current level of trade. This study, therefore argues that the impact of exchange rate (EX); inflation (INF); foreign direct investment (FDI) and trade (TRD) on economic growth (GDP) may persist beyond the current period. Taking account of this fact, the study renders the model dynamic and obtain the estimable equation in semi-log linear form as follows:

$$LGDP_t = \beta_0 + \beta_1 LFDI_{t-1} + \beta_2 EX_t + \beta_3 EX_{t-1} + \beta_4 INF_t + \beta_5 LFDI_t + \beta_6 TRD_t + \mu_t \dots (3)$$

Estimation Techniques

This paper adopted Auto Regressive Distributed Lag (ARDL) as estimation technique. This technique is used for both co integration test parameter estimation (long-run and shortrun estimates). But the order of integration of the variables employed is estimated using the Philips – Perron (PP) unit root test approach. If the variables are found to be integrated of the same order say I(0) or different order I(0) and I(1), the study then proceed to apply the ARDL approach to co integration.

Co-integration Test

The Autoregressive Distributed Lag (ARDL) model which employs the bounds testing approach to co integration as proposed by Pesaran and Shin (1999) and Pesaran *et al.* (2001) is employed in the data analysis. This method has some features that many researchers

give it some advantages over the method suggested by Engel-Granger (1987) and the maximum likelihood based method proposed by Johansen and Juselius (1990) and Johansen (1991). In the first place, the approach can be used with a mix order of I(0) and I(1) data, that is, it can be used whether the variables are mutually co integrated or not. In the second place, it involves just a single-equation setup, making it simple to implement and interpret. In the third place, different variables can be assigned different lag-lengths as they enter the model. And, the model can be tested by using the OLS (ordinary least square) once the order of ARDL has been acknowledged (Pesaran & Shin 1999; Pesaran *et al.*, 2001).

RESULTS AND DISCUSSIONS

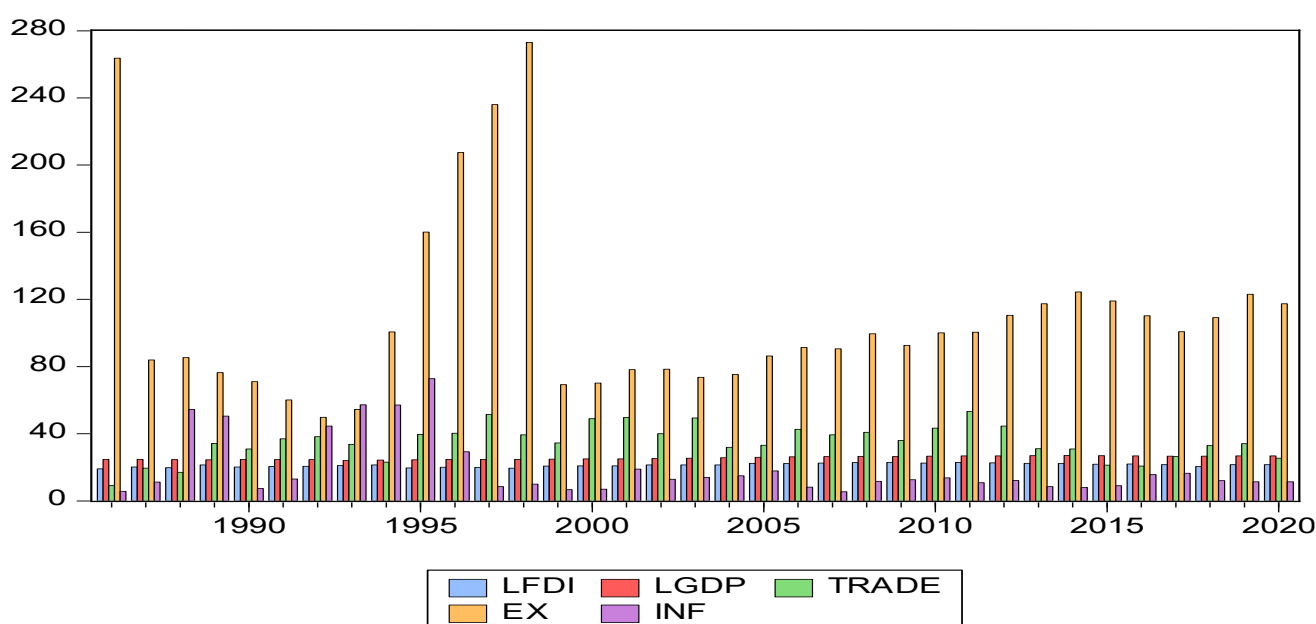
Descriptive Statistics

Table 1 below depicted the descriptive statistics of the variables under investigation. The variables statistics were presented in terms of their mean value, maximum value, minimum value as well as standard deviation. The maximum value of log (GDP) over the period under study is \$27.02712 which was recorded in 2011, while the minimum value is \$24.04658 which was recorded in 1986. The mean value log (GDP) is \$ 25.61821 Likewise, the maximum value of log (GDP) is \$27.02712 which was recorded in 2014 while the minimum value is \$24.04658 which was recorded in 1993. The mean value of log (GDP) over the period under study is \$25.61821. For the value of exchange rate (EX), the maximum value stands at N273.0110 which were recorded in 1998 while the minimum value is N49.74991 which were recorded in 1992. The mean value of the exchange rate over the period under study is N110.2833

Table 1: Descriptive statistics of the variables

	LFDI	LGDP	TRADE	EX	INF
Mean	21.27034	25.61821	34.95288	110.2833	19.46086
Median	21.35680	25.37639	34.45783	99.56663	12.21778
Maximum	22.90267	27.02712	53.27796	273.0110	72.83550
Minimum	19.07931	24.04658	9.135846	49.74991	5.388008
Std. Dev.	1.075711	1.005781	10.29688	54.68121	17.84792
Skewness	-0.18405	0.078023	-0.36351	1.819858	1.704270
Kurtosis	1.991853	1.332982	2.836300	5.575783	4.546375
Jarque-Bera	1.679795	4.088146	0.809906	28.99485	20.43041
Probability	0.431755	0.129500	0.667008	0.000001	0.000037
Sum	744.4618	896.6374	1223.351	3859.917	681.1300
Sum Sq. Dev.	39.34323	34.39424	3604.874	101661.2	10830.64
Observations	35	35	35	35	35

Source: Author's Computation using Eview 9. LFDI= Log Foreign Direct Investment, LGDP= Log Gross Domestic Product, EX= Exchange Rate, INF= Inflation, TRADE= Trade



Unit Root Test

The unit root test as depicted in Table 2 below indicated that log (FDI), log (GDP) were not stationary at level until after taking the first difference at 5% level of significance. Exchange rate (EX), trade (TRADE) and

inflation (INF) were stationary at level at 5% level of significance even before taking the first difference. Consequently, the variables under this study were all stationary and therefore integrated of order I(1) and I(0).

Table 2: Summary of Phillip Perron Unit Roots Test.

Variables	Test Statistic at Level	5% Critical Value at Level	P-Value at Level	Test Statistic at First Diff	5% Critical Value at First Diff	P-Value at First Diff	Order of Integration
LFDI	-2.542906	-2.951125	0.1205	-8.806810	-2.954021	0.0000	I(1)
LGDP	0.176221	-2.951125	0.8612	-4.615437	-2.954021	0.0001	I(1)
EX	4.101034	-2.951125	0.0003	-6.982819	-2.954021	0.0000	I(0) I(1)
TRADE	-3.537843	-2.951125	0.0013	-7.084322	-2.954021	0.0000	I(0) I(1)
INF	-4.535808	-2.976263	0.0003	-5.130472	-2.954021	0.0000	I(0) I(1)

Source: Author's Computation using Eview 9 FDI=Foreign Direct Investment, GDP= Gross Domestic Product, EX=Exchange Rate, INF= Inflation, Trade=Trade, Log= Natural Logarithms

Table 3: Autoregressive Distributed Lag Bounds Test

Computed F Statistic	K	5% critical bound test value Lower Bound	Upper Bound
2.185749	4	2.56	3.49

Bounds Test to Co integration

The variables employed for this study are integrated of order I(0) and I(1) as indicated by the result of unit root test in table 2 above. The study resolved to apply the bounds test to co integration to find out whether the variables have long run relationship as depicted in Table 3 above. The F statistic value of 2.185749 from the result of ARDL bound test depicted in Table 3 above is less than the lower bound value of 2.56 at 5 percent level of significance. Hence, on the basis of this, the null hypothesis that states no long run relationship is therefore accepted and conclude that log(FDI) (foreign

direct investment), log(GDP), (EX) Exchange Rate, (INF) inflation and trade do not have long run relationship over the period under study.

Autoregressive Distributed Lags (ARDL) Short-Run Estimate

To study made use of Autoregressive Distribution lag (ARDL) model as formulated by Pesaran and Shin (1998) for the data analysis because of its fitness and the fact that the variables employed for this study are integrated of the order one of as revealed by the unit root test in Table 2 above. This method was applied based of its applicability irrespective of whether the repressors in the model are purely I(0) or I(1) or mixed. In addition, to estimate the variables in the model, the study selected ARDL (1, 0, 0, 0, 0,) as the result depicted in Table 4 below.

Table 4: Autoregressive Distributed Lag Result

D/Variable:LFDI	ARDL (1,0,0,0,0)			
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LOG(FDI (-1))	0.334008	0.165903	2.013266	0.0538
LOG(GDP)	0.509893	0.210985	2.416731	0.0224
EX	-0.006089	0.002061	1.355452	0.0063
INF	0.002016	0.007439	-2.953884	0.7884
TRADE	0.015858	0.011700	1.355452	0.1861
C	1.195243	3.410473	0.350462	0.7286
R-squared	0.757346			
Adj R-squared	0.714015			
Durbin Watson st	2.227962			
Prob (F-Statistic)	0.000000			

Source: Author's Computation making use of Eview 9.

Table 4 depicted above, has shown that the ARDL estimation has a good fit with R-square value of 75 percent. It indicated that about 75 percent of the variation in FDI is explained by exchange rate, gross domestic product, trade and inflation over the period under study while the remaining 25 percent is explained by other variables not captured by the model. The result also indicated that the explanatory variables are mutually significant to explain the impact on FDI being the

dependent variable as showed by the significant probability value of the F statistic which is 0.00000 less than 5 percent.

Furthermore, results revealed that gross domestic product (GDP) has significant positive relationship with foreign direct investment. Precisely, a unit increase in the log (GDP) will bring about 0.509893 percent significant increase in FDI at 5 percent level of

significance. Furthermore, the results indicated that exchange rate (EX) has significant negative relationship with FDI. Precisely, a unit increase in the value of exchange rate will bring about -0.006089 percent decrease in FDI over the period under study. Also, the results showed that inflation (INF) has insignificant positive relationship with FDI. Specifically, a unit increase in (INF) will bring about 0.002016 percent increase in FDI. Similarly, trade (Trade) has insignificant positive relationship with FDI. Specifically, a unit increases in log (Trade) will bring about 0.015858 increase in FDI over the period under study.

CONCLUSION AND POLICY SUGGESTIONS

Conclusion

The study examines the impact of exchange rate on foreign direct investment in Nigeria from the period 1986 to 2020. The study reveals that exchange rate has a significant negative impact on foreign direct investment implying that when exchange rate for dollar increases, there will be decrease in FDI. On the other hand, GDP shows significant positive effect on the foreign direct investment. The study also argues that inflation and trade have an insignificant positive impact on FDI over the period under study.

Given that exchange rate has significant negative linkage with foreign direct investment, it means that changes in monetary policy by the Central Bank of Nigeria (CBN) with regard to exchange rate has influenced inflow of FDI and further changes to these policies would likely translate into changes in economic growth.

Policy Suggestions

The findings from the study suggests for possible consideration by policymakers: that the Central Bank of Nigeria should maintain adequate flow of foreign exchange in the foreign exchange market and ensure exchange rate stability so as to attract foreign investors for increased inflow of foreign direct investment. This study has shown that the exchange rate has effect on economic growth in Nigeria.

Therefore, exchange rate policy measures should focus on addressing Nigeria's exchange rate challenges. Efforts to reinforce the value of the naira should be made focusing on the market forces rather than using measures that would only overstate the value of the naira. Rather than shielding the overstated value of the naira, certain issues like dependence on imports, low production and non-oil exports should be addressed. This will translate in to increase in demand for the naira, and the exchange rate would thus reflect the realistic value of the country's economic performance and foreign investors would be attracted to invest in Nigeria.

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