
FOREIGN DIRECT INVESTMENT IN NIGERIA: VALIDATING THE EFFECT OF MACROECONOMIC INSTABILITY

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Abstract

The strive to attract foreign direct investment across world economies has become more resounding in the twenty first century, given its positive impact on gross domestic product, employment generation and revenue generation to the receiving economy. However, Nigeria's lack of stability in macroeconomic variables, which determine the direction and degree of positive impact foreign direct investment has on the domestic economy. The study was therefore motivated based on this evidence to examine foreign direct investment in Nigeria by validating the effect of macroeconomic instability. The study investigated the research worries using Ordinary Least Squared econometric technique of time series data from 1990 to 2020 and found that macroeconomic volatilities influence foreign direct investment. Basically it was empirically justified that; interest rate volatility, surprisingly showed a positive and additive effect on foreign direct investment. Again, exchange rate volatility proved that inherent fluctuation in exchange rate in Nigeria caused foreign direct investment to dwindle by 0.25%. More so, the fluctuation in inflation rate causes the foreign direct investment to shrink by about 14%, consumer price index was not statistically significant in explaining the changes in foreign direct investment in Nigeria. Based on the empirical evidence validated, the study therefore recommended that, the government should enact and pursue diversification policies that would foster the growth of import substitution in the country, thereby building gross domestic product across all sectors of the economy to gain economic independence from the west. Conclusion were reached based on the validated empirical results that foreign direct investment has always been expected to exert positive economic effect on the receiving economy, but without check and balances of macroeconomic variables in the economy, further inflows would only translate to increased poverty, unemployment, more economic instability and crowding out effect on local industrial development drive over time.

Keywords: Exchange Rate Volatility, Inflation Volatility, Foreign Direct Investment, Consumer Price Index, Real Gross Domestic Product.

INTRODUCTION

Background to the Study

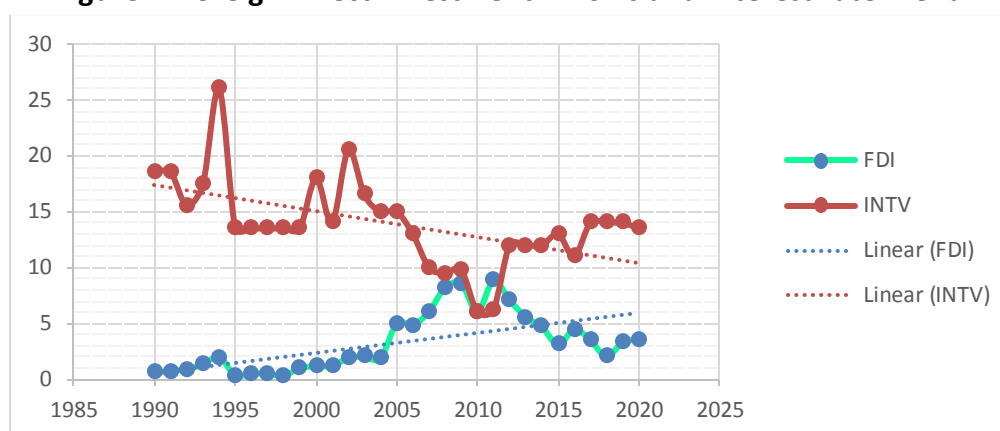
One of the most noticeable aspects of today's globalization push is the deliberate encouraging of cross-border investments, particularly by multinational corporations (TNCs) and enterprises (Hill, 2018). Many nations and continents (particularly developing ones) now regard soliciting FDI as a vital component of their economic growth plan. This is most likely due to the perception of FDI as a source of finance, sophisticated technology, marketing, and managerial skills. Mottaleb (2018).

According to Mankiw (2017), foreign direct investment is defined as a capital investment owned and operated by a foreign firm. Agbonifob (2017) stated the multiple benefits of foreign direct investment to Nigeria's economic prospects: First, foreign direct investment may significantly boost Nigeria's industrialisation and development goals by assisting with investment financing. Many economists believe that one of the goals of industrialization is to generate jobs for residents and make commodities available to customers.

Foreign direct investment (FDI), which has been defined as the primary carrier for the transmission of new scientific information and related technical advancements, is critical to Africa's and Nigeria's economic growth and development. According to Naude and Krugell (2018), the requirement to accelerate Nigeria's industrialisation and growth necessitates more technology spillover from foreign investment. As a result, African nations, particularly Nigeria, have joined the rest of the world in pursuing FDI, as indicated by the development of the New Partnership for Africa's Development (NEPAD), which has as a main purpose the recruitment of foreign investment to Africa.

Despite the fact that the country's continual quick swings in macroeconomic variables have frequently crowded out the economic benefit of foreign direct investment, Mankiw (2003) was concerned about macroeconomic volatility (exchange rate risk and interest rate risk) and political instability. In addition, the Nigerian macroeconomic climate has been characterized as one of the most volatile among developing economies.

Figure 1: Foreign Direct Investment inflows and Interest rate Trend.

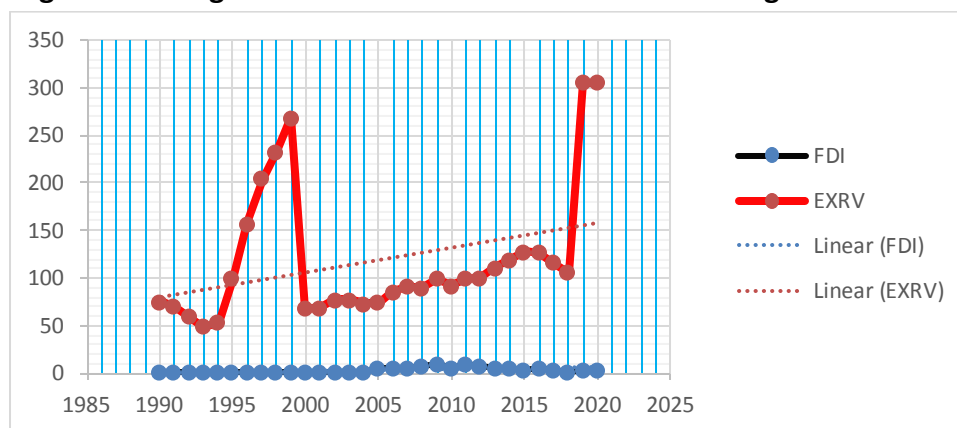


Source: Authors Desk 2022 (Data obtained from central bank of Nigeria report 2020)

The case for interest rate changes is based on increased demand for loanable funds by investors and corporate organizations, which would have an additive spillover impact on the rate of interest paid on loanable funds, provided that demand for investment capital is much higher than supply. This problem stems from considerable inflows of foreign direct investment into the nation, which puts additional strain on the country's financial system by competing with local industries for investment capital, resulting in a constant rise in the trend of interest rates Ejelonu, Okafor, Onyekwere and Neubacher (2022). However, significant foreign direct investment inflows have been recorded in the nation over the

years, but it is easy to overlook the strains it places on the country's weak financial system, consequently encouraging an increase in the interest rate attached to loanable funds.

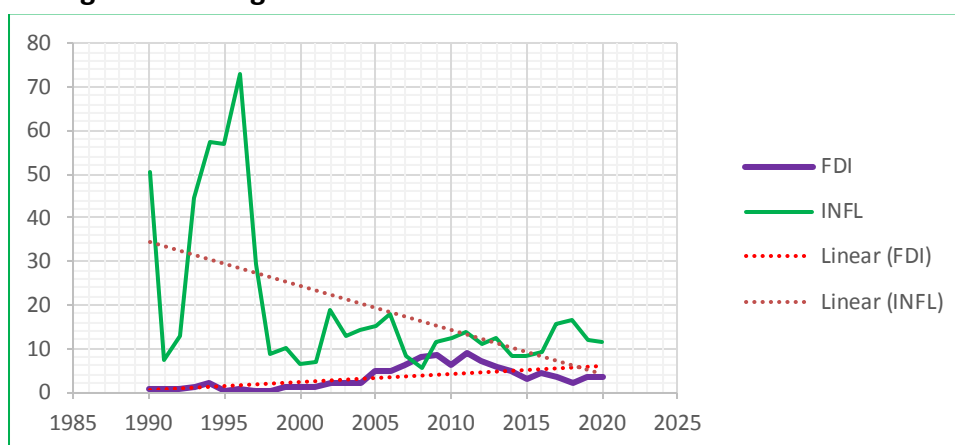
Figure 2: Foreign Direct Investment inflows and Exchange rate Trend.



Source: Authors Desk 2022 (Data obtained from central bank of Nigeria report 2020)

The assertion for increased productive capacity for foreign direct investment has remained central to the need to attract more foreign inflows of investment, which has a significant positive impact on exchange rate strength, because increased industrial productivity is seen to improve the strength of the local currency, resulting in a more favorable balance of payment and an overall improvement in local currency values against international currencies. The researcher's theoretical views were mirrored by the empirical claims of Adigwe, Ezeagba, and Udeh (2020), who found experimentally a substantial positive association between FDI and exchange rate stability and growth. The preceding graphical representation supports this argument, given the beneficial relative effect of growing foreign direct investment inflows on stable growth and currency rate stability as witnessed in the above graph.

Figure 3: Foreign Direct Investment inflows and Inflation Trend.



Source: Authors Desk 2022 (Data obtained from central bank of Nigeria report 2020)

The preceding illustration justifies the deeply negative implications of foreign direct investment inflows on the country's inflationary trend, as further demonstrated in figure 1 above, where it has been juxtaposed that, foreign direct investment inflows causes interest

rates to rise through an increased demand for loanable funds, which invariably results in an increased supply of money. The rising volume of money supply leads to inflation as more money chases after a finite number of goods and services in the economy. This explains the country's capital condition, as illustrated in figure 3 above, with the current trajectory of inflation staggering at 16.1 percent in 2022, a tiny decline from 17 percent in 2021, while economic prognosis forecasts a further fall to 13.1 percent in 2023. Ejelonu and Okafor (2022).

It is also important to understand that foreign direct investment inflows worsen the country's level of inflation. Anyanwu (2018), for example, found that "average inflation is greater and average production growth is lower in emerging market economies relative to industrialized ones." Nigeria has the greatest inflation and exchange rate volatility among emerging market countries, the lowest production volatility, and interest rate volatility that is somewhat lower than that of South Africa, considerably lower than that of Brazil, but slightly higher than that of Chile. Nigeria, for example, has the fourth highest average inflation rate in the emerging market economies group, after only Colombia, Mexico, and Hungary.

Undoubtedly, Nigeria's instability have led to an economic crisis condition marked by insufficient resources for long-term growth, high poverty, poor capacity utilization, and high unemployment, despite massive inflows of foreign direct investment into the nation. The remainder of this paper is organized to explain the economic ramifications of foreign direct investment inflows on Nigeria's macroeconomic instability.

LITERATURE REVIEW

Foreign Direct Investment

Foreign direct investment experienced a boom period, particularly in 1987 (the year following the structural adjustment programme), when FDI stood at about N2.45 billion, a 233.35 percent increase from the preceding years, while trade openness increased by 223 percent. Similarly, in 1989, FDI stood at N13.88 billion, a 707.67 percent increase from the previous 29.95 percent decrease in the preceding year, while trade openness increased by 58.23 percent. Between 1990 and 1999, average FDI was N54.92 billion, with a 44.54 percent growth rate. Following the financial stock reform in 2005, the Nigerian economy gained trust in the international market, resulting in a 163.55 percent increase in foreign direct investment.

FDI inflows into Nigeria have totaled around N9.27630 trillion over the last decade, with an annual growth rate of 4.69 percent. However, FDI contributions to economic growth in Nigeria have been significantly low, averaging 1.71 percent from 2004 to 2014, with an all-time high of 2.3 percent in 2011, while international trade has fared well, accounting for an average of 33.76 percent, with an all-time high of 45 percent in 2011. (CBN, 2015).

Ejelonu & Okafor (2022), evaluated the implications of foreign capital inflows on manufacturing sector in third world countries: A Nigerian experience, using ordinary time series data from 1981 through 2019. The study regressed for statistical stationarity of the variables using augmented dickey and fuller test criterion, johansen test for cointegration to establish the nature of relationship between the parameter estimates in the model. Multiple regression analysis was carried out to substantiate the individual implications of the regressors on the regressed. Furthermore, the outcome of empirical evaluation is indicative of the existence of a short run relationship among the variables. It was likewise obtained that foreign direct investment (FDI) and exchange rate (EXCHR) were additively related to manufacturing sector productivity in Nigeria, while foreign portfolio investment (FPI) and interest rate (INTR) witnessed relative negative association ship with manufacturing productivity (MANU), which implies that a percent increase in the volume of foreign portfolio investment would equate 2.50% decline in local manufacturing capacity. The study recommended the adoption of endogenous growth model in Nigeria, while concluding based on theorization and argument against foreign capital inflows on its negative crowding out effect, it exerts on local industries in the country, that to achieve growth in the manufacturing sector, the country must evolve and begin a gradual industrial transition from primitive tools to the use of more advanced machines

According to Macaulay (2021), Nigeria's foreign investment can be traced back to the colonial era, when the colonial overlords intended to exploit our resources for the growth of their economy. These colonial overlords made minimal investment. The Nigerian government recognizes the importance of FDI in improving economic growth and development, and different methods incorporating incentive policies and regulatory measures have been implemented to encourage FDI inflows to the nation.

According to Ogunkola and Jerome (2021), "the potential contribution of Foreign Direct Investment (FDI) to economic development and integration into the global economy is now well acknowledged." According to them, it has taken on more significance as concessional aid has declined, creating a demand for long-term and predictable financial inflows. FDI can possibly help a country's economy by "crowding in" other investments with an overall increase in total investment, as well as presumably creating favorable "spillover effects" through the transfer of technology, knowledge, and skills to domestic enterprises. However, much empirical research has been conducted relating foreign direct investment to growth and macroeconomic stability. Since the world has become a global village,

Adigwe, Ezeagba, and Udeh (2020) studied the link between FDI, exchange rate, and GDP in Nigeria from 2008 to 2013. Using Pearson Correlation, the results reveal that there is a substantial link between FDI, EXR, and GDP. It implies that Nigeria's economic development is closely connected to foreign direct investment and the currency rate. In order to compete with the inflow of investment from other nations, the paper advises that the government develop investment regulations that are advantageous to local investors.

As a result, Onu (2020) asserted that foreign investment in Japan after WWII and in South Korea after the Korean War has greatly aided the economic growth of these countries by providing the local economy with a source of foreign skill, technology, management expertise, and human resource development through international training and collaboration.

Adejumo (2019) explores the link between FDI and the value-added to Nigeria's manufacturing sector in the research. The autoregressive lag distribution approach is used in this investigation. To investigate the link between foreign direct investments and manufacturing value addition, it was discovered that, in the long run, FDI has a detrimental impact on Nigeria's manufacturing sub-sector. He contends, however, that the presence of multinational corporations in the host economy should be able to influence private investment in that sector. Furthermore, these expenditures should be directed into other areas where comparative advantage exists, so as not to degrade national competence or capability. He concluded that foreign private investment should supplement the host country's labor force's production efforts in terms of skills, technological know-how, and pay.

Using yearly time series data from the Nigerian economy, Saibu and Keke (2017) investigated the influence of Foreign Private Investment on economic growth. The article used Cointegration and Error Correction Mechanism (ECM) methodologies to empirically investigate and derive policy conclusions from the observed link between foreign private investment and economic development. According to the analysis, there was a significant feedback of 116% and 78% from past disequilibrium between long-run economic growth and foreign private investment, respectively. The data also revealed that a considerable amount of capital inflows were not productively invested; nonetheless, the relatively modest fraction (22 percent) of net capital inflows invested contributed considerably to Nigerian economic growth. The political environment was determined to be negative, and the positive influence of foreign private investment was overshadowed.

Tshepo (2016) investigated the effect of FDI on economic development and employment in South Africa from 1990 to 2015. The Johansen Cointegration test was used in the study to test for the presence of a long-run connection between the variables, and the unit root test was used to test for stationarity. The findings indicate a favorable long-run link between FDI, GDP, and employment. The Granger Causality test findings validated the causal chain that extends from FDI to GDP.

THEORETICAL FRAMEWORK

The cross - border production theory is made up of two major literary groupings. One school of thought was pioneered by who saw FDI as an aggressive activity to collect economic rent from a foreign market and proposed that FDI is conducted by enterprises with some intangible asset. These companies make investments in foreign countries in order to capitalize on the special ownership advantage reflected in the intangible asset. The

other group, represented by (Vernon, 1966), viewed FDI as a defensive measure taken by firms to protect their export market, which is either threatened by competitors in the domestic market or harmed by unfavorable developments in domestic macroeconomic conditions such as wage increases or currency appreciation. This defensive FDI is frequently done in low-wage nations because low labor costs allow investors to lower production costs in order to maintain international competitiveness, but aggressive FDI may be made in any country where local manufacturing is considered as the best approach to join the market.

ESTIMATION PROCEDURE AND EMPIRICAL MODEL

This study used an ex post facto research design. The researcher employed secondary data, which justifies this form of research methodology. A research design is a blueprint or plan for collecting and analyzing data. In the process, enhanced Dickey fuller will be employed. In terms of levels, the data might be considered to be integrated of 1 (commonly marked as 1(1)) or 2 (typically labeled as 1(2)). (2). The results of the Augmented Dickey fuller (ADF) test will be compared to the critical values at a 5% level of significance. When the (ADF) test statistics are larger than the critical values when absolute values are considered, the data at the tested order is said to be stationary.

The augmented Dickey-Fuller test is based on rejecting the null hypothesis of unit root (non-stationarity of the series) in favor of the alternative hypotheses of stationarity. Jarque-Bera (JB) normalcy test statistic based on the Chi-square distribution. The error term is typically distributed if the estimated Jarque-Bera value is smaller than the critical value at the selected level of significance. The nature of the long run connection between the estimated variables is determined using Johansen co-integrating normalized coefficients. According to Engel and Granger (1987), a linear combination of two or more non-stationary variables can be stationary. The non-stationary time series are said to be co-integrated if such a stationary combination occurs.

$$\ln FDI = \beta_0 + \beta_1 RGDP + \beta_2 INTVI + \beta_3 \ln EXRV + \beta_4 \ln INFLV + \beta_5 \ln CPX + \mu t$$

Foreign direct investment was used to regress the economic implications of foreign direct investment inflows on macroeconomic instability in Nigeria. FDI served as the regressed in the model, while regressing real gross domestic product, (RGDP), interest rate volatility (INTV), exchange rate volatility (EXRV), inflation volatility (INFLV) and consumer price index (CPX).

Test for Stationarity (ADF Unit Root Criterion)

The result reveals that the variables were stationary at 5% level of significance. Of all the six (6) variables, two were stationary at level while the other four were made stationary after first difference. It is observed that inflation volatility (INFLV) and interest rate volatility (INTV) were stationary at level and the foreign direct investment (FDI); real Gross Domestic Product (RGDP); exchange rate volatility (EXRV) and consumer price index (CPX) were made stationary after the first difference were taken, judging from the probability values being less than 5% level of significance.

Test for Long Run Relationship (Johansen Criterion)

According to Appendix 2, we have all four (4) variables in the same sequence of integration with FDI, our dependent variable. This indicates a long-term relationship. To test this, we do a cointegration test using the Engel-Granger two-step cointegration approach. We ran the regression depending on the order of integration first, and then stored the residual. Second, we ran a unit root test on the stored residual, which we refer to as the error correction model (ECM).

A cointegration is expected to exist if the ECM is statistically significant at the level. As a result, the cointegration result is presented in the appendix. As a consequence, the saved residual, ECM, shows that at the 5% level of significance, the ECM is stationary at level. Because the unit root test for the ECM is stationary at level, this means that there is cointegration between FDI, RGDP, EXRV, and CPX. As a result, we may proceed to evaluate the error correction model.

Vector Error Correction Model (VECM)

The cointegration result shown above necessitates the running of the VECM. We present the result at the appendix 3. The result shows that the lagged error correction model, that is ECM (-1) is not well behaved. The expectation is that the ECM (-1) is negative and statistically significant. Obviously, the ECM (-1) is negative but not statistically significant (since the p-value of 0.4842 is greater than 0.05 level of significance). The coefficient of the lagged ECM shows the speed of adjustment. The result implies that the long run relation observed earlier from our cointegration test is a mere coincidence.

Implications of FDI on Macroeconomic Instability

Following the outcome of multiple regression analysis presented in appendix 4. The coefficient of determination (R^2) is about 89%, which by implications outlines that 89% of the total changes in the foreign direct investment is caused by the changes in the regressors (real gross domestic product, interest rate volatility, exchange rate volatility, inflation volatility and consumer price index). While denoting further that 11% of the total variation in the foreign direct investment could be attributed to exogenous variables for the period and context under study. We have a robust model as revealed by our F-statistic whose p-value of 0.000149 is less than the 0.05000 level of significance.

We saw from the result that all variables are statistically significant at 5% level of significance except the consumer price index which is not statistically significant even at 10% critical value. Interestingly, the result reveals that the real GDP causes more impact to the Nigeria's foreign direct investment (FDI). Its positive sign shows that it annually strengthens the foreign direct investment. Interest rate volatility is also seen to cause increase in the FDI. The other variables, exchange rate volatility and inflation rate volatility causes decline to the foreign direct investment. However, the consumer price index is not statistically significant in influencing the foreign direct investment (Ejelonu and Okafor 2022).

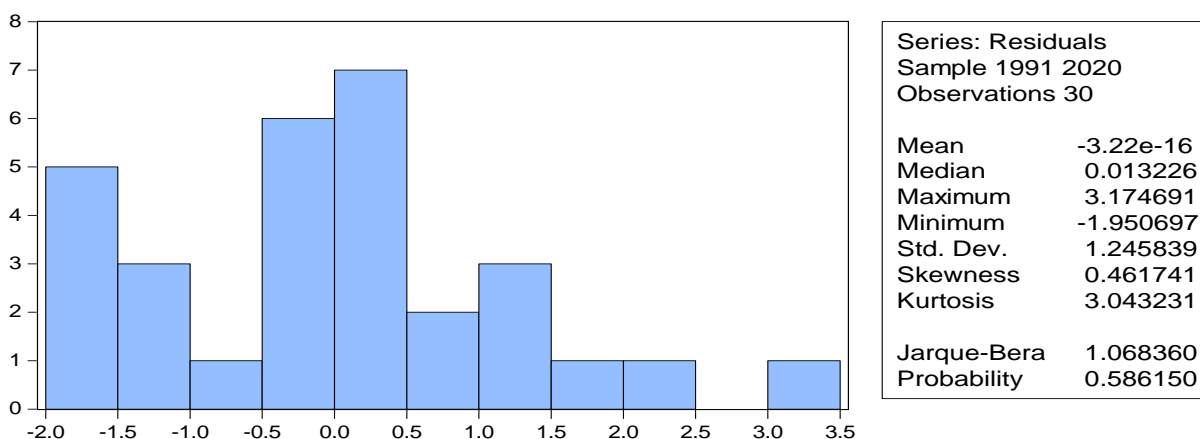
Furthermore, a percentage change in the interest rate volatility causes the FDI to increase by about 4.8%. For a unit increase in the RGDP, the FDI increases by about 5 units. Exchange rate volatility shows that for a one percent fluctuation in the exchange rate, the FDI fluctuates negatively by about 0.25%. For inflation volatility, a percent fluctuation causes the FDI to fluctuate negatively by 14%. The result shows that consumer price index is not statistically significant in determining the macroeconomic environment on which the FDI operates. We observe that the real gross domestic product is stable and positive in supporting the FDI flow. However, exchange rate fluctuation and inflation rate fluctuation has shown dwindling and unstable environment in increasing the FDI flow.

Test for Autocorrelation

We employ the Breusch-Godfrey Serial Correlation LM Test to test for autocorrelation. The null hypothesis is that there is no autocorrelation. The result of the test as shown in appendix (4) has p-value (Prob. F 2,30) of $0.009 < 0.05$. Since p-value $<$ level of significant, we accept null hypothesis and thus conclude that the result of the OLS estimation is free from autocorrelation.

Normality Test

We employed the Jarque-Bera test for the normality of the residual of our OLS estimate.



The null hypothesis is that the residual of the OLS result is normally distributed. The result of normality test shown below reveals that Jarque-Bera value of 1.068360 with probability of 0.586150 which is greater than 0.05 critical value. We therefore accept null hypothesis and thus we accept the null hypothesis and conclude that the residuals in the model are normally distributed.

CONCLUSION

The unpredictable fluctuations in the macroeconomic variables have tipped to be one of the reasons affecting the foreign direct investment. The study set out for an empirical investigation on this nexus. The study investigated the research worry using OLS econometric technique on time series data from 1990 to 2020 and found that some

macroeconomic volatilities influence the foreign direct investment. Basically it was empirically justified that; interest rate volatility, surprisingly show a positive contribution for the foreign direct investment. Again, exchange rate volatility shows that the fluctuation of exchange rate in Nigeria causes the foreign direct investment to dwindle by about 0.25%. More so, the fluctuation in inflation rate causes the foreign direct investment to shrink by about 14%. The consumer price index is not statistically significant in explaining the changes in foreign direct investment in Nigeria for the period under review.

The implication of our findings is that most macroeconomic instabilities affect the country's receipt of foreign direct investment. This revelation shows especially, the instabilities in inflation rate and exchange rate. The study further reveals that it is the instability in inflation rate that causes more reduction in the receipt of foreign direct investment in Nigeria. Based on the empirical truths obtained from the study, policy recommendations were put forward;

- i. More efforts should be geared towards growing the real sector in the country. This will further improve the influence of the real gross domestic product towards attracting more foreign direct investment flows in the country.
- ii. Interest rate fluctuation in the country has never discouraged foreign direct investment. However, the contribution to FDI due to its fluctuation is so small. Efforts should be made by monetary authorities to control the direction of the interest rate so that more FDI can be attracted.
- iii. Inflation rate in the country should be properly targeted by the monetary authorities. This will improve the confidence of the foreigner to increase the confidence of the investors.
- iv. There should be policy restructuring by the government to ensure that consumer price index have statistically significant influence to the foreign direct investment.

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Table A 11: Data for the Study

Year	FDI	RGDP	INTV	EXRV	INFL	CPX
1990	0.59	382.26	18.50	74.97	50.47	14.4
1991	0.71	472.65	18.50	69.87	7.36	15.0
1992	0.9	545.67	15.50	59.1	13.01	15.6
1993	1.35	875.34	17.50	48.97	44.59	17.0
1994	1.96	1,089.68	26.00	53.56	57.17	18.0
1995	0.34	1,399.70	13.50	99.06	57.03	18.8
1996	0.5	2,907.36	13.50	157.68	72.84	19.4
1997	0.47	4,032.30	13.50	204.47	29.27	20.1
1998	0.3	4,189.25	13.50	232.69	8.53	20.5
1999	1	3,989.45	13.50	269.2	10	20.0
2000	1.14	4,679.21	18.00	68.27	6.62	20.2
2001	1.19	6,713.57	14.00	69.26	6.93	21.0
2002	1.87	6,895.20	20.50	77.21	18.87	21.2
2003	2.01	7,795.76	16.50	77.48	12.88	21.6
2004	1.87	9,913.52	15.00	72.77	14.03	22.1
2005	4.98	11,411.07	15.00	74.65	15	22.4
2006	4.85	14,610.88	13.00	85.34	17.86	23.6
2007	6.04	18,564.59	10.00	90.61	8.23	24.2
2008	8.19	20,657.32	9.50	89.69	5.39	25.2
2009	8.56	24,296.33	9.75	99.25	11.58	25.5
2010	6.03	24,794.24	6.00	92	12.56	25.3
2011	8.84	54,612.26	6.25	100	13.72	24.9
2012	7.07	62,980.40	12.00	100.35	10.84	24.4
2013	5.56	71,713.94	12.00	111.57	12.22	24.0
2014	4.69	80,092.56	12.00	119.02	8.48	24.2
2015	3.06	89,043.62	13.00	127.46	8.06	24.5
2016	4.45	94,144.96	11.00	126.63	9.01	25.1
2017	3.5	101,489.49	14.00	116.21	15.68	26.2
2018	2	113,711.63	14.00	105.45	16.52	26.6
2019	3.3	127,736.83	14.00	305.79	12.09	27.1
2020	3.56	144,210.49	13.50	306.08	11.4	27.3

Source: Central Bank Statistical Bulletin (Various)