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The Relationship between Foreign Direct Investment and Selected Economic Indicators in Nigeria: A Causality Approach

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Developing countries like Nigeria face capital shortages that put a limit on investment and therefore growth, which can be balanced with an inflow of funds from abroad. It is in the light of this challenges that this study is undertaken to empirically examine the relationship between Foreign Direct Investment and Selected Economic Indicators in Nigeria. The study covered the period 1986 to 2016 and used secondary data derived from the World Bank Development Indicators (WBDI) 2016. The paper employed Augmented Dickey-Fuller technique in testing the unit root property of the series; Johansen cointegration approach in examining the long-run relationship among the series in the model and Granger causality test of causation between the variables, with an ECM technique in testing the long run adjustment speed of the model. Findings from the study concluded that a unique long-run relationship existed between the dependent and independent variables at the 5% significance level during the period referenced. Major findings of the study are to the effect that the rising unemployment levels were a consequence of low output from the manufacturing sub-sector within the period. Based on findings from the study, it was recommended that the government should improve the state of infrastructures in the country as well as improve on the security of citizens and visitors alike as the present state of fear created by widespread kidnapping, robbery and acts of terrorism in different parts of the country are inimical to investment drive. Finally, our political and economic managers must learn to speak positively about the economy. The penchant to de-market our economy by painting it as corrupt sends a clear negative signal to investors willing to invest in such an economy as they feel unsafe in such an environment.

Keywords: FDI, Investment, Gross Domestic Product per capita, Unemployment, Granger Causality.

INTRODUCTION

The major macroeconomic problems facing Nigeria are the problems of unemployment, low growth rate, inflation and unfavourable balance of payment among others. These problems which are endemic in nature appear to have adversely affected the Nigerian nation to the extent that, her growth rate is stunted. These have led the government and others concerned to initiate policies aimed at ameliorating or solving these problems. The contribution of foreign direct investment (FDI) is necessary for the enhancement of a country's economic growth.

Yet, almost one-third of Nigeria's 180 million people live in extreme poverty. The country though highly populated is blessed with abundant natural and human resources, yet it suffers chronicle poverty and economic deprivation. It will be impossible to lift such a huge number of people out of poverty without steady growth of the economy through foreign or external financing (UNCTAD, 2016).

A number of measures have been adopted by past and present governments to tackle these macroeconomic problems, yet to no avail. This is why recent studies have proven that external finance inflows is needed to bridge the savings-investment gap in Nigeria and most African countries.

According to Montfort (2002, cited in Innocent *et al,* 2012), the obvious preference for foreign investment, especially FDI, stems from its positive contribution to the economy by supplying a package of external resources - capital, technology, marketing and managerial know-how – that can contribute significantly to a country's productivity and hence boost economic growth. The world, no doubt is in the era of globalization, which reflects the free movement of multinational companies (MNCs) from the developed to the developing world. A huge amount of foreign direct investment (FDI) is seen to flow into developing countries through MNCs. For many decades, FDI has been treated as a major source of

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capital accumulation, which in turn leads to economic growth in a recipient economy; therefore, these countries produce all possible policies to attract more inward FDI via removing restrictions of foreign investment, enhancing domestic economic policies and regulations, promoting financial sector development, and ensuring enabling environments for foreign investment (Seng Sothan, 2017).

Before the 1970s, external finance was not regarded as a potent instrument of economic development. This was because the country was somehow self-sufficient with the inflow of resources from our international trade, though mainly agriculture, but what was coming in was good enough to sustain the economy and put it on the path of growth. Then leaders and rulers of this nation had the fear of God and had no penchant for embezzling public funds. The little that came was invested and the economy was growing steadily. So the leaders never saw external finance as the panacea to our macroeconomic problems, rather they saw it as parasitic and an instrument of underdevelopment because they were not growth-oriented. This was why some nations were initially hostile to multinational companies who desired to invest in developing countries.

Researchers such as Ugwuegbe, Okere and Onah (2013) have argued that the effect of external finance on the host country economy normally increase employment, productivity, boost export and increase the pace of technology transfer and invariably capital formation. This will bring about increased productivity and hence improvement in the standard of living.

It is in this vein that the Nigerian government realizing the importance of external finance introduced measures or economic reforms that will attract external finance, more especially foreign direct investment. This became very important since the mid-1980s after the oil glut till today. These reforms were aimed at increasing the attractiveness of Nigeria's investment opportunities and enhance a growing confidence in the economy so as to encourage foreign investors to invest in Nigeria (Ugwuegbe et al, 2013).

The relationship between external finance (FDI) and economic growth has continued to generate series of debate among scholars. As a result, the government of Nigeria has continued over the years to put effective policies in place that will attract foreign capital in order to boost the Nigerian economy by using such finance to reduce or eliminate the major macroeconomic challenges bedeviling the nation. More especially, fiscal policy measures working through manipulation of subsidies, tax holidays, exchange rates, checks on external reserves, borrowing to finance deficits. Various authorities have adopted both discretionary and non-discretionary policies to manipulate the economy in order to attract more foreign capital into the Nigeria but the result is far-fetched.

Internationally, there has been a large body of empirical literature on the growth impact of FDI in low and medium-income countries, but findings on the causality impact of FDI on Nigerian growth are not fully known. Therefore, the present paper is an attempt to examine the relationship between Foreign Direct Investment and selected economic indicators in Nigeria, using time-series techniques of co-integration and Granger causality based on the vector error correction model (VECM).

Specifically, the study shall determine the causality effect of foreign direct investment (FDI) on investment and manufacturing; manufacturing and investment on the unemployment rate and investment on gross domestic product per capita between 1986 to 2016.

The study is justified because it will provide an insight into the effectiveness and utilization of external finance in achieving macroeconomic goals of the nation. It will also highlight the problems associated with external finance as a measure of developmental aspiration. Finally, the study adds to existing literature as members of the academia will benefit from the outcome of the study. It is also expected to continue to serve as a reference material for future research. Given the assumed potential of foreign direct investment in enhancing economic growth in developing countries, what is the experience of Nigeria in this regard? This is the question that this paper seeks to answer.

The remaining part of the paper shall proceed as follows: Section two is dedicated to theoretical and empirical review. In Section three, the data and methodology adopted for the study are discussed. Section four presents the empirical findings, and Section five provides the conclusion and policy recommendations of the study.

THEORETICAL REVIEW

Foreign direct investment is an investment made by an individual or a company (investor) in a country which is not the country of origin of the investor, in the form of either establishing business or acquiring business assets in the country. According to classical and neo-classical economic theory, economic growth depends on the supply of capital as well as the supply of labor and technology. Developing countries like Nigeria face capital shortages that put a limit on investment and therefore growth, which can be balanced with an inflow of funds from both foreign private and public sectors.

It is also expected of every economy not to spend all her national income - a proportion of the income must be taken or saved in order to carry out new investment. It follows then that, any net additions to capital stock in the form of new investment will bring about corresponding increases in the flow of national output. The Harrod-Domar model is very handy in explaining this scenario. This model describes the economic mechanism by which more investments lead to more growth.

According to the model, for a country to develop and grow, it must divest part of its resources from current consumption needs and invest them in capital formation. Diversion of resources from current consumption is called saving. The Harrod-Domar model suggests that it is an important ingredient for the growth of third world countries to save a portion of their income to accumulate capital for accelerated economic growth and development.

Empirical Review

The relationship between Foreign Direct Investment (FDI) and economic growth has long been a subject of great interest in the field of international economics and finance and has resulted in a huge amount of empirical literature focusing on both developed and developing countries. The FDI and economic growth literature has long focused on the role of governments' effectiveness in attracting FDI, and in establishing reasons for foreign investors and firms.

FDI is said to have a huge effect on host countries in terms of economic growth and development. Foreign direct investment (FDI) plays an important role in the economic growth of developing countries. It influences the employment scenario, production, prices, income, imports, exports, general welfare of the recipient country, and balance of payments and serves, as one of the vital sources of economic growth (Mohammed and Mahfuzul, 2016).

Recent studies on external finance and economic growth in Nigeria and other countries provided inconclusive evidence and mixed results. Uwubanmwen and Ogiemudia (2016) examined the effect of foreign direct investment on economic growth in Nigeria using annual time series data covering the period 1979 to 2013. The data were analyzed using Error Correction Model. The results reveal that FDI has both immediate and time lag effect on Nigeria economy in the short run but has a non-significant negative effect on the Nigerian economy in the long run.

Emmanuel (2016) examined the effect of Foreign Direct Investment on Economic Growth in Nigeria. The study covered the period 1981 to 2015 and used annual time series data derived from the Central Bank of Nigeria statistical bulletin and publications of the National Bureau of Statistics. The study employed multiple regression technique and Gretl 1.9.8 econometric software for the analysis. The results showed that foreign direct investment has a positive and significant effect on gross domestic product. It was also found that exchange rate has a positive but not significant effect on gross domestic product.

Pulstova (2016) studied the effects of foreign direct investment and firm export on economic growth in Uzbekistan. The study covered the period 1990 – 2014 and descriptive method was adopted. It was discovered that an increase in FDI may cause firms to increase their export of products.

Muntah, Khan, Haider and Ahmad (2015) studied the impact of foreign direct investment on economic growth of Pakistan covering the period 1995 to 2011. The data were sourced from World Bank, Economy of Pakistan Books, Index Monde and Economic Survey of Pakistan. Regression analysis was used in the study. They found that FDI impacts positively on economic growth of Pakistan.

Agrawal (2015) assessed the relationship between foreign direct investment and economic growth in the five BRICS economies, namely, Brazil, Russia, India, China and South Africa over the period 1989 – 2012. Cointegration and Causality analysis were applied. The results indicate that foreign direct investment and economic growth are cointegrated at the panel level, indicating the presence of long-run equilibrium relationship between them. Results from causality tests indicate that there is long-run causality running from foreign direct investment to economic growth in these economies.

Melnyk, Kubatko and Pysarenko (2014) examined the impact of foreign direct investment on economic growth in post-communism transition economies. The study used neoclassical growth theory to analyze the effect of FDI on economic growth. They found a significant FDI influence on economic growth of host countries. They concluded that in addition to the direct capital financing it supplies, FDI can be a source of valuable technology and know-how while fostering linkages with local firms, which can help to jumpstart an economy.

Based on these arguments, industrialized and developing countries have offered incentives to encourage foreign direct investments in their economies. The study recommended that transition and developing economies should pay more attention to the business climate and positive institutional changes.

DATA AND METHODOLOGY

Variables and Source of Data Collection

The methodology for this study was adapted with some modifications from (Seng Sothan, 2017). Thus, assuming a linear relationship between our regressand and regressors, the relationship between FDI and economic indicators in Nigeria is modeled. To get a better view, the study specifies the following as economic indicators: economic growth, investment, manufacturing output and unemployment rate as regressors and foreign direct investment as the regress.

These variables are some of the core indicators that has a direct bearing on the prosperity or otherwise of a nation and they could be influenced either way by the volume of foreign direct investment flow available to the country from abroad. In this paper, foreign direct investment is measured in its relationship with economic growth (proxied by gross domestic product per capita), the level of investment in the economy (proxied by gross fix capital formation), manufacturing output and unemployment rate whose behavior shall be determined by what is happening to the other variables in the model.

Manufacturing (MAN) is included in the study because the variable is also considered as an engine of growth. Exchange rate is included in the model as control variable to avoid the problem of estimation bias. All the series employed cover the period 1986–2015 and are gathered from the World Bank Development Indicators (WBDI) database (2015). The data from the World Bank can be reliable because many studies have employed the data published by this institution for econometric purposes for reliability.

Unit root test

To study the stationarity properties of time series, the Augmented Dickey-Fuller test (ADF) (Dickey & Fuller, 1981) is employed in this study. The test involves estimating the regression.

The model for the ADF unit root framework is as follows:

$$\Delta X_t = \alpha_{1+} pt + \beta X_{t-1} + \sum_{i=1}^{k-1} \gamma_i \Delta X_{t-1} + \varepsilon_t \quad \ldots. 3.1$$

In the above equation, α is the constant and ρ is the coefficient of time trend. X is the variable under consideration. In this study, the variables include log(FDI), log(GDP-pc), log(INVT), and log(MAN). Δ is the first-difference operator; t is a time trend; and ε_t is a stationary random error. The test for a unit root is conducted on the coefficient of Xt-1 in the above regression. If the coefficient, β, is found to be significantly different from zero ($\beta \neq 0$), the null hypothesis that the variable X contains a unit root problem is rejected, implying that the variable does not have a unit root. The optimal lag length is also determined in the ADF regression and is selected using Akaike information criterion (AIC).

Johansen cointegration test

This paper attempts to use the Johansen maximum likelihood cointegration test (Johansen, 1988) to determine long-run relationships among the variables being investigated. In examining causality, the Granger causality analysis is also performed. In order to obtain good results from the test, selecting the optimal lag length is so important. The Johansen

cointegration framework takes its starting point in the vector autoregressive (VAR) model of order *p* given by:

$$y_t = A_1 y_{t-1} + \ldots + A_p y_{t-p} + \beta x_t + \varepsilon_t \ldots\ldots. \quad 3.2$$

where *yt*is a vector of endogenous variables and *A* represents the autoregressive matrices. *xt*is the deterministic vector and *B* represents the parameter matrices. $\varepsilon_t$is a vector of innovations and *p* is the lag length. The VAR can be re-written as:

$$\Delta y_t = \Pi y_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta y_{t-1} + \beta X_t + \varepsilon_t \ldots\ldots. \quad 3.3$$

where $\Pi = \sum_{I=1}^{p} A_i - I$ and $\Gamma_I \Sigma = \sum_{j=i+1}^{p} A_j$

The matrix Π contains the information regarding the long-run coefficients of the *yt* variables in the vector. If all the endogenous variables in *yt*are cointegrated at order one, the cointegrating rank, *r*, is given by the rank of Π= αβ, where the elements of _ are known as the corresponding adjustment of coefficient in the VEC model and *β* represents the matrix of parameters of the cointegrating vector. To indicate the number of cointegrating rank, two likelihood ratio (LR) test statistics, namely the trace and the maximum Eigen value tests (Johansen, 1988), are used to determine the number of cointegrating vectors. The two tests are defined as:

$\lambda_{trace} = -T \sum_{i=r+1} log(1-\lambda_i)$ and $\lambda_{max} = -Tlog(1-\lambda_{i+1})$, …. 3.4

where λ_i denotes the estimated values of the characteristic roots obtained from the estimated Π, and *T* is the number of observations. The first statistic test tests H_0 that the number of cointegratingvector is less than or equal to r against the alternative hypothesis of *k* cointegrating relations, where *k* is the number of endogenous variables, for *r* = 0,1, … , *k*−1. The alternative of *k* cointegrating relations corresponds to the case where none of the series has a unit root. The second test tests the null that the number of cointegrating vectors is r, against the alternative hypothesis of 1 + *r* cointegrating vectors.

Granger causality based on the vector error correction model

In order to identify the long-run relationship among the series under study, the Johansen co-integration test must be done. However, the test does not indicate anything about the direction of causality among the variables in the system; therefore, the Granger causality analysis must be done. If the series are co-integrated, the VECM-based Granger causality analysis is an appropriate technique used to determine the long-run and the short-run relationships (Engle & Granger, 1987) based on the following forms:

Model 1: y = [log(FDI), log(GDP-pc)]

$$\Delta \log(FDI)_t = \beta_{1,}t + \sum_{i=1}^{n-1} \beta_{11,j} \Delta \log(FDI)_{t-j} + \sum_{i=1}^{n-1} \beta_{12,j} \Delta \log(GDP\text{-}pc)_{t-j} + \delta_1 EC + \varepsilon_{1t} \quad (3.5)$$

$$\Delta \log(GDP\text{-}pc)_t = \beta_{2,}t + \sum_{i=1}^{n-1} \beta_{21,j} \Delta \log(GDP\text{-}pc)_{t-j} + \sum_{i=1}^{n-1} \beta_{22,j} \Delta \log(FDI)_{t-j} + \delta_2 EC + \varepsilon_{2t} \quad (3.6)$$

Model 2: y = [log(FDI), log(INVT)]

$$\Delta \log(FDI)_t = \beta_{1,}t + \sum_{i=1}^{n-1} \beta_{11,j} \Delta \log(FDI)_{t-j} + \sum_{i=1}^{n-1} \beta_{12,j} \Delta \log(INVT)_{t-j} + \Theta_1 EC + \varepsilon_{1t} \quad (3.7)$$

$$\Delta \log(INVT)_t = \beta_{2,}t + \sum_{i=1}^{n-1} \beta_{21,j} \Delta \log(INVT)_{t-j} + \sum_{i=1}^{n-1} \beta_{22,j} \Delta \log(FDI)_{t-j} + \Theta_2 EC + \varepsilon_{2t} \quad (3.8)$$

Model 3: y = [log(FDI), log(MAN)]

$$\Delta \log(FDI)_t = \beta_{1,}t + \sum_{i=1}^{n-1} \beta_{11,j} \Delta \log(FDI)_{t-j} + \sum_{i=1}^{n-1} \beta_{12,j} \Delta \log(MAN)_{t-j} + \lambda_1 EC + \varepsilon_{1t} \quad (3.9)$$

$$\Delta \log(MAN)_t = \beta_{2,}t + \sum_{i=1}^{n-1} \beta_{21,j} \Delta \log(MAN)_{t-j} + \sum_{i=1}^{n-1} \beta_{22,j} \Delta \log(FDI)_{t-j} + \lambda_2 EC + \varepsilon_{2t} \quad (3.10)$$

Model 4: y = [log(FDI), log(EXCR)]

$$\Delta \log(FDI)_t = \beta_{1,}t + \sum_{i=1}^{n-1} \beta_{11,j} \Delta \log(FDI)_{t-j} + \sum_{i=1}^{n-1} \beta_{12,j} \Delta \log(INFLR)_{t-j} + \phi_1 EC + \varepsilon_{1t} \quad (3.10)$$

$$\Delta \log(EXCR)_t = \beta_{2,}t + \sum_{i=1}^{n-1} \beta_{21,j} \Delta \log(EXCR)_{t-j} + \sum_{i=1}^{n-1} \beta_{22,j} \Delta \log(FDI)_{t-j} + \phi_2 EC + \varepsilon_{2t} \quad (3.11)$$

Model 5: y = [log(FDI), log(UNMPR)]

$$\Delta \log(FDI)_t = \beta_{1,}t + \sum_{i=1}^{n-1} \beta_{11,j} \Delta \log(FDI)_{t-j} + \sum_{i=1}^{n-1} \beta_{12,j} \Delta \log(UNMPR)_{t-j} + \lambda_1 EC + \varepsilon_{1t} \quad (3.12)$$

$$\Delta \log(UNMPR)_t = \beta_{2,}t + \sum_{i=1}^{n-1} \beta_{21,j} \Delta \log(UNMPR)_{t-j} + \sum_{i=1}^{n-1} \beta_{22,j} \Delta \log(FDI)_{t-j} + \lambda_2 EC + \varepsilon_{2t} \quad (3.13)$$

Log(GDP-pc), log(FDI), log(INVT), log(MAN), log(EXCR) and log(UNMPR) denote the natural logarithms of real GDP per capita, FDI, investment, manufacturing output, exchange rate and unemployment rate respectively. Our main focus is on Model 1, 2, 3, 4 and 5. This is because a positive relationship among the variables in these models leads to a fall in the unemployment rate (model 6), all things being equal.

Explicitly stated, a rise in gross domestic product per capita is a function of a rise in the flow of external finance which increases investment, manufacturing output and a decline in unemployment rate. This is however only attainable by the nature of exchange rate policy in place at the time. Succinctly put, a rise in foreign capital, investment, manufacturing output and a favourable exchange rate regime would work to ameliorate or reduce the unemployment challenges and at the same time increase per capita income of various households employed.

The coefficients of the EC*t*−1 term indicate causality in the long run and the joint *F* test of the coefficients of the first-differenced independent variables confirms short-run causality. Δ denotes first-difference operator. *μ*1t and μ2t are the stationary disturbance terms for Equations (4) and (5), respectively. *n* is the order of the VAR, which is translated into

lag of $n-1$ in the error correction mechanism. $\delta 1$ and $\delta 2$ denote the coefficients of long-run Granger causality for Equations (3.5) and (3.6), respectively. In this paper, the short-run causality is determined through the error correction based on vector error correction model.

RESULTS AND DISCUSSION

Data Presentation

This study is to examine the relationship between Foreign Direct Investment and selected economic indicators in Nigeria – a causality approach between 1986-2016. The variables being studied include foreign direct investment, gross domestic product per capita, investment, manufacturing, exchange rate and unemployment rate. The data presentation is shown in Table 1.

Trend Analysis of Key Economic Indicators: FDI, MAN, INVT, UNMPR

Trend analysis as presented above depicts the interrelationship that exists between the variables examined in this study. The graph revealed that all core explanatory variables (INVT, MAN and UNMPR) excluding GDP-pc and EXCR captured in the graph trended above foreign inflows (external finance) to Nigeria between 1986 to 2016. It is, however, noteworthy that the rise in investment and manufacturing during the period under reference is as a result of an increase in foreign direct investment in the country between 1986 to 2016.

Surprisingly, it was revealed that, while there was an increase in investment and manufacturing output within the period, the unemployment rate trended upward (i.e. was on the increase), thus making the impact of foreign direct investment on employment levels irrelevant. Irrelevant because the primary essence of an increase in investment and manufacturing should be to reduce the unemployment rate in an economy, and not otherwise. The graph revealed that foreign capital had no significant impact on employment levels between 1986 to 2016.

Descriptive Statistics of Series (FDI, GDP-pc, MAN, INVT, EXCR, UNMPR)

Mean is the average value of the series which is gotten by dividing the total value of the series by the number of observations. From the above table we see that the mean for Log(FDI) (foreign direct investment), Log(GDP-pc) (Gross Domestic Product per capita), Log(INVT) investment (proxied by gross fix capital formation), Log(MAN) (manufacturing output), log(EXCR) (exchange rate) and Log(UNMPR) (unemployment rate) are 3.263790, 973.7306, 11.07697, 5.625929,89.68143 and 6.369903 respectively.

Median is the middle value of the series when the values are arranged in an ascending order. From the table the median for Log(FDI) (foreign direct investment), Log(GDP-pc) (Gross Domestic Product per capita), Log(INVT) investment (proxied by gross fix capital formation), Log(MAN) (manufacturing output), log(EXCR) (exchange rate) and Log(UNMPR) (unemployment rate) are 2.801490, 379.1193, 11.74232, 5.446356, 111.2313 and 6.702000 respectively.

Maximum and minimum are the maximum and minimum values of the series the series in the current sample. The maximum and minimum values for Log(FDI), Log(GDP-pc), Log(INVT), Log(MAN), Log(EXCR), Log(UNMPR) are 10.83256, 3221.678, 16.55520, 9.754130, 253.4923 and 8.500000 for maximum, while 0.650345, 153.6467, 5.458996, 2.410130, 1.754523 and 4.275000 for minimum respectively.

Standard Deviation is a measure of spread or dispersion in the series. From the table above the standard deviation Log(FDI), Log(GDP-pc), Log(INVT), Log(MAN), Log(EXCR), Log(UNMPR)are 2.284853, 990.8197, 3.337112, 2.294868, 70.20631 and 0.992516 respectively. Skewness is a measure of asymmetry of the distribution of the series around its mean. The skewness of a normal distribution is zero. Positive skewness implies that the distribution has a long right tail and negative skewness implies that the distribution has a long left tail. From the above table, we observe that Log(FDI), Log(GDP-pc), Log(MAN) and Log(EXCR) all have positive skewness and as such, they have long right tails whereas Log(INVT) and Log(UNMPR) have negative skewness, therefore, they have long left tails.

Kurtosis measures the peakedness or flatness of the distribution of the series. If the kurtosis is above three, the distribution is peaked or leptokurtic relative to the normal and if the kurtosis is less than three, the distribution is flat or platykurtic relative to normal. From Table 2 above only Log(FDI) exceeds three, therefore, it is peaked or leptokurtic while Log(GDP-pc), Log(INVT), Log(MAN), Log(EXCR) and Log(UNMPR) are below three, therefore they are flat or platykurtic.

Jarque-bera is a test statistic to test for normal distribution of the series. It measures the difference of the skewness and kurtosis of the series with those with normal distribution. From the table above the Jarque-bera probability values shows that Log(INVT), Log(MAN), Log(EXCR) and Log(UNMPR) are normally distributed while Log(FDI) and (GDP-pc) are not normally distributed.

Econometric Analysis

Unit Root Test

This test tries to examine the property of the variables. It is used to check for the presence of a unit root i.e. none stationarity of the variables. This test is carried out using the Augmented Dickey-Fuller (ADF) test. This is the first test carried out in the cointegration analysis and is known as the pre-cointegration test. The ADF is carried out using E-views software package and the results from the test are tabulated below.

The Augmented Dickey-Fuller (ADF) unit root test in the above table showed that all the variables were non-stationary at levels but became stationary after first difference, hence all of them were integrated of order one I(1).Given the unit root properties of the variables, we proceeded to establish whether or not there is a long-run co-integrating relationship among the variables in the model by using the Johansen full information maximum likelihood method. Prior to the estimation of the Johansen cointegration test, a lag selection criteria of two (2) was chosen.

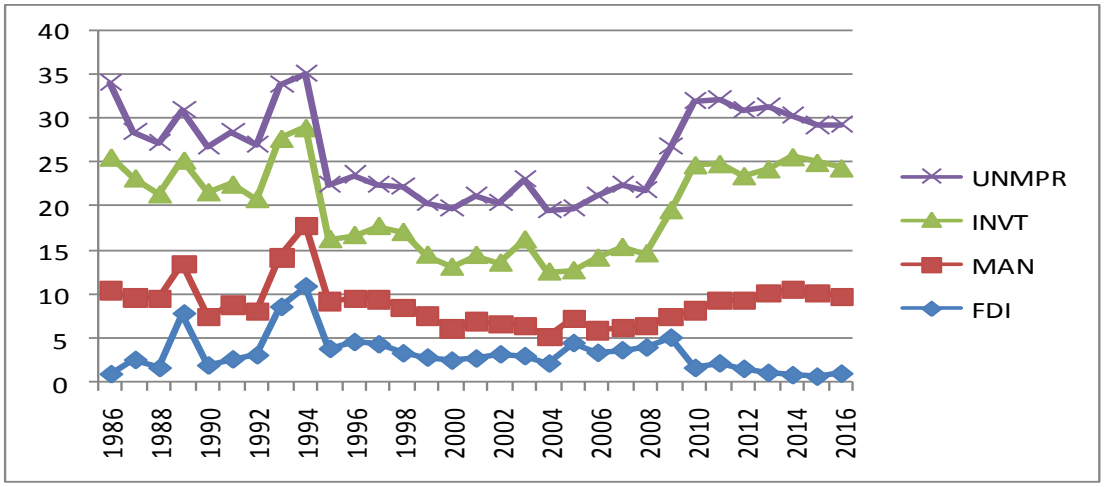
Cointegration Test

Having determined the order of integration (i.e. all the series are I(1)), the Johansen co-integration test is applied on the series to examine whether or not co-integration exist among the variables. We test for the number of co-integrating vectors under the assumption that the series have linear deterministic trend.The results of Johansen test for co-integration is presented in Table 4 below.

Table 1: Data Presentation on FDI, GDP-pc, MAN, INVT, EXCR and UNMPR

YEAR	FDI	GDP-pc	MAN	INVT	EXCR	UNMPR
1986	0.932437	241.4572	9.53204	15.15382	1.754523	8.5
1987	2.534126	273.4706	7.097746	13.60753	4.016037	5.3
1988	1.627125	257.2923	7.921599	11.87108	4.536967	5.8
1989	7.776141	260.987	5.754452	11.74232	7.364735	5.8
1990	1.911375	322.8412	5.495197	14.25014	8.038285	5.2
1991	2.600578	280.302	6.201069	13.73268	9.909492	5.944
1992	3.060115	292.3613	5.070092	12.74817	17.29843	6.186
1993	8.520921	153.6467	5.70096	13.55003	22.0654	6.2
1994	10.83256	171.6697	6.989694	11.16543	21.996	6.207
1995	3.780688	264.2956	5.446356	7.065756	21.89526	6.251
1996	4.554308	315.9671	4.917161	7.289924	21.88443	6.874
1997	4.297446	315.5522	5.143054	8.356764	21.88605	4.629
1998	3.284921	274.9874	5.224296	8.60161	21.886	5.239
1999	2.80149	300.609	4.725918	6.994108	92.3381	5.927
2000	2.457934	379.1193	3.667227	7.017881	101.6973	6.702
2001	2.697522	351.7997	4.213242	7.579868	111.2313	6.777
2002	3.170064	459.4572	3.426106	7.009923	120.5782	6.853
2003	2.964106	512.6507	3.390342	9.904054	129.2224	6.931
2004	2.13333	648.8151	3.061206	7.39337	132.888	7.011
2005	4.438848	807.8939	2.832143	5.458997	131.2743	7.057
2006	3.33798	1019.743	2.577617	8.265865	128.6517	7.102
2007	3.62567	1136.83	2.521544	9.249637	125.8081	7.147
2008	3.93945	1383.893	2.41013	8.323477	118.546	7.192
2009	5.04766	1097.661	2.469561	12.08816	148.9017	7.238
2010	1.632849	2327.321	6.552817	16.5552	150.298	7.286
2011	2.147237	2527.942	7.188658	15.53394	153.8616	7.334
2012	1.533762	2755.298	7.793216	14.16254	157.4994	7.6
2013	1.08024	2996.964	9.031204	14.16873	157.3112	7.1
2014	0.818972	3221.678	9.75413	15.08353	158.5526	4.8
2015	0.650345	2655.158	9.531868	14.82718	192.4405	4.275
2016	0.9873	2177.985	8.763159	14.63427	253.4923	5.005

Source: World Bank Development Indicators (WBDI) (2016) & UNCTAD Data (2016)



Source: Author's computation from MS-Excel 2007

Figure 1: Graph showing Trend between FDI, GDP-pc, INVT, MAN, EXCR and UNMPR between 1986-2016

Table 2: Summary Statistics

	FDI	GDP_PC	INVT	MAN	EXCR	UNMPR
Mean	3.263790	973.7306	11.07697	5.625929	88.68143	6.369903
Median	2.801490	379.1193	11.74232	5.446356	111.2313	6.702000
Maximum	10.83256	3221.678	16.55520	9.754130	253.4923	8.500000
Minimum	0.650345	153.6467	5.458996	2.410130	1.754523	4.275000
Std. Dev.	2.284853	990.8197	3.337112	2.294868	70.20631	0.992516
Skewness	1.686606	1.126931	-0.04286	0.273354	0.212789	-0.30998
Kurtosis	5.900379	2.705398	1.513875	1.999357	2.002408	2.489986
Jarque-Bera	25.56306	6.673638	2.862225	1.679396	1.519396	0.832443
Probability	**0.000003**	**0.035550**	**0.239043**	**0.431841**	**0.467808**	**0.659534**
Sum	101.1775	30185.65	343.3860	174.4038	2749.124	197.4670
Sum Sq. Dev.	156.6166	29451709	334.0896	157.9926	147867.8	29.55266
Observations	31	31	31	31	31	31

Source: Author's Compilation Using Eviews 8

Table 3: Augmented Dickey-Fuller Unit Root Test at 1st Difference

Variable	Level	1st Difference	5% Critical Value	Order of Integration
Log(FDI)	Non-Stationary	-8.711093	-2.967767	I(1)
Log(GDP-pc)	Non-Stationary	-5.491105	-2.967767	I(1)
Log(INVT	Non-Stationary	-5.616404	-2.971853	I(1)
Log(MAN)	Non-Stationary	-5.290752	-2.967767	I(1)
Log(EXCR)	Non-Stationary	-5.644484	-2.967767	I(1)
Log(UNMPR)	Non-Stationary	-6.733113	-2.967767	I(1)

Source: Author's Computation using E-views

Table 4: Results of the Trace and the Max-Eigenvalue tests

No. of cointegrating equations	Trace statistic	Critical Values		Max-Eigen statistic	Critical Values	
		Trace	P-value (%)		Trace	P-value (%)
None *	130.7577	95.75366	0.0000	43.89677	40.07757	0.0177
At most 1*	86.86090	69.81889	0.0012	36.41763	33.87687	0.0243
At most 2*	50.44327	47.85613	0.0280			
Result:	***Trace test indicates 3 cointegrating eqn(s) at the 0.05 level***			***Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level***		

Source: Author's Computation using E-views

Table 5: ECM output

Error Correction:	D(log(Fdi))	D(log(Gdp_pc))	D(log(Invt))	D(log(MAN))	D(log(Excr))	D(log(Unmpr))
CointEq1	-0.641201	0.126892	-0.085224	0.157692	-0.277536	-0.02711
	(0.18633)	(0.10373)	(0.08500)	(0.08919)	(0.10908)	(0.05531)
	[-3.44114]	[1.22331]	[-1.00259]	[1.76796]	[-2.54423]	[-0.49013]

Source: Author's Computation using E-views

From table 4 above, it is observed that Trace test statistic and the Max-Eigenvalue test indicated three and two cointegrating equation at 5% level of significance respectively. Based on the evidence above, the null hypothesis (H_0) which says that there are no cointegrating vectors can be safely rejected leading to the acceptance of the alternative hypothesis of the presence of cointegrating vectors. Thus, it is concluded that in Nigeria's case, the hypothesis of no cointegration among the series should be rejected, implying that a unique long-run equilibrium relationship exists among the variables FDI, GDP-pc, INVT, MAN, EXCR and UNMPR between 1986-2016. In other words, they possess the characteristics that would cause them to converge in the long-run. Therefore, the study proceeds with the Error correction model (ECM) to determine the speed of convergence (short-run dynamics) of series in the model.

Extracted ECM Output

Table 5 is an extract of the VECM estimating the error correction model (ECM) to equilibrate the speed of adjustment between the short-run dynamics and long-run equilibrium. It showed that the error correction term is negative and significant. This implied that there is a feedback effect from the long run relationship to the short run dynamics of the model. It also showed that if there is a disturbance to the model, the variables in the model will jointly respond to ensure that the model converges back to its mean value in the long run. Specifically, the ECM coefficient implies that nearly 64% of any disequilibrium in the system is corrected every year.

Granger Causality / Block Exogeneity Test

The direction of causality cannot be precisely established through the Johansen co-integration test, hence Granger causality test based on the vector error correction model is applied. The study adopts blockexogeneityGranger/causality analysis to examine the causal relationship between foreign direct investment (external capital) on selected economic indicators like gross domestic product per capita, investment, manufacturing output, exchange rate and unemployment rate in Nigeria. The study not only included FDI, but also manufacturing and investment as important drivers and engines of growth in any economy. The findings on the Granger causality analysis are presented in the table below:

S/N	Variables causing Another	P-value
(i)	FDI Granger causes MAN	0.0318
(ii)	INVT Granger causes GDP-pc	0.0188
(iii)	EXCR Granger causes UNMPR	0.0239
(iv)	UNMPR Granger causes INVT	0.0402
(v)	UNMPR Granger causes MAN	0.0074

Empirical evidence revealed that a unidirectional (one-way) causality existed among some of the variables captured in the model. Major highlights indicated that foreign direct investment was an impetus to the growth in manufacturing output while investment in the economy was a reason for the rise in gross domestic product per capita.

Similarly, it was revealed that exchange rate was a reason for the rise in unemployment levels; while the high unemployment rate resulted to decline in investment and output from the manufacturing sector during the period. These findings are in line with the earlier trend analysis where unemployment grew astronomically above investment, manufacturing output and foreign investment in the country between 1986-2016.

Implications of the Findings

The Granger causality test further revealed lack of causality from FDI to investment. This negative relationship could be as a result of insufficient FDI fund invested into the Nigerian economy which has not been able to exert enough impact to make it positive or growth-enhancing. The lack of causation between FDI and INVT and FDI and GDP-pc does not mean that FDI is not viable to the Nigerian government and private households, except that the benefits remained minimal and insignificant. This is however not unconnected with the economic crisis that crippled the Nigerian economy towards the end of 2015.

The crisis was exacerbated by the huge investible funds our foreign partners repatriated to their country of origin due to the unstable economic and political climate prevailing at the time. This development, coupled with some unpalatable policies of government that were inimical to investment and the unstable exchange rate policy in place at the time heightened the economic challenges, leading to widespread loss of jobs and closure of many manufacturing outlets, with some relocating to neighbouring African states.

CONCLUSION AND RECOMMENDATIONS

Deriving from the above findings, the study concluded that a unique long-run relationship exists between foreign direct investment and selected economic indicators (gross domestic product per capita, investment, manufacturing output, exchange rate and unemployment rate) at the 5% significance level during the period referenced. Similarly, foreign direct investment Granger causes manufacturing output while investment in the economy Granger causes gross domestic product per capita respectively.

Finally, the study showed that the rising unemployment levels were a consequence of low output from the manufacturing sub-sector within the period. The error correction mechanism was found to be statistically significant and revealed a speed of adjustment of at least one year and five months. This is the time frame required for the distortion in the economy to be corrected. This indicates a fast period of convergence from long-run to an equilibrium path.

Finally, the result revealed that the residuals of the model are normally distributed and the inverse roots of Auto-Regressive characteristic Polynomial in the appendix page suggest that the residuals of the models are stable. This is because the residual points all fell within the acceptable region. This indicates that the model is stable and useful for decision-making. Based on the findings of this study, the following recommendations are suggested for policy implementation:

I. Every investor craves for a conducive environment to operate. The government should, therefore,improve the state of infrastructures in the country as well as improve on the security of citizens and visitors alike as the present state of fear created by widespread kidnapping, robbery and acts of terrorism in different parts of the country are inimical to investment drive.

II. The Central Bank of Nigeria should come-up with policies that will help to stabilize the Naira exchange rate vis-à-vis the major currencies of the world, like the United States Dollar, the Japanese Yan, etc. This will boost investors' confidence in the economy.

III. Our political and economic managers must learn to speak positively about the economy. The penchant to de-market our economy by painting it as corrupt sends a clear negative signal to investors willing to invest in such an economy as they feel unsafe in such an environment.

IV. Finally, concerted effort be made by policymakers and relevant authorities to formulate policies aim at encouraging domestic investors to invest in their economy rather than depending on foreign investment that are often not guaranteed.

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Appendix Page