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The Effect of Foreign Direct Investment on the Nigerian Manufacturing Sector

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Abstract

This study examined the effect of Foreign Direct Investment (FDI) on the Nigerian manufacturing sector spanning 1975 – 2008. Nigeria has embarked on several policy measures aimed at enhancing the manufacturing sector's productivity coupled with the inflow of FDI to the country. The controversy is that the policy makers are not convinced that the potential benefits of FDI could be fully realized. The methodology adopted for the study is the Vector Auto Regression (VAR), co-integration and error correction techniques to establish the relationship between FDI and the growth of manufacturing sector. The findings from the study show that FDI has a negative effect on the manufacturing productivity and is statistically significant. Arising from the findings, it is recommended that government should create an enabling environment for foreign investment and the monitoring of FDI benefits, with particular focus of NEPAD and NEEDS through the instrumentality of the MDGs; thereby mustering the capacity for sustainable growth in the manufacturing sector.

Key words: FDI; Manufacturing sector; Productivity; Growth; Policy

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INTRODUCTION

Most countries strive to attract Foreign Direct Investment (FDI) in the manufacturing sector because of its acknowledged advantages as a tool of economic development. Africa and Nigeria in particular joined the rest of the world to seek FDI as evidenced by the formation of New Partnership for Africa's Development (NEPAD), which has the attraction of foreign investment to Africa as a major component. Improvements in economic policies are needed to enhance macroeconomic performance and attain the minimum growth rate required to meet the Millennium Development Goals set by the United Nations. An increase in investment is crucial to the attainment of sustained growth and development in the country. This requires the mobilization of both domestic and international finances. Given the unpredictability of aid flows, the low share of the country in world trade, the high volatility of short- term capital flows, and the low savings rate of the country, the desired increase in investment has to be achieved through an increase in FDI flows, at least in the short – run (De Gregorio, 2003).

Until recently, FDI was not fully embraced by Nigeria and other African leaders as an essential feature of growth in the manufacturing sector, reflecting largely fears that it could lead to the loss of political sovereignty, push domestic firms into bankruptcy due to increased competition and, if entry is predominant in the natural resource sector accelerate the risk of environment degradation. Akinlo (2006) argue that much of African skepticism toward foreign investment is rooted in history, ideology, and the politics of the post – independence period. They also argue that the prevailing attitudes and concerns in the region are due in part to the fact that policy – makers in the region are not convinced that the potential benefit of FDI could be fully realized.

Although most of the concerns of Nigeria regarding foreign investment are legitimate, for example, there is some evidence that the activities of foreign oil firms in

Nigeria have had perverse effects on local environment (Ekpo, 2003). It has been shown that if a host country creates conducive environment to investment, FDI can play an important role in its development efforts. Its potential benefits include; employment generation and growth by providing additional capital to a host country supplementing domestic savings, integration into the global economy and transfer of modern technology (Opaluwa, Ameh and Umeh, 2010).

The inadequacy of infrastructure has been one of the major constraints for the manufacturing sector. One of the major weaknesses of the manufacturing sector is its inability to create forward and backward linkages with the rest of the economy. As a result, there was weak raw material base resulting in excessive dependence on imported inputs; poor technological base to support growth of manufacturing activities; obsolete machinery and equipment as most plant equipment procured in the import substitution era are ageing and wearing out.

1. THEORETICAL FRAMEWORK

Dunning's Eclectic Paradigm of FDI and the Accelerator Theory of Investment Serve as the Theoretical base for this study.

Dunning (1988) postulates that FDI emerges due to ownership, Internationalization and location advantages. He says that FDI will occur when the following conditions are satisfied. There is ownership advantage: the firms must own some unique competitive advantage that overcomes the disadvantages of competing with foreign firms on the home turfs. There is location advantage: undertaking the business activity must be more profitable in a foreign location than undertaking it in a domestic location. Dunning therefore, suggests that it is the location advantages of host countries that determines cross-country pattern of FDI. However, it has been argued that the location specific advantages sought by mobile investors are changing in the globalised scenario. According to Dunning (2002), for FDI from more advanced industrialized countries, government policies along with transparent governance and supportive infrastructure have become more important. While FDI emerging from larger developing countries still seek traditional economic determinants e.g. market size and income level, skills, infrastructure and other resources that facilitate efficient specialization of production, and political and macro economic stability.

There is an internationalization advantage: the firm must benefit more from controlling the foreign business activity than from hiring an independent local company to provide the service.

While the accelerator theory postulated by Hicks (1951) states that an increase in the rate of output of a firm

will require a proportional increase in its capital stock. It emphasizes the relationship between the capital stock and the flow of output, which is known as the capital output ratio. Thus, the accelerator v is equal to $\Delta I/\Delta Y$ or capital output. It shows that the demand for capital goods is not derived from consumers' goods alone but from any direct demand on national output. Hence the accelerator principle is a basic Keynesian model of investment

$$K_t = Y_t$$

$$K_t = k_t - 1 = v (Y_t - Y_{t-1})$$

$$I_{nt} = v (Y_t - Y_{t-1})$$

$$= v \Delta Y_t$$

Where $\Delta y_t = y_t - Y_{t-1}$ and I_{nt} = net investment

The effect of FDI on economic growth is analyzed in the standard growth accounting framework. To begin, the capital stock is assumed to consist of two components: domestic and capital owned stock so,

$$K_t = k_{dt} + k_{ft}$$

An augmented Solow production function (Solow, 1956) is adopted which makes output a function of stocks of capital, labour and productivity. However, domestic and foreign owned capital stocks are specified separately in a Cobb-Douglas production function:

$$Y_{it} = A_{it} K_{dit}^\alpha K_{fit}^\lambda K_{fit} L_{it}^\beta \quad (1)$$

Where Y is the flow of output, k_{dt} k_{ft} represent the domestic and foreign owned capital stocks respectively, L is labour, and A is the total factor productivity, which explains the output growth that is not accounted for by the growth in factors of production specified.

Taking logs and differentiating equation (1) with respect to time, the following growth equation is attained:

$$Y_{it} = a_{it} + \alpha K_{dit} + \lambda K_{fit} + \beta L_{it} \quad (2)$$

Where lower case letters represent the growth rates of output, domestic capital stock, foreign capital stock and labour, and a , I and b represent the elasticity of output, domestic capital stock, foreign capital stock and labour respectively. In a world of perfect competition and constant return to scale, these elasticity coefficients can be interpreted as respective factors shares in total output. Equation (2) in a fundamental growth accounting equation which decomposes the growth rate of output into growth rate of total factor productivity plus a weighted sum of labour. Theoretically a and b are expected to be positive while the sign of I would depend on the relative strength of competition and linkage effects and other externalities that FDI generates in the development process.

K_d and k_f are proxied by domestic investment to GDP (I_d) and FDI (I_f) respectively in view of problems associated with measurement of capital stock.. The use of rate of investment is hinged on the assumption of a steady state situation or a linearization around a steady state. The final form of equation 2 therefore is

$$y_{it} = a_i + \alpha I_{dit} + I_{fit} + \epsilon_{it} \quad (3)$$

where ϵ_{it} is an error term.

2. LITERATURE REVIEW

Jerome and Ogunkola (2004) assessed the magnitude, direction and prospects of FDI in Nigeria. They noted that while the FDI regime in Nigeria was generally improving, some serious deficiencies remain. These deficiencies are mainly in the area of the corporate environment such as corporate law, bankruptcy, labour law etc and institutional uncertainty, as well as the rule of law. The establishment of the Economic and Financial Crimes Commission (EFCC), the Independent Corrupt Practices Commission (ICPC), and the Nigerian Investment Promotion Commission (NIPC) are efforts to improve the corporate environment and uphold the rule of law.

In Africa, most work on FDI has focused on the Macro determinants on investment flows into countries. For instance, Obwona (2001) observed that macroeconomic and political stability and policy consistency are the most important determinants of attracting FDI into Uganda. Anyanwu (1998) noted that the FDI in Nigeria shows a great deal of sensitivity to changes in domestic investment, change in domestic output or market size, indigenization policy and change in the openness of the economy.

This study will contribute to the existing literature with a slight variation, in that it examines the impact of FDI on productivity at the Nigerian manufacturing sector.

Adeolu (2007) opined that FDI in Nigeria contributes positively to economic growth. Although the overall effect of FDI on economic growth may not be significant, the components of FDI do have a positive impact. He posited that FDI in the communication sector has the highest potential to grow the economy and is in multiples of that of the oil sector. The manufacturing sector FDI negatively affects the economy, reflecting the poor business environment in the country. The level of available human capital is low and there is need for more emphasis on training to enhance its potential to contribute to economic growth. He suggested that the determinant of FDI in Nigeria is market size, infrastructure development and stable microeconomic policy. Openness to trade and available human capital, however, are not FDI inducing.

Adeolu stated that a country inward FDI position is made up of the hosted FDI projects, while outward FDI comprises those investment projects owned abroad. He said that one of the most salient features of today's globalization drive is conscious encouragement of cross border investment especially by transnational corporations and firms (TNCS). Many countries and continents (especially developing countries) now see attracting FDI as an important element in their strategy for economic development. This is most probably because FDI is seen as an amalgamation of capital, technology, marketing and management.

Sub-Saharan Africa as a region now has to depend very much on FDI for so many reasons, some of which

are amplified by Asiedu (2001). The preference for FDI stems from its acknowledged advantages (Obwona, 2001, 2004). The effort by several African countries to improve their business intimate stems from the desire to attract FDI. In fact, one of the pillars on which the New Partnership for Africa's Development (NEPAD) was to increase available capital to US \$ 64 billion through a combination of reforms, resource mobilization and a conducive environment for FDI (Funke and Nsouli, 2003). Unfortunately, the efforts of most African countries to attract FDI have been futile. This is in spite of the perceived and obvious need for FDI in the continent. The development is disturbing, sending very little hope of economic development and growth for these countries. Further, the pattern of the FDI that does exist is often skewed towards extractive industries, meaning that the differential rate of FDI inflow into sub-Saharan Africa has been adduced to be due to natural resources, although the size of the local market may also be a consideration (Morriset 2000; Asiedu, 2001).

Asiedu (2005) viewed Nigeria as a country, given her natural resource base and large market size, qualifies to be a major recipient of FDI in Africa and indeed is one of the top three leading Africa countries that consistently received FDI in the past decade. However, the level of FDI attracted by Nigeria is mediocre compared with the resource base and potential need. Further, the empirical linkage between FDI and growth of manufacturing sector in Nigeria is yet unclear, despite numerous studies that have examined the influence of FDI on Nigeria's economic growth with varying outcomes (Akinlo, 2004). Most of the previous studies of FDI and the growth of manufacturing sector in sub-Saharan Africa are multi country studies.

However, recent evidence affirms that the relationship between FDI and manufacturing sector may be country and period specific. Asiedu (2001) submits that the determinants of FDI in one region may not be the same for other regions. In the same vein, the determinants of FDI in countries within a region may be different from one another.

Though the Nigerian manufacturing sector cannot support economic development in its present condition, it has great potential since Nigeria is one of the most attention-grabbing markets of the region by having about 140 million consumers and millions more consumers in the neighbouring countries (Alli, 2007). The importance of the manufacturing sector is also realized from the fact that private consumption expenditures are significantly increasing in the country up to the rate of 15 to 20% per year. However, many problems are hindering the growth of the manufacturing sector in Nigeria and as a result the country is progressing very slowly towards economic diversification. Dipak and Ata (2003) summed up the economic scenario in Nigeria and the role of the

manufacturing sector by identifying the main hurdles that mostly and historically affect its development and growth. These barriers include insecurity, political instability, market-distorting, state-owned monopolies, weak infrastructure and unavailability of finance while Adenikinju (2003) added excessive bureaucracy and rampant corruption.

Adenikinju and Chete (2002) conducted an empirical analysis of the performance of the Nigerian manufacturing sector over a 30-year period and observed that the sector was performing with satisfactory growth levels from 1970 to 1980. However, after that phase there was a sharp decline in the growth and profitability of the Nigerian manufacturing sector. Especially after 1983, the negative effects of the oil price collapse in the international oil market can be clearly seen on the sector's performance. Due to that global oil crisis, the revenues of the Nigerian government sharply declined which resulted in reduction in foreign exchange earnings. This in turn forced the government to take several initiatives with the intention of strictly controlling its trade. There were several import duties enacted in the form of import licences and tariffs, and some quantitative restrictions were also imposed on the importation of certain items. As a result, the manufacturing sector was badly affected because the manufacturers faced multiple problems when obtaining raw materials and spare parts for their products and processes. As a result of massive cutbacks in raw materials and spare parts, many of the country's industries were shut down and the capacity utilization in the manufacturing sector declined. For example, between 1977 and 2007, the Nigerian bicycle manufacturing sub-sector recorded a systematic decline in capacity utilization by about a total of 485%; that is, from 948,000 units of bicycles in 1977 to 161, 500 units of bicycles in 2007. This disturbing trend was also observed by Adenikinju and Chete (2002) in most of the other manufacturing sub-sectors in the country.

Dipak and Ata (2003) stated that the effects of the trade restrictions resulting from the oil price crisis were clearly observed in the form of a 25% decline in the real output of the manufacturing sector from 1982 to 1986. Although the annual growth rate of the Nigerian manufacturing sector was 15% between 1977 and 1981, the government trade restriction measures resulted in the succeeding sharp decline in the growth rate of the sector. The share of the manufacturing sector in the total GDP of the country also clearly declined during this era. In 1977 there was a 4% increase recorded in the manufacturing sector share in GDP and this reached the level of 13% in 1981, but after that it declined to less than 10% in just a few years. Dipak and Ata (2003) and Adenikinju and Chete (2002) concluded that the unavailability and inadequacy of the companies' access to the raw material and spare parts needed were among the major factors that

contributed towards the decline in the growth rate of the manufacturing sector especially after 1981. Hence, the oil price shock is identified as the reason behind the policies that ultimately resulted in the decline of manufacturing sector's growth.

Adejugbe (1998) examined the impact of the Nigerian trade policy on the manufacturing performance of Nigeria after the previously discussed observed decline. He studied manufacturing sector performance after 1985 and observed that some significant steps were taken by the Nigerian government in an attempt to make the Nigerian trade regime liberal, and also to promote manufacturing and import-export activities. The adaptation of a flexible exchange rate mechanism, along with the some trade liberalization policies, brought some major changes to the scenario as these steps helped reduce tariffs and trade rates. At the same time, duties on the importation of foreign goods were also raised, especially of those competing with domestic products. In the same way there were also some steps taken to reduce import duties on many of the raw materials and spare parts that were used in the manufacturing sector, the factor pinpointed for the previous years' decline. These steps were taken by the Nigerian government with the objective of providing the local manufacturing organizations with a sense of protection so that they could be motivated to become more productive and efficient.

Anyanwu (2004), with findings similar to that of Adenikinju and Chete, pointed out that the collapse of the world oil market in the early 1980s and the prolonged economic recession resulting from this collapse contributed to the sharp fall in the foreign exchange earnings of Nigeria. This further led to a fall in the performance level of the manufacturing sector of the country. The introduction of the Structural Adjustment Programme (SAP) in 1986 was expected to bring an improvement to the situation, but unfortunately no notable improvement was observed. As a result of the continuing low performance of the manufacturing sector, along with other important reasons, today Nigeria is among the more poverty-driven nations of the world (Mazumdar and Mazaheri, 2003).

2.1 The Model

The model adopted for this study is the Vector Auto Regression (VAR) model to determine the effect of FDI on the manufacturing GDP, the Augmented Dickey-Fuller (ADF) test of stationarity due to the presence of unit root properties usually associated with time series data, Johansen Co-integration to check long-run equilibrium between the variables, and the Vector Error Correction Model (VECM) to estimate the long – run and short – run relationship between FDI and other variables.

The VAR model in its implicit form is given as

$$MGDP = f(FDI, EXR, REXP, CPI, \Delta MGDP) \quad (1)$$

Where

MGDP = Manufacturing sector output.

FDI = Foreign Direct Investment

EXR = Exchange rate

REXP = value of real exports

CPI = consumer price index

Δ MGDP = previous year MGDP

The above implicit function in the model in equation 1 can be reduced to a linear functional form as thus

$$MGDP = B_0 + B_1 FDI + B_2 EXR + B_3 REXP + CPI + \Delta MGDP + U \quad (2)$$

Where the Bs refers to the parameters to be estimated and U is the error term.

Sources of data and methods of analysis: This research work employed basically the secondary data sources from central bank of Nigeria study made use of vector auto regression (VAR) econometrics model to determine the effect of FDI on the growth of the Nigerian manufacturing sector. The empirical implementation of the model made use of macro economic data covering 37 years (1975 - 2008) in order to capture both regulation and the deregulation era. The e-view econometric software is used to estimate the parameters of the equation because it enables us to correct the serial correlation in the data. The model is examined to ascertain whether the estimated parameters agree with the apriori expectation which states that FDI will significantly and positively influence the growth of the manufacturing output (MGDP). The R² is to determine the goodness of fit, while the t-test is used to determine the causal relationship between each of the indicated variables and the manufacturing output.

This is given by: $t = b_i - \beta / S_b$, for $i = 1, 2$.

Where $\beta=0$ and is distributed in the t- distribution with n-2 degree of freedom. It follows that in testing whether or not β differs from zero, $t=b/s_b$ is computed and refers it to the t-table with n-2 degree of freedom. If 't' is outside the critical region, the null hypothesis is rejected or vice versa. F-test is used to determine the significance of the estimated parameters. The DW- statistic is used to test for the existence of autocorrelation. That is if $DW > 2$, there is positive autocorrelation but if $DW = 2$ or it is between 1.8 and 2.0 and it is significant, then there is no autocorrelation

The long run relationship among variables in equation 2 is estimated using the Johansen co-integration technique. This technique is based on the VAR. This permit the testing of hypotheses about the equilibrium relationship between the variables on like the Engle-Granger procedure (Brooks, 2008).

The starting point here is an examination of the time series properties of all the five variables included in equation 2. this is done by conducting a unit root of the variables where the order of integration of each series is determined. The Augmented Dickey – Fuller (ADF) test is conducted in the case where error term, u_t are correlated. This is conducted by “augmenting” the proceeding

equations by adding the lagged values of the dependent variable Δ (MGDP_t) e.g. in conducting ADF test in equation 1 below

$$\Delta MGDP_t = MGDP_{t-1} + U_t \dots\dots\dots 1 \text{ to give}$$

$$\Delta MGDP_t = \beta_1 + \beta_2 + \alpha \sum \Delta Y_{t-1} + E_t \quad (2)$$

Where E_t is error term and $\Delta Y_{t-1} = (Y_{t-1} - Y_{t-2})$, $\Delta Y_{t-2} = (Y_{t-2} - Y_{t-3})$ etc.

The number of lagged difference terms to include is often determined empirically, the idea being to include enough terms so that the error in equation 2 above is serially uncorrelated. But normally, if a time series has a unit root (non-stationary), the first difference of such time series are stationary.

Therefore, the first difference of MGDP is taken as: -

$$\Delta MGDP_t = (MGDP_t - MGDP_{t-1}) \quad (3)$$

If computed DF t-value is more negative than the critical value, it is then concluded that the first differenced MGDP is stationary; that is I(0).

All (I) series are then regarded as first differenced stationary and the variables are said to be co-integrated if a linear combination produces 1 (0) result. The existence of a co-integrating relationship means that a long-run equilibrium relationship exists among the co-integrating variable. Co-integration presupposes causality in at least one direction, and this may be determined by employing a Vector Error Model (VECM).

3. EMPIRICAL ANALYSIS OF RESULTS AND DISCUSSION OF FINDINGS

Data Analysis: To empirically examine the effect of FDI on the growth of the Nigerian manufacturing sector, this section commences its empirical analysis by testing the time series properties of the variables this was conducted in order to determine whether the variables have unit root or not owing to the fact that variables which are non-stationary at level might have the tendency of moving together in the long-run, that is having a long- run relationship. The co-integration between the variables were examined while the regression analysis was conducted to determine the contribution of the explanatory variables to the growth of manufacturing output.

Time series properties of data: The unit root test has become an increasingly popular path to determining the properties of macro economic time series. This development is an outcome of the fact that most macro economic time series exhibit non-stationarity behaviour in their level form, which often posses a and may therefore lead to spurious result if appropriate measures are not taken. To guard against this, this study takes the step in checking the properties of the variables with the use of the Augmented Dickey-Fuller (ADF) test developed by Dickey and Fuller (1981). The result is presented in table 1.

With respect to the ADF test on table 1, MGDP, FDI and Exchange Rate (EXR) were integrated of order one.

That is to say they are 1(1) series while CPI and EXP were integrated at level 1(0).

Co-integration test: The condition for co integration is that it is conducted on the variables with the same order of integration with the dependent variable. Evidence from the ADP test above indicated that FDI and EXR are in the same order of integration with MGDP. Therefore, co integration is applied to MGDP, FDI and EXR to test whether their linear combination could result in a long-run relationship. The co-integration result is presented in

table 2. The result (Table 2) shows that the null hypothesis of no co-integrating vector is rejected at none at 5% significance level. The alternative hypothesis that MGDP, FDI and EXR are co-integrated and integrated of order I (1) is accepted as evidenced from table 1. The FDI, MGDP and EXR are co-integrated although they individually exhibit random walks, there seems to be a stable long run relationship between the variables; they will not wander away from each other.

Table 1
Unit Root Test on Variables
Augmented Dickey Fuller (ADF) Test

Variable	Test statistic	Critical Value	Level of Significance	Level
D(MGDP ₍₋₁₎)	-4.899284	-3.6576	1%	I (1)
D(FDI ₍₋₁₎)	-4.129628	-3.6576	1%	I (1)
D(EXR ₍₋₁₎)	-3.387132	-2.9591	5%	I (1)
EXP ₍₋₁₎	4.113477	-3.6496	1%	I (0)
CPI ₍₋₁₎	-3.419760	-2.9558	5%	I (0)

Table 2
Co-Integration Test Result

Eigen Value	Likelihood Ratio	5% Critical Value	1% Critical Value	Hypothesized No. of CE(s)
0.719874	83.04109	68.52	76.07	None ^{xx}
0.314686	21.48632	29.68	35.65	At most 1
0.244329	9.394213	15.41	20.04	At most 2

L.R. test indicates one co-integrating equation at 5% significance level.

Table 3
Long Run Estimate (VECM)
Dependent Variable: Δ (MGDP₍₋₁₎)

Variable	Coefficient	Std Error	t. statistic	Prob
C	266.8249	146.8736	1.544355	0.1341
D(FDI ₍₋₁₎)	-0.002111	0.003849	-0.548386	0.5879
D (EXR ₍₋₁₎)	0.476533	9.950073	0.047892	0.9622

R² = 0.101239 DW = 1.964418
 F-stat = 0.760336

Table 4
VAR Result Showing the Contribution of FDI to MGDP
Dependent Variable: MGDP

Variable	Coefficient	Std Error	t. statistic	Prob
C	5780.790	420.8707	13.73531	0.0000
CPI	16.23120	13.99995	1.159376	0.2568
D(FDI ₍₋₁₎)	-0.001408	0.011458	-0.122853	0.9032
D (EXR ₍₋₁₎)	10.21880	17.76874	0.575100	0.5702
EXP	0.000483	0.000164	2.936252	0.0069
D(MGDP ₍₋₁₎)	0.445987	0.345051	1.292526	0.2075

R² = 0.523996 DW = 2.572736
 F-stat = 5.724271

3.1 Vector Error Correction Model (VECM)

Since the variables are co-integrated, we proceed to build an error correction and the result of the estimate reveals thus;

$$D(MGDP_{(-1)}) = 226.8249 - 0.002111 D(FDI_{(-1)}) + 0.476533 D(EXR_{(-1)}) + ut_{-1}$$

(146.87) (0.00038) (9.95)

The figures in parentheses denote standard errors.

Engle and Granger (1987) stipulated that the u_{t-1} would correct any disequilibrium error. The lagged residual term measured by the u_{t-1} apart from being significant had the expected positive coefficient of 0.20. The coefficient is lower than 1, indicating that the adjustment process is stable and that FDI adjusted towards its long-run value in less than 7 years.

The result shows that short run changes in FDI have a negative effect on MGDP while EXR have positive effect on MGDP and that about 0.20 of the discrepancy between the actual and the long run equilibrium value of MGDP is corrected in less than 7 years i.e. $(0.2 \times 37) \text{ years} = 7.4 \text{ years}$ in the case of Nigeria data of the period under review.

However, the result do suggest that there is a long run equilibrium but the short run elasticity of MGDP shows a negative effect which is less than unity (0.002). Therefore, MGDP responsiveness to change in investment is less than unity. In other words, it is not highly investment elastic. One reason for this low degree of elasticity may be explained by the fact that Nigeria is blessed with a large pool of investment opportunities but not properly utilized in terms of capacity utilization.

From the VAR result in table 4,

$$MGDP_t = 5780.790 + 16.23120CPI_t - 0.001408\Delta FDI_{t-1} + 10.21880\Delta EXR_{t-1} + 0.000483EXP_t + 0.445987\Delta MGDP_{t-1} + e_t \text{ ---(iii)}$$

$$R^2 = 0.523996, \quad DW = 2.57.$$

The DW (2.57) shows that autocorrelation has been removed. The signs attached to the parameter estimate does not confirm with the a priori expectation. The coefficient of determination, R^2 at 52% suggests that 52% of the changes in manufacturing GDP are explained by changes in FDI, Exchange rate, Export and Consumer Price Index (CPI). The remaining 48% are explained by variables not included in the model. The F-statistic is 5.72 showing a significant difference between the variance of estimate and the variance of the independent variables. The t-value for the regression coefficients are all positively and statistically significant expect for FDI.

For the consumer price, a unit change induces 16.2 unit increase in the manufacturing GDP. An increase in price without a corresponding increase in consumer purchasing power would lead to inflation. The increase in price could be attributed to increase in wages and large size of budget. While a unit change in FDI induces 0.0014 unit reduction in manufacturing GDP. Though there is an inverse relationship between FDI and manufacturing GDP but it is insignificant. The flow of FDI does not improve the growth of manufacturing output. This could be attributed to the diversion of FDI benefits into Nigeria as well as mono-cultural foreign trade product by Nigeria. This is in line with the submission of Akinlo (2006) that FDI flow into Nigeria skewed towards the extractive industry. And for the exchange rate, a unit change induces 10.2 unit increases in the manufacturing GDP which is significant. And a change in the previous year MGDP induces 0.45 unit increases in the MGDP.

The short run relationship between manufacturing GDP and FDI is based on the fact that the FDI inflow to Nigeria does not promote the growth of the manufacturing sector. Even when it does, it is abysmally insignificant. This could be attributed to many factors ranging from corruption, economic climate, poor infrastructure and insecurity. The increase in FDI during the period under consideration which put capacity utilization at an average of 30% provided a clear insight into the level of productivity in the manufacturing sector. Consequently, economic growth target becomes virtually an illusion as investment policies are rendered almost completely ineffective. When this happens, the objective of employment creation is not realized. The scenario also makes domestic price unstable and uncompetitive internationally as it is more often than not on the upward trend. Export policy objectives then become difficult to be achieved as the underlying policy measures have been rendered virtually impotent by the development in the manufacturing productivity level. On the other hand, import is encouraged which to a large extent undermines the policy objective of import reduction in the country. This has been the situation in Nigeria over the years.

The need to curb this ugly development in the manufacturing sector has therefore becomes more pertinent. Some specific measures must be taken to address the issue at stake. Of course, this is the main task of this research work, and has been addressed consequently in the last chapter of the study.

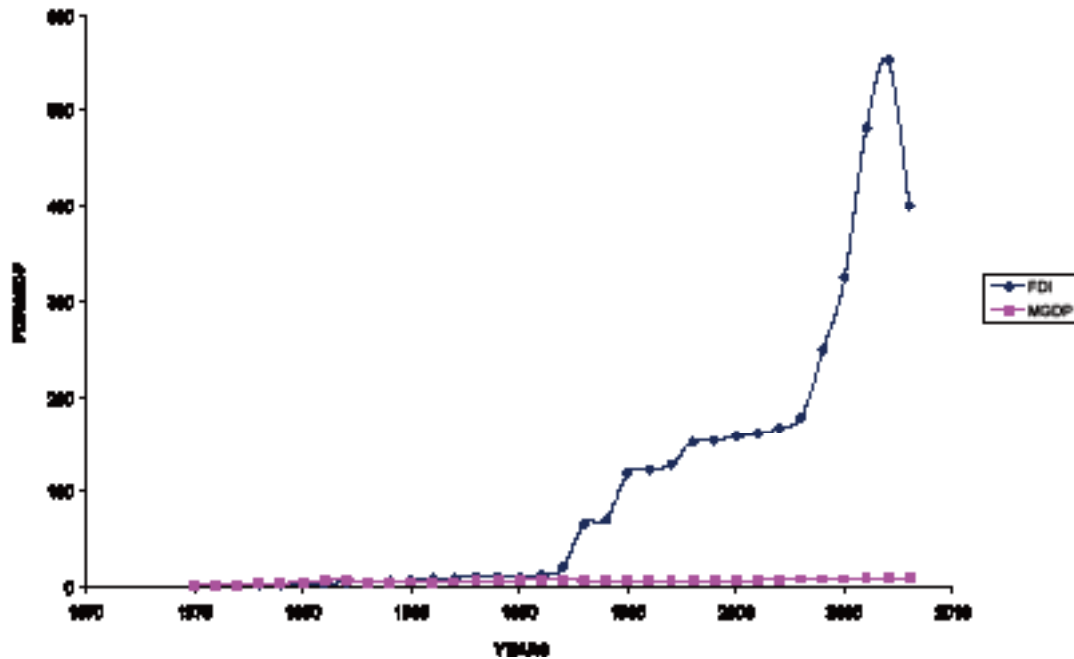


Figure 1
FDI and Manufacturing GDP Movement Trend 1975-2008

CONCLUSION AND RECOMMENDATIONS

The study examined the effect of FDI on the growth of the manufacturing sector in Nigeria. In trying to achieve this objective vector auto regression and error correction mechanism were used. The results established that the poor performance of the manufacturing sector was caused by the trends of development in the explanatory variable particularly the flows of FDI to the manufacturing sector. This also negated the potency of the investment policies adopted.

The FDI in the manufacturing sector has a negative relationship with economic growth suggesting that the business climate is not healthy enough for the manufacturing sector to thrive and contribute to positive economic growth. The negative contribution of manufacturing is a reflection of Nigeria's poor business climate. There is need to consciously improve the business environment to enhance the performance of the manufacturing sector. In the light of this, and for the manufacturing sector to meet expectations and contribute significantly to economic growth and development, the following recommendations will be useful.

One way to improve the business environment in Nigeria is by conscious provision of necessary infrastructure which will lower the costs of doing business in Nigeria. The privatization of NEPA known as PHCN may be a step in the right direction if there is an improvement in the services provided. This will enable the manufacturing FDI to contribute significantly to economic growth.

A related issue on the business environment is the importance of consciously curbing corruption. Agencies established to fight corruption such as EFCC and ICPC should be seen to do their jobs to convince both foreigners and nationals that Nigeria is a safe place to invest in. Also, monitoring of FDI benefits is also important so as to avoid diversion of funds.

There may be need to further liberalize the power sector by encouraging independent power supply providers. This should be encouraged to complement the efforts of PHCN whose inability is apparent in constant power failures and attendant high cost of providing electricity.

Promoting non-oil export products is very important. This will bring about reduction in the nation's level of dependence on the dominance of crude oil or what can be described as "mono – cultural foreign trade product."

The drive for local sourcing of raw materials and inputs through agriculture should not only continue but must be intensified. A technological policy aimed at developing a local engineering industry is advocated. By doing so, the link between agriculture and manufacturing will be established. This would lead to expansion of export base which would attract more foreign exchange into the country. This could culminate into higher external reserve build-up and reduce adverse pressure on balance of payment.

Finally, there is need for guided training and integration of human resources of the country to enable them contribute positively to economic growth wherever they find themselves employed either with foreign or indigenous firms.

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