FOREIGN DIRECT INVESTMENT AND THE PERFORMANCE OF MANUFACTURING FIRMS IN NIGERIA

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ABSTRACT

Purpose – *The purpose of this study is to examine the impact of foreign direct investment (FDI) on the performance of manufacturing firms in Nigeria.*

Methodology – *Annual data of aggregate foreign direct investment, manufacturing foreign direct investment, manufacturing index, manufacturing capacity utilization, manufacturing value added, and manufacturing turnovers were used. In the analysis, we tested for stationarity using augmented Dickey–Fuller test, and the test for long-run relationship was conducted using Johansen cointegration test. Vector error correction model was used for causality test.*

Findings – *The data satisfied the stationarity test and that there is a long-run relationship between FDI and the performance of manufacturing firms in Nigeria. The study also found that causality runs from FDI to the performance of manufacturing firms.*

Finance and Development in Africa
Research in Accounting in Emerging Economies, Volume 12B, 171–183

ISSN: 1479-3563/doi:10.1108/S1479-3563(2012)000012B012

Practical implications – *Since there is a long-run relationship among the variables, policies to attract FDI into the manufacturing sector should have a long range view and should be sustainable. The policy direction should focus on improving productivity and innovative capabilities of the manufacturing sectors and strengthening the supporting industries and institutions. Specifically, policies like provision of tax relief to manufacturers on importation of new technology and expatriate that will bring about efficiency and effectiveness in productions.*

Originality/Value of paper – *This is one of the few attempts at studying the impact of FDI on manufacturing firms. The study draws attention of policy makers in Nigeria to the fact that diversification of the economy can be achieved through a viable manufacturing sector.*

Keywords: Foreign direct investment; manufacturing index; manufacturing value added; manufacturing capacity utilization; augmented Dickey–Fuller test; Johansen cointegration test and vector error correction model

INTRODUCTION

According to International Monetary Fund's Balance of Payments manual, foreign direct investment (FDI) is an "investment made to acquire lasting interest in enterprises operating outside of the economy of the investor." The investor's purpose is to gain an effective voice in the management of the enterprise. An effective voice in management only implies that direct investors are able to influence the management of an enterprise and does not imply that they have absolute control. In the past few decades, FDI has increased significantly around the world. In Nigeria, for instance, from a paltry N10.9 bn ($72.7 m) in 1989, it increased to N157.5 bn ($1.05 bn) and N586.3 bn ($3.91 bn) in 2000 and 2008, respectively [Central Bank of Nigeria (CBN), 2008]. This is a significant increase over a 20-year period of 1989–2008. This favorable improvement is as a result of improvement in business environment and opening up of the economy by encouraging foreign participation due to structural adjustment programme in 1986.

In the 1990s, most developing countries such as Nigeria that were relying on multilateral and bilateral donor assistance from overseas started striving to attract FDI as an alternative sources to finance developmental projects. This is because of the perceived positive impact of FDI on economic growth

of a country. Opinions among researchers on the role of FDI in the economy differ in their findings. While some argued that FDI positively contributes to the enhancement of the economies of the host countries (Ayanwale, 2007; Blomstrom, 1986; Johnson, 2005; Kokko, 1994; Romer, 1993), others such as Aitken, Hansen, and Harrison (1997) disagreed stating that multinational corporations (MNCs) are high-productivity companies, which could force less-productive indigenous firms out of business (Smarzynska, 2002). Most of these studies on FDI are at the macro level neglecting the impact of FDI at the firm or sectoral level. Hence, the purpose of this paper is to examine the relationship between FDI and the manufacturing sector performance in Nigeria.

It is necessary to study manufacturing sector because of the neglect with respect to studies on the impact of FDI on the performance of the manufacturing firms in Nigeria, which has not been fully tackled in previous studies. The impact of FDI at the macro level may not hold at the firm or sectoral level. Another reason why this is necessary is that the process of diversification can be achieved mainly through the manufacturing sector, as most foreign investments have been in the oil and gas sectors since 1970s. Though the manufacturing sector has made little contribution in terms of employment and revenue generation, the proponent of dual economy model has emphasized the need for a viable manufacturing sector for the purpose of industrial development.

In view of these problems, the general objective of this study is to examine the impact of FDI on the performance of manufacturing firms in Nigeria. The specific objective is to determine the causal relationship between FDI, manufacturing index (MIDX), manufacturing capacity utilization (MCUT), and manufacturing value added. The hypotheses this study will address are as follows:

1. There is no significant causal relationship between FDI and MIDX.
2. There is no significant causal relationship between FDI and MCUT.
3. There is no significant causal relationship between FDI and manufacturing value added.

This study has contributed to the literature on FDI and its impact on manufacturing firms in Nigeria, as it is one of the few studies to address this problem. It also uses recent econometric techniques of vector error correction to address the objective of the study as most studies in this area use the ordinary least square (OLS) techniques. The shortcoming of OLS technique is that the results can be adversely affected by outliers and it can

only show dependence of one variable on the other and not causality. The methodology used in this study take cares of these problems.

The paper is structured as follows. First the introduction, followed by literature review on FDI and the manufacturing sector in Nigeria, then data and methodology, results and discussions, and finally conclusions and recommendations.

FOREIGN DIRECT INVESTMENT AND MANUFACTURING SECTOR IN NIGERIA

Over the past two decades, direct investments across national borders by MNCs have grown significantly in the world economy, especially into developing countries. Increasingly, such FDI is seen as an important channel for obtaining access to resources for development and the emerging positive attitudes to FDI are reflected in policy changes that increasingly facilitates direct investment.

The analysis of the effects of FDI on manufacturing firms in the host countries in the literature implicitly distinguishes between its direct and indirect effects. Direct effects according to Fabayo (2003) are reflected in capital formation, employment, and trade associated with the FDI projects. Although direct effects of foreign investment may be more important to certain countries, it is increasingly accepted that FDI is likely to have important indirect effects on host economies by giving local companies access through contact with the FDI companies to the technology and management practices of the home country. Indeed, Blomstrom and Kokko (2003) argued that the most important reason behind many countries' efforts to attract more foreign investment today is the desire to acquire modern technology. They suggest that the investments by MNCs generate important externalities that enhance the productivity of indigenous firms in the economy. These externalities, which are typically referred to as "positive productivity spillovers," are seen as helping to improve the comparative advantage of the economy overtime.

It is also argued in the literature that foreign presence can reduce productivity of domestic firms especially if the foreign firms are producing for the local market and this is referred to as "negative spillover." Aitken and Harrison (1999) in their study showed that foreign entry, by distributing the existing market equilibrium in the host country, could force domestic firms to produce less output, push up their average cost curves, and hence lower the productivity of domestic firms. If this decline in the productivity of

domestic firms is large enough, net domestic productivity can decline despite the technology transfer from foreign firms.

From a domestic policy perspective, the direct effects of FDI, particularly employment creation, have been the main focus of attention in Nigeria. Since the mid-1990s, the focus has begun to shift to the indirect impact of FDI on the manufacturing sector, especially as unemployment rates have declined; consequently, the direct benefits of additional employment in MNC sector are seen as having reduced value. This emphasis is evident in the policy of building linkages between MNCs and local companies, as well as in the policy of building manufacturing agglomerations in targeted sectors, especially in electronics and healthcare products.

On the impact of FDI on the manufacturing sector, a world bank study on the Moroccan manufacturing sector rejected the hypothesis that foreign presence had accelerated productivity growth in domestic firms during the second half of the 1980s (Haddad & Harrison, 1993). Even though the dispersion of productivity was smaller in subsectors with more foreign firms, they concluded that there were no positive technology transfer spillovers from foreign firms to domestic firms.

Nevertheless, most developing countries compete for FDI in the hope that it will significantly contribute to economic development. They often provide subsidies and special incentives believing that the total benefits will outweigh the total costs of attracting FDI, pointing to the following potential benefits as enumerated by Fabayo (2003). Foreign firms can raise the level of capital formation, promotes exports, and generate foreign exchange. They can provide the much-needed market for domestic suppliers and support industries and, in the process, transfer technology increase industrial linkages, and stimulate industry as a whole, while providing direct and indirect employment. They can disseminate best practices through the demonstration of higher production efficiencies, labor standards, wages, and environmental protection. In addition, competition between foreign and domestic firms in a market dominated by a few large local firms can improve the competitiveness and efficiency of domestic firms.

In practice, the economic effects of FDI cannot be measured with precision. Each foreign investment provides a complex package of firm-level attributes in varying quantities and qualities, which are difficult to separate and quantify. The most prized assets of MNCs include technology, brand equity, product development, specialized skills, ability to organize and integrate production across countries, and the ability to establish marketing networks. These attributes can be copied or reproduced by others, but the cost of doing so can be prohibitive, and so are risks associated with the

development of competitive branded products, particularly in developing countries and where advanced technology is involved.

Nigeria has initiated economic reforms aimed at increasing the role of the private sector. Notable among these reforms were the privatization of many public corporations, restoration and maintenance of macroeconomic reforms embarked upon in 1986 during Babangida's era, improving regulatory frameworks for FDI by permitting profit repatriation, and providing tax incentives to attract foreign investments.

The economic climates of Nigeria, though had not been conducive to foreign investment in the past, have improved considerably since 1999. The GDP growth rate, which averaged 1.4% between 1970 and 1985, improved to about 3.1% over the period 1986–1999 and 5.4% between 2000 and 2008 (CBN, 2006). This favorable development has to do with external factors such as increasing commodity prices and economic reforms.

An important reason why countries attract FDI into their economies among others is to achieve various desirable effects within their own economies such as more rapid growth as a result of increased rate of investment, or the promotion of efficiency stimulated by technological spillovers. The flow of foreign investments has altered the basic economic structures of most of the recipient countries. For instance, sectoral composition of FDI in Nigeria has altered over the years and it is no longer concentrated exclusively in the primary sector. The service, manufacturing, and processing sectors also attract more FDI than other sectors within the Nigerian economy (Fabayo, 2003).

The decline in the manufacturing subsectors has been attributed to low investment due low savings in the domestic economy and poor inflows of foreign investment as a result of a poor enabling environment, deficient infrastructural facilities, weak raw material base, business ethics, debts, poor technological base, and high cost of energy (Fabayo, 2003).

DATA AND METHODOLOGY

Data

The study relies on annual time-series data of aggregate foreign direct investment (AFDI), manufacturing value added (MVAD), MIDX, and MCUT for the period of 20 years between 1989 and 2008. The data used were obtained from secondary sources. The data on MVAD, MIDX, and MCUT were obtained from the National Bureau of Statistics, while data on AFDI were obtained from the CBN.

The data were converted to logarithm form because of the differences in their units of measurement. The dependent variables are MIDX, MCUT, MVAD, while the independent variable is Aggregate Foreign Direct Investment (AFDI).

Methodology

In the analysis, we tested for the stationarity and cointegration of the data using the augmented Dickey–Fuller (ADF) unit root test and Johansen's cointegration test, respectively. This is necessary because we used time series data and stationarity test is to avoid spurious regression and cointegration test is to know whether or not there exists a long-run relationship between economic variables (Abadir & Taylor, 1999 in Al-Iriani & Al-Shamsi, 2010).

The test for causality was done using vector error correction model (VECM). The VECM detects the long-run relationship among the variables and it shows the impact multiplier (the short-run effect), the feedback effect, the adjustment effect, the number of disequilibrium being corrected, and the long-run response. These techniques have been used widely to reanalyze the traditional regression analysis applied in earlier studies by Aruwa (2010), Adelegan (2000), and Bende-Nabende and Ford (1998).

The VECM is given as follows:

Model 1 – AFDI and MIDX

$$\Delta \ln AFDI_t = \alpha_0 + \alpha_1 \Delta \ln AFDI_{t-1} + \alpha_2 \ln MIDX_{t-i} + Ect_{-1} + \varepsilon_{t1} \quad (1)$$

$$\Delta \ln MIDX_t = \beta_0 + \beta_1 \Delta \ln MIDX_{t-1} + \beta_2 \ln AFDI_{t-i} + Ect_{-1} + \varepsilon_{t2} \quad (2)$$

Model 2 – AFDI and MCUT

$$\Delta \ln AFDI_t = \alpha_0 + \alpha_1 \Delta \ln AFDI_{t-1} + \alpha_2 \ln MCUT_{t-i} + Ect_{-1} + \varepsilon_{t1} \quad (3)$$

$$\Delta \ln MCUT_t = \beta_0 + \beta_1 \Delta \ln MCUT_{t-1} + \beta_2 \ln AFDI_{t-i} + Ect_{-1} + \varepsilon_{t2} \quad (4)$$

Model 3 – AFDI and MVAD

$$\Delta \ln AFDI_t = \alpha_0 + \alpha_1 \Delta \ln AFDI_{t-1} + \alpha_2 \ln MVAD_{t-i} + Ect_{-1} + \varepsilon_{t1} \quad (5)$$

$$\Delta \ln MVAD_t = \beta_0 + \beta_1 \Delta \ln MVAD_{t-1} + \beta_2 \ln AFDI_{t-i} + Ect_{-1} + \varepsilon_{t2} \quad (6)$$

where ln is the natural logarithms, AFDI, is the aggregate foreign direct investment, MIDX is the manufacturing index, MCUT is the manufacturing capacity utilization, α_i is a constant, β_i is the coefficient of regression, and Δ is showing that the data are stationary in its first difference, Ect is the error correction term, ε is the error term, and t is the time. The error term, ε_t, is incorporated in the equation to cater for other factors that may influence the variables. In order to estimate the models, a statistical package, Eviews 4.0, econometric software was used.

RESULTS AND DISCUSSIONS

The results of the stationarity test are presented in Table 1, and it shows that the null hypothesis (H_o) of a unit root can be rejected in the first difference I (1), all the series (i.e., AFDI, MIDX, MCUT, and MVAD) are stationary and therefore their regression is not spurious. The AFDI is stationary at a critical value of 10% and the others are at 5% critical value.

The stationarity is obtained by comparing the test statistic with the critical values, if the test statistic is greater than the critical value numerically, the variable is stationary and if it is the reverse, it is nonstationary.

The cointegration test result is presented in Table 2, it shows that all the variables (AFDI, MIDX, MCUT, and MVAD) are cointegrated. The results of Johansen's cointegration test are presented in Table 2. The results of the Max-Eigen test and trace test reject the null hypothesis at 95% level of significance at the stationarity leve of linear combinations for AFDI and MIDX, AFDI and MCUT, and AFDI and MVAD.

Since the variables are stationary, integrated of order one, and cointegrated, it shows that there is a long-run relationship between the variables. Hence, there is a strong indication that AFDI serves as the long-run forcing

Table 1. ADF Unit Root Test.

Variables	ADF Test Statistic	Critical Value	Stationarity
ΔAFDI@TREND	−3.552304	−3.2964	I(1)
ΔMIDX@TREND	−5.717888	−3.7347	I(1)
ΔMCUT@TREND	−3.773211	−3.7347	I(1)
ΔMVAD@TREND	−3.987389	−3.7347	I(1)

Source: Compiled from Eviews 4.0 result.

Table 2. Johansen Cointegration Test

Variables	Max-Eigen Statistic	Critical Value	Trace Statistic	Critical Value
AFDI and MIDX	19.11499	18.96	27.32399	25.32
AFDI and MCUT	21.13506	18.96	33.91293	25.32
AFDI and MVAD	17.89725	14.07	17.92373	15.41

Notes: Max. eigenvalue test indicates 1 cointegrating equation(s) at the 5% level.
Trace test indicates 1 cointegrating equation(s) at the 5% level.
Critical values are all at 5%.
Source: Compiled from Eviews 4.0 results.

Table 3 Vector Error Correction Based Causality Test.

Model 1	AFDI	MIDX	Causality
Standard error	(0.02477)	(4.2E-06)	Causality runs from MIDX to AFDI
t-Statistic	[0.49896]	[-2.06083]	
Model 2	AFDI	MCUT	
Standard error	(0.00536)	(8.5E-07)	Causality runs from AFDI to MCUT
t-Statistic	[-3.26801]	[0.85508]	
Model 3	AFDI	MVAD	
Standard error	(0.09775)	(0.12427)	Causality runs from AFDI to MVAD
t-Statistic	[-3.59805]	[-0.36427]	

Source: Compiled from Eviews 4.0 results.

variables in explaining the growth of the MIDX, MCUT, and MVAD output in Nigeria.

Measuring the correlation (similarities in strength and direction between two graphs) between variables according to Granger (1969) will not be enough to construct a complete understanding about the relationship between two or more time series. The reason is that some correlations may be spurious and not useful, as there might be a third variable that cannot be accounted for. This is the essence of performing the causality test. The causality test used is the VECM-based causality test and the results are presented in Table 3.

The direction of causality can be determined by comparing the *t*-statistic of the two variables. The variable with the highest value of *t*-statistic indicates where causality is running from. The estimated cointegrating vector indicates that causality runs from MIDX to AFDI, causality runs from AFDI to MCUT, and causality runs from AFDI to MVAD.

The causality shows that the MIDX as a measure of performance of the manufacturing sector causes inflows of FDI to the sector. In other word, higher growth of MIDX is the driving force behind the surge in FDI inflows, which suggests that there is a positive correlation between FDI inflows and the growth of MIDX. The policy implication of this finding is if MIDX growth seems to attract more FDI inflows, then promotional policies to encourage inward flows of FDI may only become unnecessary. Instead, efforts should be directed to other potential sources of growth of MIDX. Once MIDX growth is enhanced and stimulated, foreign capital will then be attracted to the manufacturing sector.

The above argument cannot hold for MCUT and MVAD because on the basis of the results, it was found that the inflow of FDI causes the manufacturing capacity to be utilized, and also leads to increases in MVAD. This result holds that since the manufacturing firms cannot utilize their available capacity especially due to erratic power supply and other problems, increased FDI invested in power supply could assist them to achieve this. If this is done, the manufacturing firms will create more value added. The implication is that Nigeria's cost advantage, large domestic market, and availability of mineral resources had increased the potential of attracting foreign investors. Although the Nigerian market provides much catalyst for attracting FDI, the foreign investors strategies to tap the fast growing developing markets of Africa and Asia Pacific region would inevitably bring FDI into Nigeria, but with nonavailability of good infrastructure especially electricity and high overall cost, Nigeria's ability to attract quality FDI into the manufacturing sector is still undermined, provided all these problems are not properly addressed.

CONCLUSIONS

This study makes several contributions to the debate about FDI and its impact at the sectoral level, particularly the manufacturing sector in Nigeria. Recent advances in econometric techniques were applied in the analysis, and the causality result shows that growth in MIDX causes growth in FDI. This is to say that the performance of the manufacturing sector leads to more inflow of FDI into the country. This confirmed the result of Buckley, Clegg, and Wang (2002) who found that the performance of manufacturing firms as measured by MIDX causes inflow of FDI. Likewise, the growth in FDI inflow causes capacity utilization and lead to increase in value

added. What this means is that FDI enables the manufacturing firms to improve on their production capacity and increased value added.

Based on the findings of this study, it can be concluded that FDI has a positive impact on the performance of manufacturing firms in Nigeria. Thus, the process of diversification of the Nigerian economy from the oil and gas sector could be achieved if we have viable manufacturing sector and this can be done by attracting investment into this sector.

RECOMMENDATIONS

For the purpose of attracting more and more FDI and to enable the manufacturing sector performs efficiently, the following recommendations arising from the findings are made. To improve the level of capacity utilization and MIDX, the government should liberalize the power sector by encouraging independent power supply providers. These should be encouraged to complement the efforts of the power holding company of Nigeria, whose inability is apparent in constant power failures and attendant high costs of providing electricity. If this is done, it will reduce the cost of doing business in Nigeria and encourage inflow of FDI into manufacturing sector.

There is need to consciously improve the business environment to enable manufacturing firms to contribute positively to growth. One way to improve the business environment is by conscious provision of necessary infrastructure, which will lower the costs of doing business in Nigeria. A related issue on the business environment is the importance of consciously curbing corruption. Agencies established to fight corruption such as the Economic and Financial Crimes Commission and Independent Corrupt Practices Commission should do their job to convince both foreigners and nationals that Nigeria is a safe place to invest in.

Quality FDI can only be attracted if the host country has the ability to improve the manufacturing outputs through productivity gain rather than depending on the traditional factor of production. Thus, creation of technical and management support centers for the manufacturing sectors especially for the small medium enterprises could provide a catalyst for productivity improvement. These centers can play a key role in assisting manufacturers to develop strategic partnership, product development, accounting, and marketing supports.

The capability of local suppliers especially those who serve the foreign investors need to be strengthened via network cohesion. Efficiency

improvement through network of linkages is important for many manufacturing firms. Establishing a strong supply chain via horizontal and vertical integration would mean limiting foreign investors from moving out and encouraging more local content indirectly. However, this strong linkages can only be established when the foreign investors realize that local suppliers are capable of delivering and fulfilling their needs.

There should be a policy direction focusing on improving productivity and innovative capabilities of the manufacturing sectors and strengthening the supporting industries and institutions. Specifically, policies like provision of tax relief to manufacturers on importation of new technology and expatriate that will bring about efficiency and effectiveness in productions should be formulated.

ACKNOWLEDGMENTS

Our regards to Dr. Garba Bala Bello of Bayero University, Kano, Nigeria, for his guidance in this study and also to our employer, Nasarawa State University, Keffi, Nigeria, for the opportunity to present this work at the 1st AAFA conference in Accra, Ghana.

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