FOREIGN CAPITAL INFLOWS AND MANUFACTURING SECTOR GROWTH IN NIGERIA

[1]Idris Ahmed Sani, [2]Ajengbe Abidemi Samuel & [3]Wada Emmanuel Ome

[1&2]Department of Economics
Kogi State University, Anyigba, Nigeria
[3]Department of Economics
Federal University of Lafia, Nigeria

Corresponding author: sanii7712@gmail.com

ABSTRACT

The study examined the impact of foreign capital inflow on manufacturing sector growth in Nigeria using time series data from 1986 to 2019. The study specifically sought to examine the causal relationship between foreign capital inflows and the growth of the manufacturing sector in Nigeria in the long run The study employed the Autoregressive Distributed Lag (ARDL) estimation technique to account for the impact of foreign capital inflows on the manufacturing sector growth in Nigeria. The study utilized the Contribution of Manufacturing Sector to Gross Domestic Product (MGDP) as proxy for manufacturing sector growth. Manufacturing sector growth was the dependent variable while foreign direct investment (FDI), foreign portfolio investment (FPI) and foreign Aid (FOA) were the independent variables, and were regarded as proxies for foreign

capital inflows. The study results revealed that foreign capital inflows through the FDI had a significant positive impact on contributions of the manufacturing sector to gross domestic product (GDP). The study also revealed that foreign capital inflows through the FPI had a significant positive impact on contributions of the manufacturing sector to the GDP. The study further revealed that foreign capital inflows through the FOA had a significant positive impact on contributions of the manufacturing sector to the GDP. Based on these findings, the study has recommended that the Nigerian government should promote foreign capital inflows through the FDI in order to achieve the desired level of manufacturing sector growth in the country's economy in the long run. The government should also encourage foreign capital inflows through the FPI in order to attain the desired level of manufacturing sector growth in the Nigerian economy. Finally, the government should also support foreign capital inflows through the FOA in order to attain the desired level of manufacturing sector growth in the Nigerian economy in the long run.

Keywords: Foreign capital inflows, manufacturing sector, growth, foreign direct investment, foreign portfolio investment and foreign aid.

INTRODUCTION

It has often been recognized worldwide that foreign capital inflows will boost growth in the manufacturing sector in emerging nations and make it necessary for host nations to attain investment intensities that are higher than their own intensities of domestic savings (Adigwe et al., 2015). Furthermore, foreign capital inflows has long been well-regarded as one of the key sources of finance, which will support the transfer of new technologies and innovations from advanced economies to developing economies, thus assisting the latter to fast-track the pace of their economic growth and development. However, there have also been some cautious reminders that foreign capital inflows and the purported development expansion effects might vary from one nation to another, and foreign capital inflows could inadequately affect the increase in manufacturing sector growth (Acha & Essien, 2018).

The central profit of capital inflows and other foreign financial resources, which manifest themselves through their externalities are not only the taking up of new technologies and innovations, but also their capability with internal sources of finance that affect some important macroeconomic variables. They are variables such as employment generation, national investment, the attainment of proficiency by the labour force and the business environment, and the efficiency of exports in emerging economies (Anaza, 2016). Notably, there were many types of foreign capital inflows that could improve economic growth in the manufacturing sector. Some of them included the following: foreign direct investment (*FDI*), foreign portfolio investment (*FPI*) and foreign aid (*FOA*).

In developing countries such as Nigeria, following the evolution of financial liberalization which took place in the 1980s, developing countries implemented a series of financial liberalization programmes to achieve growth and development in the financial sector. Consequently, opportunities for profitable investment increased in the 1990s as foreign capital inflows of developing countries improved from $6.2 billion in 1987 to $46.9 billion in 1993 (United Nation Development Programme [UNDP], 2013). Similarly, foreign capital inflows such as the purchase of shares, stocks, and depository receipts by foreign investors registered a moderate increase from 1993 through to 1999, but decreased in 2000. This decrease was triggered off by the terrorist attack on the World Trade Centre in the United States of America (United Nations Economic Commission for Africa, 2013). Haven taken off in 2002, it climbed to reach a peak of about $17 billion in 2006, representing 2.21 percent of the gross domestic product (GDP), of which 89 percent went to South Africa. It however, dropped sharply in 2007, following the global financial crisis.

Foreign capital inflows is believed to be able to drive the Nigerian economy towards achieving her desired level of economic growth. However, up to the mid-1980s, the Nigerian economy has never ever recorded any figure on foreign capital inflows, or investment inflows in her balance of payments account. The zero return on the inflow column of the account was attributed to the absence of foreign private investors in Nigeria's economy. This was basically because of the non-internationalization of the country's money and capital markets, as well as the non-disclosure of information on the portfolio investments

in foreign capital and money markets. It must be noted that prior to 1995, ownership limits were obligatory on foreign participation in the Nigerian economy (World Bank, 2019). In the same vein, Nigerians could not freely invest in other countries. In order to tackle this issue, the government of Nigeria embarked on policies such as indigenization through the Nigeria Enterprise Promotion Degree (NEPD) in 1972.

Table 1

Contribution of the Manufacturing Sector to the GDP

Year	Contribution of manufacturing sector to *GDP* (₦ billion)	% of Contribution of Manufacturing sector to *GDP*
2001	989.11	0.95
2002	1127.23	1.08
2003	1304.07	1.26
2004	1516.05	1.46
2005	1778.70	1.71
2006	2082.49	2.11
2007	2401.19	2.31
2008	2761.55	2.66
2009	3170.80	3.05
2010	3578.64	3.16
2011	4527.45	4.09
2012	5588.82	5.23
2013	7233.32	7.04
2014	8685.43	8.06
2015	8973.77	8.11
2016	8903.24	8.09
2017	10044.48	9.67
2018	12455.53	11.99
2019	16781.06	16.15

Source: Central Bank of Nigeria [CBN] (2019)

The NEPD was implemented with a view to regulating foreign investments, setting a maximum of 40 percent foreign participation allowed and the internationalization of the capital and money market to encourage continual foreign interest in the country, and in turn, to encourage manufacturing sector growth in the long run. Despite

the government's indigenization policy and the internationalization of the capital and money market to support foreign capital inflows, the foreign capital inflows fell sharply in 2015 and 2016 by about 31.9 percent (=N=470.83 billion) and 45.5 percent (=N=256.52 billion), respectively. The policies of the Nigerian government also contributed to the fall in the growth of the manufacturing sector for two consecutive quarters, and this technically resulted in the Nigerian economy getting mired in an economic recession (Nigeria Stock Exchange, 2016). The growth of the manufacturing sector has long been widely considered as a major contributor to the growth of the *GDP*. This is as shown in Table 1

A review of the literature showed that most of the previous studies such as those by Ejuvbekpokpo and Hassan (2015), Adigwe et al. (2015) and Anaza (2016), had emphasized much on the relationship between the *FDI* and economic growth in Nigeria. There has been little attention paid to foreign capital inflows and manufacturing sector growth in Nigeria. Hence, the need to fill this gap has motivated this study to examine the impact of foreign capital inflows on the growth of the manufacturing sector in Nigeria.

In addition, the available previous literature reviewed in this area of research interest, have identified studies such as that by Ezeanyeji and Ifeako (2019) who showed that there was a bidirectional relationship between foreign capital inflows and economic growth in Nigeria in the long run. Other studies like that of Baghebo and Apere (2014) however, found that there was no long run relationship, but instead the presence of a unidirectional relationship between foreign capital inflows and economic growth in Nigeria.

Also, studies such as those by Ibrahim and Akinbola (2017) and Acha and Essien (2018) found the existence of a unidirectional relationship between foreign capital inflows and economic growth in Nigeria. On the other hand, Bada (2016) and Oladejo (2016) have found the existence of a bidirectional relationship between foreign capital inflows and economic growth in Nigeria. Therefore, this study was aimed at examining whether there was a causal relationship between foreign capital inflows and manufacturing sector growth in Nigeria in the long run.

LITERATURE REVIEW

The extant studies reviewed in this section had focused on the impact of foreign capital inflows on economic growth in Nigeria as a whole. As a matter of fact, there had been a dearth of literature on foreign capital inflows and manufacturing sector growth in Nigeria. However, some of the related studies such as that by Ezeanyeji and Ifeako (2019) had examined the impact of foreign capital inflows on economic growth in Nigeria using time series data for the period from 1986 to 2017. The Error Correction Model (ECM), the Johansen cointegration test, and the Granger causality test were used as the technique of estimations in the Ezeanyeji and Ifeako (2019) study. The result of their analysis showed that foreign capital inflows (*FCI*) had a positive significant impact on economic growth in Nigeria. The finding further revealed that there was in the long run, a bidirectional causal relationship between foreign capital inflows and economic growth in Nigeria. Similarly, Acha and Essien (2018) had examined the effect of foreign capital inflows on economic growth in Nigeria using time series data obtained from 2005 to 2014. The Ordinary Least Squares (OLS) multiple regression and the Granger causality test were used to analyze the data. The result indicated that foreign capital inflows (*FPI*) and market capitalization had a positive effect on the real gross domestic product (*RGDP*), while the exchange rate had an inverse relationship with the *RGDP*. The findings further revealed that there was a unidirectional causal relationship between foreign capital inflows and economic growth in Nigeria.

In addition, there was the study by Ibrahim and Akinbobola (2017) which investigated the relationship between foreign capital inflows and economic growth in Nigeria within the timeframe from 1986 to 2013. The OLS technique and the Granger causality test were employed for the data analysis. The result showed that foreign capital inflows was positively and significantly related to economic growth in Nigeria. The Granger causality test revealed the existence of a unidirectional relationship between foreign capital inflows and economic growth in Nigeria. Similarly, in another study carried out by Okafor et al. (2016), the relationship between foreign capital inflows and economic growth in Nigeria from 1981 to 2014 was the focus of the investigation. The Augmented Dickey-Fuller (ADF) test, the Cointegration test and the

Toda Yamamoto test of causality were employed for the analysis. The results revealed that there was a bidirectional causality relationship between the *GDP* and the *FDI*, as well as between the *FDI* and the *GDP*. It also indicated that there was a unidirectional causal relationship between foreign private investment and the *GDP* with causation running from foreign private investment to *GDP*.

Moreover, Bada (2016) examined the effect of foreign capital inflows (*FCI*) on Nigerian economic growth using time series data from 1991 to 2014. The OLS technique and the Granger causality test were used for the analysis. The major finding was that there was an increase in the *FCI* for a given period, as well as a decline caused by global recession. The result based on the Granger causality test showed a bidirectional relationship between foreign capital inflows and economic growth in Nigeria. In a similar study by Oladejo (2016), the impact of the *FCI* on Nigerian economic growth from 1986 to 2015 was the focus of investigation. The OLS technique and the Granger causality test were employed for the data analysis. The study found, among others, that there was an increase in the foreign capital inflows for a given period, followed by a decline. This was attributed to the massive capital outflow and divestment by investors, events which were triggered by the global recession during the period under investigation. The study further pointed out that there was a bidirectional relationship between foreign capital inflows and economic growth in Nigeria.

Anaza (2016) investigated the determinants that could have an impact on the *FDI* and in turn, an impact on the Nigerian economy from 1986 to 2010. The quantile regression analysis was used to analyze the data. It was found that the *FDI* inflows were mainly in the mining and manufacturing sectors, as was highlighted by the composition and trend analyses; others sectors such as agriculture, building and constructions had yet to benefit f significantly from the *FDI* inflows. The study used time series data from 1986-2013. In its analysis, the study applied the OLS regression technique, and found that institutional qualities managed to sway the *FDI* inflows in the long run. The study further revealed that institutional quality could be regarded as an essential factor in determining *FDI* inflows in Nigeria.

There was another study using time series data sourced from the CBN Statistical Bulletin from 2008 to 2013, and it was carried out by Adigwe et al. (2015). The researchers also wanted to determine the relationship between the *FDI* and economic growth in Nigeria. The Pearson Correlation was used to test the research hypothesis. The study discovered that there was a significant relationship between the *FDI* exchange rate and economic growth in Nigeria.

Baghebo and Apere (2014) also wanted to ascertain, by using time series data from 1986-2011, the impact of foreign capital inflows on economic growth in Nigeria. The study employed the ARDL estimation technique and the Granger causality test. The study revealed that foreign capital inflows, market capitalization, and trade openness had a positive relationship with the real gross domestic product in Nigeria in the long run. The results however, claimed that there was no relationship between foreign capital inflows and economic growth in Nigeria in the long run. In addition, it found that the Granger causality test showed the existence of a unidirectional relationship between foreign capital inflows and economic growth in Nigeria. Similarly, Onu (2014) by utilizing time series data from 1986 to 2010, inspected the effect of the *FDI* on monetary development in Nigeria. The investigation had examined various setback examinations to determine the effect of the *FDI* on monetary development in Nigeria. The research had uncovered a positive and critical effect of the *FDI* on monetary development in Nigeria. The examination had presumed that the *FDI* was a motor of monetary development, and that the extraordinary possibilities of the *FDI* for stepping up the speed of financial advancement of Nigeria cannot be over emphasized.

In the study by Tokunbon and Lloyd (2014), the researchers who had used data from 1990-2010, dissected the meaning of the impact of external capital inflow on the financial development of Nigeria. The investigation had found that unfamiliar capital inflow, homegrown venture development and net fare development significantly affected monetary development in Nigeria. The investigation reasoned that an expansion in external capital inflows would prompt an increment in monetary development in Nigeria. However, Rachdi and Saidi (2014) who had analyzed the effect of external capital inflows on the financial development of 100 developing and developed nations over

the period of 1990 - 2010, discovered blended outcomes. It was also pointed out that the portfolio speculation coefficient was found to be negative and genuinely not critical in non-industrial nations, while the converse was the situation for selected nations.

In addition, Osinubi (2014) assessed on the foreign private investment and monetary development in Nigeria. The OLS technique was utilized time series data for the period of 1990-2010. It was discovered that foreign private capital inflows, homegrown venture development and net fare development had significantly affected financial development in Nigeria. Similarly, Wafure and Nurudeen (2014) was aimed at determining the determinants of *FDI* inflows in Nigeria. The investigation utilized time series data for the period of 1977-2010, and used the OLS technique. The study included political system as an institutional quality as one of the informative factors of *FDI* inflows. The study concluded that political instability as one of the institutional qualities determined foreign investment inflows in the Nigerian economy within the study period.

Also, Egbo (2014) examined the degree to which development in foreign direct speculations impacted financial development in Nigeria. The examination utilized time series data of total national output (*GDP*) at current value, net inflow of the *FDI*, and the trade rates, covering the period of 1981 - 2010. The investigation used the OLS technique and the Granger causality test to set up the causal connection between foreign direct speculation and financial development. The Granger causality test showed that a causality relationship ran from *FDIs* to *GDP* and not from *GDP* to *FDIs*. Similarly, Omankhanlen (2014) analyzed the impact of foreign direct speculation on the Nigerian economy over the period of 1980-2011. The research examined exactly if the accompanying development deciding factors in the economy-equilibrium on current record (equilibrium of installment), expansion and conversion degree have any impact on foreign direct speculation just as if foreign direct speculation have any impact on total national output. The study utilized the OLS to study the connections between the previously mentioned factors and *FDI*. The investigation uncovered that foreign direct speculations essentially affect current record balance in equilibrium of installment while expansion altogether affects foreign direct speculation inflows.

In studying the relationship between the *FDI* and economic growth in Nigeria, Ugwuegbe et al. (2013) used time series data from 1981 to 2009. The data were analyzed using the OLS technique and the Granger causality test. The findings showed that the *FDI* was positively related to economic growth in Nigeria. The Granger causality result showed the existence of a bidirectional relationship between the *FDI* and economic growth in Nigeria. Ekeocha et al. (2012) was also another study aimed at determining the determinants of foreign capital inflows in Nigeria in the long run. The study used the OLS method on time series data from 1981 to 2010. The variables considered were market capitalization, real exchange rate, real interest rate, real *GDP* and trade openness.

METHODOLOGY

Theoretical Framework

A study of this nature has always been associated with the financial capital streams theory propounded by Michael and Makoto (2006). This was based on the widely held belief that the theory has been able to explain that the presence of the *FDI*, the *FPI* and the foreign structure of net external resources were a fundamental part in facilitating capital streams in nations trying to achieve their macroeconomic objectives of growth and development.

The study is accordingly secured on this hypothesis since when a business firm takes coordinating belonging in a business entity in another country, the financial investor makes external business tasks or procures external business resources, including setting up possession or controlling revenue towards boosting growth across the leading sector where investment is made and rising growth in the host country. The capital inflow of external financial investors permits stimulating foundation, increasing profitability and setting out business open doors for the teeming populace and manufacturing sector in the investment environment. The theory is also applied to this study because a foreign capital inflow through portfolio investment offers a few advantages remembering a wellspring of loanable assets for objective nations

and portfolio broadening by foreign financial investors. The study utilizes this theory because foreign capital inflow through foreign portfolio is a drive for financial development and an expansion in the profitable limit of the economy because of the growing contribution of manufacturing sector contribution to *GDP*. Finally, this study is anchored on financial capital streams theory because foreign aid as one of the foreign capital inflows saves lives especially during catastrophes and calamities, as because of cataclysmic events, restore jobs, give medications, helps agribusiness and supports improvement to boost growth and development.

Model

The general model of analysis is as shown in Equation (1). The variables of interest included the following: the Contribution of Manufacturing Sector to Gross Domestic Product (*MGDP*), being the dependent variable, as a proxy for the manufacturing sector growth, while the *FDI*, the *FPI* and the *FOA* were the independent variables and proxies for foreign capital inflows.

$$MGDP_t = \beta_0 + \beta_1 FDI_t + \beta_2 FPI_t + \beta_3 FOA_t + \varepsilon_t \quad (1)$$

where

MGDP	=	Contribution of manufacturing sector to GDP (USD million)
FDI	=	Foreign direct investment (USD million)
FPI	=	Foreign portfolio investment (USD million)
FAO	=	Foreign aid (USD million)
ε	=	Error term
β$_i$	=	Coefficient (i = 1, 2, 3)

Data

The study utilized time series data, which span the period from 1986 to 2019. The data was sourced from the World Bank Popular Indicator (2019) and the Central Bank of Nigeria Statistical Bulletin (2019). The data was collected using library research.

Method of Analysis

The study employed the Autoregressive Distributive Lag (ARDL) estimation technique. The ARDL is a least squares regression approach involving the lag of both the endogenous variable and the exogenous variables (Gujarati, 2004). The ARDL model is normally denoted using ARDL $(p, q_1, q_2, q_3, \dots, q_k)$ where; p denotes the number of lags of the endogenous variable and $q_i (i = 1, 2, \dots, k)$ is the number of lags of the exogenous variable. The Granger causality test was used to determine the nature of the causal relationship between foreign capital inflows and manufacturing sector growth in Nigeria.

Having adopted the ARDL model, the following steps have been followed in the estimation process. First, make sure that none of the variables are I(2), as such data will invalidate the methodology. Second, formulate an "unrestricted" ECM. This will be a particular type of the ARDL model, as it will determine the appropriate lag structure for the model in step 1. Third, make sure that the errors of this model are serially independent and "dynamically stable". It is at this step that diagnostic checking is conducted. Fourth, perform a "Bounds Test" to see if there is proof of a long-run relationship between the variables. Fifth, if the outcome at step 4 is positive, estimate a long run "levels model", as well as a separate "restricted" ECM. Sixth, use the results estimated by the model, as estimated in step 5 to measure the short-run dynamic effects, and the long-run equilibrating relationship between the variables. The ARDL shown in Equation (2) has been developed based on Equation (1).

$$\Delta LMGDP_t = \alpha_0 + \sum_{i=1}^{p} \delta_i \Delta LMGDP_{t-1} + \sum_{k=0}^{p} \beta_k \Delta LFDI_{t-k}$$
$$+ \sum_{k=0}^{p} \theta_k \Delta LFPI_{t-k} + \sum_{l=0}^{p} \gamma_l \Delta LFOA_{t-l} + \lambda_1 LMGDP_{t-1}$$
$$+ \lambda_2 LFDI_{t-1} + \lambda_3 LFPI_{t-1} + \lambda_4 LFOA_{t-1} + \mu_t \qquad (2)$$

where α_0 and μ_t refer to the autonomous component and white noise, respectively. The expression with the signs of summation in the equation is error correction. The parameter coefficients, δ, β, θ and γ denote the short run effects while lambda (λ) is the corresponding relationship in the long run.

DISCUSSION OF FINDINGS

Descriptive Statistics

Table 2 shows the 33 observations for all the variables. The *FDI* variable has the maximum mean or average value, while the *FOA* has the least mean or average value. Considering the standard deviation for all the variables of interest, the *FOA* has the highest standard deviation value, while the *MGDP* has the least standard deviation value. Based on the descriptive statistics, all the variables were positively skewed.

The Jarque-Bera result showed that individually, all the variables were not normally distributed. The result of their probability also confirmed the absence of normal distribution among individual variables. Hence, there was a need to conduct unit root test for stationarity.

Table 2

Summary of Descriptive Statistics

	MGDP	FDI	FPI	FOA
Mean	6.870	19.899	2.494	2.428
Std. Dev.	3.781	4.047	5.227	5.398
Skewness	0.361	1.580	0.600	0.317
Kurtosis	1.732	4.497	2.812	1.680
Jarque-Bera	12.416	71.316	8.612	12.516
Probability	0.002	0.000	0.013	0.001
Observations	33	33	33	33

Correlation Analysis

As shown in Table 3, the correlation coefficients as estimated for the variables indicated a weak positive relationship between the dependent variable *MGDP* and the independent variables because the coefficient correlation was less than 0.5.

Table 3

Correlation Matrix

Variables	MGDP	FDI	FPI	FOA
MGDP	1.000	0.317	0.259	0.329
FDI	0.317	1.000	0.253	0.522
FPI	0.259	0.253	1.000	0.383
FOA	0.329	0.522	0.383	1.000

Unit Root Test

To ascertain the order of integration of the variables, the unit root test was carried out to account for the presence of unit roots (that is whether the variables were stationary or not) using the Augmented Dickey Fuller (ADF) test. The unit root test results in Table 4 reveal that all the variables were not stationary at level, because their ADF statistical values were less than the critical values at the five percent level of significance. The variables were all stationary at first difference as their ADF statistical values were greater than their critical values at the five percent level of significance. All the variables had the same order of integration, i.e., since they were all differenced only once before they became stationary.

Table 4

Stationarity Test Results

Variable	ADF statistic at level	ADF statistic at first difference	Critical values of 5% at level	Critical values of 5% at first difference	p-values at level	p-values at first difference	Order of integration
MGDP	-1.354	-8.382	2.960	-2.964	0.574	0.000***	I(1)
FDI	-1.494	-6.399	-2.960	-2.964	0.077	0.000***	I(1)
FPI	-1.523	-6.399	-2.960	-2.964	0.509	0.000***	I(1)
FOA	-1.494	-8.837	-2.960	-2.964	0.065	0.002***	I(1)

Note: *** denotes statistically significant at 1 percent level of significance.

Cointegration Test Results

Table 5 shows the result of the cointegration test. The calculated *F*-statistic (3.85) was greater than all the lower bound and upper bound critical values at all levels of significance. Hence, the null hypothesis of no long run relationship among the variables of the selected ARDL (2, 1, 2, 1) had to be rejected. In addition, the variables employed in this study were found to be cointegrated.

Table 5

F-Bound Cointegration Test

		Null Hypothesis: No levels relationship		
Test statistic	Value	Significance	I(0)	I(1)
F-statistic	3.85	10%	1.99	2.94
K	4	5%	2.27	3.22
		1%	2.88	3.78

ARDL Lag Selection and Optimal Model

Table 6 shows the lag length selection results obtained through the estimation of the lag length selection conducted and then the estimation of the ARDL model accordingly. From the lag selection results in Table 6, lag two was selected by the entire selection criterion.

Table 6

Lag Length Selection Results

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-252.824	254.986	12.208	30.123	30.122	30.142
1	-219.061	215.876	19.544	21.897	22.149	24.984
2	-815.065	471.893*	16.785*	18.847*	23.987*	19.245*

Note: * indicates lag order selected by the criterion, LR: Sequential modified LR test statistic (each test at 5 percent level of significance), FPE: Final predictor error, IC: Akaike information criterion, SC: Schwarz information criterion and HQ: Hannan-Quinn information criterion respectively.

ARDL Optimal Lag Model

This aspect deals with the choice of the optimum ARDL model for the determination of the analysis. Following Pesaran et al. (2001), the ARDL optimal model level order ARDL for the impact of foreign capital inflows on manufacturing sector growth in Nigeria was model ARDL (2,1,2,1). The result is as shown in Table 7. From the ARDL optimal model and the level order ARDL model, the association between the estimated variable could easily be ascertained.

 Table 7

The Optimal ARDL Model

Variable	Coefficient	Std. Error	*t*-statistic	Prob.
LNRGDP(-1)	1.310	0.088	14.929	0.000***
,LNRGDP(-2)	0.185	0.139	1.326	0.188
LNFDI	0.244	0.144	1.689	0.094*
LNFDI(-1)	0.164	0.142	1.153	0.252
LNFPI(-1)	0.175	0.139	1.254	0.213
LNFPI(-2)	0.133	0.141	0.943	0.348
LNFOA	0.238	0.086	2.760	0.007***
LNFOA(-1)	0.300	0.008	0.055	0.955
C	0.058	0.157	0.368	0.713

Note: * and *** denote statistically significant at 10 percent and 1 percent level of significance, respectively.

Estimation Result

The estimated ARDL results in Table 8 were used to examine the impact of foreign capital inflows on manufacturing sector growth in Nigeria, and to establish if there was a relationship between foreign capital inflows and manufacturing sector growth in Nigeria in the long run. The coefficients of the *LNFDI*, the *LNFPI* and the *LNFOA*, except the *LNMGDP* were statistically significant at the five percent level of significance. The null hypothesis of no relationship between

these variables and the *MGDP* was therefore rejected. There was a significant positive relationship between the *LNMGDP,* the *LNFDI*, the *LNFPI* and the *LNFAO*. In sum, a one percent increase in the *LNFDI*, the *LNFPI* and the *LNFOA* would lead to a 57 percent, 71 percent and 30 percent increase in the *LNMGDP* respectively.

Table 8

Estimated ARDL Model

Dependent Variable: D(*LNMGDP*)				
Variable	Coefficient	Std. Error	*t*-statistic	Prob.
C	0.542	1.486	0.365	0.721
Short Run Relationship: D(LNMGDP(-1))	0.211	0.023	9.092	0.000***
D(LNFDI(-1))	0.482	0.079	6.093	0.004***
D(LNFPI(-1))	0.542	0.103	5.289	0.005***
D(LNFOA(-1))	0.348	0.054	6.408	0.000***
ECT(-1)	-0.942	0.412	-2.287	0.039**
Long Run Relationship: LNMGDP	0.236	0.252	0.938	0.365
LNFDI	0.568	0.088	6.447	0.001***
LNFPI	0.710	0.099	7.212	0.000***
LNFOA	0.299	0.060	5.013	0.003***
R-squared	0.724			
Prob(F-statistic)	0.000042			

Note. ** and *** denote statistically significant at the 5 percent and 1 percent level of significance, respectively.

The result of the short run model in Table 8 shows that the independent variables namely, the *FDI,* the *FPI* and the *FAO* can explain about 72 percent of the total variations in the contribution of the manufacturing sector *MGDP* as a proxy for the manufacturing sector growth, while the remaining 28 percent which was unexplained was captured by the error term. The prob (*F*-statistic) of 0.000042 shows that the entire model was found to be robust.

Furthermore, Table 8 shows the short run estimation result. The short run model accounts for the speed of adjustment to the long run equilibrium of the variables employed. The speed of adjustment of the model to the long run equilibrium was measured by the coefficient of the first lag of the *ECT*(-1). The lag *ECT* has the right sign and it was statistically significant. The result of the *ECT*(-1) shows that 94 percent of the deviation of the variables in the short run would be restored in the long run within one year.

The results of the study revealed that foreign capital inflows through the *FDI* had a significant positive impact on the contribution of the manufacturing sector to the *GDP*. This has implied that the increase in foreign capital inflows through the *FDI* had led to the increase in manufacturing sector growth in Nigeria. This finding is in line with that of Adekunle et al. (2020), who pointed out that foreign direct investment and portfolio investment had had a significant positive relationship with manufacturing performance in Nigeria. Their study showed that foreign capital inflows through the *FPI* had significant positive impact on the contribution of the manufacturing sector to the *GDP*. This implied that the increase in foreign capital inflows through the *FPI* had led to the increase in manufacturing sector growth in Nigeria. This finding is in line with that found in Ndubuisi (2018), who revealed that the foreign portfolio investment had had a positive impact on manufacturing performance in Nigeria. This finding was also supported in Adekunle et al. (2020), who showed that foreign portfolio investment was found to have a positive impact on manufacturing performance in Nigeria.

The results also provided further support to the view that foreign capital inflows through the *FOA* had a significant positive impact on the contribution of the manufacturing sector to the *GDP*. This implied that an increase in foreign capital inflows through the *FOA* had led to an increase in manufacturing sector growth in Nigeria. This finding was also in line with that in Ndubuisi (2018), who revealed that foreign aid had had a positive impact on manufacturing performance in Nigeria.

Finally, the results showed that there was a long run relationship between foreign capital inflows and manufacturing sector growth in Nigeria. This finding was also supported by the study of Mounde (2017), who revealed that there was a long run relationship between foreign direct investment and the output growth of the manufacturing sector. The result also demonstrated the existence of a unidirectional causal relationship between foreign capital inflows and manufacturing sector growth in Nigeria.

This finding was further corroborated in the study by Adekunle et al. (2020), who revealed that there was a unidirectional causality between foreign capital inflows and the *FDI*, and portfolio to manufacturing performance in Nigeria. This finding however, was in contrast to that of Mounde (2017), who revealed that there was a bidirectional causal relationship between the FDI, as one of the foreign capital inflow, and manufacturing output in Nigeria

Diagnostic Checking

Diagnostic checking was carried out to check on the following: the specification error, the serial correlation problem and the heteroskedasticity problem. Table 9 shows the result of the serial correlation test. From the results displayed in Table 9, since the probability value of the Ramsey RESET test was greater than 0.05, it is clear that the null hypothesis can be accepted, and the alternative hypothesis should be rejected. It was also concluded that there was no specification error in the short run and long run models.

Table 9

Ramsey RESET Test

	Value	df	Prob.
t-statistic	1.550	13	0.145
F-statistic	2.401	(1, 13)	0.145
Likelihood ratio	5.085	1	0.024

Table 10 shows the result of the serial correlation test. It is clear from Table 10 that, since the probability value of the serial correlation LM test was 0.062, which was greater than 0.05, the null hypothesis should be rejected. There was also no serial correlation in the short run and long run models.

Table 10

Serial Correlation Test

F-statistic	9.300	Prob. F(2,32)	0.089
Obs*R-squared	12.525	Prob. Chi-Square(2)	0.062

Table 11 shows the result of the heteroscedasticity test. It is clear from Table 11 that, since the probability value of the heteroskedasticity test was 0.487, which was greater than 0.05, the null hypothesis should be accepted and the alternative hypothesis rejected. It could also be concluded that there was no heteroskedasticity in the short run and long run models.
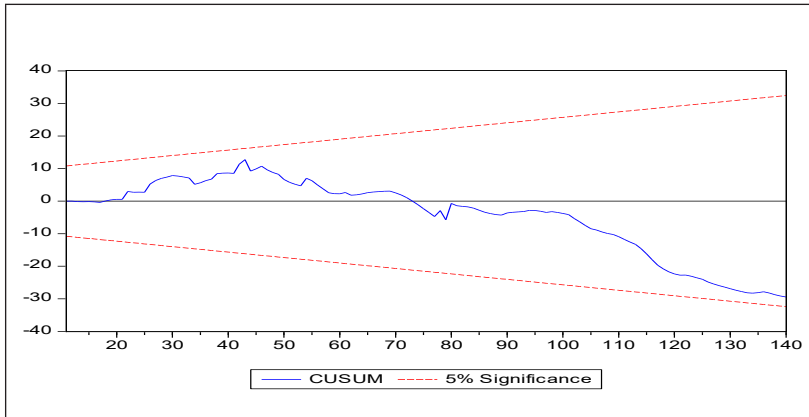
Table 11

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.874	Prob. F(15,14)	0.602
Obs*R-squared	14.508	Prob. Chi-Square(15)	0.487
Scaled explained SS	6.468	Prob. Chi-Square(15)	0.971

Furthermore, the stability of the model has been tested using the CUSUM test and the CUSUM of squares test. The results of the CUSUM test displayed in Figure 1, which is the essential condition for the stability of a model, shows that the blue lines lay inside the dotted red line and this implied that the model was dynamically stable at the five percent level of significance.

Figure 1

Stability Test: CUSUM Test for the Short and Long Run Models

The results of the CUSUM of squares test in Figure 2, which was the sufficient condition for the stability of a model, shows that the blue lines lay inside the dotted red line and this implied that the model was dynamically stable at the 5 percent level of significance.

Figure 2

Stability Test: CUSUM of Squares test for the Short and Long Run Models
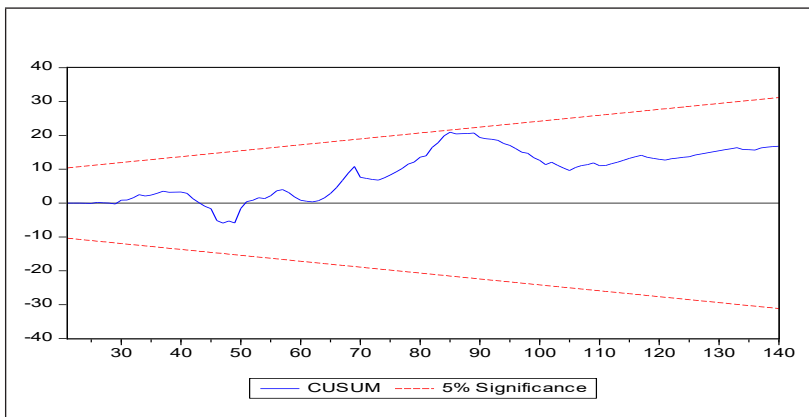
Table 12 shows the results of the Granger causality test. The study concluded that there was a bidirectional relationship between the *FDI* and manufacturing sector growth (*MGDP*) in Nigeria because the probability values of the *F*-statistic for both were statistically significant at the 5 percent level, that is, 0.001 and 0.004, respectively. The result suggests that because the probability value of the *F*-statistic (0.012) was less than 0.05, the direction of causality was from the *FPI* to the *MGDP*. However, there was no reverse causation from the *MGDP* to the *FPI*. This was because the probability value of *F*-value (0.643) was statistically insignificant. Therefore, there was a unidirectional relationship between the *FPI* and the *MGDP*.

Finally, the result suggests that the direction of causality was from the *FOA* to the *MGDP* since the probability value of the *F*-statistic (0.035) was less than 0.05. In contrast, there was no reverse causation from the *MGDP* to the *FOA*, because the probability value of the *F*-statistic (0.862) was statistically insignificant. In sum, there was a unidirectional relationship between the *FOA* and the *MGDP*. Furthermore, there was a unidirectional relationship between foreign aid and manufacturing sector growth in Nigeria. Based on the findings, the study concluded that there was a causal relationship between foreign capital inflows and manufacturing sector growth in Nigeria.

Table 12

Granger Causality Test Result

Null Hypothesis:	Obs	*F-statistic*	Prob.
FDI does not Granger Cause *MGDP*	33	9.264	0.001***
MGDP does not Granger Cause *FDI*		7.327	0.004***
FPI does not Granger Cause *MGDP*	33	5.092	0.012***
MGDP does not Granger Cause *FPI*		0.448	0.643
FOA does not Granger Cause *MGDP*	33	6.638	0.035**
MGDP does not Granger Cause *FOA*		0.150	0.862

Note. *** and *** denote statistically significant at the 5 percent and 1 percent level of significance, respectively

CONCLUSION AND RECOMMENDATIONS

The study has examined the relationship between foreign capital inflows and the manufacturing sector growth in Nigeria. It employed the ARDL approach in testing the impact of foreign capital inflows on the growth of the manufacturing sector in Nigeria. The study utilized the Contribution of Manufacturing Sector to Gross Domestic Product (MGDP) as a proxy for the dependent variable, which was the manufacturing sector growth, while the *FDI*, *FPI* and *FOA* were the independent variables and proxies for foreign capital inflows. The ARDL was used as the estimation technique.

The findings of the present study have led to three major conclusions regarding the causal relationship between foreign capital inflows and the growth of the manufacturing sector in Nigeria in the long run, First, it was the conclusion that foreign capital inflows through the *FDI* had a significant positive impact on the contribution of the manufacturing sector to the *GDP*. This implied that an increase in the foreign capital inflows through the *FDI* would lead to an increase in the manufacturing sector growth in Nigeria. Second, it was the conclusion that foreign capital inflows through the *FPI* had a significant positive impact on the contribution of the manufacturing sector to the *GDP*. This implied that an increase in the foreign capital inflows through the *FPI* would lead to an increase in the manufacturing sector growth in Nigeria. Third, it was the conclusion that foreign capital inflows through the *FOA* had a significant positive impact on the contribution of the manufacturing sector to the *GDP*. This implied that an increase in foreign capital inflows through the *FOA* would lead to an increase in the manufacturing sector growth in Nigeria.

In sum, based on the test of the hypotheses of the present study, the overall conclusion was that foreign capital inflows had had a significant impact on the manufacturing sector growth in Nigeria. There was a long run relationship between foreign capital inflow and manufacturing sector growth in Nigeria. There was also a causal relationship between foreign capital inflows and manufacturing sector growth in Nigeria. On the basis of these findings, it is recommended

that the Nigerian government should promote foreign capital inflows through the *FDI* in order to achieve the desired level of manufacturing sector growth in the Nigerian economy. The Nigerian government should encourage foreign capital inflows through the *FPI* in order to attain the desired level of manufacturing sector growth in the national economy. Finally, the Nigerian government should support foreign capital inflows through the *FOA* in order to attain the desired level of manufacturing sector growth in the national economy.

ACKNOWLEDGMENT

REFERENCES

Acha, I. A., & Essien, J. M. (2018). The manufacturing sector growth imperative of foreign capital inflow for Nigeria. *Noble International Journal of Economics and Financial Research*, *3*(6), 71-77.

Adekunle I. A, Ogunade A. O, Kalejaiye T. G., & Balogun A. M. (2020). Capital inflow and manufacturing performance in Nigeria. *African Governance and Development Institute*, *21*(2), 43-73. http://doi.10.1177/1053451213480032

Adigwe, V., Ezeagba, E., & Francis, S. (2015). Relationship between foreign direct investment and manufacturing sector growth in Nigeria. *International Journal of Business and Management*, *7*(24), 56-89.

Anaza, I. A. (2016). *Analysis of determinants and impact of foreign direct investment on Nigerian Economy* (Unpublished master's thesis) Ahmadu Bello University, Zaria.

Bada, O. T. (2016). Empirical evaluation of the effect of foreign capital inflow on Nigerian economic growth. *International Journal of Comparative Studies in International Relations and Development*, *4*(1), 161-74.

Baghebo, M., & Apere, T. (2014). Foreign capital inflow and manufacturing sector growth in Nigeria (1986-2011). *International Journal of Business and Social Science*, *5*(11), 108-115.

Central Bank of Nigeria [CBN]. (2019). *Foreign capital inflow in the Nigerian economy*. A disaggregated analysis. Occasional paper, 54. https://www.cbn.gov.ng

Egbo, O. P. (2014). *An analysis of foreign direct investment inflow and manufacturing sector growth in Nigeria* (Unpublished master's thesis). University of Nigeria, Enugu campus.

Ejuvbekpokpo, R., & Hassan, S. (2015). Determinants of foreign direct investment in Nigeria. *International Journal of Business Management*, *25*(4), 589-611

Ekeocha P., Malaolu, C., & Oduh, M.O. (2012). Modeling the long run determinants of foreign capital inflow in Nigeria. *Journal of Economics and Sustainable Development*, *3*(8), 58-98.

Ezeanyeji, C. I., & Ifeako, I. M. (2019). Foreign capital inflow on manufacturing sector growth of Nigeria: An impact analysis. *International Journal of Academic Management Science Research*, *3*(3), 24-36

Gujarati, D. N. (2004). *Basic Econometric* (4th Ed.). New York: The McGraw-Hill Companies.

Ibrahim, A., & Akinbobola, D. (2017). The relationship between foreign capital inflow and economic growth in Nigeria. *Journal of Business Management*, *93*(23), 901-918.

Michael, P., & Makoto, C. (2006). Do capital controls and macroeconomic policies influence the volume and composition of capital flows? Evidence from the 1990s. *Journal of International Money and Finance*, *18*, 619-635

Mounde, A. (2017). Relationship between foreign direct investment and manufacturing output in Nigeria. *International Journal of Economics and Finance*, *5*(3), 196-204.

Okafor, I. G., Ugwuegbe, U. S., & Ezeaku, C. H. (2016). Foreign capital inflows and Nigerian economic growth nexus: A Toda Yamamoto approach. *European Journal of Accounting, Auditing and Finance Research*, *4*(3), 16-26.

Oladejo, T.B. (2016). Foreign capital inflow and Nigerian economic growth. *Journal of Economics*, *2*(2), 115-120.

Omankhanlen, D. (2014). Effect of foreign direct investment on the Nigerian economy. *Journal of Studies in Economics and Finance*, *28*(1), 78-101.

Onu, A. J. C. (2014). Impact of foreign direct investment of manufacturing sector growth in Nigeria. *Interdisciplinary Journal of contemporary Research in Business*, *4*(5), 26-47.

Osinubi, T. S., & Amaghionyeodiwe, L. A. (2014). Foreign private investment and manufacturing sector growth in Nigeria. *Review of Economic and Business Studies*, *3*(1), 105-27.

Rachdi, H., & Saidi, H. (2014). Impact of FDI and portfolio investment on manufacturing sector growth in developing and developed economics. *Interdisciplinary Journal of Research in Business*, *1*(6), 67-98.

Tokunbo, S., & Lloyd, P. (2014). External capital inflow and financial development in Nigeria. *European Journal of Business and Management, 4*(9), 210-220.

Ugwuegbe, S. U., Okoro, A. O., & Onoh, J. O. (2013). The impact of foreign direct investment on the Nigeria economy. *European Journal of Business and Management*, *5*(2), 23-45.

United Nation Development Programme [UNDP] (2013). *Analysis of foreign capital inflows*: An Empirical Approach. UNDP Research Discussion Paper No.72.

United Nation Economic Commission for Africa (2013). *Foreign capital inflow and economic growth*. *American Economic Review*, *85*, 38-51.

World Bank. (2019). *Foreign capital inflow in Nigeria*. World Bank Report, Washington D.C.