FOREIGN DIRECT INVESTMENT AND INCLUSIVE GROWTH: THE ROLE OF THE FINANCIAL SECTOR DEVELOPMENT IN NIGERIA, 1981-2020

Emeka NKORO
Aham Kelvin UKO

Abstract
This study examined the role of the domestic financial sector development in the relationship between foreign direct investment (FDI) inflows and inclusive growth in Nigeria over the period 1981-2020 using annual time series. Empirically, the result revealed that the FDI exerted a significant positive effect on inclusive growth when the domestic financial sector has reached a certain minimum level of development. The result further showed that the FDI alone presents a significant negative effect on inclusive growth. This is evidence that the domestic financial sector development is a pre-condition for FDI to effectively promote inclusive growth in Nigeria.
Keywords: Inclusive Growth, Foreign Direct Investment, Financial Sector Development, Threshold Level, ARDL Approach, Time series, Nigeria.
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1. Introduction

Foreign direct investment (FDI) is the net inflows of investment that acquires a long-term management interest in an enterprise operating in a country other than that of the investor. Scholars (Markusen & Venables, 1997; Javorcik, 2004) are of the view that FDI is known to positively affect the economy of a host country, by increasing the domestic capital formation, productivity, creating knowledge, and technology spillovers. Also, they are of the view that FDI promotes forward and backward linkages with local economic agents- leading to employment growth. This implies that FDI contributes to the development of the host country by reducing the saving-investment gap and job creation. However, according to Kang & Martinez-Vazquez (2021), the extent of these benefits largely depends on the absorptive capacity of the host country. This means that a country with an improved absorptive capacity benefits more from FDI inflows than a country with a lower absorptive capacity.

Empirical studies (Belderbos et al., 2001; Nunnenkamp & Spatz, 2003; Alfaro et al., 2004; Amendolagine et al., 2013; Kang & Martinez-Vazquez, 2021) have shown that the effect of FDI on growth critically depends on the host country's conditions or characteristics, such as a developed financial system, the level of human capital, a reliable legal system, quality of the infrastructure and manufacturing sector (Guisan, 2017), GDP per capita, level of education (Guisan, 2021), and openness to trade, technology, etc.

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* Emeka Nkoro, Department of Economics, University of Port Harcourt. E-mail: nkoro23@yahoo.co.uk. Aham Kelvin Uko Ministry of Finance, Abia State, E-mail: ahamuko@yahoo.com

These studies were of the view that foreign firms that have a high knowledge base compared to the local economy's absorptive capacity are less likely to interact with domestic economic agents.

Between 1970 and the 1990s, Nigeria accounted for more than 30 percent of all FDI inflows to Africa. However, in 2007, Nigeria accounted for about 16 percent of all FDI inflows to Africa. Similarly, in the 1970s Nigeria attracted about half the FDI inflows into the Economic Community of West African countries (ECOWAS) group. Since 2001, Nigeria has been the major recipient of FDI within the group and accounted for over 70 percent of the group inflows. The increased FDI inflows reflect Nigeria's economic and institutional conditions, such as an improved macroeconomic environment and reforms to the business environment (United Nations Conference on Trade and Development, UNCTAD, 2009). With these conditions, it is expected that the increased FDI inflows into Nigeria will have a positive influence on employment, income, poverty (lift hundreds of millions out of poverty), and economic growth. Given these, it becomes imperative to know the conditions or characteristics of the Nigerian economy that significantly drive the interaction between foreign firms and local economic agents. Specifically, this study investigates the role of the domestic financial sector development in examining the relationship between foreign direct investment and inclusive growth in Nigeria.

The rest of the paper is organized as follows: Following the introduction is the literature review which is in section two, and section three focuses on the method of analysis. Section four deals with empirical results and analysis while section five dwells on concluding remarks.

2. Literature Review

Conceptual Clarification

Inclusive Growth

There is no consensus in the literature on how inclusive growth should be defined and measured. Therefore, it is a multidimensional and complex concept. Given the multidimensional concept of inclusive growth, scholars have divided the measure of inclusive growth into four main groups in line with the OECD factors used in measuring inclusive growth. The groups are: growth and ensuring equitable sharing of benefits from growth; inclusive and well-functioning markets; equal opportunities and foundations of future prosperity; and governance (Stawska & Jabłonska, 2021).

For this study, we shall dwell on the first group. Under this group-Growth and ensuring equitable sharing of benefits from growth, the following variables are listed: GDP per capita growth (%); Median income growth and level (%; USD PPP); 80/20 share of income as a ratio; Bottom 40% wealth share and top 10% wealth share (% of household net wealth); Life expectancy (number of years); Mortality from outdoor air pollution (deaths per million inhabitants); and Relative poverty rate (%). The World Bank Development Report (2000/2001) classified this- Growth and ensuring equitable sharing of benefits from growth into income and non-income measures of poverty. The income

indicator of poverty measures the percentage of the population that cannot afford to buy a basic basket of goods. Similarly, the non-income indicator measures the percentage of the population that does not reach the defined threshold (Nkoro, 2017).

Foreign Direct Investment

Foreign direct investment (FDI) is the net inflows of investment that acquires a long-term management interest (10 percent or more of the voting stock) in an enterprise operating in a country other than that of the investor. Scholars (Markusen & Venables, 1997; Javorcik, 2004) are of the view that FDI is known to positively affect the economy of a host country, by creating knowledge, productivity, and technology spillovers and, forward and backward linkages with local economic agents that lead to employment growth and local economic growth. Foreign direct investment as a percentage of GDP is used to capture FDI inflow. It reflects net inflows (new investment inflows less disinvestment) from foreign investors in the reporting country and is divided by GDP.

Foreign Direct Investment and Domestic Financial Sector

A century ago, Schumpeter (1911) acknowledged the importance of a well-developed domestic financial system in boosting technological innovation, capital accumulation, and economic growth. MacKinnon (1973) also observed that a well-developed domestic financial market is important to foster the adoption of new technologies and know-how. Underdeveloped financial market limits access to credit, this, in turn, restricts domestic firms' ability to adopt new technologies made available by FDI. Financial market foster both the financing of investment and day-to-day business activities of domestic firms. The absence of a well-developed financial market limits the potential positive FDI externalities as it relates to the domestic firms' adoption of new technologies made available by FDI, and productivity (Alfaro, *et al.* 2004). Therefore, a developed domestic financial market encourages local enterprise activities and output and attracts more FDI. The countries with strong financial market development tend to benefit more from FDI in promoting their inclusive growth. Alfaro, *et al.* (2004) were of the view that an improved domestic financial sector efficiency tends to reduce the threshold level of local enterprise. They further emphasized that the lack of development of the domestic financial market can limit the ability of an economy to take the advantage of potential FDI spillovers. This implies that an improved domestic financial sector efficiency increases the social marginal product of FDI. Therefore, a strong and efficient financial market can enhance the impact of FDI on output.

A strong domestic financial market may help reduce the risks associated with domestic firms' adoption of new technologies introduced by foreign firms. The speed of technological spillover may be positively affected by a strong and efficient financial market, thereby boosting economic growth (Huang & Xu, 1999). This technological spillover can occur when domestic firms are willing to compete with foreign firms based on the demonstration effect.

Hermes & Lensink (2003) argue that the development of the domestic financial system is an important pre-condition for FDI to positively impact economic growth. The financial system enhances the efficient allocation of resources and, helps to improve the

absorptive capacity of a country concerning FDI inflows. FDI may crowd in domestic investment through the backward and forward linkages further pushing economic growth. FDI boosts the domestic investment if the local suppliers, subcontractors, service providers (backward linkage), and distributors and service agents (forward linkage) are engaged by the foreign firms. FDI may raise employment in the local firms if the foreign firms buy raw materials, spare parts, components, and services from the local entities and, use the local distributors to distribute their products. This will help the local firms to extend their operations. The extension of the local firms' operations can be made possible if there is a strong and efficient financial market that will foster both the financing of investment and the day-to-day business activities of the domestic firms. Also, FDI may induce the host countries to invest in infrastructures like roads, bridges, and electricity supply which will raise the domestic total capital formation and, further increase economic growth which in turn translates into inclusive growth/poverty reduction. The lack of a strong domestic financial market can limit the ability of the economy to take the advantage of potential FDI spillovers. On this note, it is clear that a strong and efficient financial market promotes economic growth that may relate to inclusive growth by absorbing the benefits of FDI. However, this calls for an empirical investigation.

Empirical Review of FDI impact

Different studies have examined the conditions under which FDI leads to inclusive growth using various techniques and data in different countries. Studies such as Nunnenkamp (2004); Meyer (2004); and, Meyer & Sinani (2009) investigated the spillovers and linkages of FDI on the host country and found that the spillovers and linkages effects of FDI are maximized when the host country has sufficient absorptive capacity as that of the home country of the foreign firms in the form of technology, knowledge, institutions, economic development, etc. While De Mello (1997) found that a larger technological gap between the host and foreign country leads to a smaller impact of FDI on economic growth. Rodriguez-Clare (1996) examined the impact of multinationals in developing countries, by studying the generation of backward and forward linkages. Among others, the result revealed that the linkage effect is more significant when the host country is economically developed as the home country. Also, Alfaro et al. (2004) in their study discovered that for spillovers and linkages from FDI to materialize a developed financial system is key.

In their study, Nunnenkamp and Spatz (2003) found that the relationship between FDI and growth largely depends on the host economy's conditions, such as GDP per capita, level of education, and openness to trade. In the same vein, Belderbos et al. (2001) analyzed the factors behind the backward linkages created by Japanese electronics manufacturing affiliates in 24 countries and they found that good quality infrastructure and a large manufacturing sector brought about a positive effect on the creation of local linkages.

On their part, Kang & Martinez-Vazquez (2021) investigated the conditions under which FDI can effectively lead to inclusive growth in 68 countries, and their study revealed

that FDI exhibited a positive effect on inclusive growth through the prevailing domestic conditions, such as a large manufacturing sector and a developed infrastructure base in the host country. This is in line with Guisan (2017). Similarly, Borensztein et al. (1998); Khan (2007); Wurgler (2000); Alfaro et al. (2004); Hermes and Lensink (2003) explored the conditions under which FDI can influence economic growth using different techniques and data and in different countries. Their results showed that the economic conditions or characteristics of a country, such as the financial market development, institutions, the levels of GDP per capita, level of education, gross fixed capital formation, manufacturing sector, state of the infrastructure, openness to trade, the level of technology are an important precondition for FDI to have a significant impact on economic growth, etc. Contrary to the above findings, Herzer (2010) found that the conditions, such as per capita income, human capital, openness, and financial market development cannot explain the growth effects of FDI.

From the empirical literature reviewed, studies examined the relationship between the FDI and economic growth as well as inclusive growth based on the host country's economic and industrial conditions using different methods of analysis and data. The studies, except Herzer (2010) concluded that the impacts of FDI inflows on the economy of the host country are premised on certain economic and industrial conditions as mentioned in the studies. However, to the best of our knowledge, no study has investigated how these conditions may have influenced the relationship between FDI and inclusive growth in Nigeria. The previous studies (Oluseye & Gabriel, 2017; Anand et al., 2013; Afolabi, 2020; Ozegbe et al., 2019; Oluwadamilola et al., 2018) only examined the effect of macroeconomic variables, like FDI on economic growth or inclusive growth in Nigeria. This study is to contribute to the existing literature on the relationship between FDI and inclusive growth as it reflects the level of absorptive capacity in Nigeria. Specifically, this study examines the relationship between FDI and inclusive growth in Nigeria by introducing the role of financial sector development.

3. Methodology

Data and Sources

The data for this study was basically from secondary sources. The data covered the period 1981 - 2020. The period covered was due to the availability of data were sourced from the *World Bank's World Development Indicators (WDI) and the Central Bank of Nigeria Statistical Bulletin.* Annex 1 includes more information about each data description and sources.

Analytical Framework

The empirical studies revealed that the benefits of FDI inflows only materialize under certain economic, financial, industrial, and institutional conditions. Under the financial condition, domestic financial sector development becomes one of the preconditions for FDI to have a significant effect on the host country's economy. The rapid development of the financial sector leads to enhanced knowledge and technological compatibility between the local and foreign firms. These enhanced technology, knowledge,

productivity and skills, and employment serve as links through which FDI promotes inclusive growth. With these, income and welfare will improve and poverty will reduce.

These spillovers effect is as a result of FDI inflows. That is, with these created linkages, the host countries will now have the absorptive capacity to benefit from the technological and knowledge spillovers brought by FDI. Therefore, to increase inclusive growth, FDI inflows and the domestic financial market must be complementary for the enhancement of the process of technological spillovers (Hermes & Lensink, 2003). The FDI effect on inclusive growth is positively linked to a developed domestic financial market. This means that the more the financial market deepens, the more the effect of FDI inflows on the host country's economy.

Given this, it becomes obvious that the state of the domestic financial market development determines the extent to which the domestic firms adopt new technologies made available by FDI, as well as the extent to which the foreign firms will have to borrow to expand their technological innovative activities in the host country. Therefore, we hypothesize that FDI will significantly promote inclusive growth (wellbeing of the people) when the domestic financial sector of the host country reaches a certain minimum level of development. This is the hypothesis the study tested for the case of Nigeria for the period, 1981-2020.

In testing the hypothesis, the study adopts the Khan (2007) and Kang & Martinez-Vazquez (2021) approaches, but with modifications. The work of Khan (2007) tested the hypothesis that the positive effects of FDI on economic growth will increase when there is a well-developed domestic financial market in the host country while Kang & Martinez-Vazquez (2021) tested the hypothesis that the positive effects of FDI on inclusive growth will increase when there is a well-developed manufacturing sector and infrastructure base in the host country.

This study differs from Khan (2007) in the area of variable and place. Khan (2007) focused on economic growth in Pakistan while this study focuses on inclusive growth in Nigeria. In the area of financial sector development, this study uses Private sector credit and market capitalization as measures of financial sector development indicators while Khan (2007) only used private sector credit, but analytically, this study follows Khan (2007).

However, this study differs from Kang & Martinez-Vazquez (2021) in the area of the conditions that determine the extent to which FDI influences inclusive growth. Kang & Martinez-Vazquez (2021) focused on a large manufacturing sector as a measure of industrialization and gross capital formation as a measure of developed infrastructure while this study focuses on financial development indicators- the ratio of credit to the private sector to gross domestic product (GDP) and the ratio of market capitalization to GDP as measures of domestic financial market development. In terms of analysis, Kang & Martinez-Vazquez (2021) used panel data and therefore applied fixed-effect methods of analysis while this study uses time-series data and employed Autoregressive Distributed Lag (ARDL) framework.

The base estimation model is given as:

$$LnGDPPC_t = \beta_0 + \beta_1 LnFDI_t + \beta_2 LnFD_t + \beta_3 LnX_t + \beta_4 (LnFDI_t * LnFD_t) + \mu_t \quad (1)$$

Where:
LnGDPPC is the log of gross domestic product per capita, it measures the well-being of the entire population.

LnFDI is the log of the ratio of foreign direct investment to GDP. It captures the depth of FDI.

LnFD represents the domestic financial sector development. LnFD include, private sector credit (LnPSC) (captures the money market) and stock market capitalization (LnMC)(captures the capital market). LnPSC is the ratio of private sector credit to GDP, and LnMC is the log of the ratio of stock market capitalization to GDP.

The other variables (LnX) included in equation 1 are variables that have played a significant role in determining inclusive growth. They include:

LnGEX is the log of total government expenditure which captures the fiscal options.

LnIFRA is the log of the ratio of adjusted gross fixed capital formation to GDP which is used as a proxy for infrastructure. The adjusted gross fixed capital formation is arrived at by subtracting FDI from total gross fixed capital formation.

LnMAN is the log of the ratio of manufacturing, value-added to GDP which captures the industrial base of the economy.

LnFDI*LnFD is the interaction between foreign direct investment (LnFDI), and domestic financial market development (LnFD). The interaction term is used to examine the validity of the hypothesis that financial sector development complement FDI in promoting inclusive growth(improving welfare) through technological innovations, employment, and productivity created by domestic financial market development channels.

Method of Data Analysis

To test the hypothesis earlier stated, this study employed the Autoregressive Distributed Lag (ARDL) approach of cointegration introduced by Pesaran, *et al.* (2001). The reasons for the adoption of this approach according to Nkoro & Uko (2016) are first, the other approaches, such as Johansen and Juselius (1990) are more appropriate for a large sample size while the ARDL approach of cointegration is relatively more appropriate and efficient for a small sample size. *Secondly*, irrespective of whether the underlying variables are I(0) or I(1), or a combination of both, the ARDL approach can still be applied. That is, the ARDL approach avoids the pre-testing of unit roots. Thirdly, endogeneity is less of a problem, since each of the underlying variables stands as a single equation.

The ARDL model approach to cointegration testing is:

$$LGDPPC_t = \beta_0 + \beta 1 LGDPPC_{t-1} + \beta 2 LFDI_{t-1} + \beta 3 LFD_{t-1+} \beta 4 LX_{t-1+} \beta 5 (LFDIt * LFDt)_{t-1+} \sum_{i=0}^{k} \beta 6 \Delta LGDPPC_{t-1} + \sum_{i=0}^{k} \beta 7 \Delta LFDI_{t-1} + \sum_{i=0}^{k} \beta 8 \Delta LFDt_{t-1} + \sum_{i=0}^{k} \beta 9 \Delta LX_{t-1} + \sum_{i=0}^{k} \beta 10 \Delta (LFDIt * LFDt)_{t-1} + \mathcal{E}_t \quad 2$$

However, before the model was estimated, the properties of the variables were examined to ensure that they never exhibited order two integration, I(2), and to substantiate the long-run relationship between the underlying variables. In the case of unit root, the Augmented Dickey-Fuller (ADF) was used to test the order of integration of each variable. To test the long-run relationship between inclusive growth and the underlying variables, we imposed zero restriction on the coefficients of the one-period lagged-level (lag 1) variables in the unrestricted error correction model (UECM) (equation 2), and a joint significance test was carried out as:

H_o**:** $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = 0 \rightarrow$ The null hypothesis of no cointegration between the examined variables

H_1**:** $\beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq \beta_6 \neq 0 \rightarrow$ The alternative hypothesis.

The joint significance test was based on the one-period lagged-level (lag 1) variables in equation 2. The long-run relationship test followed the bounds test procedure which is based on F-statistic. If the F- statistic of the restricted coefficients falls above the Pesaran et al. (2001) upper bound critical value rejects the null hypothesis of no long run relationship and vice versa.

Results and Discussion

Unit Root Test

The properties of the series were examined using Augmented Dickey-Fuller (ADF). Table 1 reveals that the LnGDPPC, LnMAN, LnIFRA, LnGEX, LnFDI*LnPSC, and LnFDI*LnMC are stationary at order I(1) while LnFDI, LnPSC, and LnMC are stationary at order I(0). Given the unit root properties of the variables, we proceeded to establish whether or not there is a long run relationship among the variables in equation 1 using ARDL bound cointegration test.

Table 1: The ADF Unit Root Test Result

Variable	Constant/Trend	Level	First Difference	Order of Integration
LnGDPPC	Constant&Trend	-3.193123	-4.590455*	I(1)
LnFDI	Constant	-3.832463*	-8.127888*	I(0)
LnPSC	Constant&Trend	-4.10806**	-4.763543*	I(0)
LnMC	Constant	-3.4528***	-5.963655*	I(0)
LnMAN	Constant&Trend	-1.125177	-7.545921*	I(1)
LnIFRA	Constant&Trend	-2.145732	-5.149909*	I(1)
LnGEX	Constant&Trend	-0.340647	-7.833149*	I(1)
LnFDI*LnPSC	Constant	-3.015722	-7.165270*	I(1)
LnFDI*LnMC	Constant	-2.225848	-7.404837*	I(1)

Note: *, ** and *** indicate significance at the 1 percent, 5 percent and 10 percent levels of significance, respectively. Source: Author's Computation.

ARDL Cointegration Bounds Test:

In testing the hypothesis of no long-run relationship between inclusive growth (GDPPC) and the underlying variables, first, the ordinary least squares (OLS) method was used to estimate equation 2, and the results of the unrestricted error correction models (UECM) are presented in Tables 2 and 3. The estimated UECM scaled through the post estimation tests such as the Breusch-Godfrey Serial Correlation LM test, ARCH test, the Ramsey RESET test, and the stability test (see panel B, Tables 2 and 3, and figures 1 and 2).

The Breusch-Godfrey Serial Correlation LM tests revealed that the residuals were not serially correlated. The ARCH tests suggested that the residuals were homoscedastic while the Ramsey RESET tests showed that there were no specification errors. The reliability of these results is based on the F- statistics. The results imply that the models are efficient, also the estimates are reliable. Thereafter, a zero restriction was imposed on the coefficients of the one-period lagged-level (lag 1) variables in equation 2 (UECM), and a joint significance test was carried out. The joint significance test was based on the one-period lagged-level (lag 1) variables.

The results of the joint significance test are presented in Table 4. The long-run relationship tests followed the bounds test procedure which is based on F-statistic. This study adopted the critical value provided by Narayan (2005) against the critical value provided by Pesaran et al. (2001), given that the sample size is small (<100 observations).

The results in Table 4 show that there is a long-run relationship among the variables in the models, since the F- statistics of the restricted coefficients fall above the upper bound critical value provided by Narayan (2005). Therefore, the hypothesis of no long-run relationship between inclusive growth and the underlying variables is rejected at the one percent level of significance. But the focus of the study is to find the threshold level of the domestic financial sector development at which FDI will lead to improved inclusive growth in Nigeria. Therefore, the study focuses only on the FDI and the interactive term (FDI*FD) as presented in the short and long-run model of the ARDL.

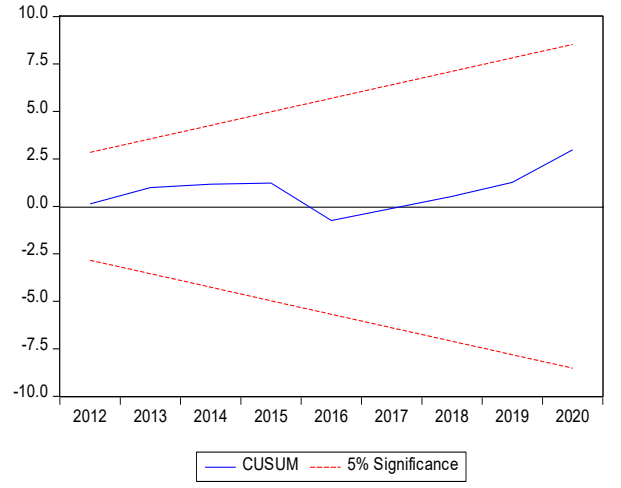
Table 2: FDI and Inclusive Growth: The Role of Money Market

Panel A. Private Sector Credit (PSC) Interaction with FDI. Dependent Variable: D(LNGDPPC). Method: Least Squares. Sample: 1985 2020. Included observations: 36				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	17.20681	4.091194	4.205816	0.0023
LNGDPPC(-1)*	-0.583009	0.156768	-3.718924	0.0048
LHFDI(-1)	-2.617445	0.669003	-3.912455	0.0036
LPSC(-1)	-2.253271	0.613692	-3.671663	0.0051
LHMAN(-1)	-0.934783	0.617452	-1.513937	0.1643
LHIFRA(-1)	-1.607490	0.600374	-2.677481	0.0253
LFDPSC(-1)	0.998120	0.284862	3.503870	0.0067
D(LNGDPPC(-1))	-0.181002	0.206851	-0.875032	0.4043
D(LNGDPPC(-2))	0.639639	0.285716	2.238723	0.0520
D(LHFDI)	-2.393314	0.668526	-3.579984	0.0059
D(LHFDI(-1))	-0.551926	0.543673	-1.015179	0.3365
D(LHFDI(-2))	-0.926845	0.652690	-1.420039	0.1893
D(LHFDI(-3))	-0.671145	0.566534	-1.184650	0.2665
D(LPSC)	-1.154276	0.399266	-2.890992	0.0179
D(LPSC(-1))	0.084181	0.344257	0.244530	0.8123
D(LPSC(-2))	-0.005248	0.317103	-0.016549	0.9872
D(LPSC(-3))	0.484849	0.301296	1.609213	0.1420
D(LHMAN)	-0.037291	0.418826	-0.089037	0.9310
D(LHMAN(-1))	1.632527	0.578993	2.819595	0.0201
D(LHMAN(-2))	1.208024	0.470660	2.566660	0.0304
D(LHIFRA)	-0.696698	0.421681	-1.652191	0.1329
D(LHIFRA(-1))	0.126496	0.369145	0.342673	0.7397
D(LHIFRA(-2))	0.720964	0.269313	2.677048	0.0253
D(LFDPSC)	1.120433	0.329770	3.397623	0.0079
D(LFDPSC(-1))	0.482371	0.301288	1.601030	0.1438
D(LFDPSC(-2))	0.635260	0.357291	1.777992	0.1091
D(LFDPSC(-3))	0.388359	0.284351	1.365773	0.2052
R-squared		0.997363	Mean dependent Var	6.911253
Adj. R-squared		0.990769	S.D. dependent Var	0.755080
S.E. of regression		0.072547	Akaike info criterion	-2.245649
Sum squared resid		0.052631	Schwarz Criterion	-1.101997
Log likelihood		66.42169	Hannan-Quinn Criter.	-1.846484
F-statistic		151.2608	Durbin-Watson Stat	2.546246
Prob(F-statistic)		0.000000		
Panel B. Post Estimation Tests				
Breusch-Godfrey Serial Correlation LM Test,			F- Stat 2.800[0.128]	
ARCH Test			F- Stat 0.061[0.806]	
Ramsey RESET Test			F- Stat 0.626[0.452]	
Panel C. Coefficient Restrictions Test/Bound Test				
F-statistic			118.5990 [0.0000]	

Note: The LM test for serial correlation, ARCH test for heteroscedasticity, RESET test for functional form and CUSUM, and CUSUMSQ for structural stability. The Breusch-Godfrey LM-test, ARCH test, and RESET test are based on F-statistics. The p-values are stated in [ ]. Source: Author's Computation.

The stability test is conducted on the estimated UECM of Table 2 to see how stable the model is using the cumulative sum (CUSUM) and cumulative sum squares (CUSUMSQ). From figure 1, it is observed that neither the graphical plots of the CUSUM nor the CUSUMSQ crossed the five percent critical lines. Therefore, we conclude that the estimated parameters are stable.

Figure 1: Plots of CUSUM and CUSUMSQ Stability Tests for Table 2.



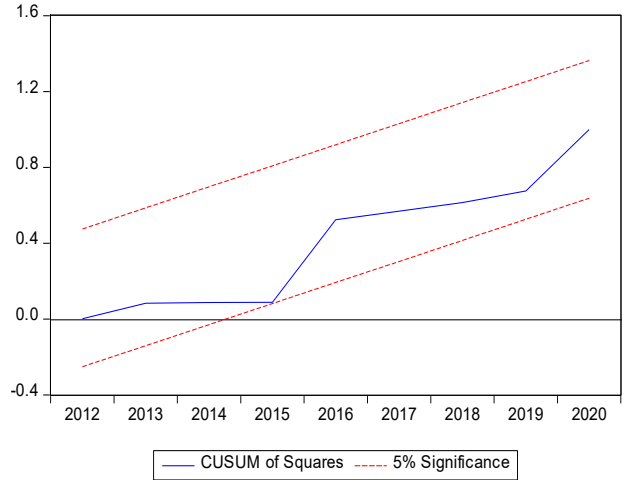


Table 3: FDI and Inclusive Growth: The Role of Capital Market

Panel A. Market Capitalization (MC) Interaction with FDI. Dependent Variable:D(LNGDPPC). Method: Least Squares. Sample (adjusted): 1985 2020 Included observations: 36				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	8.909220	1.430859	6.226485	0.0001
LNGDPPC(-1)	-0.455554	0.124528	-3.658244	0.0044
LHFDI(-1)	-1.060094	0.198199	-5.348629	0.0003
LHMC(-1)	0.057981	0.263743	0.219839	0.8304
LHTGEX(-1)	0.122521	0.075083	1.631819	0.1338
LHIFRA(-1)	0.446563	0.217202	2.055981	0.0668
LFDMC(-1)	0.666095	0.112531	5.919197	0.0001
D(LNGDPPC(-1))	-1.278938	0.256548	-4.985188	0.0005
D(LNGDPPC(-2))	0.349023	0.234286	1.489730	0.1671
D(LHFDI)	-0.268434	0.110226	-2.435312	0.0351
D(LHFDI(-1))	0.570590	0.142569	4.002211	0.0025
D(LHFDI(-2))	0.344107	0.125965	2.731771	0.0211
D(LHFDI(-3))	0.097569	0.030158	3.235264	0.0089
D(LHMC)	0.695380	0.149302	4.657545	0.0009
D(LHMC(-1))	0.010248	0.209445	0.048931	0.9619
D(LHMC(-2))	0.316315	0.141586	2.234092	0.0495
D(LHMC(-3))	-0.418838	0.140094	-2.989693	0.0136
D(LHTGEX)	-0.393096	0.133276	-2.949488	0.0145
D(LHTGEX(-1))	-0.781206	0.194243	-4.021799	0.0024
D(LHTGEX(-2))	-0.719288	0.179127	-4.015524	0.0025
D(LHIFRA)	1.997533	0.384326	5.197503	0.0004
D(LHIFRA(-1))	0.497131	0.291841	1.703433	0.1193
D(LHIFRA(-2))	1.735434	0.356858	4.863100	0.0007
D(LFDMC)	0.109509	0.059280	1.847314	0.0945
D(LFDMC(-1))	-0.399140	0.086792	-4.598838	0.0010
D(LFDMC(-2))	-0.156660	0.067357	-2.325815	0.0424
R-squared		0.997363	Mean dependent Var	6.911253
Adj, R-squared		0.990769	S.D. dependent Var	0.755080
S.E. of Regression		0.072547	Akaike info criterion	-2.24564
Sum squared Resid		0.052631	Schwarz Criterion	-1.10199
Log likelihood		66.42169	Hannan-Quinn Criter.	-1.84648
F-statistic		151.2608	Durbin-Watson Stat	2.546246
Prob(F-statistic)		0.000000		
Panel B. Post Estimation Tests				
Breusch-Godfrey Serial Correlation LM Test			F- Stat 1.891[0.213]	
ARCH Test			F- Stat 1.623[0.209]	
Ramsey RESET Test			F- Stat 2.793[0.129]	
Panel C. Coefficient Restrictions Test/Bound Test				
F-statistic			160.3456 [0.0000]	

Note: The LM test for serial correlation, ARCH test for heteroscedasticity, RESET test for functional form and CUSUM and CUSUMSQ for structural stability. The Breusch-Godfrey LM-test, ARCH test, and RESET test are based on F-statistics.
Source: Author's Computation.

The stability test is conducted on the estimated UECM of Table 3 to see how stable the model is using the cumulative sum (CUSUM) and cumulative sum squares (CUSUMSQ). From figure 2, it is observed that neither the graphical plots of the CUSUM nor the CUSUMSQ crossed the five percent critical lines. Therefore, we conclude that the estimated parameters are stable.

Figure 2: Plots of CUSUM and CUSUMSQ Stability Tests for Table 3.

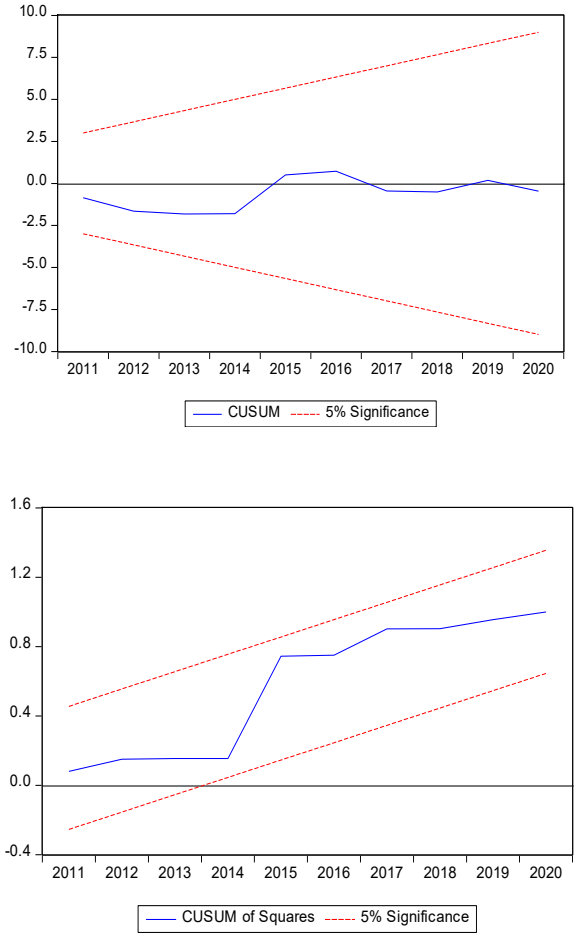


Table 4, panel A, shows that the hypothesis of no long-run relationship between inclusive growth (GDPPC) and, private sector credit (PSC), foreign direct investment (FDI), manufacturing base (MAN), infrastructural base (IFRA), and the interaction between foreign direct investment and private sector credit (FDI*PSC) is rejected at the one percent level of significance since the computed F-stat (118.60) is greater than the Narayan (2005) upper bound critical value (6.250).

Table 4, Panel B reveals that the hypothesis of no long-run relationship between inclusive growth and, foreign direct investment (FDI), market capitalization (MC), government expenditure (GEX), infrastructural base (IFRA), and the interaction

between foreign direct investment and market capitalization (FDI*MC) is rejected at the five percent level of significance, given that the computed F-stat (160. 35) is greater than the upper bound of the critical value (6.250). The conclusion drawn from these results is that there exists a long-run relationship between inclusive growth and the underlying variables. An economic interpretation of the long-run model (of equation 1) is derived by normalizing the estimates of the cointegrating equations. The short and long-run estimates of the cointegrating equations are presented in Table 5.

Table 4: ARDL Cointegration Bound Test

Model	F- Statistics
*Panel A: LnGDPPC = f(LnFDI, LnPSC, LnMAN, LnIFRA, LnFDI*LnPSC)*	F- Stat = 118.5990*
Narayan (2005)	**k = 4, n=40**
Critical Value	**Lower Bound Upper Bound**
1%	4.428 6.250
5%	3.202 4.544
10%	2.660 3.838
*Panel B: LnGDPPC = f(LnFDI, LnMC, LnTGEX, LnIFRA, LnFDI*LnMC)*	F- Stat = 160.3256*
Narayan (2005)	**k = 4, n=40**
Critical Value	**Lower Bound Upper Bound**
1%	4.428 6.250
5%	3.202 4.544
10%	2.660 3.838

Notes: *, **, and *** denote significant at 10%, 5%, and 1% levels, respectively. Critical values are obtained from Narayan (2005). Source: Author's Computation.

Since the aim of this study is to investigate the hypothesis that FDI will significantly impact on inclusive growth under a certain level of domestic financial sector development with respect to improving the process of technological inflows, therefore, the study focuses on the FDI and the interactive terms (LnFDI*LnPSC and LnFDI*LnMC). Based on this, the study derives the threshold level of the domestic financial sector development (PSC and MC) above which FDI will begin to impact positively on inclusive growth.

The derivation of the threshold levels is done using the short and long-run coefficients of inclusive growth in Table 5, with respect to FDI. Before the derivation of the threshold levels, the short and long-run coefficients of inclusive growth are derived from the results in Tables 2, 3, and 4. The short-run coefficients are derived by summing the significant values of the lagged differenced coefficients of each variable while the long-run coefficients are derived through the normalization of coefficients of one-period lagged-level variables by dependent variable (Khan, 2007).

Table 5: Short- and Long-Run Coefficients of Inclusive Growth

	Panel A: Money Market (PSC) Interaction with FDI		Panel B: Capital Market (MC) Interaction with FDI	
Variable	**Short-Run Coefficients**	**Long-Run Coefficients**	**Short-Run Coefficients**	**Long-Run Coefficients**
Constant	-	29.514	-	19.557
LnFDI	-2.393**	-4.490**	-0.744**	-2.327*
LnPSC	*-1.154***	*-3.865***	-	-
LnMC	-	-	*-0.812***	*-0.127***
LnMAN	*2.841***	*-1.603***	-	-
LnGEX	-	-	*-1.894***	*0.269*
LnIFRA	*0.721***	*-2.751***	*3.733***	*0.980*
*LnFDI*LnPSC*	*1.120***	*1.712***	-	-
*LFDI*LnMC*	-	-	*-0.446***	*1.462***

Note: *, **, and *** indicate significance at the 1 percent, 5 percent, and 10 percent levelsof significance, respectively. The long-run coefficients are derived through the normalization of coefficients of lagged level variables by the dependent variable from equation 2. The short-run is derived by summing the significant values of the lagged differenced coefficients of each variable from equation 2.
Source: Author's Computation.

Table 5, panel A, the result shows that FDI alone exerted a significant negative impact on inclusive growth in the short and long-run, while the interactive term (LnFDI*LnPSC) exerted a positive and significant impact on inclusive growth both in the short and long run. This result is in line with the hypothesis that FDI impacts positively on inclusive growth only when the domestic financial sector development has reached a certain minimum level, else FDI will have a non-significant impact on inclusive growth in Nigeria. This is evidence that the domestic money market development is a pre-condition for FDI to increase inclusive growth. This clearly shows that the financial sector (money market) acts as a link through which the benefits of FDI are transformed into promoting inclusive growth.

In panel B of Table 5, the short-run capital market result shows that FDI positively impacts inclusive growth while the long-run result reveals that FDI impacted inclusive growth negatively. Also, the interactive term (LnFDI*LnMC) exerted a significant negative and positive impact on inclusive growth in the short and long run, respectively. This result implies that in the short run, FDI inflows significantly contributed to inclusive growth without the complementing the capital market development (domestic financial sector development), while in the long run, the capital market complements FDI inflows in contributing to inclusive growth. The positive relationship between FDI inflows and inclusive growth in the short run may be explained by the fact that FDI can still contribute to inclusive growth directly by having a positive impact on the overall growth (economic growth), given the verifiable role of economic growth in poverty reduction

(Dollar & Kraay, 2001). This may also be explained by the fact that FDI may induce government investment in infrastructure in local areas that benefit the local poor, also, FDI contributes to government revenue (tax income) that facilitates government-led programmes for the poor, etc. However, the long-run result supports the hypothesis that FDI impact positively on inclusive growth only when the domestic financial sector development has reached a certain minimum level. This is evidence that the domestic capital market development is one of the pre-conditions for FDI to contribute to inclusive growth. Therefore, the capital market acts as a link through which the benefits of FDI are transformed into promoting inclusive growth in Nigeria.

In panel A of Table 5, the financial sector (PSC) has a significant negative effect on inclusive growth in the short and in the long run. This negative significant effect of the financial sector development (money market development) on inclusive growth could be that the developments in the financial sector (PSC) are not translated to economic activities as funds are not being channeled to investment purposes. This could be that private sector credit is not based on production consideration. This is evident in the money market allocation of funds to government institutions and selective individuals against economic consideration. This may have been responsible for the accumulation of huge debts which in most cases are termed as non-performing loans (bad debts) leading to the economic and financial crime institutions chasing after them. Also, the negative significant effect of the domestic financial sector (PSC) on inclusive growth could be attributed to the inclusion of the interaction term (LnFDI*LnPSC), as it captures an important allocation function that a well-developed financial sector performs in people's wellbeing (inclusive growth) (Khan, 2007).

In panel B of Table 5, the financial market (MC) has a significant negative and non-significant effect on inclusive growth in the short and long-run, respectively. These effects could be attributed to the high internationalization of the Nigerian capital market, as it exposes the domestic financial sector (capital market) to external shock. This may be true because in the 2007 global financial crisis, it was found that the crisis-induced massive withdrawal of foreign investors' portfolio investment from the Nigeria financial system in order to service financial problems in the home country. This led to naira depreciation and a fall in foreign exchange reserve, in turn, this imposed higher importation costs, as well as production costs on manufacturing. This rising cost of production fueled inflation and unemployment in Nigeria. Evidence of the employment crisis that resulted from the global financial crisis is that of a quoted company like Dunlop Nigeria PLC. This company closed down, and over 5,000 staff were laid off in 2009 due to losses suffered (Nkoro and Uko, 2016). According to International Labour Organization (2009), over 51 million people were fired and additional 40 million people were at risk of being out of a job due to the global economic and financial crisis. Thus, the exposure of the capital market to external shock negated the fundamental influence of the domestic financial sector on inclusive growth.

However, these results do not connote that the financial system is not important in achieving inclusive growth in Nigeria, but the results are capable of informing policy

actions, especially when there is evidence of FDI leading to inclusive growth after including the effect exerted by the financial sector development.

In Table 5, manufacturing, value-added (MAN) which captures the industrial base of the economy presents a negative effect on inclusive growth in the long run through the FDI spillover efficiency. This is in contrary to the international empirical studies (Guisan, 2017), and to the belief that a developed industrial base will have a positive impact on inclusive growth. In panel A and B of Table 5, the infrastructure (IFRA) presents a significant negative, and non-significant effect on inclusive growth, respectively. This could be attributed to the high level of infrastructural decay in Nigeria.

The negative effect of manufacturing, value-added (MAN) which captures the industrial base of the Nigeria economy could be attributed to several problems of the model specification or even to the lack of variability of some variables. Better still, this result may be due to different problems of the models (such as inclusion of variables at current prices instead of variables at constant prices, effects of some missing variables, the lack of variability of some variables amongst others). Also, this result points to the direction of Nigeria's low industrial production and low value of exports per capita, which have led to increase in Nigeria foreign debt in order to afford the imports that are needed for the developmental purposes. According to Guisan (2021), countries with higher increase in Manufacturing and Industry per capita have reached higher levels of development for the period 1995-2019.

We notice that China's value of real Gross Domestic Product per capita, at 2017 Prices and Purchasing Power Parities was below Nigeria in year 1995 and has reached a value close to the World average as at 2019. This is mainly due to a much higher increase of industrial production per capita. In year 2010 the manufacturing real value per capita of China was $2181 and in Nigeria only $151, while World average was $1728. Similarly, in 2010 the China's manufacturing output percent of gross domestic product stood at 31.6 while Nigeria's stood at 6.55.

It is important to note that in an econometric estimation "to present a negative effect" does not imply "to have a negative effect". Variables with positive effects may show a negative coefficient due to problems stated above.

Given the coefficients of foreign direct investment (FDI), and the coefficients of the interactive terms, the study determined the threshold values of money market **development (PSC), and capital market development (MC) above which FDI begins to** exact positive impact on inclusive growth. In calculating the threshold values, the study adopted Durham's (2004) approach as used by Khan (2007). The threshold value is calculated by differentiating the equations in Table 5 with respect to foreign direct investment and equate to zero. That is the derivation of the threshold levels is done using the short-and long-run coefficients of inclusive growth in Table 5, with respect to foreign direct investment.

Money Market Development

The Short Run Equation: PSC interaction with FDI

LnGDPPC = - 2.393LnFDI – 1.154LnPSC + 2.841LnMAN + 0.721LnIFRA + 1.120LnFDI*LnPSC

$$\Delta LnGDPPC/\Delta LnFDI = -2.393 + 1.120LnPSC = 0$$

$$LnPSC = 2.393/1.120 = 2.137$$

The threshold level for the short-run equation is derived by taking the antilog of 2.137 which is *8.471.*

. **The Long Run Equation: PSC interaction with FDI**

LnGDPPC = 29.514 – 4.490LnFDI – 3.865LnPSC – 1.603LnMAN – 2.751LnIFRA + 1.712LnFDI*LnPSC

$$\Delta LnGDPPC/\Delta LnFDI = -4.490 + 1.712LnPSC = 0$$

$$LnPSC = 4.490/1.712 = 2.623$$

The threshold level for the long-run equation is derived by taking the antilog of 2.623 which is *13.772.*

Capital Market Development

The Short Run Equation: MC interaction with FDI

$$\Delta LnGDPPC/\Delta LnFDI = 0.744 – 0.446LnMC = 0$$

$$LnMC = 0.744/0.446 =$$

The threshold level for the short-run equation is derived by taking the antilog of 1.668 which is *5.302*.

The Long Run Equation: MC interaction with FDI

$$\Delta LnGDPPC/\Delta LnFDI = -2.327 + 1.462LnMC = 0$$

$$LnMC = 2.327/1.462 =$$

The threshold level for the long run equation is derived by taking the antilog of 1.592 which is *4.912.*

From the above calculation, the threshold levels for the short and long-run money market (PSC) models are 8.471 and 13.772, respectively. This result indicates that FDI will impact inclusive growth positively only when the percentage of private sector credit to gross domestic product (PSC) is above 8.5 percent, and 13.8 percent in the short and long run, respectively. This implies that the percentage of private sector credit to gross domestic product (PSC) will have to be above 8 percent (for the short-run) and 14 percent (long-run) for foreign direct investment to have a significant positive impact on inclusive growth. Similarly, the threshold level for the long-run capital market (MC) model is 4.912 percent. This result indicates that FDI will impact on inclusive growth positively only when the percentage of market capitalization to gross domestic product (MC) is above 4.9 percent in the long run. This implies that the percentage of market capitalization to gross domestic product (MC) will have to be above 4.9 percent (long run) for foreign direct investment to have a significant positive impact on inclusive growth. These results suggest that the host country will benefit significantly from FDI with a high level of money market development threshold while at the same time benefit from FDI with a moderate level of capital market development threshold.

5. Concluding Remarks

This study examined the role of the domestic financial sector development in the relationship between foreign direct investment (FDI) inflows and inclusive growth in Nigeria over the period, 1981-2020 using annual time series. Analytically, the study employed the Autoregressive Distributed Lag (ARDL) framework. Based on the analysis, the study found:

- That the FDI exerted a positive effect on inclusive growth in the short and long-run when the domestic financial sector has reached a certain minimum level of development. This suggests that the domestic financial sector development is a pre-condition for FDI to effectively promote inclusive growth in Nigeria.
- That the FDI alone has a significant negative effect on inclusive growth both in the short and long run. This implies that FDI alone does not necessarily contribute to the improvement of welfare. The host country can only benefit from the positive effects of FDI when the efficiency and development of the domestic financial sector reach a certain minimum level.
- The manufacturing, value added which captured the industrial base of the economy presents a negative effect on inclusive growth through the FDI spillover efficiency contrary to the belief that a developed industrial base will have a positive impact on inclusive growth. Also, the infrastructure presents a significant negative, and non-significant effect on inclusive growth in the short and long run, respectively. These findings do not imply that manufacturing and infrastructure do not have a positive effect on economic development of Nigeria. They may be explained by several factors (scarce variability of some variables in the sample, the effects of some missing variables, or other causes). As seen in several studies cited in Guisan(2017) and (2021), and other studies, manufacturing has usually an important contribution to industrial development and has positive effects on sustainable development of Services and other sectors.

Based on the findings, the following suggestions are made:

- **The Development of the Domestic Absorptive Capacities-Financial Sector Development**: For FDI to positively impact on inclusive growth, the development of the domestic absorptive capacities has to be an integral part of the Nigeria policy agenda. The policymakers need to extend the financial sector development by further promoting reforms that will translate FDI inflows into inclusive growth. With this, financial services should be extended to many private sector entities for them to be able to meet up with the demand as well as compete with their foreign counterparts. In this case, jobs will be retained, income increased, and welfare improved. Lack of domestic absorptive capacities is the reason why most countries have not fully benefited from FDI, despite the influx of FDI, thereby struggling in poverty.

- **Further Research**: It would be desirable to disaggregate the data into different modalities of FDIs, to know how the different modalities of FDI affect inclusive growth in Nigeria.

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Annex: Data of section 4. Tables A1 and A2.

Annex. Data of section 4.

Table A1. The sources of data and units of measurement are as follows

Variables	Description	Unit of Measurement	Source
GDPPC	Gross Domestic Product Per Capita	US Dollars ($), current prices and exchange rates	https://statisticstimes.com/economy/country/nigeria-gdp-per-capita.php
PSC	Private Sector Credit	Percentage of GDP (% of GDP)	Transformed Data
MC	Market Capitalization	Percentage of GDP (% of GDP)	Transformed Data
GEX	Total Government Expenditure	Billion Naira	Central Bank of Nigeria Statistical Bulletin, 2020
MAN	Manufacturing, value added	Percentage of GDP (% of GDP)	World Bank's World Development Indicators (WDI)
IFRA	Adjusted Gross Fixed Capital Formation	Percentage of GDP (% of GDP)	World Bank's World Development Indicators (WDI)
FDI	Foreign Direct Investment	Percentage of GDP (% of GDP)	Transformed Data

Table A2. Data Used for Analysis in Section 4

YEAR	GDPPC	PSC	MC	GEX	MAN	IFRA	FDI
1981	2180	5.92	3.45	11.4	20.26	89.38	0.33
1982	1844	6.88	3.23	11.9	20.33	85.93	0.3
1983	1223	7.16	3.5	9.6	21.1	75.75	0.38
1984	902	7.31	3.23	9.9	17.74	58.95	0.26
1985	883	6.80	3.43	13	21.05	46.39	0.66
1986	639	7.53	3.36	16.2	21.01	54.95	0.35
1987	598	8.45	3.29	22	18.78	49.99	1.16
1988	549	8.53	3.12	27.7	21.02	43.64	0.76
1989	474	7.25	3.05	41	18.35	52.49	4.28
1990	568	6.71	3.26	60.3	17.78	53.19	1.09
1991	503	6.94	3.88	66.6	19.49	48.41	1.45
1992	477	6.39	3.43	92.8	17.65	43.78	1.88
1993	270	10.10	3.77	191.2	18.38	44.49	4.85
1994	321	8.14	3.76	160.9	20.93	42.08	5.79
1995	408	6.22	6.23	248.8	19.99	37.24	0.76
1996	462	6.31	7.56	337.2	19.1	36.63	0.98
1997	480	7.69	6.86	428.2	19.2	38.48	0.86
1998	469	7.67	5.72	487.1	17.45	40.61	0.55
1999	498	8.12	5.65	947.7	16.26	38.34	1.69
2000	568	7.69	6.85	701.1	13.93	34.11	1.64
2001	590	9.40	8.14	1018	13.93	30.93	1.61
2002	742	8.21	6.75	1018.2	11.81	27.58	1.96
2003	795	8.24	10.22	1226	12.06	29.39	1.91
2004	1008	8.21	12.2	1504.2	10.86	27.12	1.37
2005	1268	8.26	13.02	1919.7	10.06	26.19	2.83
2006	1656	7.99	17.87	2038	8.85	27.87	2.06
2007	1883	11.12	39.95	2450.9	8.4	21.24	2.19
2008	2243	17.67	24.42	3240.8	8.17	19.9	2.43
2009	1891	20.55	15.88	3453	7.84	22.05	2.93
2010	2280	18.60	18.16	4194.6	6.55	17.56	1.67
2011	2488	16.93	16.32	4712.1	7.17	16.36	2.18
2012	2724	20.43	20.64	4605.3	7.72	14.96	1.55
2013	2962	19.67	23.82	5185.3	8.93	14.9	1.09
2014	3099	19.24	18.95	4587.4	9.64	15.8	0.86
2015	2687	19.84	18.06	4988.9	9.43	15.49	0.63
2016	2176	20.77	15.95	5858.6	8.68	15.37	0.85
2017	1969	19.43	18.58	6456.7	8.74	15.47	0.64
2018	2028	17.63	17.15	7813.7	9.65	19.81	0.2
2019	2230	17.28	17.95	9714.6	11.52	25.42	0.51
2020	2097	19.80	25.33	10231.7	12.67	29.4	0.55

Note:
GDPPC = Gross Domestic Product Per Capita($ at current prices and exchange rates)
PSC = Private Sector Credit (% of GDP)
MC = Market Capitalization (% of GDP)
GEX = Total Government Expenditure (N billion)
MAN = Manufacturing, value added (% of GDP)
IFRA= Adjusted Gross Fixed Capital Formation (% of GDP)
FDI = Foreign Direct Investment (% of GDP)