

## Effect of Sectoral Foreign Direct Investment on Economic Development in Nigeria: An Econometric Analysis

Christian Gbarawae NWIKINA PhD<sup>1\*</sup>, Edobot Udo EKERE<sup>2</sup>

<sup>1,2</sup>Department of Economics, Faculty of Social Sciences, Rivers State University, Nkpolu-Oroworukwo, Rivers State, Nigeria

### \*Corresponding Author

**Christian Gbarawae NWIKINA**

Department of Economics,  
Faculty of Social Sciences,  
Rivers State University, Nkpolu-  
Oroworukwo, Rivers State,  
Nigeria

### Article History

Received: 18.07.2024

Accepted: 26.08.2024

Published: 07.09.2024

**Abstract:** This study uses econometric techniques to analyze the effect of sectoral foreign direct investments on economic development in Nigeria from 1985-2022. Secondary data on real gross domestic product (RGDP), human development index (HDI), foreign direct investments (FDI) in service, transport and communications sectors were sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin, National Bureau of Statistics (NBS) Report, and World Development Indicators (WDI) of World Bank. The Autoregressive Distributed Lag (ARDL) test processes was utilised as the analytical methods. The ARDL result revealed that in the long run, FDI in the long run, FDI in service sectors had had negative and insignificant effects on human development index. FDI in manufacturing, likewise transport and communications sectors had positive and insubstantial effects on human development index. In the short run, FDI in transport and communications sectors had negative and significant effects on HDI. FDI in manufacturing sector had positive and insignificant effect on HDI. However, FDI in service sector had positive and substantial effect on HDI. Hence, it was concluded that FDI had substantial impact on human capital development. Therefore, the study recommended that government should provide needed enabling environment to increase FDI in various sectors. To achieve this, government should remove all the road blocks to foreign productive investments in Nigeria. The process ranges from fixing infrastructural deficits through addressing issues of good governance, corruption and insecurity.

**Keywords:** FDI in Manufacturing, FDI in Transport and Communications, FDI in Service, Economic Development.

**Copyright © 2024 The Author(s):** This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

## 1. INTRODUCTION

It is becoming more important that foreign direct investment (FDI) plays a substantial role in driving economic growth and development, particularly in developing nations. Considering that Nigeria is a nation that is blessed with an abundance of natural resources but is also confronted with severe economic issues, FDI is an extremely important factor in determining the path that the country's economy will take. Therefore, in the context of this article, the term "foreign direct investment"

refers to the investment that is made by a firm or a person from one nation into a business interest that is situated in another country. The acquisition of a substantial ownership position in a foreign firm, the establishment of new commercial activities, or the expansion of existing ones are often the steps involved in this process. Both a long-term interest and a high degree of control over the management of the firm in the host nation are characteristics of FDI, which is also known as FDI. Not only does it often include the transfer of cash, but it also frequently

**Citation:** Christian Gbarawae NWIKINA & Edobot Udo EKERE (2024). Effect of Sectoral Foreign Direct Investment on Economic Development in Nigeria: An Econometric Analysis; *Glob Acad J Econ Buss*, 6(5), 117-125.

involves the transfer of the management techniques, skills, and technology. In congruent with Akpakpan (1999), foreign direct investment is defined as the purchase of foreign financial assets that results in an ownership stake of ten percent or more. This particular viewpoint is in accordance with this viewpoint.

Mergers and acquisitions, the construction of new facilities, the reinvestment of revenues from overseas operations, and intra-company loans are all examples of the types of activities that might be considered forms of FDI. Nigeria is a fascinating example for investigating the dynamics of FDI and its influence on economic growth since it is the country with the most populated populace and the biggest economy in Africa. The goal of economic development in Nigeria is to enhance the standard of living of the country's people by means of continuous economic growth, better infrastructure, and expanded job opportunities. In the same vein, Akpakpan (1999) characterised economic development as the process of enhancing the overall well-being of a society, typically shown through favourable changes in different parts of people's daily lives. These changes include, but are not limited to, lower unemployment and poverty rates, less personal and regional inequality, more economic growth, better housing, health care, and education, and increased productivity.

It is imperative to note that economic development in Nigeria yields numerous benefits across various dimensions of society and the economy. It leads to poverty reduction by creating job opportunities and increasing incomes. Improved infrastructure enhances connectivity, reduces transportation costs and attract further investment. This means that boosting Nigeria's economy requires tackling systemic issues like poor infrastructure, restricted access to financing, and low levels of human capital development in addition to encouraging equitable growth and decreasing income disparity. Because of the money, technology, knowledge, and access to markets that FDI provides, it is an essential component in this development process. Infrastructure development, technology transfer, job creation, market expansion, human capital upgrading, sustainable growth, and overall economic development are just a few areas where FDI has had a multi-faceted and dynamic influence on Nigeria's economy.

Historically, Nigeria has attracted substantial foreign investments, particularly in its oil and gas sector, due to its vast series of hydrocarbons. However, the scope of FDI extends beyond the energy sector, influencing industries i.e. telecommunications, manufacturing and agriculture.

The structural change and economic growth of Nigeria's economy are facilitated by these investments, which provide not only financial resources but also technical know-how, better management techniques, and access to global markets. There are a lot of moving parts in the complicated web that connects FDI and economic growth in Nigeria, despite the advantages that may result. Inadequate infrastructure, political instability, corruption, and regulatory hurdles are some of the issues that might prevent foreign investments from being utilised effectively.

Furthermore, the extent to which FDI contributes to sustainable development, poverty alleviation, and job creation remains a topic of considerable debate. The ultimate impact of FDI on Nigeria's economic development depends on how well these investments are integrated into the local economy and how effectively they address the country's developmental challenges. It is against this background that, this paper seek to answer the following questions. How has FDI in manufacturing influenced economic development? The extent to which FDI in Transport and Communication contributed to economic development? And how FDI in Service Sector has impacted on economic development?

## 2. LITERATURE REVIEW

### Theoretical Framework

#### The Institutional Foreign Direct Investment Fitness Theory:

Wilhems and Witter first proposed the theory in 1998. In congruent with Wilhem and Witter's institutional theory of FDI fitness, a country's capacity to attract FDI is contingent on its capacity to satisfy the internal and external expectations of its investors. Thus, nations, particularly developing ones, do not only seek out FDI. They are able to do it because of some crucial factors. utilising what they called a "pyramid," the theory's proponents examined the important factors. In congruent with the idea, the most ancient and intricate of all institutions are socio-cultural variables, which are ranked first on the pyramid. The authors continue by stating that education is crucial to creating an environment that is appealing to FDI. This is because educated human capital improves research and development (R&D) creativity and information processing abilities. Education is not a prerequisite for FDI to flow into a particular area, but it is a necessary skill for ventures that may attract FDI to be launched. FDI activities in the nation have a fair chance of being successful and efficient if educational skills have a good influence on productivity. Institutional FDI fitness is mostly determined by the market, which is represented on the third tier of the pyramid by credit and machinery, or physical and

financial capital, respectively. Consequently, the MNC's investment decisions are heavily influenced by the state of the financial markets. The government is at the very top of the pyramid, at number four. The most important factor in luring FDI is the political stability of a nation.

### Capital Market Theory

The capital market theory, or "currency area theory" as it is more often known, was created by Aliber in 1971. Foreign direct investment (FDI) is supposedly sparked by flaws in the capital market, in congruent with the hypothesis. Nayak and Choudhury (2014) state that the disparity between the currencies of the home and host countries is the root cause of FDI. Aliber (1970; 1971) argues that weaker currencies are better suited to attract FDI and take advantage of variations in market capitalisation rate than stronger nation currencies. Aliber (1970; 1971) expanded on this idea by saying that multinational corporations (MNCs) headquartered in countries with strong currencies may borrow at a far lower interest rate than their counterparts in countries with weaker currencies, as portfolio investors may not value MNCs' currencies. This allows businesses in the source nation to borrow money more easily and at lower interest rates for their overseas investments and subsidiaries, as compared to businesses in the target country. Some academics felt that this theory of capital markets ignored fundamental currency risk management, even if it is relevant to industrialised nations like the US, UK, and Canada. The basics. Another work by Lall (1979) was a strong rebuke of Aliber's theory. Lall noted that less developed countries with non-existent or imperfect capital markets and countries with heavy regulation of foreign exchange rates do not qualify for Aliber's theory.

### Empirical Literature

In his study from 2007, Adeolu looked at the factors that determine FDI into the Nigerian economy. He also researched the link between non-extractive FDI and economic development in Nigeria. The CBN, the International Monetary Fund, and the Federal Office of Statistics were the sources of secondary data that were collected between the years 1970 and 2002. It was found that the factors that determine FDI in Nigeria include the size of the market, the development of infrastructure, and the stability of macroeconomic policy. However, openness to commerce and the availability of human resources do not induce FDI. FDI in Nigeria makes a favourable contribution to the country's economic progress. It is possible that FDI may not have a major influence on economic development as a whole; yet, the components of FDI do have a favourable impact. The FDI in the communication industry has the greatest potential to bolster economic growth, and it

is much higher than the FDI in the oil sector. As a reflection of the unfavourable business climate in the nation, FDI in the manufacturing sector has a negative impact on the economy.

Through the use of generalised methods of moments (GMM), Turkcan *et al.*, (2008) investigated the endogenous link that exists between economic development and FDI. Based on the upshots, it was discovered that FDI and growth are major factors that influence each other, and that the rate of export growth is statistically substantial for both variables. Solomon and Eka (2013) conducted research on the association between FDI and economic development in Nigeria from 1981 to 2009. They utilised the OLS approach. In the end, the upshots showed that FDI in the manufacturing sector had a favourable but minor influence on the development of the Nigerian economy.

Using the proxies of income per capita, life expectancy, and education indices, Adegboye *et al.*, (2017) investigated the decreasing influx of FDI to the African areas likewise the influence that it has had on the economic growth of the region. The research indicates that there is a statistically substantial link between FDI and the economic progress of African nations that are home to the investment. Over the course of the years 1981 to 2015, Idoko and Taiga (2018) investigated the impact that FDI had on the expansion of the manufacturing sector in Nigeria. Two of the most important analytical methods that were utilised were the Johansen Co-integration test and the Vector Auto Regression (VAR) approach. FDI had a favourable but small influence on the output of the manufacturing sector, which also means that there was a rise in the overall production of goods and services in Nigeria, in congruent with the upshots of the variance analysis of variance (VAR) in the impulse response function and variance decomposition test. A long-term association between FDI and the expansion of the manufacturing sector output in Nigeria was found to exist, as shown by the upshots of the co-integration test.

From 1981 to 2018, Ugwuanyi *et al.*, (2020) analyse the effect of FDI on Nigeria's economic growth. The World Bank Data Base-World Developmental Indicators of 2018 and the CBN Statistical Bulletin of 2018 were the sources of the data that were utilised for this research. The ARDL Model was utilised in this study for the purpose of data analysis. likewise, further diagnostic tests were conducted, which included the stability test, auto correlation test, heteroskedasticity test, and the Breusch-Godfrey Serial Correlation LM test. The results of these tests verified that the model used was solid and reliable. Based on the inferential upshots, it was determined that FDI had a favourable but

negligible influence on the economic growth of Nigeria between the years 1981 and 2018. These upshots are also consistent with the a priori expected outcomes of the economy.

Ndibe *et al.*, (2021) conducted research to determine whether or not there was a correlation between FDIs and the contribution of the manufacturing sector to the GDP in Nigeria from 1990 to 2019. In the end, the upshots demonstrated that there is a one-way correlation between FDI and the contribution of the manufacturing sector to GDP. That FDI inflows into Nigeria did not cause the manufacturing sector to contribute to GDP is suggested by this. More research showed that there is no statistically substantial linear link between FDI net inflows and the input of the manufacturing sector to the GDP in Nigeria. The analysis suggests that the little contribution provided by the manufacturing sector in Nigeria is not due to FDI net inflows. This is the consequence of the study on the subject.

The impact of foreign direct investment (FDI) on national socioeconomic development is investigated by Abdul *et al.*, (2022) using the countries participating in the "Belt & Road" initiative (BRI) as an example. This research made use of panel data that covered the years 2005 to 2018. The three socio-economic development indicators used as outcome variables in this study were life expectancy, gross national product per capita, and human capital development. The study's authors found a long-term correlation between FDI and socioeconomic progress. Results from the baseline regression and Fully Modified Ordinary Least Square (FMOLS) corroborate the idea that foreign direct investment (FDI) has no favourable effect on the economic and social growth of BRI member nations. Financial foreign direct investment (FDI) significantly and favourably affects poverty reduction in South Asian (SA) and Central and Western Asian (CWA) regions, in contrast to the opposite effect in Central and East European (CEU) and Middle East North Africa (MENA) regions, according to the results of the region-wise analysis. But in the East Asia Pacific (EAP) and Sub-Saharan African (SSA) regions, it does nothing to alleviate poverty. Foreign direct investment (FDI) contributes favourably to health facility development in South Africa and Central West Africa, but has either no effect at all or a negative one in the rest of the region. In conclusion, FDI has a favourable and substantial impact on human capital development in the CEU and EAP areas, but a negative correlation in the MENA area. But it's completely irrelevant in South Africa, Central West Africa, and Sub-Saharan Africa.

In their 2023 study, Ekanem *et al.*, investigated how FDI impacted the growth of the

Nigerian economy. The primary purpose of this research was to evaluate the impact of the exchange rate on the economic growth of the Nigerian economy, likewise to investigate the impact of the interest rate on the economic development of the Nigerian economy. The research strategy that was employed in the study was an ex-facto research approach since the researcher relied substantially on secondary data that spanned a period of 31 years (1990-20201). In congruent with the upshots of the research, the exchange rate has a substantial impact on the economic growth of the Nigerian economy ( $R^2 = 0.340$ ), but the interest rate has a relatively little impact on the economic development of the Nigerian economy ( $R^2 = 0.017$ ).

In this study, Thuy *et al.*, (2023) examine the influence of FDI on economic growth in Vietnam, focussing on the function that institutional quality plays in 63 provinces and cities over the period of 2005–2022. The upshots, which were obtained via the use of a number of different regression techniques, including Pooled Ordinary Least Squares, FEM, REM, GMM, and PVAR, demonstrate that both institutional quality and FDI have a beneficial influence on economic growth. Furthermore, the upshots give evidence that the quality of institutions is a substantial element in attracting FDI, which in turn determines both the quality and amount of inflows from other nations into Vietnam.

A study by Obi-Nwosu *et al.*, (2019) looked at how FDI affected Nigeria's industrial strength. Both primary and secondary data were obtained from the CBN. For the period of 1984 to 2017, statistical bulletins of different years for FDI, exchange rate (EXR), inflation rate (INFR), and manufacturing capacity (MC) were submitted to Augmented. These bulletins were analysed. As a upshot of the research, it was found that FDI and Export-Received Revenue (EXR) were able to have a substantial influence on manufacturing capacity in Nigeria, however INFR were unable to play a substantial role in this regard. There is also the existence of a connection that exists over the long run between the variables that are being studied throughout the era.

### Gap and Value Addition

The systematic examination of the work of other scholars and theories that are related to this present research show that there are differences in opinions and empirical upshots on the effect of sectoral inflow of FDI (i.e., FDI in manufacturing, likewise transport and communication sectors) on selected macroeconomic indicators (economic development and welfare – human development index). The institutional FDI fitness theory and capital market theory have both shown the presence of a beneficial impact of FDI on macroeconomic

variables. FDI may enhance the efficiency of the manufacturing sector to satisfy the growing need for food, raw materials, foreign currency, and to assist the expansion of small industries. This, in turn, would stimulate economic growth and enhance the well-being of the inhabitants.

Furthermore, previous empirical studies have extensively documented numerous upshots regarding the effectiveness of FDI on different macroeconomic measures. However, there is a notable absence of empirical evidence concerning the impact of sector-specific FDI, i.e. FDI in manufacturing, transport, and communication, on specific macroeconomic indicators, namely economic development and improvements in welfare as measured by the human development index, in Nigeria between 1980 and 2021. The extant research readily identifies the sectoral influx of FDI and its impact on economic growth in Nigeria. "While certain studies utilised the Johansen co-integration technique, others employed the error correction mechanism, resulting in inconsistent empirical upshots. Specifically, these upshots varied substantially in terms of the observed impact and effectiveness of FDI in the manufacturing, transport, and communication sectors across different countries.

Previous researchers did not focus on the effect of sectoral inflow of FDI (FDI in agriculture, manufacturing, likewise transport and communication sectors) on selected macroeconomic indicators (i.e., economic development and human development) in Nigeria. None of the previous scholars covered the period from 1980 to 2021. Hence, they lost touch of current realities regarding sectoral inflow of FDI and selected macroeconomic indicators in Nigeria. In view of the apparent gaps in literature, this research will be unique and will differs from others as it will investigate the influence of sectoral inflow of FDI (FDI in manufacturing, transport and communication) on selected macroeconomic indicators (economic development and improvement in welfare – human development index) in Nigeria from 1980 to 2021. These variables are selected based on their usefulness in measuring improvement in welfare in Nigeria.

### 3. METHODOLOGY

For the purpose of this study, yearly time series data were collected on the variables that were chosen, and the time period covered by the research was from 1985 to 2022. World Development Indicators (WDI) of World Bank, the Statistical Bulletin of the CBN, and the Report of the National Bureau of Statistics (NBS) were the secondary sources from which the data were gathered.

### Model Specification

This study's model is based on neoclassical growth theory, which posits that FDI affects economic growth and human development by raising per capita capital. Similarly, this study modified the model developed by Obayori *et al.*, (2016) to examine the effect of FDI inflows into specific sectors on GDP growth in Nigeria. The model utilised variables like FDIM, FDIO, and FDIT, which stand for FDI in Manufacturing, FDI in Oil, and FDI in Transportation, among others.

$$RGDP = f(FDIM, FDIT, FDIO) \dots\dots\dots 1$$

$$RGDP = F(FDIA, FDIM, FDITC, FDIS) \dots\dots\dots 2$$

The model was modified to reflect the objective of this study as stated below;

$$HDI = f(FDIM, FDITC, FDIS) \dots\dots\dots 3$$

From the above functional models or association between the dependent and explanatory variables, the econometric forms of the models were specified as follows

$$HDI_t = b_0 + b_1 FDIM_t + b_2 FDITC_t + b_3 FDIS + u_t \dots\dots\dots 4$$

The study also tried the log-linear form

$$\ln HDI_t = b_0 + b_1 \ln FDIM_t + b_2 \ln FDITC_t + b_3 \ln FDIS + u_t \dots\dots 5$$

Where;

HDI = Human Development Index, FDIM = Foreign Direct Investment in Manufacturing, FDITC = Foreign Direct Investment in Transport and Communication, FDIS= Foreign Direct Investment in Service Sector  
 Ln= Natural Logarithm, u = Error Term, b<sub>0</sub>, = the constant parameters a<sub>1</sub> - a<sub>3</sub> are the slope parameters (co-efficient) of the explanatory variables. They are the parameters to be estimated, which measured the rate of change in the dependent variables caused by the explanatory variables. Specifically, a<sub>1</sub> - a<sub>3</sub> are the true co-efficient of FDI in Manufacturing, FDI in Transport and Communications, and Foreign Direct Investment in Service Sector

**Apriori Expectation:** On the apriori: b<sub>1</sub> – b<sub>3</sub> > 0.

### Description of Variables

The variables are defined as follow:

#### Dependent Variables

**(i) Human Development Index (HDI):** By integrating indicators of health, education, and adjusted real income per capita, the HDI provides a measure of a nation's socioeconomic progress. To be more precise, it seeks to place all nations on a scale from 0 (lowest human development) to 1 (highest human development) in congruent with three outcomes or goals of development: longevity (measured by birth weighted average of adult literacy, or two-thirds of the populace), knowledge (measured by a weighted average of adult literacy, or one-third of the populace), and standard of living

(measured by RGDP, adjusted for the cost of living and the assumption of diminishing marginal utility of income), and finally, standard of living. It classifies nations as either extremely low (0.0 to 0.499), medium (0.50 to 0.799), high (0.80 to 0.90), or very low (0.0 to 1.0) in terms of human development. FDI in agriculture, industry, transportation, and communication, likewise government capital and recurrent spending, is anticipated to have a beneficial impact on HDI, which was recorded as a dependent variable in this research.

**Independent Variables**

**(i). Foreign Direct Investment in Manufacturing (FDIM):** Economic growth and the HDI are predicted to be positively correlated with the co-efficient of FDI

in manufacturing, which served as the independent variable in this research.

**(ii). Foreign Direct Investment in Transport and Communication (FDITC):** Economic growth and the HDI are predicted to be positively correlated with the co-efficient of FDI in transport and communication, which served as the independent variable in this research.

**(iii). Foreign Direct Investment in Service (FDIS):** The co-efficient of the independent variable in this research, which was FDI in services, is anticipated to have a positive link with both economic growth and the HDI.

**4.0 Empirical Data Analysis  
Unit Root Test Result**

**Table 1: Augmented Dickey Fuller (ADF) Unit Root Test at Level and First Difference**

Variables	Unit Root Test @ Level		Unit Root Test @ First difference		Order of integration
	ADF Statistics	5% Critical Value	ADF Statistics	5% Critical Value	
FDIM	-2.296379	-3.536601	-7.522440	3.540328	1(1)
FDITC	-5.453179	-3.536601	-1	-	1(0)
FDIS	-4.477181	-4.226815	-	-	1(0)
HDI	-5.650033	-3.536601	-	-	1(0)

**Source:** Researcher’s computation utilising E-views 10 (2024).

**Note:** HDI, FDIM, FDITC, FDIS as earlier defined

Table 1 displays the upshots of the ADF test for all of the series. At a 5% level of significance, the following series were determined to be stationary: FDIM, FDIA, FDITC, FDIS, and HDI. This is because their ADF statistics are greater than the 5% critical

values. The variables were integrated to the power of 1(0) and 1(1), consequently. We can now test for long-run links utilising an ARDL model, which was previously required.

**Table 2: ARDL Bounds Test for Co-integration for HDI**

<b>Model</b>		<b>F-Statistic = 3.788098</b>
HDI= F(FDIM, FDITC, FDIS)		K = 4
<b>Critical Values</b>	<b>Lower Bound</b>	<b>Upper Bound</b>
5%	2.56	3.49

**Source:** Researcher’s computation utilising E-views 10 (2024).

There is a long run association among the variables (HDI, FDIM, FDITC and FDIS), in congruent with the ARDL limits test for co-integration. Since the calculated F-statistic of around 3.8 exceeds the upper critical boundaries at the 5% critical value, this is the

reason behind it. At the 5% level of significance, this yielded evidence that the null hypothesis of no cointegration for the HDI model should be rejected. The research derived the variables' long- and short-term dynamic characteristics from this discovery.

**Table 3: ARDL Long Run Test for HDI. ARDL Selected Lags (3, 1, 0, 3, 3)**

Variables	Co-efficient	t-Statistic	P-Value
LOG(FDIM)	0.015981	0.251151	0.8043
LOG(FDITC)	0.135919	0.845343	0.4079
LOG(FDIS)	-0.073079	-0.591473	0.5608

**Source:** Researcher’s computation utilising E-views 10 (2024).

Table 3 displays the predicted ARDL long run co-efficient, which show that FDI in Nigeria's agricultural and service sectors interacts negatively and insubstantially with HDI (economic

development) over the long term. Also, there is a positive but negligible correlation between HDI and FDI in Nigeria's industrial and transportation and communications sectors.

**Table 4: Error Correction Representation for HDI Dependent Variable HDI; ARDL Selected Lags (3, 1, 0, 3, 3)**

Regressors	Co-efficient	t-Statistic	P-Value
DLOG(FDIM)	0.005369	0.244775	0.8091
DLOG(FDITC)	-0.065658	-2.428269	0.0247
LOG(FDIS)	0.028382	3.406567	0.0028
ECM (-1)	-0.335949	-5.330172	0.0000
Adjusted R <sup>2</sup> = 0.741062 Adjusted R-squared = 0.647844	Prob.(F-statist) = 0.000000	Durbin-Watson Stat = 1.724208	

**Source:** Researcher’s computation utilising E-views 10 (2024).

Table 4 shows the outcome of the ECM equation's long-run connections as they relate to the short-run dynamic co-efficient. A statistically substantial error correction term with the proper sign (negative) is included in the model. This data reveals that when the HDI deviates from its short-term equilibrium, it eventually returns to it. Table 4 further confirms that the dynamic model fits well. Reason being, FDI in the services, manufacturing, transportation, and communication industries explains 74% of the variance in the HDI (R<sup>2</sup> = 0.741062, or around 0.74). Concurrently, the error term accounts for the remaining 26%. Due to the model's near-2.0 Durbin-Watson (DW) score of 1.724208, we can exclude the possibility of autocorrelation.

As an added bonus, FDI co-efficient in the transport and communications industries are bearish. It was the a priori anticipation that these upshots would be different. The upshots do not line up with what one would anticipate from economic theory, in other words. Therefore, there will be a 0.065658% negative impact on economic development from an increase in FDIs in the transport and communications sectors. This data points to the fact that a lot of money goes into the transportation and communication industries without being put to good use. To add, FDI in the transportation and communications industries has a t-statistic for slope co-efficient that is statistically substantial at the usual level (i.e., 5%). International capital flows into Nigeria’s transport and communication networks, which in turn affects the country's HDI. FDIs in Nigeria's transport and communication sectors might improve the country's HDI if the FDI is well handled.

This study's upshots corroborate those of Shamitra (2013) and Nwafor, Egungwu, and Jessie (2022), two empirical studies that found a strong correlation between FDI in Nigeria's transport and

communications sectors and the country's HDI. That instance, the transit and communications industries, which get a steady stream of FDI, substantially impact Nigeria's economic growth. Not only was that, but the co-efficient for FDI in the service and manufacturing industries seen to be positive. These upshots match the a priori prediction. When it comes to economic theory, the outcome is in line with expectations. The HDI will rise 0.005369% and 0.028382%, respectively, as a result of an increase in FDI in the manufacturing and service sectors. A t-statistic for the slope co-efficient of FDI in the manufacturing sector does not show statistical significance at the customary level (i.e., 5%), nevertheless. Thus, it is acknowledged in this research that the Nigerian HDI and FDI in the manufacturing sector do not show a substantial link. FDI in the service sector has a large absolute value t-statistic at the customary level (i.e., 5%). So, it is concluded from this research that FDI in the service sector and the HDI in Nigeria are substantially related.

**Post Estimation Diagnostic Tests Results**

Diagnostic examinations are carried out in this study in order to guarantee that the estimated model is trustworthy for the objectives of policy prediction or recommendation. To be more precise, this research utilised the following tests for diagnostics and post-estimation purposes: the Wald test for restriction co-efficient, the Breusch-Godfrey (B-G) Lagrange Multiplier (LM) test for serial correlation, the Autoregressive Conditional Heteroskedasticity (Breusch-Pagan-Godfrey), and a normalcy test. What follows is a report of the different test upshots:

**Wald Test**

To verify whether the causative variable co-efficient in all ECM models are jointly substantial, the Wald test is utilised. To determine this, the F-statistic was utilised. What follows is a report of the test upshots:

**Table 5: Wald Test for Co-efficient of Restrictions for RGDP Model (Model I)**

Test Statistic	Value	Df	Probability
F-statistic	73428.00	(5, 18)	0.0000
Chi-square	367140.0	5	0.0000

**Source:** Computed by the researcher utilising E-Views 10.

Table 5 shows that at the standard 5% level, the F-statistic is about 73428 and the probability value is less than 0.05 with a value of 0.0000. This means that the estimated model (i.e., model one) adequately describes the performance of economic development (HDI) in Nigeria over the data period, with all explanatory variables (FDIs in agriculture, manufacturing, service, transport, and communications sectors) contributing substantially.

**Test for Serial Correlation**

As a more comprehensive statistical tool, the Breusch-Godfrey Serial Correlation LM test is used to compare the null hypothesis of no serial correlation with the alternative hypothesis of serial correlation in the parsimonious ECM result. A significance threshold of 5% is used for this test.

**Table 6: Breusch-Godfrey Test for Serial Correlation for RGDP Model (Model I)**

F-statistic	0.128279	Prob. F(1,17)	0.7246
Obs*R-squared	0.254637	Prob. Chi-Square(1)	0.6138

**Source:** Computed by the researcher utilising E-Views 10.

A lack of serial autocorrelation was found in the parsimonious ECM, as shown in Table 6. This is due to the fact that both the chi-square statistic's associated probability value of 0.6138 and its chi-square value of about 0.25464 are more than 0.05.

**Heteroskedasticity Test Results**

To determine whether the residual variance in the minimal ECM is homoscedastic, the Autoregressive Conditional Heteroskedasticity test (Breusch-Pagan-Godfrey) is utilised.

**Table 7: Autoregressive Conditional Heteroskedasticity Test Result for RGDP (Model I)**

Heteroskedasticity Test: Breusch-Pagan-Godfrey

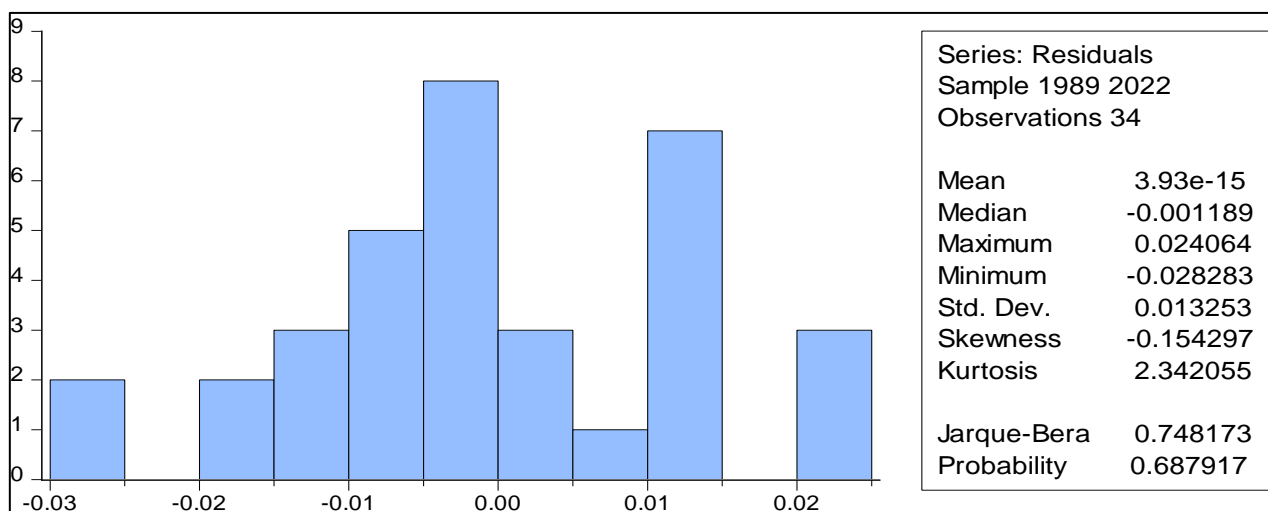
F-statistic	0.929061	Prob. F(15,18)	0.5522
Obs*R-squared	14.83662	Prob. Chi-Square(15)	0.4632
Scaled explained SS	2.790375	Prob. Chi-Square(15)	0.9997

**Source:** Computed by the researcher utilising E-Views 10.

The absence of heteroskedasticity in the parsimonious ECM (i.e., for model one) was verified by the Breusch-Pagan-Godfrey test upshot in Table 7. This indicates that the residual variance in the parsimonious ECM model is homoscedastic over the time period studied.

**Normality Test Results**

The Jarque-Bera statistic is utilised to assess if the residual term in the ECM model follows a normal distribution at a significance level of 5 percent.



**Figure 1: Normality Test Result**

As shown in Figure 1, the error term at the 5% standard level follows a normal distribution. The reason for this is because the probability value of the Jarque-Bera statistic, which is around 0.68792, is more than the standard threshold of 0.05%. The

parsimonious ECM model, the first model, follows this logic and assumes normally distributed residuals according to the Jarque-Bera statistic.



## Discussion of Results

- (i) In the long run, FDIs in the manufacturing, transport, and communications sectors have a favourable but minor impact on the HDI in Nigeria.
- (ii) FDIs in the transport and communications sectors have a detrimental and substantial impact on the HDI in Nigeria in the short run. Nigeria's HDI is positively affected by foreign direct investment (FDI) in manufacturing, however this effect is statistically insignificant. Foreign direct investment (FDI) in Nigeria's service sector boosts the HDI significantly.

## 5. CONCLUSION AND RECOMMENDATIONS

### Conclusion

This research investigates the effects of FDI on economic growth in Nigeria from 1985 to 2022. It aims to determine the degree to which FDI has influenced economic development in Nigeria during this time period. By analysing data on RGDP, HDI, and FDIs in manufacturing, service, transport, and communications sectors from the CBN Statistical Bulletin, National Bureau of Statistics (NBS) Report, and World Development Indicators (WDI) of the World Bank spanning the years 1985 to 2022, we aim to determine the links that exist among these variables. This analysis will be conducted utilising the ARDL model methods of econometrics.

Substantially, a brief examination of the analytical results indicated that FDIs in agricultural, service, manufacturing, and transport and communications sectors had a positive impact on economic growth in Nigeria. A substantial policy implication of the analysis is that in order for Nigeria to experience substantial economic growth and human development, it is crucial to emphasise the need for increased FDI in the service, manufacturing, and transport and communications sectors. FDIs in the service, industrial, and transport and communications sectors are essential for attaining economic growth in Nigeria.

### Recommendations

Based on the results, the following policy recommendations are suggested:

- i. Government should provide an enabling environment to increase FDIs in agriculture, manufacturing, service, likewise transport and communications sectors in Nigeria. To achieve this, government should remove all the road blocks to investment in Nigeria. The process ranges from fixing infrastructural deficits, through addressing issues of good governance, corruption and insecurity.
- ii. The government should augment investment in infrastructure and effectively enforce

fiscal responsibility rules to guarantee enhanced accountability and prudence in the allocation of money for infrastructural development.

- iii. The government should prioritise the reconstruction or resurfacing of our deteriorating roads and railways, likewise the reconstruction of sub-standard airports, in order to align with international standards.

## REFERENCES

- Sattar, A., Hassan, A., Hussain, M. N., Sakhi, U., & Elahi, A. R. (2022). Impact of foreign direct investment on socio-economic development in belt and road countries. *Cogent Economics & Finance*, 10(1), 2143772.
- Ayanwale, A. B. (2007). FDI and economic growth: Evidence from Nigeria.
- Adegboye, F. B., Ojo, J. A. T., & Olokoyo, F. O. (2017). Foreign direct investment and economic development in Africa. *Journal of Internet Banking and Commerce*, 22(1).
- Akpakpan, E. B. (1999). The Economy: Towards a new type of Economics. *Port Harcourt: New Generation Publishers*.
- Ekanem, D. J., Etim, E. O., Enang, R. E., & Ekanem, U.J (2023). Effect of foreign direct investment on economic development of Nigerian economy. *International journal of economics and financial management (IJEFM)*. Vol 8. No. 7
- Idoko, C. U., & Taiga, U. U. (2018). Effect of Foreign Direct Investment (FDI) On Manufacturing Output In Nigeria (1981 – 2016). *Advances in Social Sciences Research Journal*, 5(5) 181-197.
- Ndibe, B. C., Ojiula, U. B. & Asalu, E. N. (2021). Is Foreign Direct Investment the way Forward for Manufacturing Sector Renaissance in Nigeria? *International Journal of Business, Economics and Management*, 8(4), 245-256.
- Obi-Nwosu, V O, Ogbonna, K S & Ibenta, N. S (2019). Foreign direct investment inflow and manufacturing Capacity in Nigeria: 1984-2017. *Zik Journal of Multidisciplinary Research: Volume 2*, 31-45
- Shamintra, G. (2013). Agricultural Performance for Human Development: A Case Study of Barak Valley in Assam. *International Journal of Humanities and Social Science*, 18(6), 9-16.
- Thuy T. D, Tran T K O, Ha L T, & Trung N N (2023). Impacts of Foreign Direct Investment on Economic Development: Does Institutional Quality Matter? *Emerging Science Journal (ISSN: 2610-9182) vol. 7, no. 6*, pp 1924
- Ugwuanyi, G O., Efanga, U O., & Ogochukwu, C O (2020). Impact of foreign direct investment on economic development in Nigeria. *European Journal of Accounting, Auditing and Finance Research*. Vol.8, No.3, pp.69-85