NIU Journal of Social Sciences Copyright©2023
Nexus International University ISSN: *3007-1682*; 9(2): 71- 84

Asymmetric Impact of FDI on Inclusive Growth in Nigeria

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Abstract. This study investigates the asymmetric impact of Foreign Direct Investment (FDI) on inclusive growth in Nigeria over the period from 1991 to 2021. Non-linear autoregressive distributed lag (NARDL) model was employed. The findings of this study indicate that FDI has an asymmetric effect on inclusive growth in Nigeria. Positive changes in FDI inflows are found to have a significant and increasing impact on inclusive growth in the long run, while negative changes in FDI inflows are associated with a reduction in inclusive growth over time. Furthermore, the study reveals that the positive changes in FDI exert a greater influence on inclusive growth compared to negative changes. In addition, the study identifies other factors that impact inclusive growth in Nigeria. Gross fixed capital formation (GFCF) and the labor force are found to have a positive effect on inclusive growth, indicating their importance in driving economic development. Conversely, higher consumer prices are found to have a negative effect on inclusive growth, suggesting the need for policies to address inflationary pressures. Based on these findings, policymakers in Nigeria are recommended to prioritize policies that attract and retain foreign investors in sectors with high growth potential, particularly those that contribute to inclusive growth. Additionally, the Central Bank should implement monetary policies aimed at moderating the inflation rate to reduce economic risks and uncertainties that could deter potential foreign direct investors.

Keywords: Foreign direct investment, inclusive growth, Non linear ARDL, labour force, Consumer price index

1. Introduction

In recent years, the Sustainable Development Goals (SDGs) have gained immense global significance, captivating the attention of policymakers, businesses, and various stakeholders. Among the SDGs, SDG-1 stands out as it strives to foster inclusive growth by ensuring that the benefits of economic advancement extend to all sections of society, particularly the impoverished and marginalized. Notably, Foreign Direct Investment (FDI) has emerged as a crucial catalyst for inclusive growth, attracting significant inflows to numerous countries, including Nigeria. The significance of FDI in the growth trajectory aligns with SDG-17, which endeavors to fortify global partnerships among economies. Consequently, the spotlight has turned towards FDI, with a growing recognition of its asymmetric implications for the Nigerian economy and its vital role in achieving the SDGs.

Inclusive growth refers to economic growth that benefits all members of a society, regardless of their socio-economic status or background (Jeyacheya, Hampton, 2020). The aim of inclusive growth is to reduce poverty, inequality and promote social inclusion. Inclusive growth is multidimensional and therefore encompasses attracting and managing domestic and foreign direct investments towards equity, sustainability, and social justice (Boarini, Causa, Fleurbaey, Grimalda, & Woolard, 2018; Schoneveld, 2020).

Foreign Direct Investment (FDI) has had a complex impact on inclusive growth in Nigeria. While the country has emerged as the largest recipient of FDI inflows in West Africa, with a total of $3.31 billion in 2022 (World Business Report, 2022), achieving inclusive growth remains a challenge. Nigeria continues to grapple with persistent poverty and inequality, as evidenced by an average GDP per person employed of $13,371.94 in 2021 (World Development Indicator, 2022). The concentration of FDI in specific sectors of the economy and the repatriation of profits to foreign investors' home countries contribute to the asymmetric nature of its impact. Multinational corporations, as the primary sources of FDI, have been subject to scrutiny for their potential adverse effects on the economy. Studies such as (Wasike, 2022; Abdullah & Hassan, 2022;

Otieno, 2022; Mlambe, 2022), have highlighted concerns such as the displacement of local businesses, the exploitation of labour in host countries as well as human rights abuses by foreign direct investors in Nigeria. These dynamics exacerbate the existing challenges faced by Nigeria, including high levels of poverty, regional disparities, unemployment, and social exclusion for a significant portion of the population (Ibrahim & Taiga, 2020; Ogede, Maku, Oshinowo & Ologundudu, 2022).

Importance of FDI to inclusive growth has made the government in recent time to implement policies tailored towards improving the investment climate and drive FDI towards inclusive growth in Nigeria. These policies include the liberalization of key sectors through structural adjustment reforms, the establishment of the Nigerian Investment Promotion Commission (NIPC) Act of 1995 to facilitate FDI promotion, and the introduction of incentives such as tax holidays, duty-free imports of capital equipment, and repatriation of profits and dividends for multinational corporations (NIPC Act of 1995; Finance Act 2020). Despite these policies, impact of FDI on inclusive growth in Nigeria is characterized by a mixed outcome, where certain segments of society benefit disproportionately while others are left behind.

Existing literature on FDI and growth have presented mixed results. Studies by Liang, Shah & Bifei (2021), and Mehmood, Iqbal, Bashir & Ahmad (2022) have demonstrated positive effects of FDI on growth indicators. On the other hand, Joo, Shawl & Makina (2022), Emako (2022) and Tamar & Luca (2019) found negative effect of FDI on economic growth. Hamid & Jena (2020) and Kumar & Singhal (2022) highlights the non-linear impact of FDI on inclusive growth. Most of these literatures have predominantly focused on the linear associations of FDI with economic growth, inadvertently disregarding the asymmetric effects of FDI on inclusive growth. These divergent findings pose challenges for policymakers as they grapple with determining the enduring benefits of FDI on inclusive growth as the deadline for the Sustainable Development Goals approaches.

This paper adds to existing literature by examining the asymmetric connection between FDI and inclusive growth in Nigeria through a time series analysis from 1991 to 2021. The remainder of this paper is structured as follows: the second section provides a literature review, the third section outlines the methodological framework and data used, while the fourth section presents the empirical results. The final section concludes the research and presents significant policy implications.

2. Literature Review

The OECD (2018) defines inclusive growth refers to economic growth that generates opportunities for all population groups and distributes the benefits of increased prosperity fairly across society, both in monetary and non-monetary forms. Inclusive growth refers to economic growth that is sustained and results in broader social benefits, such as poverty reduction, job creation, and improved access to basic services (Purnamawati, 2021). Sharma (2013) defines inclusive growth as a development approach that ensures the inclusion of all individuals in a country, regardless of their gender, sex, disability, or belief system. The process of inclusive growth involves creating opportunities for productive and equitable employment and redistributing income over the long term (Shahzada, Asimb & Anwarc, 2021). Inclusive growth therefore goes beyond economic growth to encompass ensuring that the benefits of growth is sustainable, reduces poverty and is shared across society. GDP per persons employed is generally accepted as a measure of inclusive growth (Kouton, 2021).

There are different types and classifications of inclusive growth, each of which focuses on different dimensions of inclusivity. Pro-poor growth aims to ensure that the benefits of growth are targeted towards the poorest and most vulnerable segments of society (Ngepah, 2017). Gender-inclusive growth aims to promote gender equality and empower women. Other types of inclusive growth include environmentally sustainable growth and regionally inclusive growth.

2.1 Foreign Direct Investments

FDI is an investment strategy where a foreign entity purchases or takes control of an existing company, or establishes a new one in a host country, with the intention of creating a lasting economic relationship of mutual benefits between itself (foreign investor) and the host country (Boğa, 2019). Rather than mere stock investment in a foreign company, FDI involves a substantial investment well as the transfer of financial and other economic resources, including managerial expertise and technology, from the foreign investor to the local business.

The ability of a country to draw in FDI depends on a combination of economic, political, and social

factors. Dunning's (1980) eclectic paradigm, confers factors such as market size, infrastructure, labour costs, and natural resources are crucial in attracting FDI. Moreover, political stability and government policies are important in making FDI decisions, as investors desire a stable environment for their investments (Ross, A. G., Omar, M., Xu, A., & Pandey, S. (2019). In addition to these, other determinants of FDI include tax policies, exchange rates, and technological advancements (Jaiblai & Shenai, 2019; Azam, M., & Haseeb, M. (2021).

The literature on foreign direct investment (FDI) presents several theories that aim to explain why firms invest in foreign countries. Vernon's (1966) product cycle theory suggests that firms initially invest in their home country to develop and refine a product, then invest in foreign countries to take advantage of lower production costs, and finally invest in other countries to tap into new markets The Internalization theory, developed by Hymer (1976) explains that multinational enterprises (MNEs) engage in foreign direct investment (FDI) to minimize competition, leverage unique firm-specific advantages, and expand their market share in the global economy. Thus, FDI is a strategic decision by firms to increase their competitiveness.

3. Theoretical Framework

The theory guiding this study is the Capability Approach by Sen (1999). The theory emphasizes the importance of expanding individuals' freedoms and capabilities to live the lives they have reason to value. According to Sen, economic growth is a means, not an end, to improving people's well-being. The Capability Approach argues that economic growth should be inclusive and benefit all members of society, particularly those who are disadvantaged. It recognizes that growth alone does not guarantee that everyone benefits, and that policies are needed to ensure that opportunities are available to everyone to access resources, education, healthcare, and other essential services. Thus, the Capability Approach provides a framework for policymakers to focus on human development and well-being, rather than just economic growth, when designing policies and programs aimed at achieving inclusive growth.

4. Stylized Facts

4.1 Inclusive Growth in Nigeria

Inclusive growth in Nigeria as measured by gross domestic product per person employed has generally increased over the years, with a few exceptions such as a decline during the 1990s, a slight dip during the 2008 financial crisis and also in 2016. In 1991, the GDP per person employed was $9,957.37, and it gradually increased to $16,507.33 in 2012. From 2012 to 2015, there was a significant increase in the GDP per person employed, reaching a peak of $18,760.85 in 2014. However, it has been relatively stagnant since then, with a slight decrease in 2016 and 2017, followed by a slight increase in 2018 and 2019. In 2020, the GDP per person employed was $18,030.87, and in 2021, it was $18,059.99.

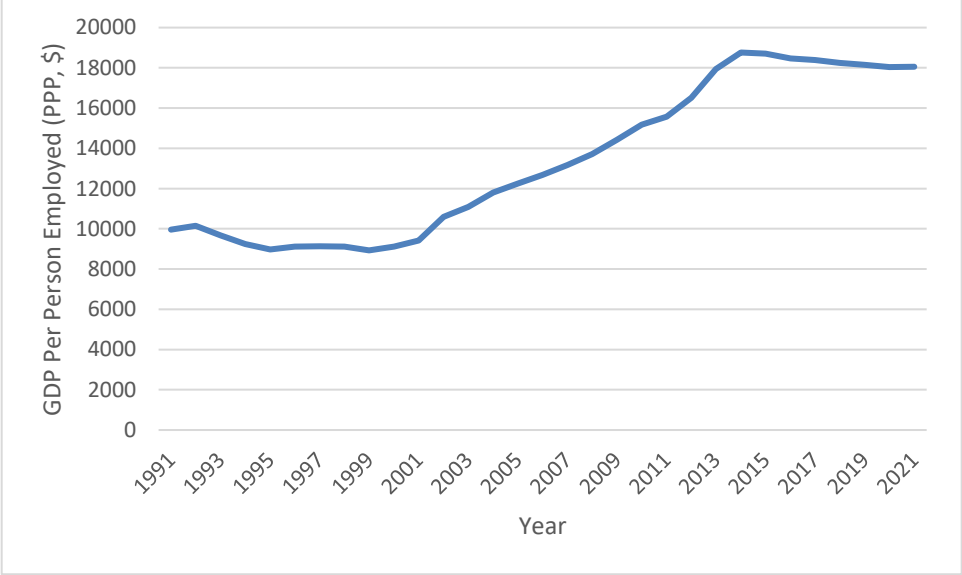

Figure 1. *GDP per person employed (constant 2017 PPP $). Source: World Bank, 2021.*

4.2 Foreign Direct Investment Inflow in Nigeria

FDI in Nigeria has been unstable with periods of rapid increase and sudden declines. FDI increased significantly from 1991 to 1994, with a peak of $1.96 billion in 1994. However, FDI declined drastically in 1995, recording a net inflow of $335.84 million. Similarly, there was a significant increase in FDI inflows from 2000 to 2008, with a peak of $8.19 billion in 2008. The increase in FDI during this period can be attributed to the rise in oil prices, economic reforms, and the privatization of state-owned enterprises. However, the global financial crisis of 2008 had a significant impact on FDI in Nigeria, causing it to decline to $6.03 billion in 2010. Another notable increase in FDI occurred from 2011 to 2013, with a peak of $8.84 billion in 2011. The increase can be attributed to Nigeria's favorable investment climate, particularly in the telecommunications, manufacturing, and agriculture sectors. However, FDI inflows declined from 2014 to 2016 due to the fall in oil prices, insecurity in some parts of Nigeria, and policy uncertainty. In 2017 and 2018, FDI inflows continued to decline, with the lowest inflow of $775.25 million recorded in 2018. This decline can be attributed to political uncertainties associated with the 2019 presidential elections, the implementation of capital controls, and security concerns in some parts of Nigeria. However, FDI in Nigeria has recovered since 2019, with a net inflow of $2.31 billion and $3.31 billion in 2021. This increase can be attributed to Nigeria's economic recovery, improved business environment, and government efforts to attract foreign investment.

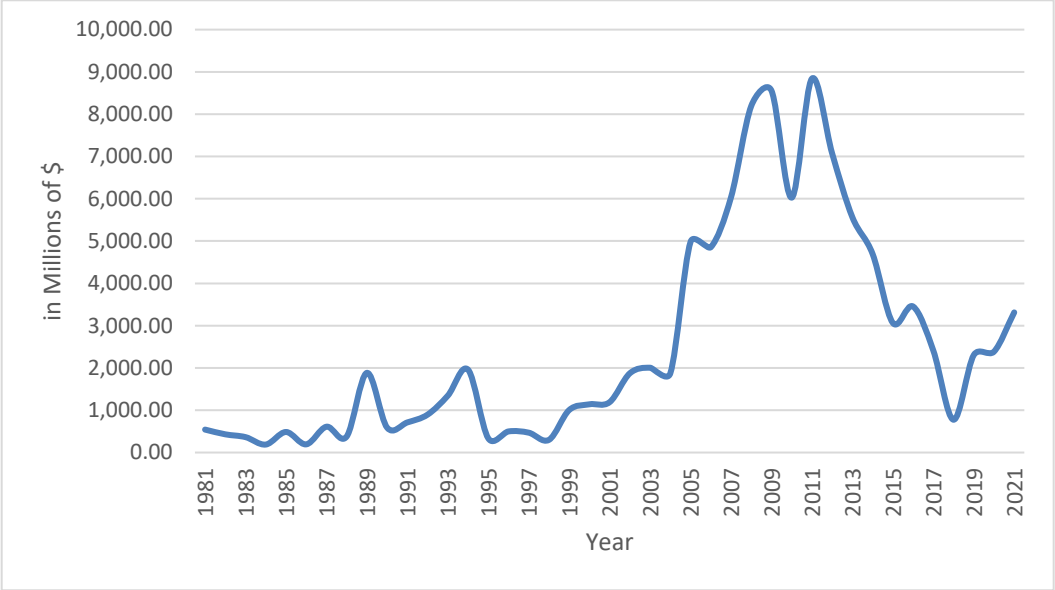

Figure 2. *Foreign Direct Investment, net inflows in Nigeria (BoP, current US$: 1981-2021). Source: World Bank, 2021.*

4.3 Empirical Evidence

Various empirical studies have examined the relationship between foreign direct investment and inclusive growth and submitted varying conclusions.

Ofori, Gbolonyo & Ojong (2023) examine the relationship between energy efficiency, foreign direct investment, and inclusive green growth in Africa. Using a dynamic GMM estimator and data from 23 African countries, the study found a negative relationship between FDI and inclusive green growth, while EE has a positive impact on inclusive green growth. However, the presence of energy efficiency mitigates the negative impact of FDI on inclusive green growth. Further analysis through threshold analysis indicates that improving energy efficiency in Africa leads to sustainable development gains in both the short and long terms.

Kamran, Rafique, Nadeem & Anwar (2023) examine levels of inclusive growth and sustainable development in 11 developing countries from 2008-2018, using PCA and Multivariate Analysis to extract variables. Results show Turkey and China achieved the highest level of inclusive growth, while Brazil and Pakistan have the lowest level of sustainable development. The study finds a negative relationship between social inclusion of inclusive growth and poverty with life-threatening factors of sustainable development, and a positive relationship between unsatisfactory medical services, education, and state transparency of inclusive growth and poverty and its consequences of sustainable development.

Emeka & Uko (2023) examine the role of domestic financial sector in enhancing FDI inflows for inclusive growth in Nigeria using secondary data between 1981 to 2020. The study used the

Autoregressive Distributed Lag (ARDL) mode to analyse the data. Findings indicate that FDI has a significant positive effect on inclusive growth only when the domestic financial sector has reached a certain minimum level of development. Furthermore, the study found that FDI alone has a significant negative effect on inclusive growth, highlighting the crucial role of the domestic financial sector in promoting inclusive growth through FDI in Nigeria.

Mehmood, Iqbal, Bashir & Ahmad (2022) investigate the impact of FDI, rising oil prices, and industry value-added on the economic growth of Pakistan. Through an Autoregressive Distributed Lag (ARDL) framework, the study analysed data from 1980 to 2020. According to the findings, FDI and industry value-added has positive impacts on economic growth. However, rising oil prices negatively impacted on economic growth, while the combined effect of oil prices and FDI was found to have a dampening effect on economic growth.

Joo, Shawl & Makina (2022) study the impact of FDI on economic growth in BRICS countries, considering host country characteristics such as economic stability, human capital, financial development, and trade openness. The study used panel data for the period 1987 to 2018. A Feasible Generalized Least Squares (FGLS) estimation technique was used to analyse the data. Results showed that FDI alone had no significant impact on the economic growth of individual BRICS countries. Also, FDI impacted positively in the presence of host country characteristics. Additionally, FDI combined with financial development, trade openness, and human capital had a positive effect on economic growth, while FDI combined with economic instability had a negative impact in growth.

Osabohien, Iqbal, Osabuohien, Khan & Nguyen (2022) investigated the impact of agricultural trade and FDI on inclusive growth in West African countries, using data from 15 countries in the Economic Community of West African States (ECOWAS) region for the period 2000 to 2019. A Two-stage Least Squares (2SLS) method was employed to analyse the data. Results indicate that agricultural trade had a significant positive effect on inclusive growth, while the impact of FDI on inclusive growth was insignificant.

The study by Ofori & Asongu (2021) examines the relationship between FDI, the various governance indicators, and inclusive growth in Sub-Saharan Africa (SSA). Through the study employed fixed effects, random effects, and system GMM estimators, the study analysed data from 1990-2020. The results show that FDI and all governance indicators studied have a positive impact on inclusive growth in SSA, and that FDI amplifies the effects of governance effectiveness, voice and accountability, and political stability.

Dang & Nguyen (2021) investigate the impact of tax burden, institutional quality, and selected macroeconomic determinants on attracting inflows of FDI in ASEAN-7. In a panel approach, they estimate their models using Feasible Generalized Least Squares (FGLS), fixed-effects models, and a Generalised Method of Moments (GMM). Results reveal that economic growth, tax burden, quality of economic institution, and inflation significantly attract FDI, while population growth and quality of political institution negatively affect FDI inflow.

Shahbaz, Mateev, Abosedra, Nasir & Jiao (2021) investigate the effect of education and transportation infrastructure on foreign direct investment (FDI) in the French economy between 1965 and 2017. The study used a ARDL model and a VECM Granger causality analysis to estimate the data. The findings reveal a positive relationship between education and transportation infrastructure and FDI, while financial development has a negative impact on FDI. The relationship between electricity consumption and FDI was found to be bidirectional, while the relationship between education and FDI was U-shaped.

5. Research Methodology

5.1 Data and Source

To achieve the study's objective, the empirical analysis utilized an annual time series data for Nigeria covering the period from 1991-2021. Variables used consist of inclusive growth, foreign direct investment, labour force participation, gross fixed capital formation, and consumer price index. The data was sourced from the World Bank Development Indicators (https://data.worldbank.org). Gross domestic product per persons employed was used as a proxy for inclusive growth.

5.2 Empirical Model

In exploring the influence of FDI inflow in inclusive growth, the baseline equation is specified in the functional form;

$$INC_t = FDI_t, LFP_t, GFCF_t, CPI_t \quad (1)$$

where INC is inclusive growth and FDI is foreign direct investment inflow. LFP, GFCF and CPI are labour force participation, gross fixed capital formation and consumer price index respectively.

Equation (1) is transformed into natural logarithms as follows:

$$lnINC_t = \alpha_0 + \beta_1 lnFDI_t + \beta_2 lnLFP_t + \beta_3 lnGFCF_t + \beta_4 lnCPI_t + + \varepsilon_t \quad (2)$$

Where α is a constant, and all other variables are as previously defined. $\beta_1 \ldots \beta_4$ are the coefficients of the independent variables, t indicates the period and ε represents residuals. In line with Nnadi & Soobaroyen (2015), FDI is measured as the annual ratio of foreign direct investment inflow with respect to gross domestic product. Previous studies on foreign direct investment (FDI) such as Hayat (2018), Saidi, Mani, Mefteh, Shahbaz & Akhtar (2020). Nguyen & Do (2020) have suggested the inclusion of control variables such as labour force, gross fixed capital formation and consumer price index in the model.

5.3 Estimation Technique

This study employs the non-linear ARDL (NARDL) technique developed by Shin et al. (2014). A major drawback of the conventional Autoregressive Distributed Lag (ARDL) models is its ineffectiveness in estimating series with intrinsic asymmetric properties thereby producing inconsistent results. To overcome this limitation, Shin et al. (2014) proposed a non-linear approach to estimating variables with non-linear properties. The NARDL approach is able to estimate the asymmetric relationship between variables while integrating the error correction mechanism simultaneously. By incorporating a flexible framework in estimation, non-linear ARDL approach allows for the modeling of symmetries as well as asymmetries along dynamic trends while simultaneously adjusting for long-run associations (Mehta, Qamruzzaman, Serfraz & Ali, 2021). The NARDL approach also incorporates a cointegration approach regardless of whether the variables being integrated are of the same order or not, and it is suitable when regressors are integrated of the same order or mixed, provided integration is not any higher than I(1) (Shin et al., 2014). Non-linear ARDL models produces consistent estimates is not affected by sample size. The NARDL model used for the bounds test and test of asymmetry for non-linearity is specified in equation (3):

$$\Delta INC_t = \alpha_0 + \sum_{k=1}^{p} \alpha_1 \Delta lnRGDP_{t-k} + \sum_{k=0}^{q_1} \alpha_2 \Delta lnFDI_{t-k} + \sum_{k=0}^{q_2} \alpha_3 \Delta lnLFP_{t-k} + \sum_{k=0}^{q_3} \alpha_4 \Delta lnGFCF_{t-k} + \sum_{k=0}^{q_3} \alpha_5 \Delta lnCPI_{t-k} + \alpha_6 INC_{t-1} + \alpha_7 FDI_{t-1} + \alpha_8 LFP_{t-1} + \alpha_9 GFCF_{t-1} + \alpha_{10} CPI_{t-1} + \varepsilon_t \quad (3)$$

where α_0 is constant and $\alpha_1 \ldots \alpha_{10}$ are coefficients of the independent variables. The rest are as defined in equation (2). The asymmetric distributed parameters of FDI the model in both the short and long run are decomposed into positive partial and negative partial sums in equations (4) to ascertain the asymmetric effects of FDI on $RGDP$.

$$FDI_t = +FDI_t^+ + FDI_t^- \quad (4)$$

Where FDI_t, represents the initial value of foreign direct investment, in Nigeria. $FDI_t^+ = \sum_{j=1}^{t} \Delta FDI_j^+ = \sum_{j=1}^{t} \max(\Delta FDI_j, 0)$. Represents the partial sum process of positive changes in foreign direct investment for Nigeria, and $FDI_t^- = \sum_{j=1}^{t} \Delta FDI_j^- = \sum_{j=1}^{t} \min(\Delta FDI_j, 0)$ represents the partial sum process of negative changes in foreign direct investment.

The estimation of short-run and long-run coefficients of the NARDL model in equation (2) is specified in equation (5) and (6) respectively;

$$\Delta INC_t = \alpha_0 + \sum_{k=1}^{p} \alpha_1 \Delta RGDP_{t-k} + \sum_{k=0}^{q_1} (\alpha_2^+ FDI_t^+ + \alpha_2^- FDI_2^-) + \sum_{k=0}^{q_2} \alpha_3 \Delta LFP_{t-k} + \sum_{k=0}^{q_3} \alpha_4 GFCF_{t-k} + \sum_{k=0}^{q_4} \alpha_5 \Delta CPI_{t-k} + \emptyset_1 ECT_{t-1} + \varepsilon_t \quad (5)$$

$$\Delta INC_t = \alpha_0 + \sum_{\square}^{\square} \alpha_1 \, lnRGDP_{t-1} + \sum_{\square}^{\square} \alpha_2^+ \, lnFDI_t^+ + \alpha_2^- FDI_2^-) + \sum_{\square}^{\square} \alpha_3 \, lnLFP_t + \sum_{\square}^{\square} \alpha_4 \, lnGFCF_t + \sum_{\square}^{\square} \alpha_5 \, lnCPI_t + \varepsilon_t \quad (6)$$

Where q and p are lag orders in equation (5), α_0 is the constants. Whereas α_1, α_3, α_4 and α_5 are the long and short-run coefficients in respect of the other independent variables, α_2^+ and α_2^- are coefficients of the positive shocks or changes in FDI for long and short run respectively, while $\emptyset_1$ represents the error correction term of the model. Before estimating long run cointegrating relationships among the variables, assessment if the model for non-linearity is carried out BDS test by Brock et al. (1996). The bounds test is conducted using a Wald test to produce joint F-statistic essentially for determining the presence of long-run associations among variables. The null hypothesis of no cointegration between the variables is tested against the alternative hypothesis of cointegration. The computed F -statistic and the critical values of upper bound I(l) and lower bound I(0) are evaluated (Pesaran *et al*., 2001) and provides the basis for obtaining valid inference on long-run relationship in respect of the variables in the model. The Wald test for asymmetry test is also employed to identify non-linear relationships between variables by considering the asymmetric impacts in a non-linear way through the calculation of decomposed positive and negative partial sums of the relevant regressor.

6. Empirical Results

6.1 Descriptive Statistics

The summary of descriptive statistics is indicated in Table 1. The mean growth rate for INC, FDI, GFCF and CPI between 1981 and 2021 are 13,371.95, 1.478, -0.567 and 18.949 percents per annum respectively. GFCF has the lowest minimum value of -30.172 while LFP has the highest maximum value of 53.444. In terms of standard deviation, FDI has the lowest standard deviation of 1.235 and INC (3,812.05) has as the highest. With the exception of INC and GFCF, the mean of the variables in the model exceeds their respective standard deviation.

Table 1. Descriptive Statistics

Variables	Mean	SD	Min.	Max.
INC	13371.95	3812.05	8926.64	18760.85
FDI	1.478	1.235	0.184	5.791
LFP	59.173	2.425	53.444	60.790
GFCF	-0.567	13.449	-30.172	40.389
CPI	18.949	16.659	5.388	72.836

Correlation Matrix

The correlation matrix in Table 2 indicates that the correlation coefficient for FDI is 0.165, LFP is 0.156, GFCF is 0.429 and CPI is -0.207 which implies that the variables have weak correlation with the dependent variable INC. In terms of relationships, FDI, LFP and GFCF have positive relations with FDI, while CPI is negatively related to INC.

Table 2. Correlation Matrix

	INC	FDI	LFP	GFCF	CPI
INC	1				
FDI	0.165	1			
LFP	0.156	-0.183	1		
GFCF	0.429	0.225	0.157	1	
CPI	-0.207	0.455	-0.313	-0.014	1

6.2 Stationarity Test

As reported in the ADP and PP unit root test result in Table 3, none of the variables are integrated of an order higher than one. Although, FDI and LFP were not stationary at level in both the ADF and PP test, their series achieved stationarity after first differencing. INC, GFCF and CPI series were stationary at level when tested under the ADF and PP methods.

Table 3. Unit Root Test Result

	Level		First Difference	
	ADF	PP	ADF	PP
INC	-4.730***	-4.734***	-8.644***	-20.19***
	(0.002)	(0.003)	(0.000)	(0.000)
FDI	-3.154	-3.148	-7.765***	-8.176***
	(0.108)	(0.110)	(0.000)	(0.000)
LFP	-2.139	-2.370	-5.704***	-5.704***
	(0.509)	(0.389)	(0.000)	(0.000)
CPI	-4.799***	-4.750***	-6.526***	-10.33***
	(0.002)	(0.002)	(0.000)	(0.000)
GCFC	-6.483***	-6.494***	-7.750***	-26.795***
	(0.000)	(0.000)	(0.000)	(0.000)

*Note: (1) ***, ** and * denotes significance at 1%, 5% and 10% respectively (2) The specification is constant and trend.*

6.3 Break Point Unit Root Test

Table 4 reports the results of the breakpoint unit root test result. From the Table, INC, FDI and GFCF becomes stationary at level in the presence of structural breaks, while LFP and CPI become stationary after first differencing. The result confirmed that in the presence of structural breaks, the variables were not integrated beyond I(1).

Table 4. Break-point Unit Root Tests

	Level	First Difference
Variables		
INC	-5.807***	-4.603*
	(0.000)	(0.056)
FDI	-5.847***	-5.985***
	(0.000)	(0.000)
LFP	1.135	-7.199***
	(0.999)	(0.000)
GFCF	-5.025**	-5.712***
	(0.016)	(0.000)
CPI	-3.429	-4.090*
	(0.482)	(0.063)

*Note: (1) ***, ** and * denotes significance at 1%, 5% and 10% respectively. (2) Dickey-Fuller min-t is the Break point selection criteria used. (3) Lag length method is F-statistic. (4) Specification is constant and trend. (2) innovation outlier break type is employed.*

6.4 Nonlinearity Test

Over the various dimensions, the BSD test for non-linearity in Table 5 indicate the rejection of the null hypothesis of linearity in the residuals at the 1% level of significance. This implies that the data series is nonlinear. Hence, the result confirmed the condition for the application of a nonlinear ARDL methodology. Also, the Wald test statistics Table (6) for the null hypothesis of no long-run asymmetry and short-run symmetries in the non-linear ARDD error correction mechanism are rejected in all at the 5% level of significance thereby confirming the use of the non-linear ARDL model

Table 5. BDS nonlinearity tests results

BDS Statistics				Embedding dimensions	
Variables	m=2	m=3	m=4	m=5	m=6
INC	0.037***	0.052205***	0.065***	0.049**	0.031**
	(0.000)	(0.003)	(0.003)	(0.030)	(0.010)
FDI	0.077***	0.133***	0.166***	0.192***	0.196***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
LFP	0.148***	0.243***	0.293***	0.321***	0.333***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GFCF	0.203***	0.347***	0.448***	0.518***	0.567***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CPI	0.192***	0.323***	0.419***	0.485***	0.544***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

*Notes: (1) ***, ** denotes significance at 1% and 5% respectively (2) m represents the dimension. (3) Reported statistics are obtained from the application of the Brock et al. (BDS, 1996) test on the residuals of a VAR model for the selected variables.*

Table 6. Long-run and Short-run Asymmetry

Test	F-Statistics	Prob.
WLRA	9.324***	0.006
WSRA	7.274**	0.013

*Note: (1) *, ** and *** represents rejection of the null of no asymmetric and symmetric at 1%, 5% and 10% respectively. (2) WLRA and WSRA refer to the Wald statistics for the long run asymmetry and long run symmetry.*

6.5 Cointegration Test

Table 7 presents the results of the NARDL Bound test for cointegration. As reported in the result, the calculated t_{BDM} and F_{PSS} values are greater than the upper boundaries $p < 0.05$ and $p < 0.01$ respectively. Hence, the null of no cointegration among the variables is rejected confirming that long run relationship exists among the variables. Based on the evidence of nonlinear cointegration, the next step is to present the short run parameters of the non-linear ARDL regression.

Table 7. Bounds Tests for Cointegration in Nonlinear Specification

t_{BDM} =4.142. F_{PSS}= 12.463

Signif.	Lower Bound (0)	Upper Bound (1)
10%	2.26	3.35
5%	2.62	3.79
1%	3.41	4.68

6.6 Short Run NARDL Regression Result

Table 8 summarizes the estimated results of equation (5). The signs of the estimated coefficients of FDI^+ and FDI^- are positive in the short-run. Specifically, a 1% increase (decrease) in foreign direct investment inflow increases (lowers) inclusive growth by 0.068 (0.058) percent. Positive changes in FDI inflows have larger impacts on inclusive growth than negative changes. However, the impacts of both positive and negative changes of foreign direct inflow on on inclusive growth in Nigeria are insignificant during the short-run. Gross fixed capital formation impacted positively on inclusive growth. From the result, a 1% increase in GFCF increases INC by 0.233%, the result is also and significant at 1%. Labour force participation and consumer price index impacted negatively on inclusive growth. Explicitly, a 1% increase in LFP and CPI reduces INC by 0.480 and 0.019 receptively, although their impacts were insignificant. However, the impact of one-year and 2-year lagged values of consumer price index both impacted negatively and significantly on inclusive growth during the period under study. The R^2 of 0.661 indicate that about 66% of variations in the dependent variable can be attributed to the independent variables. The error correction term (-0.334) is both negative and significant and signifies that about 33% of disequilibrium in the INC in its relationship with the independent variables are corrected annually.

Table 8. Short-run Regression Results: Dependent Variable INC.

Regressors	Coefficient	Std. Error	Prob.
Short-run Coefficients			
INC(-1)*	-0.670	0.183	0.002
D(FDI_POS)	0.068	0.116	0.562
D(FDI_NEG)	0.058	0.190	0.761
D(LFP)	-0.480	0.373	0.213
D(GCFC)	0.233	0.041	0.000
D(CPI)	-0.019	0.156	0.904
D(CPI(-1))	-0.296	0.150	0.063
D(CPI(-2))	-0.234	0.123	0.071
ECT (-1)	-0.334	0.066	0.000
R-squared	0.661	Akaike info crit.	-1.696
Adjusted R-squared	0.551	Schwarz criterion	-0.956
F-statistic	5.386	Hannan-Quinn crit	-1.435
Prob(F-statistic)	0	Durbin-Watson	2.04

*Note: (1) ***, ** and * denotes significance at 1%, 5% and 10% respectively.*

6.7 Long-run NARDL Regression Result

The result of the long-run estimates in equation (6) indicates significant impacts of both positive and negative changes of FDI on INC. As displayed in Table 9, a 1% increase (decrease) in foreign direct investment inflow increases (lowers) inclusive growth by 0.389 (0.196) percent. Positive changes in FDI inflows have larger impacts on inclusive growth than negative changes in the long-run. Labour force impacted positively and significantly on inclusive growth, Specifically, a 1% increase in LFP increases INC by 0.284 %. In terms of investment, the relationship between GCFC and INC was positive and significant. A 1% increase in GFCF increases INC by 0.168% at a significant level of 10%. CPI impacted negatively on INC. A 1% increase in CPI reduces INC by 0.796% at a significant level of 1%. From the long-run results, the independent variables in the model are long-run determinants of inclusive growth in Nigeria.

Table 9. Long-run Regression Results: Dependent Variable INC.

Long-run Coefficients			
FDI^+	0.389	0.099	0.000
FDI^-	0.196	0.066	0.005
LFP	0.284	0.130	0.039
GCFC	0.168	0.097	0.098
CPI	-0.796	0.171	0.000

*Note: (1) ***, ** and * denotes significance at 1%, 5% and 10% respectively*.

6.8 Stability and Diagnostics

In Table 9, the ρ-values of the corresponding F-statistic in respect of the Breusch-Godfrey Serial Correlation LM Test (0.560), the Breusch-Pagan-Godfrey test for Heteroskedasticity (0.918) and the Ramsey Reset (0.013) were not significant (0.5811; 0.5634; 0.9114 respectively). This indicates that the null hypothesis of no serial correlation and heteroskedasticity in the residuals cannot be rejected. It also implies that the relationship between dependent and independent variables correctly specified. The cumulative sum of recursive residuals and cumulative sum of square of recursive residuals in Figures 3 and 4, are within the critical bounds at 5% significance level. This shows that all the parameters of the model exhibit a long-run stability at 5 per cent level of significance. Therefore, the models are stable during the period; this validates the integrity of the models.

Table 9. Test for Serial Correlation, Heteroskedasticity and Model Specification

Test	F-statistic	Prob. F
Breusch-Godfrey Serial Correlation LM	0.560	0.5811
Breusch-Pagan-Godfrey Heteroskedasticity	0.918	0.5634
Ramsey RESET Test	0.013	0.9114

Source: *Author's Computation, (2023)*

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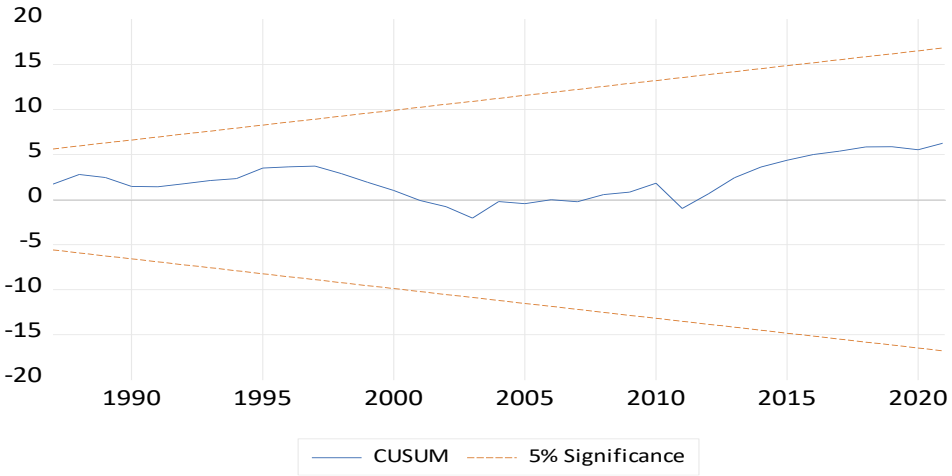

Figure3. *Plot of CUSUM. Note: The straight lines represent critical bounds at the 5 per cent level of significance*

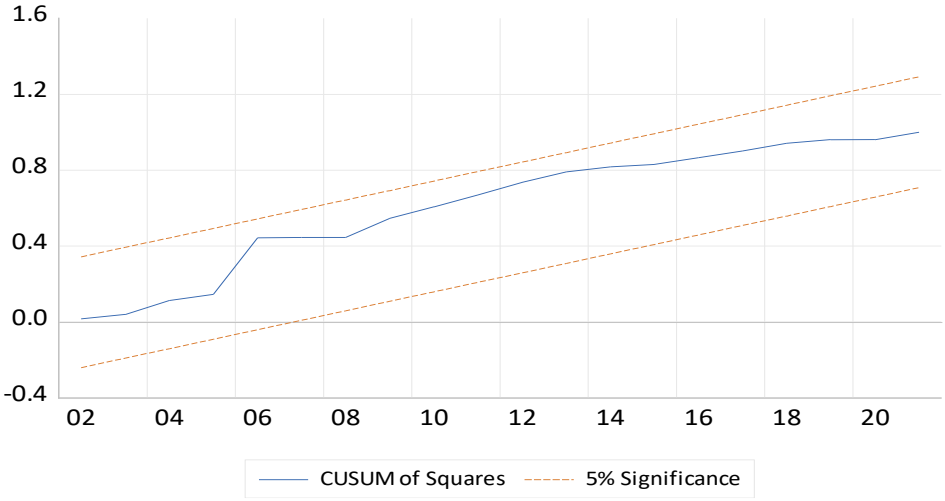

Figure 4. *Plot of CUSUM of squares. Note: The straight lines represent critical bounds at the 5 per cent level of significance*

7. Conclusion and Policy Implications

The objective of this study is essentially to generate additional insights on the relationship between FDI and growth by exploring the asymmetric influence of FDI on inclusive growth in Nigeria. Existing theoretical and empirical studies accede to the positive and negative role of FDI inflows on growth. These studies have neglected the potential asymmetric effects of FDI on inclusive growth. This study adds to empirical literature by taking an asymmetric look at how FDI impacts on inclusive growth in Nigeria over time. A non-linear ARDL model was employed to analyze the data to assess how foreign direct investment inflows affects inclusive growth in Nigeria from 1991 to 2021.

This study reveals that foreign direct investment (FDI) has an asymmetric impact on inclusive growth in Nigeria. Positive changes in FDI inflows have a significant and increasing impact on inclusive growth in the long run, while negative changes in FDI inflows reduce inclusive growth in the long run. Additionally, positive changes in FDI exert greater influences on inclusive growth than negative changes. While GFCF and labour force positively impacted on inclusive growth, higher consumer prices had negative effects on inclusive growth. In the light of these revelations, government should prioritize policies that attract and retain foreign investors in the main inclusive sectors with high growth potentials. The Central Bank should simultaneously prioritize and implement monetary policies to moderate inflation rate as a measure to reduce economic risks and uncertainty that could demotivate potential foreign direct investors perceived.

References

Abdullah, D. M. J., & Hassan, L. A. A. (2022). Legal Hurdles in Bringing a Successful Claim with regard to Foreign Direct Liability against the Host Country under International Law. *Tikrit University Journal for Rights-*, *7*(1), 557-573.

Azam, M., & Haseeb, M. (2021). Determinants of foreign direct investment in BRICS-does renewable and non-renewable energy matter? *Energy Strategy Reviews*, *35*, 100638.

Boarini, R., Causa, O., Fleurbaey, M., Grimalda, G., & Woolard, I. (2018). Reducing inequalities and strengthening social cohesion through inclusive growth: A roadmap for action. *Economics*, 12(1).

Boğa, S. (2019). Determinants of foreign direct investment: A panel data analysis for Sub-Saharan African countries. *EMAJ: Emerging Markets Journal*, *9*(1), 80-87.

Brock, W., Dechert, W., Scheinkman, J., 1996. A test for independence based on the correlation dimension. Economic Reviews 15 _3., 197–235.

Dang, V. C., & Nguyen, Q. K. (2021). Determinants of FDI attractiveness: Evidence from ASEAN-7 countries. *Cogent Social Sciences*, *7*(1), 2004676.

Dunning, John H. (1993). Multinational Enterprises and the Global Economy. Harlow: Addison Wesley Publishing Co.

Dunning, John H. 1980. Towards an Eclectic Paradigm of International Production. *Journal of International Business*

Emeka, N. A., & Uko, K. (2023). Foreign direct investment and inclusive growth: the role of

the financial sector development in Nigeria, 1981-2020. *Applied Econometrics and International Development*, *23*(1), 77-100.

Hayat, A. (2018). FDI and economic growth: the role of natural resources?. *Journal of Economic Studies*, *45*(2), 283-295.

Ibrahim, V. H., & Taiga, U. U. (2020). Income inequality and poverty in Nigeria: An Empirical Analysis. *Journal of Economic and Finance*, *11*(3), 07-14.

Ingham, H., Read, R., & Elkomy, S. (2020). Aggregate and heterogeneous sectoral growth effects of foreign direct investment in Egypt. *Review of Development Economics*, *24*(4), 1511-1528.

Jaiblai, P., & Shenai, V. (2019). The determinants of FDI in sub-Saharan economies: A study of data from 1990–2017. *International Journal of Financial Studies*, *7*(3), 43.

Jeyacheya, J., Hampton, M. P. (2020). Wishful thinking or wise policy? Theorising tourism-led inclusive growth: Supply chains and host communities. World Development, 131, 104960–.
doi:10.1016/j.worlddev.2020.104960

Joo, B. A., Shawl, S., & Makina, D. (2022). The interaction between FDI, host country characteristics and economic growth? A new panel evidence from BRICS. *Journal of Economics and Development*, (ahead-of-print).

Kamran, M., Rafique, M. Z., Nadeem, A. M., & Anwar, S. (2023). Does Inclusive Growth Contribute Towards Sustainable Development? Evidence from Selected Developing Countries. *Social Indicators Research*, *165*(2), 409-429.

Kouton, J. (2021). The impact of renewable energy consumption on inclusive growth: panel data analysis in 44 African countries. *Economic Change and Restructuring*, *54*(1), 145-170.

Kumar, N., & Singhal, N. (2022). Role of outward foreign direct investment in economic growth of India: evidence from non-linear ARDL approach. *Jindal Journal of Business Research*, *11*(2), 187-204.

Mehmood, K. A., Iqbal, A., Bashir, F., & Ahmad, R. (2022). Impact of foreign direct investment, rising oil prices, and industry value added on economic growth of Pakistan. *iRASD Journal of Economics*, 4(2), 204-214.

Mlambe, R. M. (2022). The Missing Link in the Resolution of International Investment Disputes Affecting Host States' Citizens Under Public and Private International Law. In Blurry Boundaries of Public and Private International Law: Towards Convergence or Divergent Still? (pp. 87-102). Singapore: Springer Nature Singapore.

Ngepah, N. (2017). A review of theories and evidence of inclusive growth: an economic perspective for Africa. *Current Opinion in Environmental Sustainability*, *24*, 52-57.

Nguyen, V. C., & Do, T. T. (2020). Impact of exchange rate shocks, inward FDI and import on export performance: A cointegration analysis. *The Journal of Asian Finance, Economics and Business*, *7*(4), 163-171.

Nnadi, M. and Soobaroyen, T. (2016), "International financial reporting standards and foreign direct investment: the case of Africa *Advances inAccounting*, Vol. 31 No. 2, pp. 228-238.

Ofori, I. K., & Asongu, S. (2021). Foreign direct investment, governance and inclusive growth in sub-Saharan Africa. *Governance and Inclusive Growth in Sub-Saharan Africa (June 7, 2021)*.

Ofori, I. K., Gbolonyo, E. Y., & Ojong, N. (2023). Foreign direct investment and inclusive green growth in Africa: Energy efficiency contingencies and thresholds. *Energy Economics*, 117, 106414.

Ogede, J. S., Maku, O. E., Oshinowo, B. O., & Ologundudu, M. M. (2022). Trade Openness, FDI and Income Inequality: New Empirical Evidence from Nigeria. Economic Studies & Analyses/Acta VSFS, 16(1).

Organization for Economic Cooperation and Development (OECD). (2018). "The OECD Inclusive Growth Framework", in Case Studies on Leaving No One Behind: A companion volume to the Development Co-operation Report 2018, OECD Publishing, Paris.

Osabohien, R., Iqbal, B. A., Osabuohien, E. S., Khan, M. K., & Nguyen, D. P. (2022). Agricultural trade, foreign direct investment and inclusive growth in developing countries: evidence from West Africa. *Transnational Corporations Review*, *14*(3), 244-255.

Otieno, H. J. (2022). Foreign direct investment in Kenya and the rights of Indigenous Peoples: The nexus and the divergence. In *Business and Human Rights Law and Practice in Africa* (pp. 151-171). Edward Elgar Publishing.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of applied econometrics*, *16*(3), 289-326.

Prakoso, A. D., & Agustina, N. (2022). Inclusive Growth Analysis in Central Sulawesi, The Eastern Province of Indonesia 2015-2019. *Asian Journal of Business Environment,* 12(2), 1-12.

Purnamawati, I. G. A. (2021). Sustainable finance for promoting inclusive growth. *JIA (Jurnal Ilmiah Akuntansi)*, *6*(2), 435-454.

Ross, A. G., Omar, M., Xu, A., & Pandey, S. (2019). The impact of institutional quality on Chinese foreign direct investment in Africa. *Local Economy*, *34*(6), 572-588.

Saidi, S., Mani, V., Mefteh, H., Shahbaz, M., & Akhtar, P. (2020). Dynamic linkages between transport, logistics, foreign direct Investment, and economic growth: Empirical evidence from developing countries. *Transportation Research Part A: Policy and Practice*, *141*, 277-293.

Schoneveld, G. C. (2020). Sustainable business models for inclusive growth: Towards a conceptual foundation of inclusive business. *Journal of Cleaner Production,* 277, 124062.

Sen, A. (1999). Development as freedom. Oxford University Press.

Shahbaz, M., Mateev, M., Abosedra, S., Nasir, M. A., & Jiao, Z. (2021). Determinants of FDI in France: Role of transport infrastructure, education, financial development and energy consumption. *International Journal of Finance & Economics*, *26*(1), 1351-1374.

Shahzada, A. A., Asimb, H., & Anwarc, A. (2021). The Socio-economic and Political Role of Women's Empowerment towards Inclusive Growth: Comparative and Regional Analysis. *International Journal of Innovation, Creativity and Change*, *15*(3), 969-986.

Shin, Y., *Yu*, B. and Greenwood-Nimmo, M. (2014), "Modelling asymmetric cointegration and dynamic multipliers in a nonlinear ARDL framework *Festschrift, in Honour of Peter Schwtidt*, Springer, New York, *NY*. Studies 11: 1–3.

UNCTAD (2022). World Investment Report 2022. Global foreign direct investment flows over the last 30 years. https://unctad.org/data-visualization/global-foreign-direct-investment-flows-over-last-30-years

Vernon, Raymond. 1966. International Investment and International Trade in the Product Cycle. *The Quarterly Journal of Economics* 80: 190.

Wasike, S. (2022). Foreign Direct Investment and Economic Growth in Africa. *International Journal of Current Science Research and Review*, *5*(5),1793-1804.