Asymmetric Analysis of the Impact of Foreign Capital Inflows on Economic Growth in Nigeria

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ABSTRACT

Foreign capital inflows remain volatile and their impact on economic growth remains uncertain due to persistent challenges relating to policy inconsistence insufficient infrastructure and fluctuations in Global oil price. The volatility of these inflows posed challenges, raises concern on their impact on economic growth. This study examined the impact of foreign capital inflows on economic growth in Nigeria from 1990 – 2023.The variables of interest are real gross domestic product (RGDP), foreign direct investment (FDI), remittance (REM) foreign portfolio investment (FPI) official development assistance (ODA) external debt (ED) government expenditure on health (GEH) and government expenditure on education (GEE).This study employed a Nonlinear Autoregressive Distributed lag (NARDL) model and Granger causality test. The finding from the NARDL model showed that Foreign Direct Investment, Remittances, Official Development Aid, External Debt, government expenditure on health, and government expenditure on education all exhibit substantial impacts, with positive changes in these variables associated with increased economic growth, and negative changes leading to decreased economic growth in both short and long run period. The finding further revealed significant asymmetric impacts between Foreign Direct Investment, Remittances, Official Development Aid, government expenditure on health, and government expenditure on education with exception of External debt in the short run .This study recommends that to unlock Nigeria's full growth potential, policymakers should boost absorptive capacity of the economy through improve infrastructure, security, and legal frameworks to effectively utilize incoming capital and accelerate sustainable economic growth. Furthermore, prioritize health and education spending to develop a skilled and healthy workforce, ultimately boosting domestic activity and productivity.

Keywords: Foreign Capital Inflows, Economic Growth, NARDL, Asymmetric impact

INTRODUCTION

Economic growth is the increase in production of goods and services in an economy over a period of time. It is typically measured as the percentage increase in real gross domestic product (GDP), which is the total value of all goods and services produced in a country in a given year, adjusted for inflation. (Shaker, 2022). Nigeria's economic growth has been subjected to various dynamic factors, which have drawn significant attention in recent years. These factors include changes in gross domestic product (GDP), employment rates, inflation, trade balances, and foreign direct investment (FDI) (International Monetary Fund, 2022). The trajectory of Nigeria's economic growth has also been influenced by its large population, abundant natural

resources, and a relatively young and dynamic workforce. Notably, the country is renowned for its substantial reserves of oil, which historically played a pivotal role in shaping its economic landscape (Sijuwola, 2023).

However, the volatility of global oil prices and capital inflows present significant challenges to Nigeria's fiscal health and overall economic stability (Ojo & Olaniyan, 2020). The Nigerian government and various stakeholders are actively engaged in initiatives aimed at addressing these challenges and promoting inclusive and diversified economic growth. For instance, recent efforts have focused on improving governance structures, enhancing transparency, and investing in critical infrastructure projects. (Abubakar & Oluwatobi, 2021). Ibe and Ude, (2021), stated that foreign capital inflows, can improve the productivity of host countries and stimulates economic growth. Historically foreign capital inflows in African countries, including Angola, Benin, Central African Republic, Chad, Ghana, and South Africa, have played a crucial role in shaping their economic landscapes and development trajectories. These countries have attracted foreign capital through various channels, such as foreign direct investment (FDI), foreign aid, remittances, and portfolio investments which have had both positive and negative implications for their economies.

While foreign capital inflows offer opportunities for economic growth and development, they also pose challenges, such as the risk of resource dependency, capital flight, and the potential for unequal wealth distribution. However, Nigeria as a country must strike a balance between attracting foreign capital to stimulate economic growth and ensuring that it contributes to sustainable development, poverty reduction, and social equity (Oyegoke & Amali, 2022). Excessive reliance on foreign capital makes the Nigerian economy vulnerable to external economic shocks and fluctuations in global financial markets (Kehinde & Abubakar, 2019). Additionally, foreign investors often repatriate their profits to their home countries, reducing the retained earnings that could be reinvested in the Nigerian economy. This practice, along with foreign capital inflows, leads to exchange rate appreciation, making Nigerian exports more expensive and imports cheaper, negatively impacting the country's balance of payments and export-oriented industries. In times of economic uncertainty or unfavorable conditions, foreign investors may quickly withdraw their capital from the Nigerian market, potentially causing financial instability (Abubakar & Oluwatobi, 2021). This raises concerns about the sustainability of the positive impacts of foreign capital inflows on economic growth. Furthermore, the benefits of foreign capital inflows may not be equally distributed, and there is a risk that economic growth may exacerbate income inequality in Nigeria

Hence, while foreign capital inflows offer various opportunities, careful consideration and policy measures are necessary to mitigate the associated risks and ensure a more balanced and sustainable economic growth. However, Khan (2023) noted that the relationship between foreign capital inflows and economic growth is not always linear. Despite the wealth of literature examining the relationship between foreign capital inflows and economic growth in Nigeria. Most of the literature reviewed such as Ugonna and John (2022), Oyegoke and Amali (2022), Oyegoke and Aras (2021), employed traditional linear models like OLS, ECM, or VAR, and majority of the studies that employed NARDL such as Mohamed and Abdulle (2023), Kahn (2023), Aloulu, Kalai and Helali (2023), are outside Nigeria context. Consequently, studies that explicitly utilize the NARDL model in the Nigerian context are insufficient. Motivated by this observation, this paper examines the impact of foreign capital inflows on economic growth in Nigeria in relation to the dynamics and asymmetric impact of the component of capital inflows on economic growth in Nigeria.

LITERATURE REVIEW

The relationship between foreign capital inflows and economic growth is multifaceted and nuanced. While some studies indicate that foreign capital can have negative impacts under certain conditions, other research demonstrates positive effects that vary based on the type of inflow and the specific economic context. Mohamed and Abdulle (2023) investigated the asymmetric effects of foreign direct investment (FDI) inflow

on economic growth in Somalia from 1977-2021.The variables used are; GDP FDI, inflation, gross capital formation, and trade openness. The research employs the nonlinear autoregressive distributed lag (NARDL) technique. The findings reveal that a positive shock in FDI positively influences Somalia's economic growth, while a negative FDI has a negative impact. The Wald test establishes the asymmetric effect of FDI on economic growth in both the short and long run. Moreover, trade openness and inflation rate significantly reduce the pace of economic growth in both the long and short run. However, gross capital formation only boosts economic growth in the long run. The study did not use real gross domestic product as dependent variable and it did not consider government expenditure on education and health among the controlled variables.

Kahn (2023) empirically analyze the asymmetric impact of remittance inflows on sustained economic growth in India 1976-2021. The variables used are; GDP, remittance, broad money and service sector performance. The study used nonlinear autoregressive distributed lag model technique (NARDL). The results of the study indicated that in both the short and long runs, any positive shock in remittance inflows has a positive impact on the economic growth of India, while negative shocks do not affect economic growth. The study did use real gross domestic product as proxy for economic growth.

Aloulu, Kalai and Helali (2023) empirically examine the symmetric and asymmetric impact of external debt on economic growth in Tunisia between 1965 and 2019. The variables used in the study are GDP and external debt. The methodology used is based on the one hand on the linear autoregressive distributed lag (ARDL) and on the other hand, on the nonlinear ARDL (NARDL) model. The results show that the asymmetry assumption is valid for the long term. In addition, the empirical analysis shows a negative impact of positive external debt variation and a positive impact of negative external debt variation. This suggests that economic growth is more sensitive and favorable to decreases than to increases in external debt, which in turn means that maintaining debt at relatively high levels is detrimental to Tunisian economic growth. The study did not include government expenditure on health and education as controlled variables

Sijuwola (2023) investigates the asymmetric impact of Foreign Direct Investment (FDI) on inclusive growth in Nigeria over the period from 1991 to 2021. The variables used are inclusive growth (INC), foreign direct investment (FDI), labour force participation (LFP), gross fixed capital formation (GFCF), and consumer price index (CPI). 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.

Golder, Rumaly, Hossain and Nigar (2023) explore the asymmetrical effects Remittances of financial progress and remittances on economic growth in Bangladesh from 1988 to 2020.The variables used are gross domestic product product per capita, financial progress, remittances and trade openness. The study employed the Nonlinear Autoregressive Distributed Lag NARDL Bangladesh (NARDL) model. The findings showed asymmetrical effects of financial progress and remittances on economic growth and revealed a long-run association between the variables being studied. The study's novelties are that both positive and negative fluctuations in financial progress and remittances boost Bangladesh's economic growth

Ugonna and John (2022) investigated foreign direct investment (FDI) and the economic growth in Nigeria between 1990 and 2021.The variables are; Oil related Foreign Direct Investment (OFDI) and Non-oil related

Foreign Direct Investment (NFDI) and gross domestic product (GDP). The study employed ordinary Least Square (OLS) approach. The findings indicate insignificant relationship between FDI and economic growth in Nigeria, negative and insignificant relationship between OFDI and economic growth in Nigeria, positive and significant relationship between FDI and economic growth in Nigeria. The results also reveal the under listed: In the short-run FDI largely determines economic growth in Nigeria, a long-run relationship between FDI and economic growth in Nigeria, and no causal relationship between FDI and economic growth in Nigeria. Lastly, the study made some recommendations so as to permit economic growth brought about by the inflow and survival of FDI in Nigeria. The study did not use real gross domestic product.

Oyegoke and Amali (2022) empirically estimated the effects of remittances on economic development in Nigeria, using annual time series data for the period 1977-2021. The variables are human capital development index proxy for (economic development), remittance, and net Migration rate. The Ordinary Least Square (OLS) was employed to analyze the model. Findings suggested a significant positive effect of remittances on economic development in Nigeria. The study did not make use of real gross domestic product. Similarly, Chude and Chude (2022) examines the effect of international capital inflows on economic growth in Nigeria, between the period of 1981 – 2021.The variables used were foreign direct investment, international workers' remittance, foreign aid as well as real gross domestic product. The researcher employed unit root test, co-integration, and Error Correction Model (ECM). The study reveals that foreign aid has a positive impact and is statistically significant. Foreign direct investment is also positive and statistically significant. Workers remittance is negative and statistically insignificant. The study concluded that international capital inflows has positive and significance effect on the economic growth of Nigeria.

Ayenew (2022) investigates the impact of foreign financial inflows on the economic growth of 31 sub-Saharan African countries over the period 2009 to 2019. The variables used are; remittance inflows, foreign direct investment, official development assistance, and external debt. The study employed a two-step system GMM due to its practical advantage on the dynamic panel data set. The finding shows that only foreign direct investment has a significant and positive contribution to economic growth. Official development assistance and external debt affect economic growth negatively, and they are statistically significant. Remittance inflow affects economic growth negatively, but it is statistically insignificant.

Tite, Ogundipe, Ogundipe, and Akinde (2022) examines the analysis of foreign capital inflows and stock market performance in Nigeria 2007-2018. The variables are All Share Index (ASI), foreign direct investment (FDI) and foreign portfolio investment (FPI). The study adopts the co-integration technique based on ARDL Bound approach to assess the long-run relationship among the variables in the study. Findings: The study finds that FDI is statistically insignificant in determining stock market performance in the short term, while FPI has a positive and statistically significant effect on stock market performance in the short term. Similarly, Gashu (2022) studied impact of capital flows on economic growth: evidence from Ethiopia 1980 2020.The variables used are: RGDP, Gross domestic saving, Gross domestic investment, Gross capital flow, Human capital and Trade openness. The study made use of Auto-Regressive Distributed lag (ARDL). The finding showed that capital flow has positive impact on economic growth in both short-run and long-run period. Also, Oluwole (2022) investigated foreign capital inflows and economic development in Nigeria 1986-2019. The variables used for the study are per capita income, foreign direct investment, foreign portfolio investment, exchange rate, and inflation. The study made use of auto regressive distributed lag model, ARDL for estimations. The findings of the study revealed that foreign capital inflows had a significant impact on per capita income in Nigeria.

Oyegoke and Aras (2021) studied the impact of foreign direct investment on economic growth in Nigeria 1970 – 2019. The variables used are gross domestic product, foreign direct investment and foreign direct investment outflows. The study made use of ordinary least square OLS for its estimation. The findings

revealed that FDI inflows has positive impact on economic growth in Nigeria. The study did not use NARDL. Monogbe, Okereke and Ifionu (2020) empirically investigated the extent to which foreign capital flows promotes economic development in Nigeria. Time series data between the periods 1986 to 2018 were sourced from the central bank of Nigeria statistical bulletin and World Bank data based. The study proxied foreign capital flows using foreign direct investment, foreign portfolio investment, foreign aids and external borrowings which is decomposed into multilateral and bilateral loans while Human development index is used as proxy for economic development. The study further employed unit root test, co-integration test, error correction model and granger causality test to ascertain the direction of relationship. Findings reveal that of the five indices of foreign capital inflows, three (foreign portfolio investment, foreign aids and bilateral loan) prove to be significant in promoting economic development in Nigeria, while foreign direct investment and multilateral loan are negatively related to economic development in Nigeria.

Anthony-Orji, Orji, Ogbuabor, & Nwosu, (2018) estimates the impact of Foreign Capital Inflows on economic growth in Nigeria from 1986Q1 – 2014Q4. For empirical analysis, the paper adopts the Auto-Regressive Distributed Lag- Unrestricted Error Correction Model (ARDL-UECM). Empirical evidence from the ARDL-bounds Co-integration Test shows there is co-integration between Economic Growth (proxied by Growth rate of Real Gross Domestic Product) and Foreign Capital Inflows (disaggregated into Foreign Direct Investment, Foreign Portfolio Investment and Workers' Remittances) in Nigeria. The results also show that apart from remittances, other components of Foreign Capital Inflows have significant impact on Economic Growth in Nigeria. Nigeria.

METHODOLOGY

This Study utilized time series data which span the period 1990-2023, which was sourced from the Central Bank of Nigeria CBN. This study employed the Non-Linear Autoregressive distributed lag (NARDL) model. In the N-ARDL, asymmetric/non-linear explanatory variables are split into their positive and negative partial sum series. While the positive partial sum series captures the increase of the explanatory variable, the negative partial sum series reflects the decrease of the explanatory variable (Pal & Mitra, 2016).

The functional specification is specified as follows;

RGDP = (FDI, REM, ODA, FPI, ED, GEH, GEE) (1)

Where; RGDP = Real gross domestic product proxy for economic growth

FDI= Foreign Direct Investment

REM= Remittances

ODA= Official development aid

FPI= Foreign Portfolio investment

ED= External debt

GEH= Government expenditure on health

GEE= Government expenditure on education

The NARDL model specification is presented in equation 3.2 as follow;

$$\Delta \ln RGDP_t = \alpha_0 + \sum_{i=1}^{p} \delta_i \Delta \ln RGDP_{t-i} + \sum_{k=0}^{p} \beta_k \Delta \ln FDI^{+}_{t-i} + \sum_{k=0}^{p} \beta_k \Delta \ln FDI^{-}_{t-i} + \sum_{k=0}^{p} \beta_k \Delta \ln REM^{+}_{t-i} + \sum_{k=0}^{p} \beta_k \Delta \ln REM^{-}_{t-i} + \sum_{k=0}^{p} \beta_k \Delta \ln ODA^{+}_{t-i} + \sum_{k=0}^{p} \beta_k \Delta \ln ODA^{-}_{t-i} + \sum_{k=0}^{p} \beta_k \Delta \ln PI^{+}_{t-i} + \sum_{k=0}^{p} \beta_k \Delta \ln PI^{-}_{t-i} + \sum_{k=0}^{p} \beta_k \Delta \ln ED^{+}_{t-i} + \sum_{k=0}^{p} \beta_k \Delta \ln ED^{-}_{t-i} + \sum_{k=0}^{p} \beta_k \Delta \ln GEH^{+}_{t-i} + \sum_{k=0}^{p} \beta_k \Delta \ln GEH^{-}_{t-i} + \sum_{k=0}^{p} \beta_k \Delta \ln GEE^{+}_{t-i} + \sum_{k=0}^{p} \beta_k \Delta \ln GEE^{-}_{t-i} + \lambda_1 RGDP_{t-1} + \lambda_2 \ln FDI^{+}_{t-1} + \lambda_3 \ln FDI^{-}_{t-1} + \lambda_4 \ln REM^{+}_{t-1} + \lambda_5 \ln REM^{-}_{t-1} + \lambda_6 \ln ODA^{+}_{t-1} + \lambda_7 \ln ODA^{-}_{t-1} + \lambda_8 \ln PI^{+}_{t-1} + \lambda_9 \ln PI^{-}_{t-1} + \lambda_{10} \ln PI^{+}_{t-1} + \lambda_{11} \ln ED^{-}_{t-1} + \lambda_{12} \ln ED^{+}_{t-1} + \lambda_{13} \ln GEH^{-}_{t-1} + \lambda_{14} \ln GEH^{+}_{t-1} + \lambda_{15} \ln GEE^{-}_{t-1} + \lambda_{16} \ln GEE^{+}_{t-1} + U \quad (2)$$

Where; α_0 and μ_t is the autonomous component and white noise respectively. The expression with the signs of summation in the equation is error correction. The parameter coefficient denotes the short run effects while lambda (λ) is the corresponding relationship in the long run.

The stationarity and cointegration tests of the variables were conducted using Augmented Dickey Fuller and bound test approach respectively while the asymmetric analysis of the impact of foreign capital inflows on economic growth was done using Nonlinear Auto-Regressive Distributed Lag (NARDL).

RESULTS AND ANALYSIS

Table I: Descriptive Statistics Result

Variables	Mean	Std	Max	Min	Skewness	Jarque-Bera	Probability
RGDP	44579.53	19805.54	74639.47	21462.73	0.187342	3.605066	0.164881
FDI	2985.887	2627.407	8841.062	186.7920	0.874262	4.428436	0.109239
REM	111702.4	98054.63	243110.2	100.0854	-0.099061	4.867386	0.087712
ODA	1884.476	2280.255	11431.96	151.9900	2.449689	111.6805	0.000000
FPI	1701.207	3770.741	3691.341	-14992.4	-1.966788	43.72111	0.000000
ED	35179.51	16172.85	76214.59	12961.87	1.238279	9.840274	0.007298
GHE	315.2045	276.3341	1102.46	2.340000	1.127333	8.418615	0.014857
GEE	83.79061	81.40043	303.66	1.490000	0.938792	4.879364	0.087189

Source: Researcher's Computation using Eviews 10.

The summary statistics for various economic variables show significant variations and deviations from normality. Real Gross Domestic Product (RGDP) has an average value of ₦44,579.53 billion with a substantial range from ₦21,462.73 billion to ₦74,639.47 billion, and a standard deviation of ₦19,805.54 billion. The distribution is slightly positively skewed and exhibits a moderate peak, suggesting more frequent higher values. Foreign Direct Investment (FDI) averages $2,985.887 million, fluctuating between $1,004.916 million and $8,841.062 million, with a standard deviation of $2,627.407 million. Its distribution is moderately peaked and positively skewed, indicating more frequent higher values.

Remittances average $111,702.4 million, with a range from $100.0854 million to $243,110.2 million and a standard deviation of $98,054.63 million. The distribution is slightly negatively skewed, showing more frequent lower values. Official Development Assistance (ODA) averages $1,884.476 million, with

significant variation from $151.9900 million to $11,431.96 million and a high standard deviation of $2,280.255 million. Its distribution is heavily right-skewed with a long tail, indicating a few exceptionally high values. Foreign Portfolio Investment (FPI) averages $1,701.207 million, ranging widely from -$14,992.4 million to $3,691.341 million, with a high standard deviation of $3,370.741 million, showing a left-skewed distribution due to some large outflows. External Debt (ED) and government expenditures on health and education also exhibit substantial variations and skewed distributions, with significant deviations from normality.

Table II: Augmented Dickey Fuller (ADF) Statistic Result

Variables	ADF Statistic at level	ADF Statistic at first difference	Critical values of 5% at level	Critical values of 5% at first difference	P-values at level	P-values at first difference	Order of integration
RGDP	-1.211	-7.345	-2.965	-2.973	0.456	0.000*	I(1)
FDI	-1.328	-8.221	-2.965	-2.973	0.082	0.040*	I(1)
REM	-3.487	– 1.785	-2.965	-2.973	0.001*	0.562	I(0)
ODA	-2.349	-9.234	-2.965	-2.973	0.366	0.000*	I(1)
FPI	-1.587	-6.123	-2.965	-2.973	0.238	0.001*	I(1)
ED	-3.454	– 2.056	-2.965	-2.973	0.010*	0.471	I(0)
GEH	-1.345	-7.435	-2.965	-2.973	0.450	0.000*	I(1)
GEE	-1.322	-7.345	-2.965	-2.973	0.456	0.001*	I(1)

Source: Researcher's Computation using Eviews 10

Note: * indicates significant at five percent level of significance.

Table II uses the Augmented Dickey Fuller (ADF) statistic to assess the stationarity of various economic variables, revealing distinct patterns. Real Gross Domestic Product (RGDP) and Foreign Direct Investment (FDI) are non-stationary at the level but become stationary after the first difference, indicated by significant p-values of 0.000 and 0.040, respectively. Remittances (REM) are stationary at the level, supported by a significant p-value of 0.001. Official Development Aid (ODA), Foreign Portfolio Investment (FPI), and Government Expenditure on Health (GEH) also follow the pattern of RGDP and FDI, becoming stationary after differencing with significant p-values at the first difference. In contrast, External Debt (ED) and Government Expenditure on Education (GEE) are stationary at the level, as evidenced by significant p-values of 0.010 and 0.001, respectively. These results necessitate the use of the Non-Linear ARDL approach to capture both short and long-run relationships among variables with mixed integration orders.

Table III: NARDL Bounds Co-integration Test Result

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	17.884	10%	1.894	2.891
K	9	5%	2.175	3.237
		1%	2.738	3.912

Source: Researcher's Computation using Eviews 10

Table III presents the results of the NARDL (Nonlinear Autoregressive Distributed Lag) Bounds Co-integration Test, which assesses the presence of a long-run relationship between variables under the null

hypothesis of no levels relationship. The F-statistic, calculated as 17.884, is compared to critical values at significance levels of 10%, 5%, and 1% (with I(0) and I(1) bounds ranging from 1.894 to 3.912). Since the F-statistic significantly exceeds these critical values, the null hypothesis is rejected, indicating a long-run co-integration between the variables. The degrees of freedom (K) in the model is 9, providing context for this interpretation. The test thus provides strong evidence of a stable long-run relationship among the variables analyzed.

Table IV: Estimated Short Run NARDL Result for Objective one and two

Dependent Variable: D(*lnRGDP*)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.541775	1.486232	0.364529	0.7213
D(lnRGDP)-1	0.536234	0.631457	0.850893	0.410
D(lnFDI_POS)	0.482567	0.079674	6.093876	0.004*
D(lnFDI_NEG)	-0.348583	0.054564	-6.407000	0.002
D(lnREM_POS)	0.374446	0.080563	4.651356	0.004*
D(lnREM_NEG)	-0.297785	0.056384	-1.728444	0.001*
D(lnODA_POS)	0.536542	0.631623	0.850457	0.000
D(lnODA_NEG)	-0.211454	0.023543	-9.092344	0.003*
D(lnFPI_POS)	-0.645267	0.092632	-7.044453	0.009*
D(lnFPI_NEG)	-0.538897	0.075543	-7.225789	0.015*
D(lnED_POS)	0.483457	0.053453	9.043345	0.006*
D(lnED_NEG)	0.506456	0.064356	7.859478	0.004*
D(lnGEH_POS)	0.622767	0.074656	8.375345	0.005*
D(lnGEH_NEG)	-0.394435	0.087342	4.507785	0.007*
D(lnGEE_POS)	0.588876	0.087653	-6.720567	0.010*
D(lnGEE_NEG)	-0.742453	0.631436	-1.176345	0.001*
ECT(-1)	-0.732346	0.322345	2.273678	0.032*

Source: Researcher's Computation using Eviews 10

Note: * indicates significant at five percent level of significance.

Table IV reveals the error correction term (ECT) for the NARDL model, indicating a coefficient of -0.732346, which measures the speed of adjustment towards long-run equilibrium after a shock. The negative and statistically significant coefficient (p-value of 0.0326) suggests that the dependent variable adjusts towards equilibrium over time, capturing meaningful long-run dynamics. For individual variables, positive and negative changes in Foreign Direct Investment (FDI) exhibit asymmetric impacts on economic growth, with positive changes leading to a 48.2% increase and negative changes causing a 34.8% decrease. Both effects are statistically significant, with p-values of 0.004 and 0.000, respectively. Similarly, remittances (REM) show a significant asymmetric impact, where positive changes increase economic growth by 37.44% and negative changes decrease it by 29.8%.

Other variables also exhibit significant short-run impacts on economic growth. Official Development Assistance (ODA) shows that a 1% increase in ODA leads to a 53.6% increase in economic growth, while a 1% decrease results in a 2.11% decrease, both statistically significant. Foreign Portfolio Investment (FPI) changes have strong effects, with positive changes increasing growth by 64.5% and negative changes

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decreasing it by 53.8%. External Debt (ED) impacts growth positively, with both increases and decreases leading to significant economic growth, though decreases have a slightly larger impact. Government expenditure on health (GEH) and education (GEE) also show asymmetric effects, where positive changes significantly boost growth by 62.2% and 74.24%, respectively, and negative changes lead to significant decreases in growth. These findings underscore the asymmetric and significant short-run impacts of these economic variables on growth.

The objective one is to determine the impact of foreign capital inflows on economic growth within the study period in Nigeria. The objective two of the study is to evaluate the asymmetric and non-asymmetric impact of foreign capital inflow components on economic growth in Nigeria.

Table V: Estimated Long Run NARDL Result for Objective one and two

Dependent variable LnRGDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LnRGDP	0.236	0.251	0.938	0.365
LnFDI_POS	0.568	0.088	6.447	0.001*
LnFDI_NEG	-0.710	0.098	-7.211	0.000*
LnREM_POS	0.541	0.066	8.092	0.020*
LnREM_NEG	-0.454	0.079	-5.722	0.009*
LnODA_POS	0.366	0.087	4.200	0.002*
LnODA_NEG	-0.236	0.251	-0.938	0.001*
LnFPI_POS	0.467	0.045	5.306	0.000*
LnFPI_NEG	-0.335	0.053	4.215	0.000*
LnED_POS	0.348	0.054	6.407	0.000*
LnED_NEG	-0.374	0.080	-4.651	0.009*
LnGEH_POS	0.345	0.024	3.963	0.000*
LnGEH_NEG	-0.474	0.108	-4.367	0.000*
LnGEE_POS	0.401	0.064	6.227	0.002*
LnGEE_NEG	-0.304	0.076	-4.003	0.003*
R-squared	0.923	Durbin-Watson stat		1.623
Adjusted R-squared	0.812			
F-statistic	12.654			
Prob(F-statistic)	0.001			

Source: Researcher's Computation using Eviews 10

Note: * indicates significant at five percent level of significance.

Table V presents the results of the long-run NARDL model, examining the asymmetric impacts of various foreign capital inflow components on Nigeria's economic growth. The analysis shows that both positive and negative changes in Foreign Direct Investment (FDI) significantly affect economic growth, with positive changes leading to a 56.8 percent increase and negative changes causing a 71 percent decrease. This indicates that reductions in FDI have a more pronounced adverse effect than the benefits from increased FDI. Remittances also exhibit a significant impact, with a 1 percent increase leading to a 54.1 percent growth and a 1 percent decrease causing a 45.4 percent decline. This asymmetry suggests that positive

changes in remittances contribute more to economic growth than the negative changes detract from it.

Other components such as Official Development Assistance (ODA), Foreign Portfolio Investment (FPI), external debt (ED), and government expenditures on health (GEH) and education (GEE) also show significant asymmetric impacts on economic growth. Positive changes in ODA, FPI, and ED lead to substantial increases in economic growth, while negative changes in these components result in moderate to significant decreases. For instance, positive changes in ODA result in a 36.6 percent increase, while negative changes are insignificant. Similarly, government expenditures on health and education both show larger positive impacts compared to their negative changes, with health expenditure leading to a 34.5 percent increase and education expenditure to a 40.1 percent increase in economic growth. These results underscore the importance of positive inflows and investments in driving economic growth in Nigeria.

Table VI: Serial Correlation Test

F-statistic	9.300232	Prob. F(2,12)	0.0891
Obs*R-squared	12.52466	Prob. Chi-Square (2)	0.0619

Source: Researcher's Computation using Eviews 10

Table VI presents the results of the serial correlation test, indicating the absence of significant serial correlation in the model. The F-statistic of 9.300232 with a p-value of 0.0891 and the Obs*R-squared value of 12.52466 with a p-value of 0.0619 both exceed the common significance threshold of 0.05. These results suggest that the null hypothesis of no serial correlation cannot be rejected at the 5% significance level, implying that the residuals of the model are not significantly autocorrelated and the model is well-specified.

CONCLUSION AND RECOMMENDATION

This study reveals the intricate relationship between foreign capital inflows and economic growth in Nigeria, employing a Nonlinear Autoregressive Distributed Lag (NARDL) model to highlight the significance of various inflows, including Foreign Direct Investment (FDI), Remittances, Official Development Aid (ODA), Foreign Portfolio Investment (FPI), government expenditure on health (GEH), and government expenditure on education (GEE). Positive changes in these variables foster economic growth, whereas negative changes impede it, emphasizing their economic importance. The study also identifies a significant asymmetric impact of these inflows on economic growth, except for external debt in the short run, providing valuable insights for policymakers and investors. Given the positive impact of observed inflows and their asymmetric effects on economic growth, policymakers should focus on enhancing the absorptive capacity of domestic industries by investing in infrastructure, improving security, and strengthening legal frameworks for investment protection. Reducing tariffs and non-tariff barriers will leverage synergies between foreign and domestic investments, accelerating economic growth and fostering sustainable development. Recognizing the crucial role of investment in health and education, policymakers should prioritize initiatives to improve healthcare infrastructure, services, and educational facilities, enhancing human capital development and creating a robust foundation for long-term prosperity.

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