

Economic Globalization and Manufacturing Sector Performance in Nigeria

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Abstract

This study examines the impact of economic globalization on the performance of Nigeria's manufacturing sector from 1990 to 2024. Economic globalization is proxied by foreign direct investment (FDI) net inflows as a percentage of GDP, the logarithm of the real effective exchange rate, the logarithm of trade openness, and tariffs on manufactured goods, while manufacturing sector performance is measured using manufacturing value added. Time series data were sourced from the World Bank's World Development Indicators and the Central Bank of Nigeria Statistical Bulletin. The study employs KPSS unit root tests, ARDL bounds cointegration, ARDL estimation, Granger causality, and diagnostic tests. The findings reveal the existence of a long-run relationship in the model. ARDL long-run estimates show that FDI exerts a negative and statistically significant effect on manufacturing value added. Trade openness indicates a significant negative effect on manufacturing value added. The real effective exchange rate has statistically not significant effects on manufacturing value added. While the tariffs on manufactured goods indicate a positive correlation, albeit not statistically significant on manufacturing value added. The error correction results confirm the models' convergence to long-run equilibrium. Based on these findings, the study recommends among others, that Nigeria should adopt performance-based FDI policies by granting incentives only to foreign firms that promote local sourcing, technology transfer, and industrial employment.

Keywords: Globalization, KPSS, FDI, Tariffs, Manufacturing sector value-added, ARDL.

1. Introduction

Economic globalization has become a major driver of economic transformation in developing countries through increased trade liberalization, foreign direct investment (FDI), exchange rate reforms, and reduced trade barriers. In Nigeria, this process accelerated following the introduction of the Structural Adjustment Program (SAP) in 1986, which shifted the economy from import substitution to export-oriented industrialization and market liberalization. Nigeria's accession to the World Trade Organization (WTO) in 1995 further deepened its integration into the global economy through progressive tariff reductions and greater trade openness (World Bank, 2024a; CBN, 2023). Consequently, trade openness expanded considerably, tariffs on manufactured products declined to 11.7 percent in 2022, the real effective exchange rate depreciated substantially to 63.9 in 2024, and net FDI inflows remained volatile, falling to 0.4 percent of GDP in 2024 (World Bank, 2024a; World Bank, 2024b; World Bank, 2024c). In theory, these developments are expected to improve industrial

competitiveness, promote technology transfer, attract investment, and stimulate manufacturing sector growth. Despite these globalization reforms, Nigeria's manufacturing sector has continued to experience weak performance, characterized by low value addition, limited employment generation, and inadequate structural transformation. Manufacturing value added has remained persistently low, accounting for approximately 9 percent of GDP in 2024, while employment in industry has remained at about 17 percent of total employment, with manufacturing contributing only a small proportion despite rapid population growth (World Bank, 2024d; World Bank, 2024e; World Bank, 2024f). Reports by the Central Bank of Nigeria further indicate that the sector continues to face chronic capacity underutilization, high production costs arising from unreliable electricity supply and poor infrastructure, and modest contributions to gross domestic product, generally below 13 percent in recent years (CBN, 2023; NBS, 2024). These challenges have limited the ability of the manufacturing sector to fully benefit from Nigeria's increasing integration into the global economy. Existing empirical evidence on the relationship between economic globalization and manufacturing performance remains inconclusive. Some studies report that globalization enhances manufacturing growth through increased trade, foreign investment, and technological spillovers (Okolo et al., 2017; Omolade & Ngalawa, 2018; Shah et al., 2024; Macedo, 2018; Kaya, 2010; Sani et al., 2021), whereas others argue that import competition, exchange rate instability, oil dependency, and weak domestic productive capacity have constrained industrial development and contributed to deindustrialization (Ike et al., 2016; Adamczyk, 2022; Odebode & Aras, 2019; Almad et al., 2023; Ibidapo, 2025). Furthermore, most existing studies examine individual dimensions of globalization or relatively shorter periods, resulting in inconsistent findings and limited policy guidance. Consequently, there remains a significant empirical gap regarding the combined effects of trade openness, tariff rates on manufactured products, the real effective exchange rate, and FDI inflows on manufacturing performance over the period 1990–2024. Against this background, this study empirically examines the effects of economic globalization on the performance of Nigeria's manufacturing sector over the period 1990–2024 by investigating the influence of trade openness, tariff rates on manufactured products, the real effective exchange rate, and net inflows of foreign direct investment on manufacturing value added. The study seeks to provide comprehensive empirical evidence that contributes to the globalization–industrialization literature and offers policy recommendations for enhancing manufacturing competitiveness, accelerating industrialization, and promoting sustainable economic development in Nigeria.

2. Literature Review

2.1.1 Theory of Comparative Advantage (Neoclassical Trade Theory)

Originating with David Ricardo in 1817 and extended through the factor proportions framework by Eli Heckscher in 1919 and Bertil Ohlin in 1933, the theory of comparative advantage holds that countries derive mutual gains from trade by specializing in the production of goods in which they possess relative cost advantages, driven either by technological differences or varying factor endowments. In an open economy, trade liberalization, manifested as higher trade openness and lower tariffs on manufactured products, facilitates the reallocation of resources toward sectors with comparative advantages, leading to increased output, efficiency, and welfare. For Nigeria, a country endowed with abundant low-skilled labor but relatively scarce capital and technology, this implies that reduced barriers should promote expansion in labour-intensive manufacturing activities, boosting value added through export growth and cheaper imported inputs while creating employment opportunities as labor shifts from less productive sectors. However, the theory's predictions are frequently distorted in practice by Nigeria's overwhelming reliance on oil exports, which skews factor proportions

toward capital-intensive extraction and undermines labor-intensive manufacturing. The resulting import competition from more productive global suppliers, combined with inadequate infrastructure and skill mismatches, has often led to de-specialization rather than specialization, with manufacturing failing to capture the expected gains despite progressive liberalization since the Structural Adjustment Programme of 1986 and WTO accession in 1995.

Furthermore, the Stolper-Samuelson theorem, an extension of Heckscher-Ohlin, suggests that trade openness benefits the abundant factor (labor in Nigeria), potentially raising wages and employment in manufacturing, but empirical evidence from sub-Saharan Africa indicates that unequal factor mobility and trade imbalances can exacerbate income disparities and sectoral decline. This perspective thus establishes a baseline hypothesis of positive effects from trade openness and tariff reductions, which can be empirically tested against Nigeria's observed manufacturing stagnation, where value added has hovered around 9-12% of GDP amid fluctuating globalization indicators (Krugman & Obstfeld, 2009).

2.1.2 New Trade Theory

Developed primarily by Paul Krugman in 1979 and 1980, drawing on the monopolistic competition framework of Dixit and Stiglitz (1977), new trade theory introduces imperfect competition, increasing returns to scale, product differentiation, and consumer preferences for variety, thereby explaining phenomena such as intra-industry trade and the persistence of trade patterns beyond comparative advantage. The theory suggests that globalization expands market size, enabling firms to achieve economies of scale, lower average costs, and offer greater product diversity, which in turn drives higher manufacturing output and innovation.

In the Nigerian context, lower tariffs on manufactured products and increased trade openness could allow domestic firms to access global markets for differentiated goods, import advanced intermediate inputs, and benefit from export opportunities, potentially raising manufacturing value added and generating employment through scale-driven expansion. FDI inflows further reinforce these effects by introducing new product varieties and production techniques. Nevertheless, the theory also highlights vulnerabilities: in small or late-industrializing economies, agglomeration forces and network effects tend to favor established producers in advanced or emerging markets, exposing Nigerian manufacturers to intense import competition that displaces local firms, erodes market share, and contributes to deindustrialization. This dynamic is evident in Nigeria's post-liberalization experience, where manufacturing has struggled against imported consumer and intermediate goods, underscoring the theory's relevance for understanding why globalization has not consistently translated into sectoral growth. Moreover, the theory's emphasis on home-market effects implies that Nigeria's relatively small non-oil domestic market limits the ability of local firms to build scale before entering global trade, often resulting in a vicious cycle of low productivity and high exit rates among manufacturers. Critiques of the theory point to its assumption of symmetric firms, which overlooks asymmetric power dynamics in global value chains where developing-country firms like those in Nigeria are relegated to low-value assembly roles, further dampening value added and employment prospects (Helpman & Krugman, 1985; Krugman, 1991)

2.1.3 Endogenous Growth Theory

Endogenous growth theory, advanced by Paul Romer in 1990 and Robert Lucas in 1988, with key FDI extensions by Borensztein, De Gregorio, and Lee in 1998, emphasizes that sustained economic growth arises from internal factors such as knowledge accumulation, human capital development, and technological innovation, rather than exogenous technological progress. A key extension, provided by Borensztein, De Gregorio, and Lee in 1998, emphasizes FDI as a primary vehicle for technology transfer, managerial expertise, and productivity spillovers to

domestic firms through mechanisms such as backward linkages to local suppliers, forward linkages to downstream users, demonstration effects, and labor mobility. When combined with trade openness and a competitive real effective exchange rate, FDI inflows can enhance manufacturing performance by raising productivity, fostering innovation, and creating jobs in high-value activities. For Nigeria, episodes of FDI surges, particularly in the 2000s and early 2010s following liberalization should theoretically have generated spillovers that elevated manufacturing value added and employment. However, the theory stresses that spillovers are conditional on the host economy's absorptive capacity, including human capital stock, institutional quality, and R&D infrastructure. Nigeria's persistent challenges in these areas, low secondary and tertiary enrollment rates, weak intellectual property protection, and limited domestic technological capabilities have often confined FDI to enclave sectors like oil and gas, limiting cross-sectoral diffusion and sometimes crowding out local manufacturing investment. This conditional mechanism helps explain the muted impact of globalization on manufacturing despite periodic capital inflows.

Empirical Review

Sulaiman et al. (2022) investigated the impact of manufacturing value added on environmental degradation in India over the period 1965–2016. Using the autoregressive distributed lag (ARDL) model, the study employed carbon dioxide emissions as a proxy for environmental degradation alongside energy use, trade openness, and economic growth as control variables. The findings revealed that manufacturing value added exerted a positive and statistically significant effect on environmental degradation, implying that increased manufacturing output contributed to higher carbon emissions and deteriorating environmental quality. The study further tested the Environmental Kuznets Curve (EKC) hypothesis but found no empirical support for its validity. Bekele (2020) examined the effects of selected macroeconomic variables on manufacturing value added in Ethiopia using annual time-series data covering the period 1982–2018. Employing the autoregressive distributed lag (ARDL) approach, the study established the existence of a long-run equilibrium relationship among the variables. The long-run estimates indicated that inflation, exchange rate, and trade openness exerted significant negative effects on manufacturing value added, whereas government expenditure exerted a significant positive effect. The error correction mechanism confirmed a stable adjustment towards the long-run equilibrium. Yanikkaya et al. (2022) investigated the effects of trade openness on sectoral performance in Türkiye using alternative measures of openness for the periods 1995–2009 and 2000–2014. The findings indicated that domestic value added embodied in exports served as a major driver of sectoral value added. Although imports and backward production linkages enhanced total factor productivity in manufacturing industries, they exerted no statistically significant effect on sectoral value added. Furthermore, tariff barriers exerted a significant adverse effect on sectoral performance. The authors emphasized the risks associated with participation in global value chains and recommended diversification of import sources alongside greater policy transparency. Wahab (2023) investigated the determinants of manufacturing export performance in Nigeria using annual data spanning 1981–2019 and the Generalized Method of Moments (GMM) estimator to address potential endogeneity. The findings revealed that greater trade openness, higher manufacturing value added, improved access to financial services, favourable relative prices, and increased foreign direct investment inflows significantly enhanced manufacturing export performance. Chille et al. (2021) examined whether natural resource abundance crowded out the manufacturing sector in Nigeria using annual data from 1990 to 2019 and the autoregressive distributed lag (ARDL) approach. The results indicated that natural resource abundance exerted a positive contemporaneous effect on manufacturing value added in the short run but produced a negative

effect after one lag. In the long run, however, natural resource abundance exerted a positive and significant influence on manufacturing value added.

Cengiz and Oarlinska (2025) investigated the effects of economic globalization on industrialization in Türkiye and Poland using annual data covering 1995–2022. Employing Fully Modified Ordinary Least Squares (FMOLS), Dynamic Ordinary Least Squares (DOLS), Canonical Cointegrating Regression (CCR), and the Toda–Yamamoto causality test, the study revealed that foreign direct investment inflows exerted a negative effect on manufacturing value added in Türkiye, whereas labour force participation exerted a positive effect. In Poland, foreign direct investment, trade openness, and labour force participation all exerted positive and statistically significant effects on manufacturing value added.

Nzeh et al. (2025) investigated the influence of manufactured imports on manufacturing sector performance in Nigeria using annual data spanning 1982–2023. Employing the Fully Modified Ordinary Least Squares (FMOLS) and Dynamic Ordinary Least Squares (DOLS) techniques, the study revealed that manufactured imports exerted a negative and statistically significant effect on manufacturing performance. Exchange rate appreciation enhanced manufacturing performance, whereas lending rates and trade openness exerted negative effects.

Lemaallem and Saadi (2025) examined the effects of trade openness and specialization on sectoral total factor productivity in Morocco over the period 1998–2018 using sector-level data. The findings indicated that trade openness exerted a negative long-run effect on productivity owing to structural rigidities, weak production linkages, and limited technological spillovers, despite modest short-run gains arising from specialization. Human capital enhanced short-run productivity, whereas investment in machinery and equipment promoted long-run growth. The study therefore emphasized the need for structural reforms and targeted sectoral policies to maximize productivity gains from trade liberalization. Akpokorie and Egbon (2025) investigated the effects of industrial policy instruments on manufacturing output growth in selected West African countries using annual data from 2000 to 2023 and the Fully Modified Ordinary Least Squares (FMOLS) technique. The findings revealed that exchange rate policy exerted a positive and statistically significant influence on manufacturing output growth, whereas domestic credit to the private sector exerted a negative and statistically significant effect. Trade openness exerted a negative but statistically insignificant effect on manufacturing output growth. The authors concluded that industrial policy instruments affected manufacturing growth differently across countries and recommended strengthening exchange rate, credit, and trade policies to enhance manufacturing performance within the region. Aninwagu et al. (2026) analysed the determinants of economic growth in Nigeria using annual data covering the period 1990–2023 and the autoregressive distributed lag (ARDL) bounds testing approach developed by Pesaran, Shin, and Smith (2001). Real GDP per capita served as the dependent variable, while total trade, foreign direct investment (net inflows), gross fixed capital formation, and government recurrent expenditure on education constituted the explanatory variables. The results indicated that total trade and government expenditure on education exerted negative short-run effects on economic growth. Foreign direct investment exerted a negative short-run effect but a positive and statistically significant long-run effect. Gross fixed capital formation exerted a positive and statistically significant short-run effect but no statistically significant long-run influence. The error correction mechanism confirmed the existence of a stable long-run equilibrium relationship with an adjustment speed of approximately 62% per annum. The model explained approximately 91.5% of the variation in economic growth, indicating strong explanatory power.

3. Methodology

This study employed *ex-post facto* research design. This is appropriate because *ex-post facto* research aims at measuring and establishing the relationship between one variable and another or the impact of one variable on another, in which the variables involved are not manipulated by the researcher. The data for this study were obtained from the CBN Statistical Bulletin and the World Development Indicators from 1990 to 2024.

This model of the study is anchored on the theory of Comparative Advantage rooted in the work of economists like David Ricardo in 1817 and furthered by Eli Heckscher in 1919 and Bertil Ohlin in 1933.

The functional specifications of the model are as follows:

$$MVA = f(FDI, LOGREEXC, LOGTRADE, MTAR) \quad (3.1)$$

The linear regression equation for this study is specified as:

$$MVA = \beta_0 + \beta_1 FDI + \beta_2 LOGREEXC + \beta_3 LOGTRADE + \beta_4 MTAR + \mu_t \quad (3.3)$$

Where:

MVA = Manufacturing value added

LOGTRADE = Logarithm of trade openness

MTAR = Tariffs on manufactured goods

FDI = Foreign direct investment (net inflows) % GDP

LOGREEXC = logarithm of real effective exchange rate

4. Data Analysis

Table 4.1: Summary of Descriptive Statistics for the Variables

	MVA	FDI	LOGREEXC	LOGTRADE	MTAR
Mean	12.04914	1.252000	4.608422	15.22354	20.86152
Median	9.640000	1.200000	4.610158	15.93294	12.33000
Maximum	20.93000	2.900000	5.609472	18.17035	86.48000
Minimum	6.550000	-0.030000	3.907412	11.60720	9.680000
Std. Dev.	4.550192	0.859589	0.378801	1.728585	16.78392
Skewness	0.711944	0.222146	0.634821	-0.658627	2.566509
Kurtosis	1.909372	1.823627	3.597414	2.453295	9.608898
Jarque-Bera	4.691350	2.305988	2.871302	2.966318	96.28493
Probability	0.095783	0.315690	0.237960	0.226920	0.000000
Sum	421.7200	43.82000	161.2948	532.8241	688.4300
Sum Sq. Dev.	703.9443	25.12236	4.878669	101.5922	9014.400
Observations	35	35	35	35	33

Source: *Researcher's computation using E-views 12.*

Table 4.1 presents the descriptive statistics for the study variables over the period 1990–2024. Manufacturing value added (MVA) and foreign direct investment (FDI) net inflows as a percentage of GDP recorded mean values of 12.04 and 1.25, respectively. MVA ranged from 6.55 to 20.93, while FDI varied between –0.03 and 2.90, indicating variation in manufacturing performance and foreign investment inflows over the sample period. The logarithm of the real effective exchange rate (LOGREEXC) recorded a mean value of 4.60, with observations ranging from 3.90 to 5.60, whereas the logarithm of trade openness (LOGTRADE) averaged

15.22 and ranged from 11.60 to 18.17. The mean tariff on manufactured goods (MTAR) was 20.86%, with values varying between 9.68% and 86.48%.

The reported standard deviations indicate that the variables exhibit moderate dispersion over the sample period, reflecting differences in their degree of variability. Furthermore, the Jarque–Bera statistics and corresponding probability values indicate that there is insufficient statistical evidence to reject the null hypothesis of normality at the 5% significance level for all variables except MTAR. For MTAR, the null hypothesis of normality is rejected, indicating that its distribution departs significantly from normality. Overall, the results suggest that the distributions of the study variables are approximately normal, with the exception of the tariff on manufactured goods.

4.2.3 Unit Root Test Analysis

Table 4.2 KPSS Unit Root Test

Variables	KPSS Level	at Critical value 5%	KPSS at 1 st Diff.	Critical value 5%	Order of Integration
FDI	0.265222	0.463000	NA	NA	1(0)
LOGREEXC	0.104613	0.463000	NA	NA	1(0)
LOGTRADE	0.673905	0.463000	0.170426	0.463000	1(1)
MTAR	0.140630	0.146000	NA	NA	1(0)
MVA	0.541464	0.463000	0.181568	0.463000	1(1)

Source: Researcher's computation from Eviews 12

The KPSS test results reported in Table 4.2 provide additional evidence regarding the stationarity properties of the study variables. The results indicate that only the logarithm of trade openness (LOGTRADE) and manufacturing value added (MVA) are non-stationary in levels. Specifically, their KPSS statistics (0.673905 and 0.541464, respectively) exceed the corresponding 5% critical values, leading to the rejection of the null hypothesis of stationarity. However, after first differencing, the KPSS statistics for LOGTRADE (0.170426) and MVA (0.181568) fall below the corresponding 5% critical values. Consequently, the null hypothesis of stationarity cannot be rejected for the differenced series, indicating that both variables become stationary after first differencing and are therefore classified as integrated of order one, I(1). In contrast, foreign direct investment (FDI) net inflows as a percentage of GDP, the logarithm of the real effective exchange rate (LOGREEXC), and tariffs on manufactured goods (MTAR) have KPSS statistics below the corresponding 5% critical values, indicating insufficient statistical evidence to reject the null hypothesis of stationarity. Consistent with the ADF unit root test results, these variables are therefore classified as integrated of order zero, I(0). Overall, the combined evidence from the ADF and KPSS tests indicates that the variables comprise a mixture of I(0) and I(1) processes. This combination satisfies one of the principal assumptions underlying the Autoregressive Distributed Lag (ARDL) bounds-testing approach, provided that none of the variables is integrated of order two, I(2). Consequently, the ARDL methodology is appropriate for examining both the short-run dynamics and the long-run equilibrium relationships among the variables. This approach is consistent with the econometric framework adopted by Aninwagu, Odu, and Nyeche (2025).

Table 4.3: Bounds Cointegration Test Results

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	5.483896	10%	2.2	3.09
K	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

Source: Authors' computations using Eviews 12

Note: K denotes the number of independent variables

The ARDL bounds test results reported in Table 4.3 indicate that the computed F-statistic (5.483896) exceeds the upper bound critical value at the 5% significance level. Accordingly, the null hypothesis of no long-run relationship is rejected, providing evidence of a long-run equilibrium (cointegrating) relationship among the dependent and explanatory variables. This finding indicates that, although the variables may exhibit short-run fluctuations, they move together in the long run toward a stable equilibrium.

Table 4.5: ARDL Short and Long Run Results

Dependent Variable: MVA

Short run result				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDI)	-0.400449	0.225744	-1.773906	0.1014
D(FDI(-1))	0.067951	0.218481	0.311017	0.7611
D(FDI(-2))	-0.185506	0.208635	-0.889145	0.3914
D(FDI(-3))	-0.555783	0.204764	-2.714266	0.0188
D(LOGREEXC)	5.793363	1.272382	4.553162	0.0007
D(LOGTRADE)	-1.477248	0.322425	-4.581675	0.0006
D(LOGTRADE(-1))	1.516494	0.562810	2.694506	0.0195
D(MTAR)	0.005479	0.021537	0.254409	0.8035
D(MTAR(-1))	-0.020477	0.014213	-1.440690	0.1753
D(MTAR(-2))	0.024030	0.010976	2.189338	0.0491
D(MTAR(-3))	-0.093712	0.027379	-3.422724	0.0051
CointEq(-1)*	-1.065989	0.156134	-6.827380	0.0000
Long-run result				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
FDI	-1.214615	0.232127	-5.232536	0.0002
LOGREEXC	2.175042	1.513435	1.437156	0.1762
LOGTRADE	-2.982937	0.725837	-4.109649	0.0014
MTAR	0.006274	0.080604	0.077843	0.9392
C	48.26402	9.565697	5.045531	0.0003

$R^2 = 0.850306$; Adj. $R^2 = 0.753445$

Source: Researcher's computation using Eviews 12.

Table 4.5 reports the estimated short-run and long-run ARDL coefficients examining the effects of economic globalization variables on manufacturing value added (MVA) in Nigeria. In the short run, foreign direct investment (FDI) net inflows as a percentage of GDP exhibit negative estimated coefficients contemporaneously and at the second and third lags, although only the third lag is statistically significant. The first lag of FDI has a positive but statistically insignificant coefficient. In the long run, FDI exerts a statistically significant negative effect on manufacturing value added, indicating that a one-percentage-point increase in FDI (as a percentage of GDP) is associated with a reduction of approximately 2.21 units in manufacturing value added. This finding is inconsistent with the study's *a priori* expectation but is consistent with the empirical evidence reported by Mano et al. (2025).

The logarithm of the real effective exchange rate (LOGREEXC) has a positive and statistically significant contemporaneous short-run effect on manufacturing value added. The estimated long-run coefficient is also positive but statistically insignificant, indicating insufficient statistical evidence that changes in the real effective exchange rate exert a persistent long-run influence on manufacturing value added. The positive sign is nevertheless consistent with the study's *a priori* expectation and the findings of Mohamed et al. (2025). The logarithm of trade openness (LOGTRADE) exhibits a statistically significant negative contemporaneous effect on manufacturing value added in the short run, while its first lag has a statistically significant positive effect. In the long run, trade openness has a statistically significant negative coefficient, indicating that greater trade openness is associated with a decline of approximately 2.98 units in manufacturing value added. This finding contradicts the study's *a priori* expectation, supports the findings of Novitasari et al. (2018), and differs from those reported by Mano et al. (2025). Tariffs on manufactured goods (MTAR) exhibit mixed short-run effects. The contemporaneous and second-lag coefficients are positive, although only the second-lag coefficient is statistically significant, whereas the first and third lags are negative, with only the third lag attaining statistical significance. The long-run coefficient is positive but statistically insignificant, indicating insufficient evidence that tariffs exert a persistent long-run effect on manufacturing value added. Consequently, the results do not support the study's *a priori* expectation. The error correction coefficient, $CointEq(-1)$, is negative and statistically significant (-1.065989 , $p < 0.001$), confirming the existence of a stable long-run equilibrium relationship among the variables. The coefficient indicates that approximately 106.6% of deviations from the long-run equilibrium are corrected within one period. Since the coefficient exceeds unity in absolute value, the adjustment process involves overshooting before converging back to the long-run equilibrium. The model yields an R-squared value of 0.850306, indicating that approximately 85.0% of the variation in manufacturing value added is explained by the explanatory variables included in the model. The adjusted R-squared value of 0.753445 indicates that, after accounting for the number of regressors, approximately 75.3% of the variation in manufacturing value added is explained by the model.

Table 4.5: Post-Estimation Tests Results

Test	Null Hypothesis	F-Statistic	Probability	Decision
Normality Test	H₀: Normally distributed	1.915059	0.383840	Retain H ₀
Serial Correlation LM Test	H₀: No serial correlation	0.871902	0.4371	Retain H ₀
Heteroskedasticity Test	H₀: Homoscedasticity	1.824786	0.1242	Retain H ₀

Source: Researcher's Computation using Eviews 12.

The post-estimation diagnostic tests reported in Table 4.5 indicate that the estimated ARDL model satisfies the principal classical econometric assumptions. The Breusch–Godfrey LM test yields a statistic of 0.871902 with a p-value of 0.4371, which exceeds the 5% significance level. Consequently, there is insufficient statistical evidence to reject the null hypothesis of no serial correlation, indicating that the model residuals are free from autocorrelation. Similarly, the Breusch–Pagan–Godfrey test produces a p-value of 0.1242, which exceeds the 5% significance level, indicating insufficient statistical evidence to reject the null hypothesis of homoscedasticity. This suggests that the residuals exhibit constant variance. Furthermore, the Jarque–Bera statistic of 1.915059 with a corresponding p-value of 0.383840 indicates that the null hypothesis of normality cannot be rejected, suggesting that the residuals are approximately normally distributed.

Collectively, these diagnostic results indicate that the estimated ARDL model satisfies the principal assumptions required for reliable statistical inference.

5. Conclusion and Recommendations

Conclusion

The study concludes that economic globalization has exerted mixed effects on Nigeria's manufacturing sector, with the long-run evidence indicating that the benefits of foreign direct investment and trade openness have not been fully realized in terms of increasing manufacturing value added. The findings underscore the need for policies that improve the quality of foreign investment, strengthen the competitiveness of domestic industries, maintain a stable and competitive exchange rate, and implement strategic trade measures that support sustainable industrial development and enhance manufacturing value added in Nigeria.

Recommendations

Based on the findings and conclusion drawn from this study, the following recommendations are made:

- i. The Nigerian government should strengthen policies that attract export-oriented and technology-intensive foreign direct investment into the manufacturing sector to enhance technology transfer, local value addition, and industrial productivity.
- ii. Government should implement trade policies that protect and support emerging domestic manufacturing industries while enhancing their competitiveness through improved infrastructure, reduced production costs, and export promotion initiatives.
- iii. Monetary and fiscal authorities should pursue policies that ensure exchange rate stability and competitiveness to improve manufacturers' access to imported production inputs and strengthen the international competitiveness of locally produced goods.
- iv. The government should maintain a well-calibrated tariff policy that protects infant manufacturing industries from unfair foreign competition while encouraging efficiency, innovation, and integration into global value chains to promote sustainable manufacturing value added.

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