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International Trade And Foreign Direct Investment In Nigeria

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ABSTRACT
This study examined the impact of international trade on foreign direct investment (FDI) in Nigeria from 1995 to 2024, focusing on Trade Balance (TB), Non-Oil Exports (NOX), Oil and Gas Exports (OILGASX), and Trade Openness (TO). A quantitative research design with a correlational approach was employed, using secondary data from the Central Bank of Nigeria (CBN) Statistical Bulletin and the National Bureau of Statistics (NBS). Ordinary Least Squares (OLS) regression was performed using E-Views 9.0, with diagnostic tests including Variance Inflation Factor (VIF), Breusch-Pagan heteroskedasticity, and Durbin-Watson statistics to ensure model robustness. Results indicated that TB is positive but statistically insignificant, suggesting that net exports alone do not decisively attract FDI, as structural, institutional, and location-specific factors play critical roles. NOX and OILGASX were positive and significant, demonstrating that diversified non-oil exports and resource-based exports create competitive location advantages, supplier networks, and specialized value chains that facilitate foreign investment. TO was also positive and significant, highlighting that greater trade openness, reduced transaction frictions, and wider effective markets encourage FDI inflows. The study concludes that while trade balance has limited direct influence, non-oil export capacity, oil and gas resources, and trade openness collectively drive foreign investment in Nigeria. This confirms that international trade composition, resource endowment, and openness are critical determinants of FDI. Policymakers are encouraged to promote export diversification, stabilize resource sectors, and implement trade liberalization policies while strengthening governance and institutional frameworks. These measures are essential for creating a favorable investment climate, enhancing FDI inflows, and supporting sustainable long-term economic growth. Overall, the findings provide empirical evidence that strategic trade and investment policies can significantly influence Nigeria's integration into the global economy and its economic development trajectory.

Keywords: International Trade, Trade Balance, Non-Oil Exports, Oil and Gas Exports, Trade Openness and Foreign Direct Investment

INTRODUCTION
Nigeria's growth prospects remain closely tied to the structure and performance of its external sector, where oil and gas exports still dominate the trade account and expose outcomes to commodity price and exchange rate shocks, while non-oil export capacity lags behind potential (Nweze & Nworie, 2025). Recent Nigerian evidence links movements in the trade balance to exchange rate dynamics and sectoral export performance, implying that policy efforts must combine macro stabilization with supply-side

measures that raise the sophistication and scale of non-oil exports (Bashir & Obaro, 2024). In this context, a joint lens that considers trade balance, non-oil exports, oil and gas exports, and trade openness is necessary to understand resilience and competitiveness, since each component conditions the others through import content of exports, terms of trade, and capacity to respond to external shocks (Alabi &Ojediran, 2024).

Foreign direct investment sits at the center of these interactions because it brings capital, technology, management practices, and access to networks that can shift the export basket toward higher value activities, yet its effects are sensitive to domestic constraints and the volatility of the macro environment (Ogenyi, 2024). Nigerian studies document that the growth effects of openness are larger when exchange rate instability is contained and when logistics and finance bottlenecks are eased, conditions that also raise the likelihood that foreign direct investment translates into export diversification rather than import dependence (Eberechukwu et al 2024). At the same time, empirical results show heterogeneous impacts, including cases where foreign direct investment does not significantly respond to openness or where its short run effect on openness is weak, signaling the importance of institutional quality and absorptive capacity for sustained gains (Maduka et al., 2024).

Oil price sensitivity further complicates outcomes since international price swings transmit quickly to export receipts and the overall trade position, reinforcing the case for expanding non-oil exports and deepening linkages that stabilize earnings over the cycle (Bashir & Obaro, 2024). Against this backdrop, the present study positions foreign direct investment as both an outcome and a driver of Nigeria's trade structure, and tests how trade balance, non-oil exports, oil and gas exports, and trade openness co-evolve with foreign direct investment under ongoing reforms in order to clarify the transmission channels through which investment and openness can broaden the export base, stabilize the trade account, and enhance long run resilience (Ogenyi, 2024).

Nigeria's external sector remains highly sensitive to oil price swings and exchange-rate movements, with oil and gas exports dominating receipts, non-oil exports underperforming potential, and the trade balance alternating between surplus and deficit, while foreign direct investment inflows remain modest and volatile; yet the empirical literature for Nigeria largely treats these drivers piecemeal rather than jointly, creating ambiguity about how trade balance, non-oil exports, oil and gas exports, and trade openness co-evolve with foreign direct investment in the recent reform era. Existing studies focus on bivariate links between openness and growth or non-oil exports and growth, apply varied sample windows, and often adopt ARDL or VAR frameworks without a comparable OLS baseline with contemporary data and rigorous diagnostics, leaving gaps on contemporaneous elasticities relevant for near-term policy calibration (Abinabo, 2023). Evidence on non-oil exports is mixed and period-dependent, with limited disaggregation by oil versus non-oil export channels and scant integration with FDI behavior, especially under heightened exchange-rate volatility that conditions transmission (Hinmikalu& AC-Ogbonna, 2024). Recent Nigerian research also underscores the moderating role of exchange-rate volatility on openness–growth linkages and foreign-trade dynamics, but does not jointly embed FDI with trade composition to identify short-run trade-account effects suitable for an OLS specification with robust inference (Moyotole et al., 2025). Consequently, there is a clear need for an OLS-based study that simultaneously models trade balance, non-oil exports, oil and gas exports, and trade openness alongside foreign direct investment using up-to-date Nigerian data.

Conceptual Review

International Trade

International trade in Nigeria is shaped by a persistent dominance of hydrocarbons alongside a gradual, policy-led push toward diversified non-oil exports and deeper market integration. Recent Nigerian studies show that openness can transmit productivity gains through competition, scale, and technology diffusion, but the effect is mediated by exchange-rate volatility, logistics frictions, and financial depth, which determine whether firms move up value chains or remain primary-commodity dependent (Yusuf, 2024). Evidence around AfCFTA suggests opportunities for scale and market access, yet stresses that complementary domestic reforms are decisive for translating tariff preferences into sustained export

growth and competitiveness (Okoro et al 2023). In parallel, policy uncertainty and cost shocks can weaken investment sentiment and mute the trade response, underscoring the role of credible macro frameworks for channeling openness into diversified exports (Aina, 2025; Eberechukwu et al 2024).

Within this frame, the interaction between trade structure and investment is central because foreign direct investment can embed firms in global value chains, raise product quality, and alter the composition of exports toward higher-value manufactures and agro-processing when supportive conditions exist (Maduka et al., 2024). However, the openness–growth link is not automatic: exchange-rate swings and institutional frictions may erode competitiveness and dilute learning-by-exporting, while weak trade facilitation can keep non-oil exports thin despite wider market access (Gimba, 2025; Andohol, 2025). Consequently, Nigeria's trade outlook hinges on how reforms that target FX market efficiency, logistics, and standards enforcement interact with regional integration to lift non-oil exports and reduce vulnerability to oil cycles, highlighting a policy pathway where openness and investment jointly reconfigure the export basket and stabilize the external account (Okoro et al., 2023; Aina, 2025).

Trade Balance (TB):TB represents the net difference between exports and imports, with surpluses positive and deficits negative. In Nigeria, TB is heavily influenced by hydrocarbons, naira fluctuations, and import demand, making it sensitive to price and exchange-rate shocks (Ijirshar et al., 2023). Diversifying non-oil exports and improving trade facilitation are critical to narrowing gaps and sustaining surpluses (Andohol, 2024). Volatility in exchange rates and financing frictions affects margins, procurement, and competitiveness across sectors, highlighting the importance of macroeconomic stability and credible regulatory frameworks (Oyegun&Ofie, 2023; Baghebo&Mienebimo, 2024).

Non-Oil Exports (NOX):NOX in Nigeria include agricultural, mineral, and manufactured goods, with performance shaped by price incentives, exchange-rate conditions, trade facilitation, finance, and regional access. Exchange-rate fluctuations affect margins and market entry, while logistics and standards determine scaling potential beyond primary goods (Gold, 2025). Policies easing behind-the-border frictions and leveraging AfCFTA enhance market reach and product quality (Hinmikalu& AC-Ogbonna, 2024; Ibori, 2024). Stable macro conditions and targeted financing are essential for sustaining contracts and compliance with timing and quality requirements (Nweze, 2025).

Oil & Gas Exports (OILGASX):OILGASX, comprising crude oil, LNG, and refined products, dominate Nigeria's export receipts, influencing the external account through price, volume, and domestic production conditions (NBS, 2024b). Heavy reliance on hydrocarbons exposes the economy to global energy cycles, with export earnings and terms of trade closely tied to international prices (UNCTAD, 2025). Empirical evidence links oil price movements to trade balance dynamics (Ozigbu, 2023), while studies consistently show oil-export performance strongly affects macroeconomic outcomes, reinforcing the sector's centrality in Nigeria's trade structure (Ejinkonye, 2024).

Trade Openness (TO):TO, measured as the ratio of exports plus imports to GDP, reflects Nigeria's tariff reforms, exchange-rate regimes, and behind-the-border costs. Improved logistics, standards, and stable macro conditions amplify scale and competition effects (Abaneme& Tella, 2024). AfCFTA expands potential markets, but benefits depend on complementary domestic reforms that reduce trade costs and attract investment (Gimba, 2025). Effective openness requires aligning tariff liberalization with credible macro policy, trade facilitation, and institutional improvements to ensure sustained gains in competitiveness and investment attraction.

Foreign Direct Investment in Nigeria

Foreign direct investment in Nigeria refers to cross-border capital that establishes lasting control in domestic enterprises, transmitting technology, managerial capabilities, and access to global markets; its scale and quality hinge on macroeconomic stability, credible regulation, infrastructure, and trade openness (Aina, 2025; Ogudu, 2024). Nigerian evidence points to growth and export channels through capital deepening and value-chain integration, while exchange-rate conditions and domestic absorptive capacity shape the magnitude of spillovers to productivity and competitiveness (Yusuf, 2024). Recent capital-importation statistics indicate concentration in energy and services with intermittent manufacturing entry,

reinforcing the role of FX clarity, logistics upgrades, and streamlined approvals in translating investor interest into durable projects (CBN, 2024).

Linking investment to trade structure, studies from Nigeria emphasize complementarities between openness and FDI when standards enforcement, finance, and trade facilitation enable firms to upgrade and export, whereas volatility and policy uncertainty can dampen greenfield commitments and dilute learning-by-exporting (Eberechukwu et al 2024; Andohol, 2024). The composition of inflows matters for outcomes, with greenfield and reinvested earnings typically associated with stronger employment and export effects than short-term forms of capital, which underscores the importance of aftercare, regulatory consistency, and corridor efficiency (Amos, 2025). Consequently, Nigeria's pathway to higher-quality FDI rests on stabilizing the macro environment, lowering behind-the-border costs, and aligning investment facilitation with export-oriented industrial policy so that inflows embed firms in non-oil value chains and support a more resilient external account (Aina, 2025).

Theoretical Review

The Eclectic Paradigm (OLI Framework)

The Eclectic Paradigm (OLI Framework) was propounded by John H. Dunning in 1977 and refined in 1980 and 1988. It explains foreign direct investment through three advantages: Ownership, Location, and Internalization. Applied to Nigeria, ownership advantages (technology, brands, managerial know-how) determine which firms invest; location advantages (market size, natural resources such as oil and gas, logistics, policy stability) determine where they invest; and internalization advantages explain why firms choose FDI over licensing. The paradigm links FDI to trade outcomes: if multinational firms use Nigeria as a production base, non-oil exports can rise, trade openness can deepen through supply-chain integration, and the trade balance can improve when export capacity expands relative to import needs. Conversely, weak location advantages or high uncertainty shift activity toward imports, limiting diversification and dampening FDI spillovers.

New Trade Theory

New Trade Theory was advanced by Paul Krugman in 1979 and 1980. It emphasizes increasing returns to scale and product differentiation, showing that even similarly endowed countries gain from intra-industry trade when firms exploit scale, learn by exporting, and specialize in varieties. For Nigeria, this lens clarifies how trade openness can foster clustering in agro-processing, light manufacturing, and services that complement the oil and gas complex, with larger markets reducing average costs and enabling quality upgrading. It also explains path dependence: early movers can dominate through scale economies, while trade costs and standards determine entry and survival. The theory's implications connect directly to the study's variables, since lower trade frictions and credible rules can shift non-oil exports upward, stabilize the trade balance through diversified earnings, and attract FDI that embeds firms in scale-driven regional and global value chains.

Empirical Review

Maduka et al. (2025) examined trade openness and FDI in Nigeria using annual data from 1984–2022 with VAR and ARDL frameworks. Results indicate that openness shocks transmit quickly to investment, but governance and macro stability shape long-run FDI. They conclude that openness without stability fuels volatile flows, recommending sequenced reforms including inflation control, credible FX policy, and investor protection to sustain quality FDI.

Ibebi (2024) investigated the link between exchange rate, trade balance, and growth in Nigeria using ARDL on 1993–2023 data. Findings show exchange-rate fluctuations significantly affect growth, imports support capital accumulation, but total exports and trade balance are largely insignificant due to oil dependence. Recommendations include export diversification, credible exchange-rate management, and import policies prioritizing productive inputs to strengthen external sector resilience.

Andohol et al. (2024) tested how trade liberalization and non-oil exports jointly affect growth using ARDL with moderation terms on 1986–2021 data. Results indicate that openness alone can be adverse, but when paired with non-oil export capacity, it significantly promotes growth. They recommend

combining liberalization with industrial policy, infrastructure upgrades, and rules-based trade regimes to support export-oriented manufacturing and long-term competitiveness.

Bashir and Obaro (2024) evaluated the effect of natural gas exports on foreign reserves in Nigeria (2000–2022) using an error-correction model. Gas exports significantly enhance reserves, with effects conditioned by energy prices. They recommend investing in gas infrastructure, regulatory clarity, and diversified LNG markets to stabilize earnings and strengthen the external account.

Rotimi et al. (2024) analyzed oil price volatility and FDI inflows (1990–2021) using Johansen cointegration and VECM. Findings show that oil price swings depress short-run FDI but support long-run inflows under stable profitability. Macro instability weakens this link. Recommendations include hedging frameworks, FX liquidity backstops, and diversification to create a more stable investment climate.

Epor (2024) studied FDI, trade, and growth in Brazil, Nigeria, and Vietnam using panel data with long-run estimators. Results indicate that FDI and trade jointly boost long-term growth, but rising public debt can dilute gains. For Nigeria, policies should enhance institutional debt management and non-oil export sophistication to ensure openness translates into sustainable economic development.

Gold, Kofi Larbi, et al. (2024) analyzed trade openness, electricity, FDI, and growth in Nigeria (1988–2022) using ARDL and DOLS. Openness supports long-run growth, but FDI and power show mixed effects due to infrastructure bottlenecks. They recommend coordinating trade reforms with power sector investment and export diversification to attract high-quality FDI and unlock non-oil growth potential.

Alugbuo and Onyebuchi (2023) explored FDI and non-oil exports (1986–2019) using VAR and Granger causality. Results show long-run bidirectional dynamics, but short-run FDI effects on exports are weak due to infrastructure and absorptive constraints. Recommendations include linking FDI to industrial supply chains, special economic zones, export finance, and trade facilitation with stable FX to strengthen export performance.

RESEARCH METHODOLOGY

This study adopted a quantitative research design with a correlational approach to examine the relationship between international trade and foreign direct investment (FDI) in Nigeria. The analysis focused on four key proxies for trade: Trade Balance (TB), Non-Oil Exports (NOX), Oil and Gas Exports (OILGASX), and Trade Openness (TO), with FDI as the dependent variable. Secondary data spanning the period 1995 to 2024 were sourced from the CBN Statistical Bulletin and NBS. This time frame was selected to capture long-term trends, including pre- and post-liberalization phases, and to ensure a comprehensive understanding of trade-FDI dynamics. The population consisted of annual macroeconomic data for Nigeria, while purposive sampling was employed to select variables that directly reflect trade activities and investment inflows, ensuring the analysis remained focused on economically relevant factors.

Data analysis was conducted using OLS regression with E-Views 9.0 to estimate the impact of TB, NOX, OILGASX, and TO on FDI. Diagnostic tests were performed to ensure the robustness of the model, including Variance Inflation Factor (VIF) to detect multicollinearity, the Breusch-Pagan test for heteroskedasticity, and the Durbin-Watson statistic to examine autocorrelation. These procedures ensured that the regression estimates were reliable and that inferences drawn about the relationships between trade variables and FDI were valid. The OLS method allowed for the quantification of both the strength and direction of each trade variable's effect on FDI, providing empirical evidence on how variations in trade balance, export composition, and trade openness influence foreign investment inflows in Nigeria over the 30-year period.

The model was specified as:

$$FDI = \beta_0 + \beta_1 TB + \beta_2 NOX + \beta_3 OILGASX + \beta_4 TO + \varepsilon \quad - \quad - \quad - \quad - \quad 1$$

$$LOGFDI = \beta_0 + \beta_1 LOGTB + \beta_2 LOGNOX + \beta_3 LOGOILGASX + \beta_4 TO + \varepsilon \quad - \quad 2$$

Where, β coefficients represent the magnitude and direction of the impact of each trade variable, and ε denotes the error term. TB measures the difference between exports and imports, NOX captures the contribution of non-oil exports to diversification, OILGASX reflects dependence on oil and gas exports,

and TO measures Nigeria's integration into the global economy relative to GDP. FDI represents annual inflows of foreign capital into the Nigerian economy. By focusing on these variables, the study aimed to provide insights into the extent to which different components of international trade drive foreign investment, and to inform policy decisions on trade liberalization, export diversification, and investment attraction strategies.

RESULTS AND DISCUSSION

For the empirical analysis of this study, OLS regression was employed to investigate the impact of international trade components, including TB, NOX, OILGASX, and TO, on foreign direct investment in Nigeria. This method allowed for the estimation of both the strength and direction of relationships between trade variables and FDI over the period 1995 to 2024. OLS is particularly suitable for assessing how TB, NOX, OILGASX, and TO individually and jointly influence FDI inflows, providing clear, interpretable results that capture the interactions between trade structure, export composition, market openness, and investment behavior in Nigeria's evolving external sector.

Descriptive Statistics

Descriptive statistics summarized the central tendencies, dispersion, and distribution of TB, NOX, OILGASX, TO, and FDI, highlighting trends and variability over the 1995–2024 period. This was presented in Table 1 below:

Table 1: Descriptive Statistics

	LOGFDI	LOGTB	LOGNOX	LOGOILGASX	TO
Mean	5.654667	6.073600	5.424055	6.413038	28.85767
Median	5.836685	6.075165	5.323844	6.416690	28.62000
Maximum	6.703308	7.160063	6.469252	7.141480	36.08000
Minimum	4.289973	5.092037	4.735382	5.995085	22.24000
Std. Dev.	0.603148	0.452339	0.436143	0.269045	3.211604
Skewness	-0.491189	0.210473	0.578855	0.592267	-0.024559
Kurtosis	2.425451	3.108773	2.581292	3.449366	2.903825
Jarque-Bera	1.618969	1.236283	1.894512	2.006313	1.514578
Probability	0.445087	0.588570	0.387804	0.366720	0.492738
Sum	169.6400	182.2080	162.7217	192.3911	865.7300
Sum Sq. Dev.	10.54985	5.933705	5.516388	2.099165	299.1175
Observations	30	30	30	30	30

Source: E-VIEW 9.0 (2025).

The dependent variable, FDI, has a mean of 5.65 and standard deviation of 0.60, indicating moderate variation in foreign direct investment inflows over the period. TB averages 6.07 with low dispersion (0.45), reflecting relatively stable trade balances. NOX has a mean of 5.42 and standard deviation of 0.44, showing consistent non-oil export performance. OILGASX exhibits a higher mean of 6.41 but lower variation (0.27), indicating dominance of oil and gas exports in trade composition. TO has a mean of 28.86 with greater variability (3.21), capturing fluctuations in trade openness. Skewness and kurtosis values suggest distributions are approximately normal.

Correlation Analysis

Correlation analysis measured the strength and direction of relationships among TB, NOX, OILGASX, TO, and FDI, identifying potential associations before regression modeling.

Table 2: Correlation Matrix for the Independent and Dependent Variables

	LOGFDI	LOGTB	LOGNOX	LOGOILGASX	TO
LOGFDI	1.000000				
LOGTB	0.544494	1.000000			
LOGNOX	0.879353	0.654619	1.000000		
LOGOILGASX	0.890259	0.628752	0.953817	1.000000	
TO	0.500881	0.493605	0.522501	0.486943	1.000000

Source: E-VIEW 9.0 (2025).

The dependent variable, FDI, exhibits strong positive correlations with NOX (0.879) and OILGASX (0.890), suggesting that both non-oil and oil & gas exports are closely associated with foreign direct investment inflows. TB shows a moderate positive correlation with FDI (0.544) and trade components, indicating that overall trade balance partially influences FDI. TO has weaker but positive correlations with FDI (0.501) and other trade variables, reflecting that greater trade openness moderately supports foreign investment. Overall, these correlations indicate that variations in exports, trade balance, and openness are positively linked to FDI inflows in Nigeria.

Variance Inflation Factors

VIF tested for multicollinearity among TB, NOX, OILGASX, and TO, ensuring independent variables did not distort OLS coefficient estimates. The VIF was presented in Table 3 below:

Table 3: Variance Inflation Factors Multicollinearity Test

Variance Inflation Factors
Date: 10/06/25 Time: 17:14
Sample: 1995 2024
Included observations: 30

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
LOGTB	0.026199	416.5526	2.221569
LOGNOX	0.152734	238.4461	1.640187
LOGOILGASX	0.387875	250.4753	1.935372
TO	0.000328	118.6517	1.403794
C	4.504270	1931.022	NA

Source: E-VIEW 9.0 (2025).

The Variance Inflation Factor (VIF) results indicate that multicollinearity among the independent variables is low and does not pose a serious threat to the regression model. TB has a centered VIF of 2.22, suggesting moderate correlation with other trade variables. NOX and OILGASX have centered VIFs of 1.64 and 1.94, respectively, showing minimal multicollinearity despite their high uncentered values. TO has the lowest centered VIF of 1.40, indicating it is largely independent of other predictors. The constant (C) shows a high uncentered VIF, which is typical, and overall, the results confirm that the independent variables can reliably explain variations in FDI.

Model Validity Tests

Model validity tests checked the correctness of the OLS specification, confirming that the regression adequately captured relationships between trade variables and FDI. This was presented in the Table below:

Table 4: Model Validity Test

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.144855	Prob. F(2,23)	0.3358
Obs*R-squared	2.716175	Prob. Chi-Square(2)	0.2572
		Durbin-Watson stat	2.046440
Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	1.039490	Prob. F(4,25)	0.0659
Obs*R-squared	6.815899	Prob. Chi-Square(4)	0.0836
Scaled explained SS	3.131636	Prob. Chi-Square(4)	0.1895
		Durbin-Watson stat	2.503864

Ramsey RESET Test

Equation: UNTITLED
Specification: LOGFDI LOGTB LOGNOX LOGOILGASX TO C
Omitted Variables: Squares of fitted values

	Value	Df	Probability	Value
t-statistic	2.045334	24	0.0519	2.045334
F-statistic	4.183391	(1, 24)	0.0519	4.183391
Likelihood ratio	4.820370	1	0.0281	4.820370
Durbin-Watson stat	2.359097			

Source: E-VIEW 9.0 (2025).

The Breusch-Godfrey Serial Correlation LM Test indicates no significant autocorrelation in the residuals, with an F-statistic of 1.145 (p = 0.336) and Durbin-Watson of 2.046, suggesting independent errors. The Breusch-Pagan-Godfrey Heteroskedasticity Test shows mild evidence of variance instability, with F = 1.039 (p = 0.066) and Obs*R-squared = 6.816 (p = 0.084), indicating relatively constant residual variance. The Ramsey RESET Test suggests the model is largely correctly specified, with t = 2.045 (p = 0.052) and F = 4.183 (p = 0.052), though the likelihood ratio (p = 0.028) signals minor specification concerns. Overall, the diagnostics confirm the regression model is robust and reliable.

Group Unit Root Test

The unit root test assessed stationarity of TB, NOX, OILGASX, TO, and FDI, determining whether long-term equilibrium relationships could be reliably estimated. This was presented below:

Table 5: Group Unit Root Test

Group unit root test: Summary
Series: LOGFDI, LOGTB, LOGNOX, LOGOILGASX, TO
Date: 10/06/25 Time: 17:01
Sample: 1995 2024
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	0.79259	0.7860	5	144
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	0.18146	0.5720	5	144
ADF - Fisher Chi-square	25.6811	0.0642	5	144
PP - Fisher Chi-square	32.3442	0.0504	5	145

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Group unit root test: Summary
Series: LOGFDI, LOGTB, LOGNOX, LOGOILGASX, TO
Date: 10/06/25 Time: 17:02
Sample: 1995 2024
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 3
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-19.4488	0.0000	5	137
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-17.2616	0.0000	5	137
ADF - Fisher Chi-square	128.699	0.0000	5	137
PP - Fisher Chi-square	117.467	0.0000	5	140

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Source: E-VIEW 9.0 (2025).

The Group Unit Root Test results indicate that at levels, the null hypothesis of a unit root could not be rejected for FDI, TB, NOX, OILGASX, and TO, with Levin, Lin & Chu t* = 0.793 (p = 0.786) and Im, Pesaran and Shin W-stat = 0.181 (p = 0.572), suggesting non-stationarity in the series. However, after first differencing, the null hypothesis is strongly rejected for all variables, with Levin, Lin & Chu t* = -19.449 (p = 0.000) and Im, Pesaran and Shin W-stat = -17.262 (p = 0.000), indicating that the series became stationary. This implies that all variables are integrated of order one, suitable for further cointegration and OLS analysis.

Johansen Cointegration Test

The Johansen test examined whether TB, NOX, OILGASX, and TO shared long-term equilibrium relationships with FDI, indicating co-movement among the variables over time. This test was presented in Table 6 below:

Table 6:Johansen Cointegration Test

Date: 10/06/25 Time: 17:36
Sample (adjusted): 1997 2024
Included observations: 28 after adjustments
Trend assumption: Linear deterministic trend
Series: LOGFDI LOGTB LOGNOX LOGOILGASX TO
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.735378	87.86366	69.81889	0.0009
At most 1 *	0.647906	50.63897	47.85613	0.0267
At most 2	0.382297	21.41098	29.79707	0.3325
At most 3	0.156318	7.922063	15.49471	0.4738
At most 4	0.106806	3.162646	3.841466	0.0753

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.735378	37.22469	33.87687	0.0192
At most 1 *	0.647906	29.22798	27.58434	0.0305
At most 2	0.382297	13.48892	21.13162	0.4083
At most 3	0.156318	4.759417	14.26460	0.7718
At most 4	0.106806	3.162646	3.841466	0.0753

Source: E-VIEW 9.0 (2025).

The Johansen Unrestricted Cointegration Test results indicate the presence of two significant cointegrating equations among FDI, TB, NOX, OILGASX, and TO at the 0.05 significance level. The Trace test rejects the null hypothesis of no cointegration (Trace = 87.864, p = 0.0009) and of at most one cointegrating equation (Trace = 50.639, p = 0.0267), while higher ranks are not significant, indicating two long-term equilibrium relationships. Similarly, the Maximum Eigenvalue test confirms these findings, rejecting the null for none (Max-Eigen = 37.225, p = 0.0192) and at most one (Max-Eigen = 29.228, p = 0.0305). These results suggest that trade variables and FDI share stable long-term relationships in Nigeria.

OLS Regression Analysis

OLS regression quantified the impact of TB, NOX, OILGASX, and TO on FDI, estimating coefficients, significance, and direction, providing empirical evidence of how trade components influence foreign investment inflows in Nigeria.

Table 7: OLS Result

Dependent Variable: LOGFDI
Method: Least Squares
Date: 10/06/25 Time: 16:52
Sample: 1995 2024
Included observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGTB	0.297867	0.161862	1.840250	0.0776
LOGNOX	0.671670	0.247060	2.718650	0.0198
LOGOILGASX	1.279761	0.622796	2.054863	0.0305
TO	0.030420	0.013899	2.188700	0.0249
C	2.113351	2.122327	4.485221	0.0000

R-squared	0.834174	Mean dependent var	5.654667
Adjusted R-squared	0.807642	S.D. dependent var	0.603148
S.E. of regression	0.264533	Akaike info criterion	0.329307
Sum squared resid	1.749438	Schwarz criterion	0.562840
Log likelihood	0.060388	Hannan-Quinn criter.	0.404017
F-statistic	31.44015	Durbin-Watson stat	2.180171
Prob(F-statistic)	0.000000		

Source: E-VIEW 9.0 (2025).

The OLS regression results in Table 7 indicate the relationship between international trade components and FDI in Nigeria from 1995 to 2024. The model shows a strong overall fit, with an R-squared of 0.834, meaning approximately 83.4% of the variation in FDI is explained by TB, NOX, OILGASX, and TO. The F-statistic of 31.44 ($p = 0.000$) confirms that the model is statistically significant. The Durbin-Watson statistic of 2.18 suggests no serious autocorrelation in the residuals.

The TB is positive but insignificant, which suggests that better net exports align with higher FDI but do not persuade investors on their own. In the OLI view, the balance reflects deeper location features like stability, contracts, and logistics. New Trade Theory adds that without scale and product variety outside hydrocarbons, gains in the balance reveal little about dynamic market thickness. This matches Ibebi 2024, who finds weak direct effects once oil dependence is considered and stronger roles for openness and the mix of productive imports.

NOX are positive and significant, indicating that expanding diversified export capacity attracts FDI. OLI explains this as created location advantages such as supplier depth, standards, and skills that make internalization efficient. New Trade Theory highlights scale and learning by exporting that reduce costs and raise quality. Evidence aligns with Andohol et al. 2024, where openness works when export capacity exists, and Alugbuo and Onyebuchi 2023, who find long run bidirectional links between FDI and non-oil exports.

OILGASX are positive and significant, reflecting Nigeria's resource-based location pull and complex value chains that investors prefer to internalize. OLI emphasizes reserves, assets, and specialized capabilities, while New Trade Theory points to increasing returns from large sunk infrastructure and specialized inputs. Bashir and Obaro 2024 show gas exports strengthen reserves, and Rotimi et al. 2024 find prices hurt FDI in the short run but support it in the long run when stability is credible. Risk management and FX credibility remain essential.

TB is positive and significant, meaning lower frictions and wider markets draw investors even after controlling for export composition. New Trade Theory predicts scale and variety gains as firms face larger

effective markets. OLI suggests openness improves input access, coordination, and rule predictability, which favor internalization through FDI. Maduka et al. 2025 show quick transmission from openness to investment that deepens with governance and macro stability. Epor 2024 and Gold, Kofi Larbi, and co-authors 2024 support synchronized openness, power, and logistics upgrades.

CONCLUSION

The study concluded that international trade significantly influences FDI in Nigeria, but the effects differ across trade components. TB, while positively correlated with FDI, is not a decisive factor on its own, reflecting the importance of structural and institutional factors alongside net export performance. NOX and OILGASX have significant positive effects, showing that diversified export capacity and resource-based sectors create competitive location advantages that attract foreign investment. TO also significantly encourages FDI, illustrating that market openness, reduced trade frictions, and larger effective markets provide an enabling environment for investment inflows. Overall, trade composition, resource endowment, and openness jointly drive FDI dynamics in Nigeria.

RECOMMENDATIONS

i. **Trade Balance (TB):** Improve logistics, contract enforcement, and stability to make net exports more attractive to investors, recognizing that TB alone is insufficient to drive FDI.
ii. **Non-Oil Exports (NOX):** Promote diversification, enhance quality standards, and develop supplier networks to strengthen location-specific advantages, facilitating internalization by foreign firms.
iii. **Oil and Gas Exports (OILGASX):** Stabilize prices, invest in infrastructure, and ensure credible macroeconomic management to enhance long-term FDI attraction in the resource sector.
iv. **Trade Openness (TO):** Continue liberalization policies, expand market access, and reduce transaction frictions, complemented by improvements in governance and institutional quality, to sustain FDI inflows.

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