



TRADE OPENNESS, GOVERNMENT EXPENDITURE, FOREIGN DIRECT INVESTMENT AND ECONOMIC GROWTH IN UGANDA

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ABSTRACT

Uganda's pursuit of rapid and sustained economic transformation has increasingly depended on the interaction between external sector integration and domestic fiscal policy. Despite decades of trade liberalization, rising foreign capital inflows, and expanding public expenditure, the country continues to grow below the threshold required to achieve the ambitions of the Fourth National Development Plan (NDP IV). This study examines the short- and long-run relationships between trade openness, government expenditure, foreign direct investment and economic growth in Uganda over the period 1990–2024. Motivated by Uganda's persistent growth gap relative to the 10.1% annual growth target under the NDP IV tenfold growth strategy, the study applies the Autoregressive Distributed Lag bounds testing approach to annual World Bank data.

The results confirm a statistically significant long-run cointegrating relationship among the variables, with the bounds test F-statistic of 12.356 exceeding the upper critical bound. Long-run estimates show that trade openness and government expenditure are positive and significant drivers of economic growth: a 1% increase in trade openness is associated with a 0.419% rise in GDP growth, while a 1% increase in government expenditure raises growth by 0.360%. In contrast, foreign direct investment records a negative but statistically insignificant coefficient of -0.200, suggesting that Uganda has not fully converted foreign capital inflows into broad-based productivity gains. The error correction term is negative and highly significant at -0.998, indicating that nearly 99.8% of short-run disequilibrium is corrected within one year.

These findings imply that Uganda's growth prospects depend less on openness and capital inflows alone than on the economy's capacity to absorb, link and transform them through productive public investment, infrastructure, domestic firm upgrading and stronger sectoral linkages. The study contributes to the growth literature by providing recent Uganda-specific evidence on the interaction between external openness, fiscal policy and long-run macroeconomic performance.

KEY WORDS: Economic Growth; Trade Openness; Government Expenditure; Foreign Direct Investment; ARDL; Uganda; Absorptive Capacity

INTRODUCTION

The question of what drives sustained economic growth remains central to development policy, particularly in low-income economies attempting to accelerate structural transformation under increasingly uncertain global conditions. Over the past three decades, developing countries have relied heavily on trade liberalization, foreign capital inflows and expansionary public expenditure as instruments for stimulating productivity, attracting investment and integrating domestic economies into global markets. Yet the growth outcomes associated with these reforms have varied considerably across countries and regions. While some economies have successfully translated external openness into industrial expansion and technological upgrading, others continue to experience moderate growth despite rising trade integration and increasing inflows of foreign investment. This uneven experience has revived scholarly interest in understanding the institutional and macroeconomic conditions under which trade, fiscal policy, and foreign investment contribute meaningfully to long-run economic growth.

The global economic environment has further complicated this debate. Recent years have been marked by heightened geopolitical tensions, inflationary pressures, financial volatility, climate-related disruptions and uneven post-pandemic recovery patterns (United Nations, 2022; UNCTAD, 2024a). These developments have disproportionately affected developing economies, particularly those in Sub-Saharan Africa (SSA), where growth recovery has remained fragile despite renewed efforts toward regional integration and external market expansion (IMF, 2022). At the same time, policymakers and international institutions increasingly emphasize trade openness, foreign direct investment (FDI) and public expenditure as critical instruments for supporting economic resilience and long-term development (Ofori et al., 2023; Arthur et al., 2024). The implementation of the African Continental Free Trade Area (AfCFTA) for instance is part of a broader continental strategy aimed at boosting intra-African trade, industrial competitiveness and regional production linkages (African Development Bank, 2024).



The theoretical underpinnings behind these policy directions draw largely on the neoclassical growth tradition. The Solow-Swan framework and related endogenous growth theories suggest that trade and FDI impact growth via capital accumulation, technological diffusion and productivity enhancements, while government expenditure provides the institutional and infrastructural environment required for these gains to materialize (Solow, 1956; Lucas, 1988; Barro, 1990; Romer, 1994). However, the effectiveness of these channels is highly dependent on domestic absorptive capacity including the quality of institutions, infrastructure, fiscal management and human capital development (Borensztein et al., 1998; Ogundipe et al., 2020). In many developing economies, external openness has not always generated broad-based transformation because domestic structural constraints continue to limit the transmission of foreign capital and trade gains into productive sectors.

Within Africa, the evidence remains particularly mixed. Although the continent experienced relatively strong growth during the commodity boom years, much of that growth was concentrated in extractive sectors and frequently failed to generate sufficient industrial diversification or employment expansion (African Development Bank, 2024; Scalamonti, 2025). Several studies argue that trade liberalization promotes growth only when supported by macroeconomic stability, infrastructure investment and effective public institutions (Akinlo & Okunlola, 2021; Oloyede et al., 2021; Butali, 2025). Others contend that weak fiscal systems and inefficient public expenditure reduce the developmental benefits associated with external integration and foreign investment (Carrington et al., 2025; Wabiga & Muhumuza, 2026). Consequently, the relationship between openness, fiscal policy and growth continues to generate substantial empirical disagreement across developing economies.

Uganda reflects many of these broader structural tensions. Since the implementation of structural adjustment reforms in the early 1990s, the country has pursued an increasingly liberalized economic framework characterized by trade openness, privatization and investment promotion. Trade openness expanded from approximately 26.6 percent of GDP in 1990 to more than 42 percent by 2024, indicating deeper integration into regional and international markets (The Global Economy, 2025). During the same period, FDI inflows rose significantly, particularly in manufacturing, telecommunications, banking, construction and more recently oil-related sectors (UIA, 2023; MoFPED, 2024b). Government expenditure also increased considerably through public investment in infrastructure, energy, transport networks and social services under successive national development strategies. These reforms contributed to periods of relatively strong economic performance, including GDP growth peaks of above 11 percent during the mid-1990s (World Bank, 2025).

Despite these developments, Uganda's long-run growth trajectory remains below the threshold required to achieve its broader transformation agenda. Although the economy recorded an average growth rate of approximately 6 percent over the study period, this remains substantially below the 10.1 percent annual growth target envisioned under the Fourth National Development Plan (NDP IV) and Vision 2040 (NPA, 2023; MoFPED, 2025). This persistent gap raises an important policy and empirical question: why has rising trade openness, increasing public expenditure and growing foreign investment not translated into the level of structural transformation anticipated by policymakers? Existing evidence suggests that the challenge may not simply be the quantity of external inflows or public spending, but rather the extent to which these variables interact productively within the domestic economy. In Uganda's case, foreign capital inflows have remained concentrated in relatively capital-intensive sectors with limited domestic spillovers, while public expenditure has often faced concerns regarding efficiency, implementation delays and fiscal sustainability (Chebet & Etyang, 2025; Akangwagye et al., 2025).

Empirical literature on Uganda's macroeconomic trajectory remains fragmented, often evaluating trade openness, foreign direct investment, and public expenditure in isolation rather than within a unified dynamic framework (Esaku, 2021). Furthermore, existing studies frequently rely on historical datasets that fail to account for recent structural shifts, such as post-pandemic recovery, regional trade realignments, and oil sector investments, while commonly employing static estimation methods unsuited for mixed integration properties and structural breaks (Sunde, 2025).

This study addresses these gaps by examining the short-run and long-run relationships between trade openness, government expenditure, foreign direct investment and economic growth in Uganda over the period 1990–2024 using the Autoregressive Distributed Lag (ARDL) framework. The ARDL approach is particularly suitable because it accommodates variables integrated of different orders and provides robust estimates in relatively small samples. Beyond its methodological contribution, the study seeks to provide updated empirical evidence capable of informing Uganda's current growth strategy, especially at a time when policymakers are attempting to align external sector reforms, fiscal expansion and industrial transformation under Vision 2040. In doing so, the study contributes to the broader debate on whether external openness and fiscal policy operate as complementary drivers of growth or whether structural constraints continue to limit the developmental gains associated with globalization and foreign capital integration.



LITERATURE REVIEW

The relationship between trade openness, government expenditure, foreign direct investment (FDI) and economic growth has occupied a central position in development economics for decades. Despite the large volume of empirical work in this area, there is still no universal agreement regarding the precise manner through which these variables influence long-run growth, particularly within developing economies characterized by structural vulnerabilities, weak institutions and narrow production bases. The debate has evolved from simple growth-accounting explanations toward more nuanced discussions emphasizing institutional quality, absorptive capacity, macroeconomic stability and the composition of public expenditure. This section reviews the major theoretical and empirical arguments surrounding these relationships while identifying the unresolved issues that continue to shape the Ugandan growth discourse.

The theoretical foundation of this study is rooted primarily in the neoclassical growth framework, particularly the Solow-Swan model and the Cobb-Douglas production function. The Solow (1956) growth model conceptualizes economic expansion as a function of capital accumulation, labour growth and exogenous technological progress. Within this framework, trade openness and FDI are viewed as mechanisms through which developing economies gain access to external capital, technology, managerial expertise and international markets. Endogenous growth theorists later extended this argument by emphasizing that knowledge spillovers, innovation and human capital formation can generate sustained productivity improvements beyond the steady-state equilibrium predicted by traditional neoclassical models (Lucas, 1988; Romer, 1994). Government expenditure enters this framework as a facilitating instrument capable of improving infrastructure, institutional quality, education and technological absorption. Consequently, the growth impact of trade and FDI becomes conditional upon the quality and efficiency of domestic fiscal policy.

The absorptive capacity argument has become especially influential in explaining why similar levels of trade openness and foreign investment often generate very different outcomes across developing countries. Borensztein et al. (1998) argue that FDI contributes positively to economic growth only when host economies possess sufficient human capital and institutional readiness to internalize technological spillovers. Similarly, Ogundipe et al. (2020) maintain that trade liberalization alone does not automatically produce structural transformation unless supported by productive public investment and macroeconomic coordination. These perspectives are particularly relevant in the African context, where several countries have experienced rising openness and investment inflows without corresponding improvements in industrial productivity or export diversification.

The literature on trade openness and economic growth remains deeply divided. One strand of the literature supports the classical “trade-led growth” hypothesis, arguing that openness promotes efficiency, specialization, competition and technological diffusion. Sachs and Warner (1995) found that open economies generally grew faster than closed economies, while Dollar and Kraay (2004) concluded that integration into global trade systems contributed significantly to poverty reduction and long-run economic expansion. Similar conclusions are reported by Oloyede et al. (2021), who argue that openness improves resource allocation and stimulates export competitiveness in developing economies.

Yet the positive relationship between trade and growth is far from universally accepted. Critics of unrestricted liberalization argue that developing economies with weak industrial bases frequently become trapped in low-value commodity dependence and import-intensive growth structures. Mbogela (2019) contends that trade openness may expose fragile domestic industries to external competition before they acquire sufficient productive capacity to compete internationally. Within Africa, several studies suggest that the benefits of openness remain heavily concentrated in extractive and primary commodity sectors, thereby limiting broader structural transformation (African Development Bank, 2024; Scalomonti, 2025). In East Africa specifically, Butali (2025) found that trade liberalization only generated positive growth effects in economies characterized by fiscal stability and supportive infrastructure systems.

Uganda’s experience reflects many of these contradictions. Earlier studies generally associate the country’s liberalization reforms during the 1990s with improved macroeconomic performance and export expansion (Rudaheeranwa, 2019; Muhamadi et al., 2019). However, more recent studies question whether Uganda’s increasing trade integration has generated sufficient industrial deepening or productivity gains. Chien et al. (2022) and Bagci et al. (2022) argue that Uganda’s landlocked position, persistent trade deficits and high transportation costs continue to weaken the growth-enhancing effects of openness. Desiderio (2025) similarly notes that while Uganda has expanded regional trade, much of its export structure remains concentrated in low-value agricultural commodities, thereby limiting long-term transformation. The literature therefore remains inconclusive regarding whether trade openness has genuinely strengthened Uganda’s productive capacity or merely increased external dependence.

The relationship between government expenditure and economic growth is equally contested. Traditional Keynesian arguments maintain that public expenditure stimulates aggregate demand, supports infrastructure development and compensates for market failures in developing economies. Barro (1990) and Easterly and Rebelo (1993) argue that productive public investment, particularly in transport, education and energy infrastructure, can significantly enhance long-run growth performance. In contrast, the Wagnerian perspective



suggests that government expenditure expands naturally as economies grow, implying that causality may run from growth to public spending rather than the reverse.

Empirical evidence on this relationship remains mixed. Enya and Ezeali (2021) observe that while productive capital expenditure tends to promote growth, excessive recurrent expenditure may generate inefficiencies and fiscal crowding-out effects. Akinsola (2020) further argues that rising public debt associated with persistent fiscal expansion can reduce private sector investment and macroeconomic stability in Sub-Saharan Africa. Fengju and Wubishet (2024) similarly find that government expenditure contributes positively to growth only in countries characterized by strong institutional quality and effective fiscal governance.

Within Uganda, studies generally acknowledge the importance of public expenditure in supporting infrastructure development and post-conflict recovery. Muvawala et al. (2020) and the Economic Policy Research Centre (2025) report that public investment in roads, energy and industrial infrastructure has contributed positively to long-run economic activity. However, concerns persist regarding the efficiency and composition of expenditure. Muinga et al. (2023) note that election-related recurrent spending and implementation inefficiencies frequently weaken the developmental impact of fiscal expansion. Kibowa et al. (2024) further argue that rising public debt and growing fiscal obligations may increasingly constrain Uganda's future development space. Consequently, while public expenditure remains central to Uganda's development strategy, the literature suggests that expenditure quality may matter more than expenditure volume alone.

The literature on foreign direct investment presents another area of considerable disagreement. Proponents of FDI-led growth argue that foreign investment supplements domestic savings, enhances technological transfer, improves managerial efficiency and facilitates integration into international production networks (Arthur et al., 2024). According to endogenous growth theory, FDI can generate positive externalities through knowledge spillovers and human capital development. This perspective has strongly influenced development policy across Africa, where governments continue to compete aggressively for foreign investment.

Nonetheless, empirical evidence regarding the growth effects of FDI remains inconsistent. Duttaray et al. (2008) and Sothan (2017) argue that causality between FDI and growth is often ambiguous, with high-growth economies sometimes attracting investment rather than investment causing growth. Other studies suggest that the developmental effects of FDI depend heavily on sectoral composition. UNCTAD (2025) reports that extractive-sector FDI frequently generates weaker domestic spillovers compared to manufacturing-oriented investment because production linkages with local firms remain limited. Dinga and Fonchamnyo (2021) further caution that volatile capital inflows may contribute to macroeconomic instability in economies with weak financial systems.

DATA AND METHODS

Research Design and Data Sources

This study adopts a quantitative research design with a longitudinal, ex-post-facto (historical) structure to mathematically investigate the macroeconomic relationships under review (Creswell & Creswell, 2017). The empirical framework utilizes annual secondary time-series data covering a 35-year historical horizon from 1990 to 2024 (N = 35). To achieve maximum statistical consistency, international comparability, and data hygiene, all target indicators were gathered from a single, authoritative repository: the World Bank's World Development Indicators (WDI). This approach minimizes measurement discrepancies and database alignment errors often caused by merging disparate institutional data stores (Kothari, 2004).

Table 1: Description and Operationalization of Variables

Variable	Proxy/ Measurement	Unit of Measurement	Expected Sign	Source	Key Supporting Studies
Economic Growth (<i>GDP_growth</i>)	Annual growth rate of Real GDP	(%)	Dependent Variable	WDI	Akangwagye et al. (2025), Tweheyo (2025)
Trade Openness (trade)	Total exports + imports as % of GDP	(%)	(+)	WDI	Esaku (2021), Utouh (2025)
Government Expenditure (<i>gov_exp</i>)	General government final consumption expenditure as % of GDP	(%)	(+)	WDI	Sendi et al. (2021), Begumya (2025)
Foreign Direct Investment (<i>fdi</i>)	Net FDI inflows as % of GDP	(%)	(+)	WDI	Arthur et al. (2024), Dinga & Fonchamnyo (2021)

The selection and operational tracking of the study variables are derived from the foundational Solow-Swan neoclassical growth model, which states that output variations are driven by capital accumulation and shifts in technological efficiency.

Econometric Modeling and Analytical Framework

To empirically estimate the structural connections without risking spurious outputs, this paper uses the Autoregressive Distributed Lag (ARDL) Bounds Testing methodology pioneered by Pesaran and Shin (1995). The ARDL framework is chosen for its superior statistical properties when working with small sample sizes ($N = 35$) and its unique capacity to handle a mixed order of integration, allowing the parallel introduction of variables integrated at levels $I(0)$ and first differences $I(1)$.

The baseline long-run functional specification is written as:

$$GDP_growth_t = f(\text{trade}_t, \text{gov_exp}_t, \text{fdi}_t) \quad (3.1)$$

Where:

GDP_growth = Real GDP Growth (%), trade = Trade Openness (% of GDP), gov_exp = General government final consumption expenditure (% of GDP), fdi = Foreign direct investment, net inflows (BoP, current US\$), and t = Time period (1990–2024)

Transforming this operational setup into a linear econometric equation yields the following expression:

$$GDP_growth_t = \beta_0 + \beta_1 \text{trade}_t + \beta_2 \text{gov_exp}_t + \beta_3 \text{fdi}_t + \varepsilon_t \quad (3.2)$$

Where: β_0 represents the intercept, β_1 , β_2 and β_3 denote the long-run structural coefficients to be estimated, t reflects the annual time period, and ε is the stochastic white-noise error.

To incorporate both short-run variations and long-run cointegrating dynamics within a single unified estimation structure, the baseline model is expanded into an Unrestricted Error Correction Model (UECM) framework:

$$\Delta GDP_growth_t = \alpha_0 + \sum_{i=1}^p \delta_1 \Delta GDP_growth_{t-i} + \sum_{i=0}^q \delta_2 \Delta \text{trade}_{t-i} + \sum_{i=0}^q \delta_3 \Delta \text{gov_exp}_{t-i} + \sum_{i=0}^q \delta_4 \Delta \text{fdi}_{t-i} + \theta_1 GDP_growth_{t-1} + \theta_2 \text{trade}_{t-1} + \theta_3 \text{gov_exp}_{t-1} + \theta_4 \text{fdi}_{t-1} + \varepsilon_t \quad (3.3)$$

Where: Δ represents the first-difference operator, $\delta_1, \dots, \delta_4$ represent the short-run coefficients, $\theta_1, \dots, \theta_4$ represent the long-run multipliers, and ε_t is the white noise error term.

The existence of a long-run relationship is verified using the F-bounds test, which evaluates the joint null hypothesis of no level cointegration.

$$H_0: \theta_1 = \theta_2 = \theta_3 = \theta_4 = 0$$

$$H_1: \text{At least one of the } \theta_i \neq 0$$

The calculated F-statistic is cross-examined against the critical upper and lower bound values provided by Pesaran et al. (2001). If the computed test statistic surpasses the upper critical bound value, the null hypothesis is rejected, confirming structural cointegration. Once long-run cointegration is established, the short-run Error Correction Model (ECM) is specified as:

Short-run ECM specification:

$$\Delta GDP_growth_t = \sum \delta_i \Delta X_{t-i} + \lambda ECT_{t-1} + \mu_t \quad (3.4)$$

Where Δ denotes first differences, X represents the vector of independent regressors, δ_i isolates the short-run dynamics, μ_t is the residual term, and λ reflects the speed of adjustment coefficient captured via the Error Correction Term ECT_{t-1} . This adjustment parameter measures how rapidly transient macroeconomic imbalances self-correct back toward the long-run equilibrium path within a single annual cycle.

Diagnostic and Stability Protocol

To guarantee mathematical precision and satisfy classical linear regression assumptions, the model undergoes a robust post-estimation diagnostic process. Residual independence is evaluated using the Breusch-Godfrey Lagrange Multiplier (LM) test for serial correlation. Variance stability is checked via the Breusch-Pagan/Cook-Weisberg test for heteroscedasticity. Error normality was assessed with the Jarque-Bera metric, and model functional form calibration was verified using the Ramsey RESET specification test. Multi-collinearity was checked via Variance Inflation Factor (VIF) computations. Parameter stability over the 1990–2024 timeline was verified using the Cumulative Sum (CUSUM) and Cumulative Sum of Squares (CUSUMSQ) protocols applied to recursive residuals (Pesaran et al., 2001). All data transformations and estimations were performed using Stata 18.

RESULTS AND DISCUSSIONS

Pre-Estimation Diagnostic and Trend Analysis

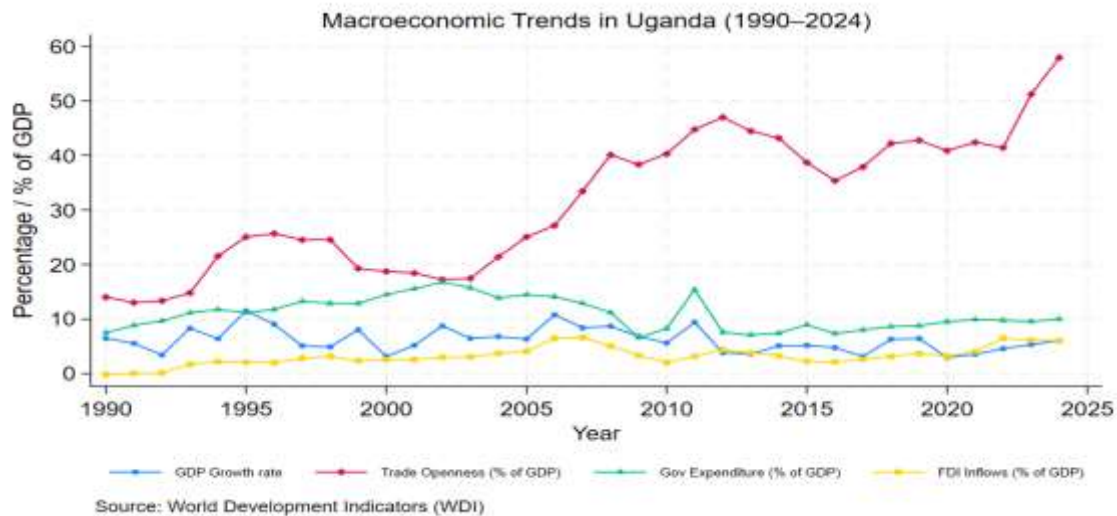
The empirical investigation starts with an evaluation of the statistical properties of the variables from 1990 to 2024. Table 1 outlines the descriptive tendencies, central markers, and dispersion metrics of the model.

Table 2: Summary of Descriptive Statistics (1990–2024)

Statistic	GDP Growth (%)	Trade (% GDP)	FDI (% GDP)	Gov. Exp (% GDP)
Mean	6.174	31.54	3.24	10.7
Std. Deviation	2.191	12.41	1.71	2.9
Minimum	2.951	13.01	-0.14	6.59
Maximum	11.523	57.93	6.66	16.79
Observations	35	35	35	35

The descriptive metrics reveal a stable annualized output expansion path, with a mean growth rate of 6.174% across the 35-year horizon. This performance falls short of the 10.1% growth threshold mandated by the national development blueprint (National Planning Authority, 2023). Trade openness displays high variance, ranging from 13.01% to 57.93%, suggesting structural shifts in global and regional integration. Foreign investment inflows display a steady upward trend from a negligible baseline in 1990 (-0.14%) to a peak of 6.66%, indicating progressive financial globalization. Public expenditure patterns fluctuate between 6.59% and 16.79%, indicating changing levels of state fiscal intervention.

Figure 1: Visual Trend Analysis (1990–2024)



Visual trend analysis further reveals that Uganda's economic trajectory has evolved through distinct structural phases rather than a uniform growth path. The early liberalization period during the 1990s was associated with rapid growth acceleration, largely driven by macroeconomic stabilization and external sector reforms. However, growth began moderating during the 2010s despite continued increases in trade openness and FDI inflows. Particularly striking is the observation that even after FDI exceeded 6 percent of GDP and trade openness remained historically high, GDP growth largely stabilized within the range of 4–6 percent. This suggests that openness and capital inflows alone have not been sufficient to generate the scale of productivity transformation envisioned under Vision 2040. To prevent spurious regressions, the integration profiles of the variables are checked using the Augmented Dickey-Fuller (ADF) framework. The ARDL bounds protocol requires that no variable integrates at order I(2). Table 3 contains the unit root test results.

Table 3: Augmented Dickey-Fuller (ADF) Unit Root Test Results

Variables	Level [Z(t)]	Prob.	First Diff. [Z(t)]	Prob.	Status
GDP Growth	-3.172***	0.0017	—	—	I(0)
Gov. Expenditure	-2.062**	0.024	—	—	I(0)
FDI Inflows	-2.674***	0.006	—	—	I(0)
Trade Openness	-0.648	0.2611	-3.109***	0.0021	I(1)

Note: *** and ** denote significance at the 1% and 5% levels respectively. Tests include a drift term as per the Stata output results.



The ADF unit root verification demonstrates a mixed integration setup. Real GDP growth, government spending, and foreign direct investment settle into stationarity at their level values $I(0)$. Conversely, trade openness is non-stationary at level value ($p = 0.2611$) but achieves stationarity upon first-differencing $I(1)$ ($p = 0.0021$). This combination of $I(0)$ and $I(1)$ dynamics validates the selection of the ARDL framework.

Table 4 shows the pairwise correlation matrix to screen for multicollinearity and assess initial linear relationships

Table 4: Pairwise Correlation Matrix

Variables	GDP Growth	Gov. Exp.	FDI Inflows	Trade
(1) GDP growth	1			
(2) Gov. Expenditure	0.416**	1		
(3) FDI	0.124	0.14	1	
(4) Trade Openness	-0.208	-0.479***	0.606***	1

*Note: p-values in parentheses. *** and ** denote significance at the 1% and 5% levels respectively.*

All pairwise coefficients remain below the 0.80 threshold, indicating the absence of severe multicollinearity and confirming independent regressor tracking. A strong, significant positive link emerges between trade openness and FDI inflows ($r = 0.606$, $p < 0.01$), highlighting a close connection between global market entry and international capital recruitment.

Cointegration Bounds Evaluation

The presence of a stable long-run cointegrating relationship was assessed using the F-bounds checking setup. Table 5 compiles the bounds test estimations.

Table 5: ARDL Bounds Test Results for Cointegration

Test Statistic	Value	Significance Level	Lower Bound	Upper Bound	Empirical Finding
F-statistic	12.356	5%	3.23	4.35	Cointegration Confirmed
t-statistic	-6.652	1%	-3.43	-4.37	Cointegration Confirmed

The computed F-statistic of 12.356 exceeds the critical upper bound threshold of 4.35 at the 5% significance level, and surpasses the 1% upper bound of -4.37. This outcome supports the rejection of the null hypothesis of no level relationship, confirming a stable, long-run macroeconomic equilibrium among trade openness, government expenditure, FDI inflows, and real GDP growth from 1990 to 2024.

Structural Parameter Estimations and Discussions

Following the verification of structural cointegration, the model is estimated using an optimized ARDL (1,1,0,0) specification chosen via the Akaike Information Criterion (AIC). The configuration achieves an R-squared value of 0.6488, indicating that the independent variables explain 64.9% of the variance in Uganda's economic growth. Table 5 details the structural estimations.

Table 6: ARDL Cointegration and Short-Run Error Correction Results

Variables (Dep = GDP growth)	Coefficient	Std. error.	t	P>t	[95% conf. interval]	
Adjustment Term (Error Correction Term)						
ECT (<i>L1</i>)	-0.998	0.150	-6.650	0.000	-1.306	-0.690
Long-Run Coefficients						
Trade Openness	0.419	0.130	3.230	0.003	0.153	0.686
Government Expenditure	0.360	0.114	3.150	0.004	0.126	0.595
Foreign Direct Investment	-0.200	0.237	-0.840	0.408	-0.686	0.287
Short-Run Dynamics						
Trade Openness.	-0.370	0.110	-3.380	0.002	-0.595	-0.145
_cons	2.376	1.617	1.470	0.153	-0.941	5.694
R-squared = 0.6488						
Root MSE = 1.7746						



Trade Openness and Economic Growth Dynamics

The long-run coefficient for trade openness displays a positive and statistically significant impact on output ($\beta = 0.419$, $p < 0.01$). This shows that a 1% expansion in international trade connectivity yields a 0.42% rise in long-run real GDP growth. This finding aligns with the Cobb-Douglas framework, where global market integration boosts total factor productivity by facilitating the import of high-technology capital items. In the short run, trade openness registers a negative coefficient ($\beta = -0.370$, $p < 0.01$). This short-run friction indicates transitional adjustments, such as import surges squeezing nascent local industries before long-term specialization gains materialize.

Government Expenditure and Economic Growth Dynamics

General government expenditure exerts a long-run positive and significant impact on output expansion ($\beta = 0.360$, $p < 0.01$). This underscores that a 1% increase in public spending expands aggregate output by 0.36%. Within endogenous growth frameworks, these outlays act as structural catalysts by financing public goods—such as energy networks and transport corridors—that lower the cost of doing business. This supports the findings of Sendi et al. (2021), indicating that targeted public infrastructure spending crowds in private investment across Sub-Saharan Africa. The lack of short-run spending coefficients suggests that public expenditure influences output primarily through long-term structural adjustments rather than immediate fiscal demand shocks.

Foreign Direct Investment and the Growth Paradox

Foreign direct investment displays a statistically non-significant long-run coefficient ($\beta = -0.200$, $p > 0.10$), capturing the core of Uganda's growth paradox. While net capital inflows remain high, foreign investment does not independently drive national output expansion. This finding supports the absorptive capacity hypothesis of Borensztein et al. (1998) and Ogundipe et al. (2020), which indicates that foreign capital spillovers depend on domestic skill thresholds and infrastructure depth. As noted by Arthur et al. (2024) and Dinga and Fonchamnyo (2021), resource-seeking or enclave-based foreign investments often concentrate within capital-intensive extractive sectors. This pattern limits employment generation and backward linkages to small domestic firms, leaving aggregate GDP growth largely isolated from global capital expansion.

Structural Equilibrium Adjustments

The Error Correction Term (ECT_{t-1}) displays a negative and highly significant coefficient of -0.998 ($p < 0.01$). This confirms that 99.8% of any transitional macroeconomic imbalance away from the long-run equilibrium path corrects within a single annual cycle. This exceptionally rapid adjustment pace demonstrates high structural resilience, showing that the economy quickly self-corrects short-run disruptions back toward its long-run growth path.

Post-Estimation Robustness Diagnostics

To verify model stability and compliance with classical statistical requirements, a robust diagnostic check was executed. Table 7 compiles the diagnostic statistics

Table 7: Diagnostic and Stability Analysis

Diagnostic Test	Purpose	Test Statistic	p-value / Result
Breusch-Godfrey LM	Serial Correlation	0.47	0.4929
Breusch-Pagan/Cook-Weisberg	Heteroskedasticity	0.46	0.4966
Durbin-Watson	Autocorrelation	1.995	Stable Residuals
CUSUM (Recursive)	Parameter Stability	0.3805	Stable Structure

Post-estimation diagnostic tests confirm the statistical reliability of the estimated ARDL model. The Breusch-Godfrey LM test shows no serial correlation, while the Breusch-Pagan/Cook-Weisberg test confirmed the absence of heteroskedasticity. The Durbin-Watson statistic remained close to the ideal value of two, further supporting the absence of autocorrelation within the residual structure. In addition, the CUSUM stability tests indicated that the estimated coefficients remained stable throughout the study period despite Uganda's numerous structural and policy transitions.

Collectively, these diagnostic outcomes strengthen confidence in the robustness of the estimated results. The model thus provides a statistically credible basis for explaining the long-run interaction between trade openness, government expenditure, foreign direct investment and economic growth in Uganda. More generally, the results support the view that sustainable growth cannot be attained through increasing openness or capital inflows alone. In the absence of productive public investment, improved institutional quality and enhanced domestic absorptive capacity, external integration may continue to yield only modest growth outcomes compared to Uganda's long-term development aspirations.



DISCUSSION OF FINDINGS

The empirical parameters generated by the Autoregressive Distributed Lag (ARDL) model reveal critical structural insights into Uganda's open-economy macroeconomic dynamics. The long-run coefficient for trade openness displays a positive and highly significant impact on national output expansion ($\beta = 0.419$, $p < 0.01$). This elasticity indicates that a 10% expansion in international trade exposure translates into a 4.19% increase in long-run real GDP growth. From a theoretical perspective, this finding strongly supports the endogenous and neoclassical growth traditions, confirming that external trade integration acts as a vital conduit for capital accumulation and total factor productivity enhancements. By dismantling tariff barriers and expanding regional trade corridors, developing economies can effectively mitigate the limitations of small domestic markets (Solow, 1956). Empirically, this outcome aligns with contemporary regional evidence from the East African Community, where trade entry has been shown to optimize resource allocation and facilitate the importation of advanced intermediate capital items required for structural transition (Butali, 2025; Utouh, 2025).

However, the short-run parameter for trade openness reveals a distinct negative friction ($\beta = -0.370$, $p < 0.01$), uncovering a compelling structural trade-off. This short-run negative coefficient captures the transitional disruptions that occur when a liberalized trade regime exposes nascent domestic manufacturing entities to aggressive global competition. Prior to the realization of long-run specialization gains and export capacity adjustments, rapid exposure to external trade often causes import surges that strain the domestic balance of payments and crowd out small-scale local producers (Mbogela, 2019). This short-run vulnerability mirrors the structural challenges discussed by Desiderio (2025), who noted that landlocked developing states frequently face high initial transit and logistics costs that compound short-run trade liberalisation shocks before long-term efficiency returns materialize.

The fiscal vector of the model demonstrates that general government expenditure exerts a positive and statistically significant long-run multiplier effect on growth ($\beta = 0.360$, $p < 0.01$). This confirms that public outlays play a vital institutional role in sustaining aggregate economic performance, with a 1% increase in state spending expanding output by 0.36%. Within the framework of the absorptive capacity hypothesis, this positive relationship proves that public investments function as foundational catalysts that crowd in private economic activity (Borensztein et al., 1998; Ogundipe et al., 2020). Government consumption and capital expenditure, when directed toward public goods such as transportation networks, energy infrastructure, and regulatory systems, drastically lower the transaction costs of doing business for domestic firms. This long-run synergy supports the findings of Muvawala et al. (2020) and the Economic Policy Research Center (2025), which highlighted that targeted infrastructural outlays in Uganda generate profound long-term productivity returns, even when facing implementation delays. The absence of statistically significant short-run coefficients for government spending indicates that public outlays influence aggregate demand and productive capacity primarily through long-term structural adjustments rather than instantaneous fiscal shocks.

The most critical analytical finding of this investigation lies in the coefficient for foreign direct investment inflows, which exhibits a statistically non-significant long-run relationship with national growth ($\beta = -0.200$, $p > 0.10$). This statistical neutrality explains the empirical foundation of Uganda's "Growth Paradox," where substantial annual inflows of international capital fail to accelerate the aggregate growth rate toward the 10.1% threshold mandated by the Fourth National Development Plan (National Planning Authority, 2023). This non-significant outcome implies that the host economy lacks the baseline absorptive capacity—measured in terms of human capital depth, domestic financial development, and integrated infrastructure—necessary to internalize global technology transfers and operational spillovers (Arthur et al., 2024; Borensztein et al., 1998). As highlighted by recent investment reports, foreign capital inflows into the region remain heavily concentrated within urban manufacturing clusters and capital-intensive extractive or telecom enclaves (Daily Monitor, 2024; UNCTAD, 2025). These industrial enclaves operate with exceptionally weak backward and forward linkages to local small and medium enterprises, meaning that international asset accumulation takes place in isolation, leaving the wider domestic labor market and aggregate productivity trajectory fundamentally unchanged.

Finally, the Error Correction Term (ECT_{t-1}) delivers a crucial metric regarding the transitional stability of the macroeconomic system, returning a negative and highly significant coefficient of -0.998 ($p < 0.01$). The magnitude of this coefficient proves that 99.8% of any transitional deviation or structural imbalance away from the long-run cointegrating equilibrium path self-corrects within a single annual cycle. This exceptionally high speed of adjustment reveals a remarkably resilient macroeconomic framework, demonstrating that despite experiencing short-run trade frictions or fiscal fluctuations, the underlying economic structure possesses powerful self-correcting mechanisms that rapidly restore the long-run growth path.

LIMITATIONS

Although the study provides important insight into the relationship between trade openness, government expenditure, foreign direct investment, and economic growth in Uganda, several limitations should be acknowledged. First, the analysis relies entirely on secondary annual macroeconomic data obtained from the World Bank, which may contain measurement inconsistencies, particularly for earlier



years characterized by weak statistical reporting systems during Uganda's post-conflict recovery period. Second, the use of aggregate national indicators may conceal important sectoral differences, especially regarding the varying effects of FDI across manufacturing, agriculture, telecommunications, and extractive industries. Future research could address these limitations by incorporating sector-specific data, institutional quality indicators, or panel-based comparative analysis across East African economies in order to provide deeper insight into the structural drivers of long-run transformation.

CONCLUSION

This study examined the relationship between trade openness, government expenditure, foreign direct investment, and economic growth in Uganda over the period 1990–2024 using the ARDL bounds testing framework. The findings confirm the existence of a stable long-run relationship among the variables, indicating that Uganda's growth trajectory is closely linked to both external sector dynamics and domestic fiscal policy. Trade openness and government expenditure emerged as positive and statistically significant drivers of long-run economic growth, suggesting that market integration and productive public spending have contributed meaningfully to Uganda's macroeconomic expansion over time. In contrast, foreign direct investment exhibited a negative but statistically insignificant relationship with growth, implying that rising capital inflows alone have not been sufficient to generate broad-based productivity gains within the economy.

Overall, the evidence suggests that Uganda's growth challenge is less about the absence of external opportunities and more about the economy's limited capacity to convert those opportunities into sustained structural transformation. Although the country has experienced increasing trade integration and growing foreign investment inflows, these gains have not translated into the level of industrial deepening and productivity expansion required to achieve the NDP IV tenfold growth target. The study therefore concludes that long-run growth in Uganda depends not only on maintaining openness and attracting investment, but also on strengthening the efficiency of public expenditure, improving institutional quality, expanding productive infrastructure, and enhancing domestic absorptive capacity capable of linking external capital to local economic development.

RECOMMENDATIONS

The findings of this study suggest the need for a more strategic alignment between Uganda's trade policy, fiscal policy, and domestic production systems. Government should prioritize productive public expenditure directed toward infrastructure, energy reliability, agro-industrial value chains, transport connectivity, and technological upgrading because these sectors strengthen the economy's ability to benefit from trade integration and external capital inflows. In particular, public investment should increasingly focus on reducing structural bottlenecks that continue to limit industrial competitiveness and export diversification. There is also need for stronger coordination between trade liberalization policies and domestic industrial development strategies so that increasing openness supports local production rather than deepening import dependence. Given the positive long-run contribution of trade openness observed in the study, Uganda should continue strengthening regional trade engagement under the East African Community and AfCFTA while simultaneously supporting domestic firms to compete within these expanding markets.

The study further recommends that policymakers reconsider the current structure and targeting of foreign direct investment policy. Rather than focusing primarily on the volume of inflows, greater attention should be directed toward attracting investment capable of generating stronger domestic spillovers through technology transfer, local sourcing, skills development, and integration with domestic enterprises. This may require strengthening local content policies, improving workforce productivity, and expanding institutional support for small and medium-sized enterprises linked to foreign investors. At the same time, improvements in governance efficiency, project implementation, and expenditure accountability remain critical if public spending is to generate stronger long-run growth effects. Future research should also explore sector-specific dynamics of FDI and trade, particularly within manufacturing, agriculture, and the emerging oil economy, in order to better understand how external integration can support inclusive and sustainable structural transformation in Uganda.

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