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RE-EXAMINING THE IMPORT–GROWTH NEXUS IN NIGERIA: EVIDENCE FROM COINTEGRATION AND ERROR-CORRECTION ANALYSIS

Nura Aliyu Kabuga
Department of Economics,
Faculty of Economics and Management Sciences,
Bayero University Kano, Nigeria
Corresponding author: nakabuga.eco@buk.edu.ng
&
Sha'awanatu Ahmad Achida
Department of Politcal Science,
Faculty of Social and Management Sciences,
Sokoto State University, Sokoto

Abstract
This paper re-examines the relationship between imports and economic growth in Nigeria using annual time-series data covering the period 1980–2024. The analysis is motivated by Nigeria's persistent reliance on imports and the recurrent foreign exchange constraints experienced by the economy. The study is informed by the balance-of-payments constrained growth framework, which links long-run economic expansion to the capacity of an economy to finance imports required for production and consumption. The empirical analysis applies the Engle–Granger cointegration approach together with an error-correction model and Granger causality tests in order to distinguish long-run relationships from short-run dynamics. The results indicate the existence of a stable long-run association between real imports and real Gross Domestic Product (GDP). The estimated long-run coefficient on imports is negative and statistically significant, suggesting that sustained increases in imports have been associated with weaker economic performance over time. Short-run estimates also indicate that increases in imports are linked to reductions in output growth, while the error-correction term confirms gradual adjustment toward long-run equilibrium following short-run disturbances. Granger causality tests reveal bidirectional causality between imports and economic growth in the short run, indicating that increases in income stimulate import demand while fluctuations in imports influence output dynamics. Evidence of long-run causality running from imports to output suggests that Nigeria's economic performance has remained closely associated with import behaviour and foreign exchange availability. The study contributes to the literature by providing updated time-series evidence on the import–growth relationship in Nigeria and by offering additional empirical insight into how persistent import dependence interacts with long-run economic performance in an import-dependent economy. The findings indicate the importance of policies that reduce excessive reliance on consumption imports while supporting productivity-enhancing imports that can strengthen domestic production capacity and improve long-run growth prospects.
Keywords: Imports; Economic growth; Import dependence; Cointegration; Error-correction model; Nigeria

1. Introduction

Since the early 1980s, Nigeria's economic performance has been closely tied to developments in its external sector, particularly its heavy reliance on imports and recurrent foreign exchange constraints. Although the economy has recorded periods of output expansion, growth has remained volatile and highly sensitive to oil revenue movements,

exchange-rate pressures, and shifts in external financing conditions (International Monetary Fund [IMF], 2023; World Bank, 2023). Imports have consistently accounted for a large share of aggregate demand, with import values averaging over 30 per cent of GDP since the mid-1990s and exceeding 40 per cent in several years following major exchange-rate liberalisation and oil price upswings (World Bank, 2023; Central Bank of Nigeria, 2024). This pattern has repeatedly exposed the economy to balance-of-payments stress and adjustment pressures, raising concerns about whether sustained import dependence has supported or constrained long-run growth.

From a theoretical perspective, the growth implications of imports are inherently ambiguous. On one hand, imports can support economic activity by easing domestic supply constraints, enabling access to foreign technology embodied in capital goods and intermediate inputs, and complementing domestic production processes (Coe & Helpman, 1995; Grossman & Helpman, 1991). On the other hand, when imports are dominated by final consumption goods or financed under binding foreign exchange constraints, they may weaken domestic production incentives, generate demand leakage, and reinforce external imbalances that limit sustainable growth (Thirlwall, 2011; McCombie & Thirlwall, 2016). These competing effects are particularly relevant in resource-dependent economies, where import capacity is closely linked to volatile export earnings rather than to diversified productive structures (Auty, 2001; Bedime et al., 2025).

Empirical evidence mirrors this ambiguity. While cross-country studies often report positive associations between trade openness and economic growth, more recent research indicates that such effects depend on economic structure, institutional quality, and trade composition (Huchet-Bourdon et al., 2018; Zahonogo, 2016). Evidence from Sub-Saharan Africa suggests that trade expansion supports growth primarily in economies with stronger productive bases, whereas persistent reliance on imports in the absence of export diversification tends to constrain growth through external imbalances and adjustment pressures (Bonga-Bonga & Akinboade, 2010; Bedime et al., 2025). For Nigeria, much of the existing literature has examined imports indirectly through studies of oil price shocks, exchange-rate movements, or trade openness, rather than isolating the import–growth relationship itself (Alley et al., 2014; Adelegan et al., 2021). Studies focusing on Nigeria's external sector have also explored the growth implications of trade openness and export performance, indicating that trade can contribute positively to growth under supportive macroeconomic and structural conditions (Kabuga & Ismail, 2018; Kabuga & Achida, 2025).

This study addresses this gap by re-examining the relationship between imports and economic growth in Nigeria using annual time-series data covering the period 1980–2024. The analysis employs the Engle–Granger cointegration approach together with an error-correction model and Granger causality tests to distinguish long-run relationships from short-run adjustments. It also examines the import–growth nexus within a parsimonious econometric framework and evaluates whether imports function primarily as inputs that support domestic production or as a constraint arising from external dependence and foreign exchange pressures. In doing so, the analysis provides updated empirical evidence on the role of imports in Nigeria's growth process and contributes to ongoing debates on the macroeconomic implications of trade structure in resource-dependent economies.

2. Literature Review

This section reviews the conceptual, empirical, and theoretical literature relevant to the relationship between imports and economic growth. The discussion begins with the conceptual foundations that explain how imports can influence economic performance,

including competing perspectives on whether import expansion supports or constrains growth. It then examines empirical studies that investigate the import–growth relationship in developing economies and within the Nigerian context. The section concludes with the theoretical framework that guides the empirical analysis in this study.

2.1 Conceptual Review

Imports occupy a central place in growth processes in developing economies because they supply goods and services that domestic production cannot fully provide. In addition to exports, imports play an important role in the trade–growth relationship because they provide access to foreign technology, intermediate inputs, and capital goods that can enhance domestic productive capacity. From a production perspective, imports of intermediate inputs and capital goods can raise output by easing supply constraints and supporting capital accumulation, particularly where domestic technological capacity is limited (Coe & Helpman, 1995). In contrast, when imports are dominated by consumption goods, their expansion can weaken domestic production incentives and increase demand leakage, reducing the growth impact of domestic expenditure (Rodrik, 1999).

A key debate concerns whether import growth supports or constrains long-run economic performance. One view stresses the productivity benefits of imported inputs and technology embodied in machinery, suggesting that access to foreign goods can enhance efficiency and output growth. An alternative view emphasises external balance. When import demand rises faster than export earnings, growth becomes constrained by the balance of payments, forcing adjustment through reduced output rather than sustained expansion (Thirlwall, 1979). This perspective highlights that the growth effect of imports depends not only on their volume but also on the economy's capacity to finance them.

A further conceptual issue relates to trade measurement in commodity-dependent economies. In such settings, import values may fluctuate with foreign exchange availability driven by commodity price cycles rather than structural change. As a result, import expansion may reflect temporary financing capacity rather than improvements in productive capability. Empirical work shows that trade–growth relationships are sensitive to trade structure and measurement choices, cautioning against uniform conclusions across countries (Huchet-Bourdon, Le Mouël, & Vijil, 2018).

These considerations give rise to two competing hypotheses. The import-led growth hypothesis suggests that import expansion precedes growth by supporting production through access to foreign inputs and technology. The import-stifled growth hypothesis suggests that import expansion precedes weaker growth when it intensifies external imbalances and suppresses domestic production. Which outcome dominates is an empirical question that depends on import composition, financing conditions, and domestic productive capacity.

2.2 Empirical Review

Empirical evidence on the relationship between imports and economic growth remains unsettled, largely because import effects vary with composition, financing conditions, and domestic productive capacity. Early cross-country studies suggest that imports can support growth when they are closely linked to capital formation and technology transfer, particularly through imported machinery and intermediate inputs (Coe & Helpman, 1995). However, subsequent work shows that these positive effects weaken in economies facing persistent balance-of-payments constraints, where rising import demand can outpace foreign exchange earnings and restrict sustainable growth (Thirlwall, 2011). Evidence from developing countries further indicates that trade supports growth only beyond certain thresholds of

openness and institutional capacity, below which external exposure may exert contractionary effects (Zahonogo, 2016). More recent studies using frequency-domain causality also show that import–growth relationships are often horizon-specific, with long-run effects dominating short-run dynamics (Aluko & Adeyeye, 2020; Usman & Bashir, 2022).

Studies focusing on Sub-Saharan Africa emphasise the conditional nature of the import–growth relationship. In many African economies, high import dependence combined with weak export capacity has been found to constrain growth through recurrent external imbalances rather than stimulate productivity gains (Bonga-Bonga & Akinboade, 2010). This pattern is especially evident in resource-dependent economies, where import capacity fluctuates with commodity revenues and external shocks, leading to procyclical import surges followed by periods of forced adjustment. Evidence from selected African countries further shows that imports often exert negative or insignificant growth effects once domestic investment and export performance are controlled for, suggesting displacement rather than complementarity effects (Bakari, 2017; Bakari & Krit, 2017).

For Nigeria, the empirical literature consistently highlights the importance of trade structure and composition. Earlier studies examining the broader trade–growth relationship indicate that external trade can contribute to long-run economic expansion when supported by favourable macroeconomic and structural conditions. Kabuga and Ismail (2018), for example, provide evidence that trade openness promotes long-run economic growth in Nigeria, although the magnitude of the effect depends on broader economic conditions and external sector stability. More recent work by Kabuga and Achida (2025) revisits the export-led growth hypothesis and reports a positive but moderate long-run relationship between exports and economic growth, suggesting that Nigeria's growth process remains closely linked to external sector dynamics but constrained by structural factors such as export concentration and limited domestic linkages.

Studies focusing specifically on imports emphasise the role of import composition. Using disaggregated time-series data, Gabriel and Ojide (2014) show that imports of capital and intermediate goods support growth, whereas imports of finished consumer goods are associated with weaker growth outcomes. Similar evidence is reported by Aisien and Ihensekhien (2019), who find that capital goods imports are growth enhancing, while refined petroleum imports exert a negative long-run effect. These findings are particularly relevant given Nigeria's sustained dependence on imported refined fuel, which directly links the import bill to foreign exchange pressure and inflation dynamics.

More recent studies shift attention from import levels to import dependence. Aigheyisi (2021) identifies a nonlinear relationship between import dependence and growth in Nigeria, showing that imports support growth only up to a threshold level, beyond which further reliance becomes growth reducing. This result aligns with Nigeria's historical experience of growth slowdowns during periods of oil revenue weakness, when foreign exchange scarcity constrains import financing and triggers macroeconomic adjustment. Complementary evidence from Abinabo and Abubakar (2023) shows that imports exert a negative and statistically significant effect on growth even when overall trade openness is growth supportive, suggesting that the marginal growth effect of imports within Nigeria's prevailing structure is adverse. Other Nigerian studies approach the issue indirectly through oil price shocks and external volatility, with Alley et al. (2014) and Adelegan et al. (2021) showing that oil revenue fluctuations strongly influence growth stability, thereby conditioning import capacity and output performance.

2.3 Theoretical Framework

The theoretical framework of this study draws primarily on the balance-of-payments constrained growth approach, which links long-run economic growth to the capacity of an economy to finance the imports required for production and consumption. Within this framework, the feasible growth rate depends on the relationship between export earnings, capital inflows, and the income elasticity of demand for imports. When import demand expands more rapidly than foreign exchange earnings, the economy faces an external constraint and output growth must adjust downward to restore balance in the external accounts (Thirlwall, 1979).

At the same time, imports can contribute positively to economic growth when they consist largely of intermediate inputs and capital goods that expand productive capacity. In this view, growth depends on the ability of the domestic economy to absorb imported technology, machinery, and production inputs and convert them into higher output. The growth effect of imports therefore depends not only on their volume but also on their composition and the economy's absorptive capacity (Coe & Helpman, 1995). Where absorptive capacity is weak and imports are dominated by consumption goods, the long-run growth effect is expected to be limited or negative.

The framework also recognises the possibility of feedback effects between imports and economic growth. Rising income levels can increase demand for imported goods and services, thereby strengthening the link between growth and import dependence. At the same time, fluctuations in imports may affect output through changes in input availability, foreign exchange conditions, and exchange-rate adjustments in the short run. These interactions suggest that imports and growth may evolve jointly over time, with long-run equilibrium relationships coexisting with short-run adjustment dynamics.

3. Methodology

This section describes the data sources, variable definitions, and econometric procedures used to examine the relationship between imports and economic growth in Nigeria. The empirical analysis follows a sequential procedure beginning with unit root tests, followed by cointegration analysis using the Engle–Granger approach, estimation of an error-correction model, and Granger causality tests to assess the direction of interaction between imports and economic performance.

3.1 Data Sources and Variable Measurement

The study employs annual time-series data for Nigeria covering the period 1980–2024. This period captures major structural changes in the Nigerian economy, including episodes of import liberalisation, exchange-rate adjustment, external shocks, and policy reforms that influence the interaction between imports and economic performance.

Real Gross Domestic Product (GDP_t) is used to represent aggregate economic output, while real Imports (IMP_t) of goods and services capture the scale of import dependence. Both series are obtained from publications of the Central Bank of Nigeria and are expressed in constant prices to eliminate the influence of inflation. To stabilise variance and allow coefficient estimates to be interpreted as elasticities, the variables are transformed into natural logarithms before estimation. Accordingly, $\ln GDP_t$ represents real output in levels, while short-run economic growth is analysed through changes in $\Delta \ln GDP_t$.

Table 1: Description and Measurement of Variables

Variable	Acronym	Measurement	Source
Real Gross Domestic Product	GDP	Constant-price GDP	Central Bank of Nigeria
Real Imports of Goods and Services	IMP	Constant-price imports	Central Bank of Nigeria

Source: Authors' compilation based on Central Bank of Nigeria (CBN) reports 2025

3.2 Model Specification

To examine the long-run relationship between imports and economic performance, the analysis adopts a bivariate framework consistent with the Engle–Granger cointegration approach. The long-run equilibrium relationship is specified as:

$$\ln GDP_t = \alpha_0 + \alpha_1 \ln IMP_t + \varepsilon_t,$$

where $\ln GDP_t$ denotes real output, $\ln IMP_t$ represents real imports, and ε_t is the equilibrium error term capturing deviations from the long-run relationship. The coefficient α_1 measures the long-run elasticity of output with respect to imports. Cointegration is established if the residuals from this regression are stationary. However, it is important to note that the empirical analysis adopts a parsimonious bivariate time-series framework in order to isolate the relationship between imports and economic growth without imposing additional structural assumptions.

3.3 Unit Root Tests

Before cointegration analysis, the time-series properties of the variables are examined to avoid spurious regression. Given the persistent trends commonly observed in macroeconomic aggregates, stationarity is assessed using the Augmented Dickey–Fuller (ADF) and Phillips–Perron (PP) unit root tests.

The ADF test is based on the following specification:

$$\Delta Y_t = \beta_0 + \beta_1 t + \rho Y_{t-1} + \sum_{i=1}^{p} \gamma_i \Delta Y_{t-i} + u_t,$$

where $Y_t \in \{\ln GDP_t, \ln IMP_t\}$, t is a deterministic trend, and u_t is a white-noise error term. The null hypothesis of a unit root ($\rho = 0$) is tested against the alternative of stationarity. The PP test is used as a robustness check, allowing for heteroskedasticity and serial correlation in the error process. Variables that become stationary after first differencing are classified as integrated of order one.

3.4 Engle–Granger Cointegration Analysis

Given that both variables are integrated of the same order, the Engle–Granger two-step procedure is applied to test for the existence of a long-run equilibrium relationship between imports and economic output. In the first step, the long-run regression specified in Section 3.2 is estimated using ordinary least squares. The estimated residuals represent deviations from long-run equilibrium.

In the second step, the residuals are tested for stationarity using a residual-based ADF test of the form:

$$\Delta\hat{\varepsilon}_t = \delta\hat{\varepsilon}_{t-1} + \sum_{i=1}^{p} \theta_i \, \Delta\hat{\varepsilon}_{t-i} + \nu_t,$$

where $\hat{\varepsilon}_t$ are the estimated residuals from the cointegrating regression. Rejection of the null hypothesis of a unit root indicates cointegration between imports and output. The residual-based test is conducted without an additional intercept or trend, consistent with the Engle–Granger framework.

3.5 Error Correction Model

Conditional on evidence of cointegration, short-run dynamics and adjustment towards long-run equilibrium are analysed using an error correction model. The ECM captures both the short-run effects of changes in imports and the speed at which deviations from the long-run equilibrium are corrected. The model is specified as:

$$\Delta\ln GDP_t = \lambda_0 + \sum_{i=1}^{p} \lambda_i \, \Delta\ln GDP_{t-i} + \sum_{j=0}^{q} \delta_j \, \Delta\ln IMP_{t-j} + \phi \, ECM_{t-1} + \eta_t,$$

where $ECM_{t-1} = \hat{\varepsilon}_{t-1}$ is the lagged error-correction term. The coefficient ϕ measures the speed of adjustment and is expected to be negative and statistically significant if output adjusts towards the long-run equilibrium path following short-run disturbances.

3.6 Granger Causality Analysis

To examine the direction of causality between imports and economic performance, Granger causality tests are conducted within the error-correction framework. This approach allows a distinction between short-run predictive causality and long-run equilibrium adjustment.

The causality system is specified as:

$$\Delta\ln GDP_t = \sum_{i=1}^{p} \alpha_i \, \Delta\ln GDP_{t-i} + \sum_{j=1}^{q} \beta_j \, \Delta\ln IMP_{t-j} + \phi \, ECM_{t-1} + \epsilon_t,$$

$$\Delta\ln IMP_t = \sum_{i=1}^{p} \gamma_i \, \Delta\ln IMP_{t-i} + \sum_{j=1}^{q} \delta_j \, \Delta\ln GDP_{t-j} + \psi \, ECM_{t-1} + \mu_t.$$

Short-run causality is assessed through Wald tests on the joint significance of the lagged differenced terms, while long-run causality is inferred from the statistical significance of the error-correction term in each equation.

4. Results and Discussion

This section presents empirical evidence on the relationship between imports and economic growth in Nigeria using annual data for the period 1980–2024. The results are presented sequentially, beginning with descriptive statistics and progressing through stationarity testing, cointegration analysis, short-run dynamics, causality assessment, and post-estimation diagnostics. The discussion accompanying each stage interprets the findings in light of Nigeria's macroeconomic experience over the sample period.

4.1 Descriptive Statistics and Stylised Facts

Descriptive statistics provide an initial assessment of the scale, dispersion, and extremes of real imports relative to real economic output in Nigeria. In an economy characterised by

persistent import dependence and recurrent external constraints, understanding both the average behaviour and volatility of imports is essential for interpreting their potential growth effects. Table 2 presents summary statistics for real gross domestic product and real imports of goods and services over the period 1980–2024.

Table 2: Descriptive Statistics of Real GDP and Real Imports

Variable	Mean	Std. Dev.	Minimum	Maximum
Real GDP	312.4	103.2	118.6	512.9
Real IMP	96.1	54.7	24.3	182.6

Source: Authors' computation based on Stata output, 2025

The mean value of real GDP indicates a moderate average level of economic output over the sample period, consistent with Nigeria's long-run growth pattern amid structural change and population expansion. The standard deviation of 103.2 units suggests substantial variability in output, consistent with periods of expansion and contraction associated with oil price cycles, macroeconomic instability, and policy adjustments. The minimum real GDP value corresponds to earlier decades marked by lower productive capacity, while the maximum reflects more recent periods of higher output levels.

Real IMP (imports) exhibit a mean value of 96.1 units, underscoring the sizeable role of imported goods and services in supporting domestic consumption and production. The standard deviation of 54.7 units is large relative to the mean, indicating that imports have been highly volatile over time. This volatility reflects fluctuations in foreign exchange availability, exchange-rate movements, and shifts in trade and import policy. The minimum import value is consistent with episodes of import compression during periods of foreign exchange scarcity, while the maximum reflects phases of expanded import capacity associated with oil-revenue surges and more liberal trade regimes.

4.2 Unit Root and Stationarity Analysis

Before estimating the dynamic relationship between imports and economic growth, it is necessary to examine the time-series properties of the variables to avoid spurious regression. Macroeconomic variables such as output and imports typically exhibit persistent trends and structural shifts, making formal stationarity testing a prerequisite for meaningful inference. Augmented Dickey–Fuller and Phillips–Perron unit root tests are applied to the logarithmic series of real GDP and real imports, with intercept and trend specifications, to assess their order of integration.

Table 3: Unit Root Test Results (ADF and PP Tests)

Variable	Level ADF	Level PP	First Difference ADF	First Difference PP	Order
lnGDP	-2.11 (0.51)	-2.05 (0.55)	-4.87*** (0.00)	-5.02*** (0.00)	I(1)
lnIMP	-1.84 (0.69)	-1.79 (0.71)	-4.47*** (0.00)	-4.63*** (0.00)	I(1)

Source: Authors' computation based on Stata output, 2025. Note: *** denotes significance at the 1 per cent level. p-values are reported in parentheses.

The results indicate that both real GDP and real imports are non-stationary in levels, as the test statistics fail to reject the null hypothesis of a unit root under both the ADF and PP tests. This outcome is consistent with the presence of long-run trends in Nigeria's output and import series, driven by cumulative growth, population dynamics, policy regimes, and

external shocks. After first differencing, both variables become stationary at conventional significance levels, confirming that they are integrated of order one.

The consistency between the ADF and PP test results strengthens confidence in the integration properties of the series. While the ADF test accounts for serial correlation through lagged differences, the PP test provides robustness to heteroskedasticity and serial correlation in the error process. The finding that both variables are I(1) satisfies the necessary condition for testing for cointegration and supports the use of the Engle–Granger two-step procedure to examine the existence of a long-run equilibrium relationship between imports and economic growth in Nigeria.

4.3 Engle–Granger Cointegration Test

Having established that real GDP and real imports are integrated of order one, the next step is to test whether the two variables share a stable long-run equilibrium relationship. Cointegration analysis is appropriate in this context because it allows the identification of long-run relationships between non-stationary variables while avoiding spurious regression results. The Engle–Granger two-step procedure is adopted, given its suitability for a bivariate framework and its transparency in distinguishing long-run relationships from short-run dynamics.

In the first step, the long-run relationship between real GDP and real imports is estimated using ordinary least squares, with real GDP specified as the dependent variable. The estimated residuals from this regression capture deviations from long-run equilibrium. In the second step, these residuals are subjected to a unit root test to assess whether they are stationary. Stationarity of the residuals provides evidence of cointegration, implying that real GDP and real imports do not drift apart indefinitely but adjust around a stable long-run relationship.

Table 4: Long-Run Cointegration Regression (Dependent Variable: lnGDP)

Regressor	Coefficient	Std. Error	t-Statistic	p-value
lnIMP	-0.27***	0.07	-3.86	0.001
Constant	6.91***	0.33	20.94	0.000
R^2	0.78			

Sources: Author's estimation from cointegrating equation, 2025

The estimated coefficient on real imports is negative and statistically significant, suggesting an inverse relationship between imports and economic output in the long run. However, the interpretation of this coefficient is deferred to the next subsection, where the economic meaning of the long-run relationship is discussed in detail.

The residuals from the cointegrating regression are then tested for stationarity using an Augmented Dickey–Fuller test without intercept or trend, as recommended in the Engle–Granger framework.

Table 5: Residual-Based Unit Root Test for Cointegration

Test	Statistic	5% Critical Value	Decision
ADF (residuals)	-3.72**	-3.34	Cointegration

The null hypothesis of a unit root in the residuals is rejected at the 5 per cent significance level, indicating that the residuals are stationary. This result confirms the existence of a long-

run equilibrium relationship between real imports and real GDP in Nigeria over the period 1980–2024.

The presence of cointegration implies that imports and economic growth are linked by a stable long-run dependence structure, despite short-run fluctuations driven by exchange-rate movements, policy interventions, and external shocks. Importantly, cointegration in this context does not imply that imports promote growth; rather, it indicates that Nigeria's growth trajectory has been closely tied to import behaviour and the availability of foreign exchange over time. This finding provides the basis for estimating an error-correction model to analyse short-run dynamics and adjustment processes.

4.4 Long-Run Relationship Between Imports and Economic Growth

The estimated long-run relationship between real imports and real GDP indicates a negative and statistically significant association, with an import coefficient of approximately -0.27. This implies that, in the long run, increases in imports have been associated with lower levels of economic output in Nigeria. Importantly, this coefficient should not be interpreted as evidence that imports are inherently growth reducing. Rather, it reflects the structural conditions under which imports have interacted with Nigeria's growth process over the sample period.

The negative long-run coefficient is consistent with Nigeria's historical import structure, which has been dominated by consumption goods, refined petroleum products, and imported services, alongside capital goods whose productivity effects have often been weakened by infrastructure deficits and limited absorptive capacity. In such a context, sustained import expansion can generate demand leakage from the domestic economy and intensify pressure on external balances, and intensify foreign exchange pressures, particularly when export earnings and capital inflows are insufficient to finance rising import demand. Over time, these pressures can constrain output growth by limiting the availability of foreign exchange for productive investment and by exposing the economy to recurrent balance-of-payments adjustments.

The magnitude of the estimated coefficient suggests a moderate but economically meaningful long-run drag rather than a severe contractionary effect. This indicates that while imports have supported certain aspects of economic activity, their overall long-run interaction with growth has been shaped by external dependence and financing constraints. The result is therefore consistent with a growth process in which imports condition economic performance rather than act as a direct engine of expansion. In contrast to economies where capital-goods-dominated imports reinforce industrial upgrading, Nigeria's import profile appears to have limited the long-run growth contribution of external purchases.

The existence of cointegration alongside a negative long-run coefficient implies that Nigeria's growth trajectory and import behaviour have adjusted jointly over time within a stable dependence structure. This finding underscores that long-run growth outcomes cannot be analysed independently of import dynamics and foreign exchange availability. It also provides a basis for examining whether short-run dynamics and adjustment mechanisms differ from the long-run pattern, which is addressed through the error-correction model in the next subsection.

4.5 Short-Run Dynamics: Error Correction Model

Given the existence of a long-run equilibrium relationship between real imports and real GDP, an error correction model is estimated to examine short-run dynamics and the speed at

which deviations from long-run equilibrium are corrected. The error correction framework is particularly relevant in the Nigerian context, where shocks to imports arising from exchange-rate movements, foreign exchange availability, or policy interventions often generate temporary disequilibria that are gradually resolved over time.

The estimated error correction model relates changes in real GDP to short-run changes in real imports and the lagged error-correction term derived from the long-run cointegrating relationship. The results are presented in Table 6.

Table 6: Error Correction Model Results (Dependent Variable: ΔlnGDP)

Variable	Coefficient	Std. Error	t-Statistic	p-value
$\Delta \ln IMP_{(-1)}$	-0.12**	0.05	-2.31	0.026
$ECM_{(-1)}$	-0.29***	0.07	-4.18	0.000
Constant	0.03	0.02	1.49	0.143
$R^2 = 0.55$				
Durbin–Watson = 1.98				

The short-run coefficient on changes in imports is negative and statistically significant, indicating that increases in imports are associated with a reduction in output growth in the short run. This result is consistent with demand leakage effects and exchange-rate pass-through, where higher import expenditure reduces the domestic multiplier effect of aggregate demand and places pressure on the balance of payments. In an economy where imported consumption goods account for a large share of final demand, short-run import expansion can therefore dampen output growth rather than stimulate it.

The error-correction term is negative, statistically significant, and less than unity in absolute value, confirming that deviations from long-run equilibrium are corrected over time. The estimated coefficient of approximately -0.29 suggests that about 29 per cent of any disequilibrium between imports and output is eliminated within one year. The relatively slow speed of adjustment suggests the presence of policy lags, structural rigidities, and administrative responses such as import controls and foreign exchange rationing, which often delay full adjustment to external imbalances in Nigeria.

4.6 Granger Causality Analysis

To further examine the dynamic interaction between imports and economic growth, Granger causality tests are conducted within the error-correction framework. Granger causality is interpreted here in its predictive sense, indicating whether past values of one variable contain information useful for forecasting another, rather than implying structural causation. Incorporating the error-correction term allows a distinction between short-run predictive effects and long-run equilibrium adjustment.

Short-run causality from imports to economic growth is assessed by testing the joint significance of lagged changes in real imports in the growth equation, while long-run causality is inferred from the statistical significance of the error-correction term. Symmetric tests are performed to examine causality running from economic growth to imports.

Table 7: Granger Causality Results

Null Hypothesis	Test Statistic	p-value	Decision
ΔlnIMP does not Granger-cause ΔlnGDP (short run)	4.26**	0.021	Reject

ΔlnGDP does not Granger-cause ΔlnIMP (short run)	3.94**	0.028	Reject
ECM does not affect ΔlnGDP (long run)	-4.18***	0.000	Reject

The results indicate bidirectional causality between imports and economic growth in the short run. Changes in imports help predict output growth, while changes in output also predict import behaviour. This feedback relationship reflects Nigeria's income-driven import demand, where expansions in economic activity quickly translate into higher demand for imported consumption goods, intermediate inputs, and services. At the same time, fluctuations in imports influence output growth through demand leakage, exchange-rate pressures, and the availability of imported inputs.

The significance of the error-correction term in the growth equation provides evidence of long-run causality running from imports to economic growth. This finding implies that deviations from the long-run import–growth relationship are corrected through adjustments in output, reinforcing the interpretation of imports as a conditioning factor in Nigeria's growth process. In economic terms, persistent imbalances in import behaviour relative to output trigger adjustment mechanisms that affect long-run growth performance.

The causality results suggest that imports and growth are jointly determined in the short run, while imports exert a dominant influence in the long run through external dependence and balance-of-payments adjustment. This pattern differs from the export-led growth mechanism often observed in export-oriented economies, where unidirectional causality from exports to growth is often interpreted as evidence of demand-driven expansion. In the Nigerian case, the feedback between imports and growth underscores a development path characterised by import dependence, where growth episodes both rely on and reinforce external purchases.

4.7 Diagnostic and Model Adequacy Tests

Post-estimation diagnostic tests are conducted to assess the adequacy of the estimated error-correction model and the validity of statistical inference. The diagnostics focus on residual serial correlation, heteroskedasticity, normality, and overall model stability. The results are presented in Table 8.

Table 8: Diagnostic and Model Adequacy Tests

Test	Test Statistic	p-value	Conclusion
Breusch–Godfrey LM (Serial Correlation)	1.09	0.34	No serial correlation
Breusch–Pagan (Heteroskedasticity)	0.96	0.38	Homoskedastic residuals
Jarque–Bera (Normality)	1.72	0.42	Residuals normally distributed
Stability Test (Recursive residuals)	–	–	Stable coefficients

The diagnostic results indicate that the estimated model is well specified. There is no evidence of residual autocorrelation or heteroskedasticity, and the residuals are approximately normally distributed. Stability tests further suggest that the estimated coefficients are stable over the sample period, despite Nigeria's exposure to major

macroeconomic shocks and policy shifts. These outcomes support the reliability of the estimated long-run and short-run relationships between imports and economic growth.

4.9 Discussion of Findings

The empirical results indicate that imports have played a conditioning and, at times, constraining role in Nigeria's long-run economic growth over the period 1980–2024. The existence of a stable cointegrating relationship between real imports and real GDP suggests that Nigeria's growth trajectory has been closely linked to import behaviour over time. This long-run association reflects structural dependence rather than a growth-inducing mechanism, as imports and output adjust jointly within an external constraint shaped by foreign exchange availability and trade financing conditions.

The negative long-run coefficient on imports points to a growth-dampening effect that is consistent with Nigeria's historical import composition. A substantial share of imports has been directed towards consumption goods, refined petroleum products, and services, while the productivity-enhancing impact of capital goods imports has often been weakened by infrastructure deficits and limited absorptive capacity. Under these conditions, sustained import expansion can intensify demand leakage and place pressure on the balance of payments, thereby constraining output growth over time. The magnitude of the estimated coefficient suggests a moderate but persistent long-run drag, rather than an acute contractionary effect, indicating that imports have conditioned growth outcomes rather than determined them outright.

These findings are broadly consistent with earlier empirical studies on Nigeria's trade structure and import composition. Gabriel and Ojide (2014) report that imports dominated by consumption goods tend to exert weaker growth effects than imports of capital and intermediate goods. Similarly, Aisien and Ihensekhien (2019) find that capital goods imports contribute positively to economic growth in Nigeria, whereas imports of refined petroleum products exert adverse long-run effects. The negative coefficient on imports observed in this study therefore aligns with evidence that Nigeria's import structure has often limited the productive contribution of external purchases.

Short-run dynamics reinforce this interpretation. The error correction results show that increases in imports are associated with lower output growth in the short run, reflecting exchange-rate pass-through effects and the erosion of the domestic demand multiplier in an import-dependent economy. The relatively slow speed of adjustment towards long-run equilibrium indicates that external imbalances generated by import surges are resolved gradually, often through policy interventions such as foreign exchange rationing, import controls, and macroeconomic adjustment measures. This pattern is consistent with Nigeria's experience of episodic import compression following periods of external stress.

The findings also align with studies emphasising the role of import dependence and external constraints in shaping Nigeria's growth outcomes. Aigheyisi (2021) identifies a nonlinear relationship between import dependence and economic growth in Nigeria, showing that imports support growth only up to a threshold level, beyond which further reliance becomes growth reducing. Similar evidence is reported by Abinabo and Abubakar (2023), who find that imports exert a negative marginal effect on economic growth even when overall trade openness is growth supportive. These results reinforce the interpretation that Nigeria's growth performance remains strongly influenced by foreign exchange availability and external financing conditions.

The Granger causality results further clarify the nature of the import–growth relationship. Bidirectional short-run causality reflects income-induced import demand, whereby periods of economic expansion quickly translate into higher imports of consumption goods and production inputs. At the same time, imports exert predictive influence on growth through their effects on external balances and input availability. The presence of long-run causality running from imports to output underscores the role of imports as a conditioning factor in Nigeria's growth process, with persistent deviations from the long-run relationship triggering adjustment in output rather than in import behaviour.

5. Conclusion and Policy Recommendations

5.1 Conclusion

The findings of this study indicate that imports have not functioned as an engine of growth in Nigeria over the period under review. Instead, imports have acted as a conditioning factor that has often constrained long-run growth outcomes. The negative long-run relationship between imports and output reflects Nigeria's structural reliance on imported consumption goods and services, combined with recurrent foreign exchange constraints and limited domestic productive capacity. In this context, import expansion has tended to generate demand leakage and balance-of-payments pressures rather than sustained productivity gains.

At the same time, the results do not imply that imports are inherently harmful to economic growth. The presence of short-run feedback between growth and imports underscores the role of imports in meeting consumption needs and supporting certain production activities. However, without sufficient domestic capacity to absorb and transform imported inputs into higher value-added output, the growth benefits of imports have remained limited. Nigeria's experience therefore points to an import-dependent growth process rather than one in which imports actively support long-term economic expansion.

5.2 Policy Recommendations

The empirical evidence suggests that policy should focus on managing imports rather than imposing indiscriminate restrictions. Given the constraining role of imports in the long run, policies should aim to reduce excessive reliance on imported consumption goods while strengthening domestic productive capacity. Targeted support for sectors with strong backward and forward linkages can encourage import substitution in areas where domestic production is economically viable, thereby reducing demand leakage and easing pressure on foreign exchange reserves.

At the same time, imports of capital goods and essential intermediate inputs should be prioritised, particularly those that enhance productivity and support industrial development. Improvements in infrastructure, energy supply, and institutional quality would increase the absorptive capacity of the economy and enable imported inputs to translate more effectively into higher domestic output. Such measures would help move the import–growth relationship away from persistent external dependence toward greater domestic value creation.

Macroeconomic policies aimed at exchange-rate stability and effective foreign exchange management are also essential. Reducing vulnerability to external shocks would help moderate import volatility and improve the predictability of production conditions for domestic firms. A more balanced import structure, supported by coherent industrial and macroeconomic policies, can therefore reduce the growth-constraining effects identified in this study and contribute to a more sustainable growth path for the Nigerian economy.

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