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Growth Implications of Capital Formation in Nigeria: Evidence from a Disaggregated ARDL Analysis

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ABSTRACT

Capital formation is widely regarded as a key driver of economic growth, yet empirical evidence for Nigeria remains mixed. This study offers valuable insights into the growth implications of capital formation in Nigeria by disaggregating it into domestic savings, public investment, and private investment. Anchored in the Harrod–Domar growth theory, the study uses annual time-series data covering 1990 to 2023 from the Central Bank of Nigeria Statistical Bulletin, the National Bureau of Statistics, and the World Bank World Development Indicators. The analysis includes descriptive statistics, Augmented Dickey–Fuller unit root tests, and Autoregressive Distributed Lag (ARDL) model estimation, along with post-estimation tests. The ADF unit root test showed a mix of I(0) and I(1) series, necessitating the ARDL bounds testing approach. The bounds test confirmed a long-run relationship among the variables. The ARDL estimates showed that domestic savings had a positive and significant effect on real GDP growth in both the long run and the short run. This suggests that the composition and productivity of private capital in Nigeria, rather than its volume, limit its contribution to growth. Private investment, by contrast, had a significant negative long-run effect and an insignificant short-run effect. This suggests that the composition and productivity of private capital in Nigeria, rather than its volume, limit its contribution to growth. Public investment also has a negative long-run relationship with growth, though it is not statistically significant. This suggests persistent weaknesses in the planning, execution, and efficiency of public capital spending. The error correction term (−0.829) was negative and significant, indicating that about 83% of any disequilibrium is corrected within a year. Thus, we recommend that policymakers, especially the Central Bank of Nigeria, strengthen domestic savings mobilisation by deepening financial inclusion, especially in rural and informal sectors, through digital banking, microfinance, and agent networks.

INTRODUCTION

Capital formation is widely acknowledged as a critical growth enabler because it boosts a country's productive capacity through increased investment in infrastructure, human capital, and technology. For developing countries such as Nigeria, continuous capital accumulation is vital to accelerate economic growth, reduce unemployment, reduce poverty, and meet long-term development goals. Both Classical and Keynesian growth theories view capital accumulation as the main driver of economic expansion. The Harrod-Domar model, credited to Harrod (1939) and Domar (1946), formalises this idea by linking the growth rate to the savings ratio and capital-output ratio, suggesting that growth accelerates when more resources shift from consumption to investment and are used effectively. Solow's (1956) neoclassical model expanded this idea by incorporating diminishing returns to capital and treating technological change as an independent driver of growth. Later endogenous growth theorists such as Romer (1986) and Lucas (1988) reintroduced capital, specifically as knowledge and human capital, highlighting their importance in producing sustained, non-diminishing returns. Despite these advances, a fundamental concept persists: an economy must accumulate capital at an adequate rate to sustain long-term growth. This understanding has positioned capital formation as a central policy priority for developing nations seeking to escape low-growth equilibria (Todaro & Smith, 2020).

According to Sinclair (2025), capital formation plays a central role in economic life by influencing economic growth and stability. This is based on the understanding that, at any given moment, the level of investment, an important initial expense that also leads to further spending, is a critical factor in overall economic activity. Ishfaq *et al.* (2024) identify three gross fixed capital formation (GFCF) components that contribute significantly to GDP: the public, private, and general government sectors. This aligns with Poku, Opoku & Agyeiwaa-Ennin (2022), who argue that public expenditure is the surest means by which public authorities can meet citizens' collective needs, largely geared toward maintaining stability and stimulating rapid economic growth. Additionally, Onwiodiokit & Otolorin (2021) argue that capital accumulation increases national income, employment, the standard of living, and output. This highlights the broad macroeconomic implications of capital accumulation, especially in developing economies. As Africa's most populous country and a major economy, Nigeria represents a case for examining the link between

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capital formation and economic growth. Nigeria's growth over the past for decades has been largely inconsistent, witnessing rapid expansion during the oil boom of the early 1980s, a prolonged slow growth through the structural adjustment years, two recessions in less than a decade, especially in 2016 and 2020, and, more recently, a tentative recovery, with real GDP growth recorded at roughly 3.4 percent in 2024 and around 4.0 percent in 2025, following a series of macroeconomic reforms (National Bureau of Statistics, 2025; African Development Bank, 2026). Alongside this volatility, capital formation has also followed an irregular pattern. Nigeria's gross fixed capital formation (GFCF), as a percentage of GDP, fell from over 30% in the early 1980s to single digits by the mid-2000s, then recovered to above 30% since 2018 (World Bank, 2026). This study assesses whether the recent increase in capital formation has significantly accelerated growth. This extends well beyond academic interest, as successive Nigerian development plans have treated the mobilisation of domestic and foreign investment as a central pillar of economic policy, on the implicit assumption that higher capital formation will reliably translate into higher growth and, eventually, into poverty reduction and diversification away from oil dependence. As the next section's review of empirical studies shows, research on Nigeria yields mixed findings: some report a strong positive link between capital formation and growth, while others find the relationship weak, negative, or not statistically significant. This disagreement highlights that the connection between capital formation and economic growth in Nigeria is more complex than traditional growth models imply. It underscores the need for ongoing, detailed empirical investigation rather than assuming the issue is settled for policy purposes. It is within this context that the present study is situated. The study examines the impact of capital formation on economic growth in Nigeria. The remainder of this paper reviews the related literature, presents the methodology, and discusses findings and conclusions, with recommendations.

LITERATURE REVIEW

Theoretical Review

This study is anchored in the Harrod-Domar growth theory proposed by Harrod (1939) and Domar (1946), which extends Keynes's (1936) analysis into a dynamic setting. The theory assumes that savings are a constant proportion of national income and that all savings are invested. It also assumes a fixed capital–output ratio, indicating that capital and labour are used in fixed proportions. In this theory, investment plays two roles. On the demand side, it generates income through the multiplier. On the supply side, it expands the economy's productive capacity by adding to the capital stock. Thus, sustained growth requires that the income created by investment grows fast enough to absorb the extra capacity that investment creates. In the Harrod-Domar framework, the primary obstacle to economic growth and development in less developed countries is the comparatively low rate of new capital formation (Masoud, 2014). Accordingly, Lewis' (1954) model emphasised capital formation as key to development in a dual economy. His model shows the modern sector attracting surplus labour from traditional sectors at a steady wage, with profits reinvested to foster growth. Lewis believed the main challenge in development was understanding how an economy could shift from low to high savings and investment rates. He viewed capital formation as the core element of structural transformation. Chenery and Strout (1966) expanded the Harrod–Domar framework to include open developing economies. They suggested that growth might be limited not only by a savings gap but also by a foreign exchange gap (the gap between the required imports of capital goods and export revenues). Foreign capital inflows could help bridge whichever gap was most restrictive. This insight underpinned many developing countries' aid and external borrowing policies. Despite its contributions to economic literature, the Harrod-Domar model has been criticised for assuming fixed factor proportions. Todaro & Smith (2020) argue that the model treats savings as the binding constraint while overlooking absorptive capacity, institutional quality, and investment efficiency. Easterly (1999) further showed that the "financing gap" approach built on the model was a poor predictor of actual growth in developing countries.

Empirical Review

The literature has explored the growth implications of capital formation extensively. A large body of evidence from cross-country, developing-economy, and Nigerian studies finds that capital formation raises economic growth. For instance, Anthony and Wosu (2026) examined the association between gross fixed capital formation, the interest rate and economic growth in Nigeria from 1980 to 2024. They used ordinary least squares multiple regression, unit root tests, cointegration and the error-correction mechanism. The findings indicate that gross fixed capital formation, the maximum lending rate and the savings rate had positive and significant effects on GDP. The interest rate and the prime lending rate had negative and statistically insignificant links with GDP. The study supports the savings–investment channel of the Harrod–Domar model and the view that the cost of capital affects investment's contribution to growth. Thus, the study recommends enhancing gross fixed capital formation, the maximum lending rate and the savings rate, since they have positive and significant effects on gross domestic product in Nigeria. Similarly, Morina, Misiri, & Gashi (2023) examined how domestic investment influences growth in OECD countries from 2000 to 2020, using cointegration techniques. They found that domestic investment has a positive effect on growth, with long-term causality running between GDP and gross fixed capital formation. Esomnofu & Onyejegbu (2025) analysed the influence of capital formation, stock market capitalisation, human capital development, inflation, and interest rates on Nigeria's economic growth, utilising data

from the Central Bank of Nigeria's statistical bulletin. They used methods such as ordinary least squares, the Phillips–Perron stationarity test, Johansen cointegration, and an error correction model. Their results show that capital formation significantly and positively affected Nigeria's economic growth during the studied period. In a related study, Rikhotso & Zhanje (2026) examined eight Southern African Development Community (SADC) countries from 1994 to 2023 using Feasible Generalised Least Squares and the Cross-Sectional ARDL model to address cross-sectional dependence and heterogeneity. The findings indicate that gross capital formation had a significant positive effect on growth in both the short and long run. FDI had a weak and insignificant effect, possibly because of institutional and absorptive capacity constraints. Thus, the study recommends strengthening domestic investment mechanisms and upgrading energy infrastructure to create more opportunities for sustained economic growth.

In contrast, several studies find that capital formation negatively affects growth. For instance, Onwiodiokit & Otolorin (2021) re-examined the capital formation–growth relationship using Dynamic OLS on data from 1981 to 2018. They used infrastructure, health and skills competitiveness indices from the Global Competitiveness Reports to capture physical and human capital more precisely. The findings showed that gross fixed capital formation had a negative and significant effect on growth, challenging the conventional assumption and pointing to inefficiency in how Nigeria uses investment. Similarly, Amaegberi & Krokeyi (2025) disaggregated capital formation into physical and human components. They applied the Autoregressive Distributed Lag (ARDL) model to annual data from 1971 to 2023. The results showed that gross fixed capital formation had a negative short-run effect on real GDP growth and a positive but statistically insignificant long-run effect. Government recurrent spending on health and education, used as a proxy for human capital formation, had a negative and statistically significant long-run effect on real GDP growth. These findings align with Easterly's (1999) critique and the view that investment efficiency matters as much as its volume.

MATERIALS AND METHODS

Variable Description

This study uses the real gross domestic product growth rate as the dependent variable. It measures the annual percentage change in Nigeria's inflation-adjusted output and so captures real expansion in the economy's productive capacity. The explanatory variables are domestic savings, public investment, and private investment. Domestic savings is gross domestic savings, the share of household, corporate, and government income not consumed. It represents the internal resources available to finance investment and is expected to raise growth by enlarging the pool of loanable funds. Public investment is government capital expenditure on infrastructure such as roads, power, and public enterprises. It is expected to support growth by providing public goods that complement private activity, although inefficiency, corruption, and crowding-out tend to weaken its effect in Nigeria. Private investment is private-sector gross fixed capital formation in machinery, equipment, and buildings, or a proxy such as credit to the private sector. Because it is driven by profit motives and is generally more efficient and directly productive, it is expected to have a strong positive effect on growth.The data sources for these variables included the Central Bank of Nigeria (CBN) Statistical Bulletin, National Bureau of Statistics (NBS), and the World Bank World Development Indicators (WDI).

Model Specification

This study draws on the Harrod–Domar growth model and endogenous growth theory. Both theories contend that economic growth occurs when the capital stock increases, with this capital derived from savings and accumulated through public and private investments. On this basis, the real GDP growth rate is written as a function of domestic savings, public investment and

$$RGDPG = f(DOSV, PUIV, PRIV) \quad (1)$$

private investment, as shown below:

Expressing Equation 3.1 in econometric form and adding

$$RGDPG_t = \beta_0 + \beta_1 DOSV_t + \beta_2 PUIV_t + \beta_3 PRIV_t + \mu_t \quad (2)$$

an error term for factors included in the model gives:

Where RGDPG is the real gross domestic product growth rate; DOSV is domestic savings; PUIV is public investment; PRIV is private investment; β_0 is the intercept; β_1, β_2 and β_3 are the slope parameters to be estimated; μ_t is the error term; and t is the time dimension (years). Economic theory suggests that all three explanatory variables should increase growth, so $\beta_1 > 0$, $\beta_2 > 0$ and $\beta_3 > 0$.

The Autoregressive Distributed Lag (ARDL) model specification in its unrestricted error correction form is

$$\Delta RGDPG_t = \alpha_0 + \sum_{i=1}^{p} \alpha_{1i} \Delta RGDPG_{t-i} + \sum_{i=0}^{q_1} \alpha_{2i} \Delta DOSV_{t-i} + \sum_{i=0}^{q_2} \alpha_{3i} \Delta PUIV_{t-i} + \sum_{i=0}^{q_3} \alpha_{4i} \Delta PRIV_{t-i} + \lambda_1 RGDPG_{t-1} + \lambda_2 DOSV_{t-1} + \lambda_3 PUIV_{t-1} + \lambda_4 PRIV_{t-1} + \varepsilon_t \quad (3)$$

written as:

Where Δ is the first-difference operator; α_0 is the constant; α_1 to α_4 are the short-run coefficients; λ_1 to λ_4 are the long-run coefficients; p is the lag order of the dependent variable and q_1, q_2 and q_3 are the lag orders of DOSV, PUIV and PRIV, respectively, chosen using the Akaike Information Criterion (AIC); and ε_t is the error term. All other variables are as defined in Equation 3.2.

To test whether the variables move together in the long run, we run a bounds F-test on the lagged level variables. The null hypothesis of no cointegration, H_0: $\lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = 0$, is tested against the alternative that at least

one of these coefficients is not zero, H_1: $\lambda_j \neq 0$. If the F-statistic exceeds the upper critical value, reject the null hypothesis and conclude the variables are cointegrated. If it is below the lower critical value, the null hypothesis is not rejected. If it falls between the two values, no firm conclusion can be drawn. The short-run effects, and how quickly the model returns to its long-run path after a shock, are estimated with the error correction model

$$\Delta RGDPG_t = \alpha_0 + \sum_{i=1}^{p} \alpha_{1i} \Delta RGDPG_{t-i} + \sum_{i=0}^{q_1} \alpha_{2i} \Delta DOSV_{t-i} + \sum_{i=0}^{q_2} \alpha_{3i} \Delta PUIV_{t-i} + \sum_{i=0}^{q_3} \alpha_{4i} \Delta PRIV_{t-i} + \psi ECT_{t-1} + \varepsilon_t \quad (4)$$

(ECM), which is specified as follows:

The coefficient ψ (error correction coefficient) shows how much of the previous year's deviation from long-run equilibrium is corrected in the current year. Theoretically, for the model to return to equilibrium, ψ should be negative, statistically significant and between −1 and 0 ($-1 < \psi < 0$).

Method of Data Analysis

Method of Data Analysis

The data analysis is organised into five sections: descriptive statistics, unit root testing, the bounds test for cointegration, ARDL model estimation, and diagnostic tests on the estimated model. For each variable, descriptive statistics report the mean, median, maximum, minimum, standard deviation, skewness, kurtosis and the Jarque–Bera statistic. These show each series' average level, how much it varies, whether its distribution is symmetric, and whether it is normally distributed. Each variable is therefore tested for a unit root using the Augmented Dickey–Fuller (ADF) test (Dickey & Fuller, 1979, 1981). The null hypothesis is that the series has a unit root. If the ADF statistic is more negative than the 5 per cent critical value, the null is rejected and the series is stationary. A series stationary at level is I(0), and one stationary after first differencing is I(1). The bounds test of Pesaran *et al.* (2001) tests whether the variables have a long-run relationship. It is an F-test on the lagged level variables in the ARDL model, with the null hypothesis of no cointegration. If the F-statistic is above the upper critical bound, the variables are cointegrated. The ARDL model was estimated using least squares, which provides consistent long-run estimates once appropriate lag lengths are chosen (Pesaran & Shin, 1999). The lag lengths are selected using the Akaike Information Criterion. Several diagnostic tests confirm the modelis reliability. The Breusch–Godfrey LM test checks for serial correlation in the residuals (Breusch, 1978; Godfrey, 1978). It replaces the Durbin–Watson statistic, which is not valid when a lagged dependent variable is included. The Breusch–Pagan–Godfrey test checks whether the residuals have a constant variance (Breusch & Pagan, 1979; Godfrey, 1978b). The Jarque–Bera test checks whether the residuals are normally distributed (Jarque & Bera, 1987). The Ramsey RESET test checks whether the model has the correct functional form (Ramsey, 1969). For each of these four tests, a p-value above 0.05 means the model passes. Finally, the cumulative (CUSUM) test tests whether the coefficients remain stable over the sample period, which matters in Nigeria given its frequent oil price shocks and policy changes. The model is stable if the CUSUM plot stays within the 5 per cent critical lines (Pesaran & Pesaran, 1997).

RESULTS AND DISCUSSION

Descriptive Statistics

Table 1 summarises the distributional properties of the four variables over the 34 annual observations. Real GDP growth averaged 4.08%, ranging from −6.37% to 15.33%. Its standard deviation of 4.21 percentage points, roughly equal to its mean, reflects the marked volatility of Nigeria's growth performance, including episodes of recession. Domestic savings recorded the highest mean (34.87) and the widest dispersion (standard deviation of 13.56). Private investment averaged 20.12, more than twice the mean of public investment (8.17), indicating that private capital formation has, on average, been the larger component of investment over the period. Public investment is the most positively skewed series (0.73),

Table 1: Descriptive Statistics of the Variables

Statistic	RGDPG	DOSV	PUIV	PRIV
Mean	4.081	34.875	8.169	20.122
Median	4.275	34.615	5.416	19.108
Maximum	15.329	64.210	20.680	37.284
Minimum	−6.369	13.080	2.295	9.358
Std. Dev.	4.214	13.564	5.771	7.160
Skewness	0.105	0.286	0.732	0.392
Kurtosis	3.713	2.254	2.121	2.376
Jarque-Bera	0.782	1.254	4.129	1.424
Probability	0.676	0.534	0.127	0.491
Observations	34	34	34	34

Source: Author's computation using EViews 12 (2026).

Note. RGDPG = real GDP growth rate (%); DOSV = domestic savings; PUIV = public investment; PRIV = private investment.

with its mean well above its median (5.42), pointing to a few years of unusually high public capital spending. The results further showed that all four series are positively skewed. Real GDP growth is slightly leptokurtic (kurtosis = 3.71), while the other three series are platykurtic (kurtosis below 3). The Jarque-Bera probabilities all exceed 0.05; thus, we cannot reject the null hypothesis of normality for any series.

Unit Root Tests

The ADF test results in Table 2 show that real GDP growth is stationary at level. Its ADF statistic of −3.729 exceeds the 5% critical value of −2.954 in absolute terms ($p = 0.0081$), indicating that RGDPG is integrated of order zero, I(0). Domestic savings, public investment and private investment are non-stationary at level, since their ADF statistics are less than the critical value in absolute terms. However, each becomes stationary after first differencing and is therefore integrated of order one, I(1). Because the series are a mixture of I(0) and I(1) variables and none is integrated of order two, the Autoregressive Distributed Lag (ARDL) bounds testing approach of Pesaran, Shin and Smith (2001) is the appropriate estimation technique. The absence of I(2) variables is essential, because the critical values of the bounds test are valid only for regressors that are I(0), I(1) or a mixture of both.

Table 2: ADF Unit Root Test Results

Variable	ADF Statistic (Level)	ADF Statistic (First Difference)	5% Critical Value	Prob.	Order of Integration
RGDPG	−3.7295**	—	−2.9540	0.0081	I(0)
DOSV	−2.4239	−7.1369***	−2.9540	0.0000	I(1)
PUIV	−1.7738	−6.0897***	−2.9540	0.0000	I(1)
PRIV	−2.4771	−5.0513***	−2.9540	0.0003	I(1)

*Note. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively. Prob. refers to the MacKinnon (1996) one-sided p-value of the test at which stationarity is attained.*
Source: Author's computation using EViews 12 (2026).

ARDL Bounds Test for Cointegration

Table 3 presents the bounds test results. The computed F-statistic of 7.533 exceeds the upper bound I(1) critical value at the 5% level. Thus, we reject the null hypothesis of no long-run relationship. We conclude that a long-run equilibrium relationship exists among real GDP growth, domestic savings, public investment, and private investment in Nigeria over the study period. This finding justifies estimating both the long-run coefficients and the short-run error-correction dynamics of the ARDL model.

Table 3: ARDL Bounds Test for Cointegration

Test Statistic	Value	Significance Level	Lower Bound I(0)	Upper Bound I(1)
F-statistic	7.5329***	10%	2.370	3.200
k	3	5%	2.790	3.670
		1%	3.650	4.660

*Note. Null hypothesis: no levels relationship. k = number of regressors. *** denotes rejection of the null at the 1% level. Critical values are the asymptotic bounds of Pesaran, Shin and Smith (2001),*
Source: Author's computation using EViews 12 (2026).

Long-Run and Short-Run Estimates

The results showed that domestic savings have a positive long-run effect on economic growth. This finding is statistically significant at the 5% level, indicating that a percentage increase in domestic savings raises the real GDP growth rate by about 0.42 percentage points. The short-run coefficient is smaller but still positive and significant at the 5% level (0.228; $p = 0.0373$), implying

Table 4: ARDL Long-Run Estimates (Dependent Variable: RGDPG)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DOSV	0.4156***	0.1256	3.3091	0.0027
PRIV	−0.6229***	0.1510	−4.1263	0.0003
PUIV	−0.4001*	0.2197	−1.8213	0.0801
C	4.4230**	2.0418	2.1663	0.0396

*Note. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively. Source: Author's computation using EViews 14 (2026).*

that savings contribute to growth within the same year as well as over the longer term. These results align with the Harrod–Domar and neoclassical propositions and are consistent with Adelowokan and Maku (2022). The results further show evidence of a negative long-run effect of private investment on economic growth, statistically

Table 5: ARDL Short-Run Estimates and Error Correction Representation (Dependent Variable: D(RGDPG))

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(DOSV)	0.2284**	0.1040	2.1947	0.0373
D(PRIV)	−0.1188	0.1679	−0.7073	0.4857
ECT(−1)	−0.8292***	0.1448	−5.7254	0.0000
R-squared	0.5918		Adjusted R-squared	0.4976
F-statistic	6.2814		Prob(F-statistic)	0.0004
Durbin-Watson stat.	1.9671			

*Note. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively. ECT(−1) = lagged error correction term. Source: Author's computation using EViews 12 (2026).*

significant at the 1% level (p = 0.0003). Thus, a 1% increase in private investment is associated with about a 0.62% decrease in the growth rate. The negative long-run result diverges from theoretical expectations and from studies such as Esomnofu and Onyejegbu (2025). One possible explanation is the composition of private investment in Nigeria: a sizeable share may have been channeled into import-dependent, low-productivity, or speculative activities, while infrastructure deficits and institutional weaknesses depress returns on private capital. In the

Table 6: Summary of Post-Estimation Diagnostic Tests

Test	Null Hypothesis	Statistic	P-value	Decision
Breusch-Godfrey Serial Correlation LM	No serial correlation	0.1227	0.8850	No serial correlation
Breusch-Pagan-Godfrey Heteroskedasticity	Homoskedasticity	0.5418	0.7716	Homoskedastic
Jarque-Bera Normality	Residuals are normal	0.6345	0.7282	Normally distributed
Ramsey RESET	Correct specification	0.2660	0.6106	Correctly specified

Source: Authors' computation using EViews 12 (2026)

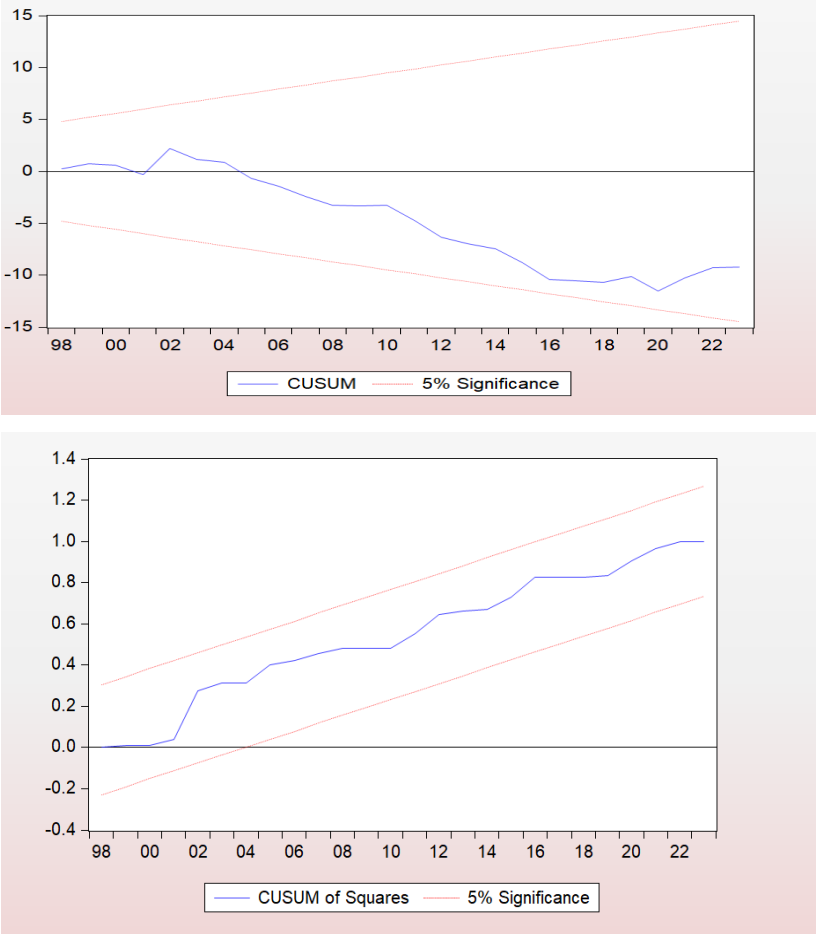


Figure 1: CUSUM of Squares (CUSUMSQ) Stability Test

short run, the coefficient on private investment remains negative (−0.119) but is not significant (p = 0.4857), indicating that the adverse effect builds up gradually rather than appearing immediately. Similarly, the long-run effect of public investment on economic growth is negative. Although this finding is not statistically significant at the 5% level, it suggests that public investments in Nigeria have not offered the intended opportunity for economic growth. Earlier studies such as Onwiodiokit and Otolorin (2021) and Afolabi (2023) on Nigeria attribute the weak growth impact of public capital spending to inefficiency, corruption, poor project execution, and the crowding out of private investment. The coefficient of the lagged error correction term, ECT (−1), is negative and significant at the 1% level (−0.829; p < 0.001), as theory predicts. This further supports the cointegrating relationship established by the bounds test. In terms of magnitude, the coefficient suggests that about 83% of any disequilibrium in growth is eliminated within a year, indicating a relatively quick return to the long-run path. In sum, the model accounts for about 59.2% of the short-run variation in economic growth, as shown in the R^2 (0.592), with the remainder attributable to factors outside the specification. The F-statistic of 6.281 (p = 0.0004) shows that the regressors jointly explain changes in economic growth during the study period.

The diagnostic results in Table 4.6 indicate that the estimated model satisfies the classical assumptions. The Breusch-Godfrey LM test (p-value = 0.8850) fails to reject the null hypothesis of no serial correlation, so the residuals show no autocorrelation. The Breusch-Pagan-Godfrey test (p = 0.7716) fails to reject the null hypothesis of homoskedasticity, implying a constant residual variance. The Jarque-Bera statistic (p = 0.7282) indicates that the residuals are normally distributed, supporting the validity of the t- and F-tests. The Ramsey RESET test (p = 0.6106) confirms that the model is correctly specified, with no evidence of omitted variables or functional form misspecification.

Parameter stability was assessed with the cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ) tests of Brown, Durbin and Evans (1975). As shown in Figures 4.1 and 4.2, both statistics remain within the 5% critical bounds throughout the sample period. The estimated ARDL model parameters are therefore stable, with no evidence of structural change over the study period, and the model is reliable for inference and policy analysis.

CONCLUSION

This study examined the relationship between capital formation and economic growth in Nigeria, with domestic savings, private investment, and public investment as the capital formation indicators and real GDP growth as the measure of economic performance. Using the ARDL bounds testing approach, the study found a long-run equilibrium relationship among the variables. The results show that the three components of capital formation affect growth differently. Domestic savings is the only component with a consistently positive and significant effect on growth, in both the short run and the long run. This supports the Harrod–Domar and neoclassical view that mobilizing domestic resources is central to sustained growth. Private investment, in contrast, has a significant negative long-run effect on growth, and its short-run effect is negative but insignificant. This suggests that the composition and productivity of private capital in Nigeria, rather than its volume, limit its contribution to growth. Public investment also has a negative long-run relationship with growth, though it is significant only at the 10% level. This suggests persistent weaknesses in the planning, execution, and efficiency of public capital spending. Given these findings, the study concludes that capital formation matters for Nigeria's growth, but its effect depends on the source and quality of capital. While savings are growth-enhancing, neither private nor public investment has delivered the expected gains in output growth. Thus, we recommend that policymakers, especially the Central Bank of Nigeria, strengthen domestic savings mobilisation by deepening financial inclusion, especially in rural and informal sectors, through digital banking, microfinance, and agent networks. Government at all levels should improve the efficiency and accountability of public investment while ensuring that public investment complements, not crowds out, private investment.

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