Relationships between Security Expenditure, Institutional Quality, External Shocks, Human Capital Development, and Economic Growth in Nigeria (1996Q1-2023Q4)

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Abstract

This study investigates the relationships between security expenditure, institutional quality, external shocks, human capital development, and economic growth in Nigeria (1996Q1-2023Q4). The analysis begins with unit root tests using the Augmented Dickey-Fuller method, confirming that all variables are stationary at the first difference. The Johansen cointegration test is then conducted, revealing at least two cointegrating relationship among the variables. The Vector Error Correction Model (VECM) estimates the model's parameters and the speed of adjustment toward equilibrium. The results indicate that the error correction term (ECT(-1)) has a negative coefficient of -0.025 and a significant probability value, implying that any deviations from the long-run equilibrium relationship between security expenditure, institutional quality, external shocks, and economic growth will be corrected by 2.5% in the next period. The results show a significant positive relationship between past economic performance and current economic growth in the short run. Institutional quality and political stability significantly impact economic growth. The interaction term between security expenditure and political stability also has a significant positive impact on economic growth, suggesting that the effectiveness of security expenditure in promoting economic growth is contingent upon political stability. On the other hand, external shocks shows significant negatively impact on Nigeria's economic growth. Based on the results, the study recommends that the government of Nigeria should prioritize a comprehensive approach to promote economic growth, focusing on optimizing security expenditures aligned with national priorities, enhancing institutional quality through judicial reform and anti-corruption efforts, promoting political stability through inclusive governance, and diversifying the economy to reduce dependence on oil and promote non-oil sectors

Keywords: Economic Growth, External Shocks, Institutional Quality, Security Expenditure

JEL Code: O40, H56, E60, E63

1. Introduction

The relationship between security expenditure, institutional quality, external shocks, and economic growth has become an important area of study in economics. This is because economic growth is the backbone of any nation's development, as it determines its citizens' standard of living, poverty levels, and overall well-being. Security expenditure is a critical factor that affects economic growth in several ways. On one hand, security expenditure can promote economic growth by reducing the

risk of conflict and promoting a stable business environment (Berebon, 2025). On the other hand, excessive security expenditure can divert resources away from essential public services and infrastructure, ultimately hindering economic growth (Nteegah, 2020).

In Nigeria, security expenditure has been a primary concern in recent years, with the government allocating significant resources to address issues such as terrorism, banditry, and kidnapping. According to the Nigerian National Bureau of Statistics report, in 2021 the defense budget stood at N966.4 billion, rose to N1.2 trillion in 2022, and N1.383 trillion in (NBS, 2023. The Defence budget in 2024 is N1.647 trillion, about 5.7 % of the 2024 budget. Similarly, in 2021, N455 billion was budgeted for the Police, N559 billion in 2022, and N838 billion in 2023. In 2024, the Police budget stands at N969.6 billion. Despite this significant amount being allocated, the economy's growth remains a significant concern, with Nigeria's GDP growth rate averaging only 2.1% between 2015 and 2024 below the population growth rate, resulting in a decline in per capita income (World Bank, 2024).

More so, institutional quality is also a critical factor that affects economic growth. Acemoglu and Robinson (2012) asserted that institutions that secure property rights, promote the rule of law, and ensure accountability and transparency are more likely to promote economic growth and development. In contrast, weak institutions can hinder economic growth by creating uncertainty, promoting corruption, and discouraging investment (Acemoglu and Robinson, 2012). According to the World Bank's Worldwide Governance Indicators (WGI), Nigeria's score on the control of corruption indicator has been consistently low, with a score of -1.04 in 2023, indicating a significant challenge in controlling corruption (World Governance Indicators [WGI], 2023). This statistic is attributed to the several cases of corruption in Nigeria, including the Dasuki arms deal scandal, which involved the alleged diversion of funds meant for the purchase of arms to fight the Boko Haram insurgency (Onyendi, 2025) and the P&ID case, in which a British Virgin Islands-based firm, Process & Industrial Developments Limited, obtained an arbitral award of $9.6 billion against Nigeria for a failed gas processing deal, which believe was a result of corruption and collusion (Nyanje, 2023).

Furthermore, external shocks, such as fluctuations in global oil prices, have significantly impacted economic growth in Nigeria. For instance, the decline in global oil prices in 2014 and 2020 led to a significant decline in Nigeria's government revenue, which affected the country's economic growth (Sule-Iko and Nwoye, 2023). Additionally, another significant determinant that influences

economic growth is human capital development. A country with a well-developed human capital base is more likely to experience economic growth and development, as a skilled and educated workforce can contribute to innovation, entrepreneurship, and productivity growth (Lucas, 1988). In Nigeria, human capital development has been a significant challenge. For instance, a study by Ibramin, (2025) asserted that investment in human capital in Nigeria in terms of government expenditure on education and health has been relatively low compare to what is obtained in advance countries. According to the World Development Indicators (2024), Nigeria's human development index score was 0.63 in 2023, indicating a poor quality of human capital development. Therefore, this study examines the relationships between security expenditure, institutional quality, external shocks, and economic growth in Nigeria from 1996Q1 to 2023Q4.

2. Literature Review

2.1 Conceptual Review

As defined by Dragomir (2023), security expenditure encompasses the total amount of financial resources dedicated to maintaining and enhancing a country's or organization's security apparatus. This includes funding for law enforcement agencies, military personnel, intelligence services, border security, cyber security measures, and other initiatives to protect against internal and external threats, maintain public order, and safeguard national interests.

According to North (1991), institutions are the social norms or limitations humans have created to influence one another. They are purposefully designed constraints that structure social, political, and economic interactions, consisting of official rules (such as laws, property rights, and customs) and informal restrictions (such as taboos, punishments, customs, traditions, and codes of conduct). The (WGI) evaluate institutional framework, including political stability, lack of violence, accountability, voice, control of corruption, government effectiveness, regulatory quality, and rule of law.

External shocks, as defined by Blanchard (2009) and the International Monetary Fund [imf](2018), are sudden and unforeseen events that occur outside the control of an economy or organization. They disrupt its normal functioning and have significant economic, social, or political consequences. These shocks can arise from various sources, such as global economic trends, natural disasters, political instability, or technological disruptions (Ahmed, 2003).

Finally, economic growth refers to the increase in the production of goods and services within an economy over a specific period, often quantified by the percentage change in Gross Domestic Product (GDP) (Erdal & Kabaklarlı, 2024). According to Challoumis (2024), economic growth can also be understood as a long-term process driven by key factors such as technological advancements, institutional development, and strategic investments in both human and physical capital.

2.2Theoretical Review

The study focuses on two theories, namely, the endogenous and exogenous growth theory. The Endogenous Growth Theory was propounded by Paul Romer (1986) and further developed by Robert Lucas (1988). This theory assumes that economic growth is driven by internal factors such as technological innovation, human capital, and institutional factors (Romer, 1986). In contrast, the Exogenous Growth Theory, also known as the Solow Growth Model, was developed by Robert Solow (1956). This theory assumes that economic growth is driven by external factors such as technological progress, population growth, and external shocks outside economic agents' control (Solow, 1956).

2.3 Empirical Literature

The relationship between security expenditure, institutional quality, external shocks, and economic growth has been extensively explored in the literature. For instance, Saeed (2025) examined the impact of military expenditures on economic growth in 133 countries from 1960 to 2022 and found that an increase in military expenditure of one percentage reduces economic growth by 1.10 percentage. Similarly, Geng et al. (2024) analyzed the impact of military expenditure on economic growth in 48 Islamic countries from 1990 to 2018. They revealed an adverse effect of military expenditure on economic growth, with a 1% increase in military expenditure leading to a 0.101% decrease in economic growth.

Moreover, Nugroho and Purwanti (2021) examined the impact of military expenditure on economic growth in 27 selected lower-middle-income countries from 2002 to 2018. They study found that military expenditure does not significantly influence economic growth but has a positive and significant influence when interacting with institutional quality.

In the context of Nigeria, several studies have investigated the impact of internal security expenditures on economic growth. Nwoye et al. (2024) investigated the impact of internal security

expenditure on economic growth in Nigeria from 1981 to 2021. The established that an increase in government capital expenditure on internal security led to a significant rise in Real Gross Domestic Product (RGDP) in both the short and long run. Furthermore, Chidinma and Inimino (2024) examined the relationship between government recurrent expenditure on internal security and economic growth in Nigeria from 1980 to 2022. The study revealed a long-run association among the variables, indicating that government recurrent expenditure on internal security has a positive but insignificant relationship with economic growth in Nigeria in the long run. Joseph et al. (2022) also investigated the impact of military expenditure on economic growth in Nigeria. They found that defense expenditure, internal security expenditure, and political stability index positively and significantly impacted economic growth in the long run.

On the other hand, numerous studies have also explored the relationship between institutional quality and economic growth. For instance, Jan et al. (2025) investigated the impact of institutional quality on inclusive growth in 91 developing countries from 2008 to 2021. The study found institutional quality's positive and statistically significant impact on inclusive growth. Similarly, Babajić et al. (2024) analyzed the influence of institutional quality on economic growth in 7 Western Balkan countries from 2008 to 2022. The study discovered a statistically significant positive relationship between institutional quality and economic growth.

Moreover, Pradhan et al. (2024) examined the temporal causal interactions among institutional quality, innovation, and economic growth in developing countries from 2005 to 2020. The study established long-run causality from institutional quality and innovation to economic growth. In the same vain, Duwal and Suwal (2024) conducted a comprehensive study on the relationship between institutional quality and economic growth in 18 Asian developing countries from 2013 to 2020. They revealed that sound money positively and significantly impacts economic growth.

In the context of Nigeria, several studies have investigated the impact of institutional quality on economic growth. For instance, Bisong et al. (2025) examined the effect of institutional quality and trade openness on Nigeria's economic performance from 1996 to 2022. The authors found a long-run relationship between governance, economic institutions, trade openness, and economic performance. Nwachukwu et al. (2024) investigated the institutional framework's impact on Nigeria's economic growth from 1996 to 2022 and revealed that labor force, research and development, and regulatory quality positively impact economic growth.

Furthermore, Emmanuel et al. (2024) explored the relationships between institutional quality, government expenditure, and economic growth in Nigeria from 1990 to 2022 and posit that government spending and institutions positively impact economic growth. Elisha et al. (2024) studied institutional quality's impact on Nigeria's economic growth from 1996 to 2022. They found that institutional quality has a positive but insignificant effect on economic growth. Yinusa et al. (2017) analyzed the relationship between institutional quality, financial development, and inclusive growth in Nigeria from 1984 to 2017. The study established that control of corruption and investment profile significantly impact inclusive growth.

2.3.1 Literature Gaps

Most studies have focused on the impact of security expenditure or institutional quality on economic growth in isolation. For example, Nwoye et al. (2024) and Chidinma and Inimino (2024) studied the impact of internal security expenditure on economic growth in Nigeria, while Bisong et al. (2025) and Nwachukwu et al. (2024) examined the impact of institutional quality on economic growth in Nigeria. Few studies have explored the dynamic relationships between these variables in a single study.

Furthermore, many existing studies on the impact of security expenditure on economic growth in Nigeria have focused on specific aspects of security expenditure. For instance, Nwoye et al. (2024) and Chidinma and Inimino (2024) focused on internal security expenditure, examining its impact on economic growth, while Moses et al. (2024) explored the impact of government defense and security expenditures on economic growth. These studies often overlook the impact of total security expenditure on economic growth, encompassing internal and external security spending. This narrow focus neglects the potential cumulative effects of total security expenditure on economic growth. Moreover, there are inconsistencies in the findings. Studies such as Saeed (2025) and Geng et al. (2024) found a negative relationship between military expenditure and economic growth, while Joseph et al. (2022) found a positive and significant impact of defense expenditure on economic growth in Nigeria. Similarly, Moses et al. (2024) found that government recurrent defense and internal security expenditures negatively and insignificantly impacted economic growth.

3. Methodology

This study employs an ex post facto design. This approach allows for examining existing data without experimental control or manipulation, providing insights into the associations between variables as they have naturally occurred. The data for the study were sourced from the CBN statistical report (2023), World Governance Indicators (WGI) 2023 report, and the Organization of Petroleum Exporting Countries (OPEC) 2023 report.

Furthermore, given the cointegration and I(1) nature of the variables in this study, the Vector Error Correction Model (VECM) is used to investigate the long-run and short-run relationships between the variables. More so, the theoretical framework for this study combines endogenous and exogenous growth models. The endogenous growth model proposed by Romer (1990) and Lukas (1988) focuses on internal factors that drive economic growth. These factors include human capital development, institutional quality, and innovation. In the Romer model, the production function is specified as:

$Y_t = AK_t^{\alpha}A_t^{\beta}$ ……1

Where: Y=is output, A=is a constant representing the initial level of technological progress, K=is the capital stock, A= is the level of technological progress, α and β are parameters representing the elasticity of output concerning capital and technological progress, respectively

In contrast, the exogenous growth model, as proposed by Solow (1956), emphasizes the role of external factors that affect economic growth. These external factors include shocks, trade and globalization, and foreign aid and investment. The Solow model can be represented mathematically as:

$Y = AK^{\alpha}L^{\beta}e^{gt}$…….2

Where: Y = Output, A = Total factor productivity (exogenous), K = Capital stock, L = Labor force, α = Capital share of output, β = Labor share of output, g = Rate of technological progress (exogenous), t = Time. This model emphasizes the role of external factors, such as technological progress and changes in the terms of trade, in driving economic growth.

3.1 Model Specification

The model for this study was inspired by an empirical study by Nteegah (2020), which provides a foundational framework for analyzing the relationship between security, social expenditures, and economic growth, as shown in the equation. 1.

$$RGDP = f\ (SEXP, EDEXP, HEXP) \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots .\ldots (3)$$

Where: RGDP =Real GDP, SEXP = Security Expenditure, EDEXP = Education expenditure, HEXP=Health expenditure.

However, the study introduced human capital development political instability and interaction term between security expenditure and political stability. The inclusion of political instability, human capital development, and the interaction term between security expenditure and political stability in the study is justified because these variables play critical roles in influencing economic growth. Political instability is included due to its potential to create uncertainty, discourage investment, and disrupt economic activities, ultimately affecting economic growth. Human capital development, encompassing education and health, is recognized for its role in enhancing productivity, innovation, and competitiveness, driving long-term economic benefits. The interaction term allows the study to capture the complex relationship between security expenditure and political stability, examining how the impact of security spending on economic growth may depend on the level of political stability. Moreover, the study merged education and health expenditures into a single variable, capturing institutional quality. This modification is represented in equation 4.

$$RGDP = f(\ SEXP\ NSTQ\ HCD\ POS\ EXSH\ SEXP * POS) \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots .\ldots \ldots \ldots ....4$$

Where LRGDP=Real GDP, LSEXP=Security Expenditure, INSTQ= Institutional Quality, LHCD=Human Capital Development, POS=Political Stability, EXS= External Shock LEXSH= External Shock, SEXP*POS=Interaction Term (product of Security Expenditure and Political Stability

The model is further expressed in econometric form as follows:

$$RGDP_t = \beta_0 + \beta_1 SEXP_t + \beta_2 \mathrm{INSTQ}_t + \beta_3 HCD_t + \beta_4 POS_t + \beta_5 EXSH_t + \beta_6 (\mathrm{SEXP} * \mathrm{POS})_t + \varepsilon_t \ldots 4$$

Where: β_0-β_6 =Parameters to be estimated, t=time trend, e=Error Term, others as stated in equation 4

The model for the study is also specified in VECM form as follows:

$$\Delta(RGDP)_{t-i} = \lambda_0 + \lambda_1 \Delta(RGDP)_{t-i} + \lambda_2\Delta SEXP_{t-i} + \lambda_3\Delta INSTQ_{t-i} + \lambda_4\Delta HCD_{t-i} + \lambda_5\Delta POS_{t-i} + \lambda_6\Delta EXSH_{t-i} + \lambda_7\Delta(SEXP*POS)_{t-i} + \delta ECT_{t-I+} \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 5$$

Where: $\lambda 0$-$\lambda 7$= Short Run Coefficients, ECT=Error Correction Term

Table 1 Summary of Variables

Variables	**Measurement**	**Apriori Expectation**
Dependent		
Real GDP	Proxy for Economic Growth (In billions ₦)	
Independent		
Government Security Expenditure	In billions ₦	Positive
Institutional Quality	Measured by the average value of the five indicators of institutions, namely, Government Effectiveness, Regulatory Quality, Control of Corruption, Rule of Law, and Executive Opinion	Positive
Human Capital Development	Proxy by government expenditure on education and health	Positive
External Shocks	Proxy by crude oil price	Negative/Positive
Political Stability	It is measured politically on a scale of 0-100	Positive
Interaction Term (SEXP*POS)	Product of Security Expenditure and Political Stability	Positive

Source: Author's Compilation (2025). Where: WGI=World Governance Indicators, CBN=Central Bank of Nigeria, OPEC=Organization of Petroleum Exporting Countries

4. Results and Discussion

4.1 Descriptive Statistics of the Variables

The descriptive statistics in Table 2 summarize the distributional properties of the variables employed in the analysis**.**

Table 2 Descriptive Statistics of the Variables

	LRGDP	LSEXP	INSTQ	LHCD	LEXSH	POS	SEXP*POS
Mean	10.743	5.281	9.781	5.615	3.882	6.607	7.134
Maximum	11.247	7.492	12.170	7.108	4.732	8.000	9.571
Minimum	10.024	2.729	4.170	3.985	2.479	4.000	4.115
Skewness	-0.454	-0.207	-1.042	-0.146	-0.497	-0.680	-0.343
Kurtosis	1.692	2.198	2.533	1.571	2.145	1.802	2.092
Jarque-Bera	2.957	0.950	5.321	2.481	8.021	3.835	1.511
Probability	0.228	0.622	0.070	0.289	0.018	0.147	0.470
Observation	112	112	112	112	112	112	112

Source: Authors' computation (2025) using EVIEWS 9. Where: LRGDP=Real GDP, LSEXP=Security Expenditure, INSTQ= Institutional Quality, LHCD=Human Capital Development, LEXSH= External Shock (proxy by crude oil price), POS=Political Stability, SEXP*POS=Interaction Term (product of Security Expenditure and Political Stability)

The results showed significant variation in the variables. Institutional Quality ranged from -4.170 to 12.170, Security Expenditure from 2.729 to 7.492, and Real GDP from 10.024 to 11.247. The skewness values were negative, indicating leftward skewness. The kurtosis values were below 3, indicating platykurtic distributions. The Jarque-Bera test revealed that most variables had P-values exceeding 5%, indicating normal distribution, except for Political Stability and the interaction term.

4.2 Unit Root Test of the Variables

The results of the unit root test, presented in Table 3

Table 3: Summary of Unit Root Test

Variables	Test Statistics at Level	5% Critical Value at Level	P Value at Level (5%)	Test Statistics at First Difference	5% Critical Value at First Difference	P Value at First Difference (5%)	Order of Integration
Phillips-Perron (PP) Unit Root Test							
LRGDP	-0.299	-3.451	0.990	-12.838**	-3.451	0.000	I(1)
LSEXP	-2.362	-3.451	0.397	-5.024**	-3.451	0.000	I(1)
INSTQ	-0.486	-3.451	0.982	-6.571**	-3.451	0.000	I(1)
LHCD	-2.703	-3.451	0.238	-5.422**	-3.451	0.000	I(1)
LEXSH	-1.855	-3.451	0.671	-4.982**	-3.451	0.000	I(1)
POS	-0.706	-3.451	0.970	-6.625**	-3.451	0.000	I(1)
SEXP*POS	-2.431	-3.451	0.362	-5.155**	-3.451	0.000	I(1)
Augmented Dickey-Fuller (ADF) Unit Root Test							
LRGDP	-0.918	-3.452	0.949	-3.901**	-3.452	0.047	I(1)
LSEXP	-0.458	-2.890	0.894	-3.911**	-2.891	0.032	I(1)
INSTQ	-1.593	-3.453	0.885	-4.786**	-3.453	0.042	I(1)
LHCD	-2.083	-3.454	0.549	-3.574**	-3.456	0.046	I(1)
LEXSH	-1.647	-3.454	0.767	-3.926**	-3.454	0.014	I(1)
POS	-1.239	-3.454	0.897	-3.699**	-3.454	0.039	I(1)
LSEXP*POS	-2.475	-3.455	0.340	-3.873**	-3.456	0.046	I(1)

Source: Authors computation (2025) using EVIEWS 9. Where LRGDP=Real GDP, LSEXP=Security Expenditure, INSTQ= Institutional Quality, LHCD=Human Capital Development, POS=Political Stability, LEXSH= External Shock (proxy by crude oil price), SEXP*POS=Interaction Term (product of Security Expenditure and Political Stability, * & ** indicate stationary at level & first difference respectively

The results for both the PP and ADF indicate that all the variables, namely Real GDP Security Expenditure, Institutional Quality, Human Capital Development, Political Stability, External Shock, and the interaction term between Security Expenditure and Political Stability (SEXP*POS), are non-stationary at their levels, as evidenced by the failure to reject the null hypothesis of a unit root at the 5% significance level. However, when the variables are differenced once, they become stationary, as indicated by the rejection of the null hypothesis of a unit root at the 5% significance level. The result is evident from the test statistics and the corresponding p-values, which are less than 0.05 for all variables at their first differences. Hence, all the variables are integrated of order one, denoted as I(1).

4.3 Lag Order Selection

The lag order selection table, presented in Table 4, evaluates the optimal lag length for the Johansen cointegration test and Vector Error Correction model.

Table 4: Lag Order Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1093.934	NA	1.686287	20.387	20.561	20.458
1	15.345	2054.221	5.02e-09	0.752	2.143	1.316
2	133.498	203.485	1.41e-09*	-0.527*	2.079*	0.529*
3	163.512	47.799	2.06e-09	-0.176	3.648	1.374
4	225.2075	90.257*	1.72e-09	-0.411	4.630	1.632

Source: Authors' computation (2025) using EVIEWS 9. NOTE: * indicates lag order selected by the criterion, LR: sequential modified LR test statistic (each test at 5% level), FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion, HQ: Hannan-Quinn information criterion.

The LR criterion selects a lag length of 4, as indicated by the significant LR test statistic value of 90.257. The FPE, AIC, SC, and HQ criteria also select a lag length of 2, as their values are minimized at this lag length. Most of the criteria support the selection of a lag length of 2. Therefore, based on most criteria, a lag length of 2 is selected for the VEC model.

4.4 Cointegration Test

Table 5 reports the results of Johansen cointegration tests using the Unrestricted Cointegration Rank Test (Trace)

Table 5: Cointegration Test for the Fourth Objective

Variables: LRGDP LSEXP INSTQ LHCD POS LEXSH SEXP*POS

Panel A: Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.439	167.102	111.780	0.000
At most 1 *	0.344	103.909	83.937	0.000
At most 2	0.228	57.895	60.061	0.075
At most 3	0.110	29.663	40.174	0.372
At most 4	0.093	16.846	24.275	0.321
At most 5	0.052	6.176	12.320	0.414
At most 6	0.002	0.264	4.129	0.667

Source: *Authors' computation (2025) using EVIEWS 9.* Where LRGDP=Real GDP, LSEXP=Security Expenditure, INSTQ= Institutional Quality, LHCD=Human Capital Development, POS=Political Stability, LEXSH= External Shock (proxy by crude oil price), SEXP*POS=Interaction Term (product of Security Expenditure and Political Stability.

From the results, the null hypothesis of no cointegration (r = 0) is rejected at the 5% significance level (trace statistic 167.102 > critical value 111.780). However, the null hypothesis of at most two cointegrating equations (r ≤ 2) cannot be rejected at the 5% level (trace statistic 57.895 < critical value 60.061; p-value 0.075 > 0.05). The result suggests there are at most two cointegrating relationships between Real GDP, Security Expenditure, Institutional Quality, Human Capital Development, Political Stability, External Shock, and the interaction term (SEXP*POS).

4.5 Long Run Cointegrating Coefficients

The long-run cointegrating coefficients are presented in Table 6.

Table 6: Long Run Cointegrating Coefficients

LRGDP	LSEXP	INSTQ	LHCD	EXSH	POS	LSEXP*POS
	0.776	0.563*	0.591	-0.018*	2.525**	1.256*
	(0.579)	(0.118)	(0.517)	(0.008)	(0.843)	(0.172)
	[1.30]	[4.771]	[1.143]	[2.250]	[2.995]	[7.302]

Source: *Authors' computation (2025) using EVIEWS 9*. LRGDP=Real GDP, LSEXP=Security Expenditure, INSTQ= Institutional Quality, LHCD=Human Capital Development, POS=Political Stability, LEXSH= External Shock (proxy by crude oil price), SEXP*POS=Interaction Term (product of Security Expenditure and Political Stability, ECT=Error Correction Term, * & ** indicate significance at 1% & 5% level respectively. Note: standard error in parentheses (), and t-statistics in [ ]

The long run results in Table 6 show that security expenditure (LSEXP) has an insignificant positive relationship with economic growth (LRGDP), with a 1% increase in security expenditure resulting in a 0.776% increase in economic growth, but the coefficient is not statistically significant (t-statistic = 1.30). In contrast, institutional quality (INSTQ) has a significant positive relationship with economic growth (LRGDP), with a 1 unit increase in institutional quality leading to a 0.563% increase in economic growth, and the coefficient is statistically significant at the 1% level (t-statistic = 4.771).

Moreover, human capital development (LHCD) has a positive but insignificant relationship with economic growth (LRGDP), with a 1% increase in human capital development resulting in a 0.591% increase in economic growth. However, the coefficient is not statistically significant (t-statistic = 1.143). External shocks (LEXSH) have a significant negative relationship with economic growth (LRGDP), with a 1% increase in external shocks resulting in a 0.018% decrease in economic growth, and the coefficient is statistically significant at the 5% level (t-statistic = -2.250).

Furthermore, political stability (POS) has a significant positive relationship with economic growth (LRGDP), with a 1 unit increase in political stability leading to a 2.525% increase in economic growth, and the coefficient is statistically significant at the 5% level (t-statistic = 2.995). The interaction term between security expenditure and political stability (LSEXP*POS) has a significant positive relationship with economic growth (LRGDP), with a 1% increase in the interaction term resulting in a 1.256% increase in economic growth, and the coefficient is statistically significant at the 1% level (t-statistic = 7.302).

4.6 Vector Error Correction Estimate

Table 7 presents the Vector Error Correction (VEC) estimates for the short run relationship between the variables and the error correction term.

Table 7: Vector Error Correction Estimate

DV=Δ(RGDP)	
ECT (-1)	-0.024454** (0.01132) [-2.16025]
Δ(LRGDP(-1))	0.239276** (0.09785) [2.44536]
Δ(LRGDP(-2))	0.418765** (0.09687) [4.32286]
Δ(LSEXP(-1))	0.013940 (0.05283) [0.26386]
Δ(LSEXP(-2))	0.005684 (0.05138) [0.11064]
Δ(INSTQ(-1))	0.026667** (0.01261) [2.11475]
Δ(INSTQ(-2))	-0.004130 (0.01042) [-0.39629]
Δ(LHCD(-1))	0.027185 (0.03805) [0.71442]
Δ(LHCD(-2))	0.048168 (0.03880) [1.24156]
Δ(LEXSH(-1))	-0.008265 (0.03257) [-0.25377]
Δ(LEXSH(-2))	-0.035234** (0.01741) [-2.02378]
Δ(POS(-1))	0.045944** (0.01955) [2.35007]
Δ(POS(-2))	0.024649 (0.10217) [0.24125]
Δ(LSEXP(-1)*POS(-1))	0.029244**

	(0.01376) [2.12529]
D(LSEXP(-2)*POS(-2))	-0.001972
	(0.02558) [-0.07710]
R Square=0.552719, F statistics=12	

Source: *Authors' computation (2025) using EVIEWS 9*. NOTE: Standard Errors are in parentheses ( ) and t. Statistics are in brackets [ ]. Where: LRGDP=Real GDP, LSEXP=Security Expenditure, INSTQ= Institutional Quality, LHCD=Human Capital Development, POS=Political Stability, LEXSH= External Shock (proxy by crude oil price), SEXP*POS=Interaction Term (product of Security Expenditure and Political Stability, ECT=Error Correction Term, * & ** indicate significance at 1% & 5% level respectively.

The results also indicated that the error correction term (ECT(-1)) has a negative coefficient of -0.025 and a significant probability value, confirming a long-run relationship between the variables. Specifically, the finding suggests that any deviations from the long-run equilibrium relationship between security expenditure, institutional quality, human capital development, political stability, external shocks, and their impact on economic growth will be corrected by 2.5% in the next period.

The results also indicated a significant positive relationship between the real GDP and lags of real GDP in the short run, suggesting that past economic performance has a profound impact on current economic growth. Specifically, the results showed that a 1% increase in LRGDP would lead to a 0.239% increase in economic growth at lag 1. On the other hand, the impact of security expenditure on economic growth in the short run is positive but insignificant at the 5% level, both at lag 1 and 2. Specifically, the results indicate that a 1% increase in security expenditure at lag 1 is associated with a 0.008% insignificant increase in economic growth.

Furthermore, the results showed a significant positive relationship between institutional quality at lag one and real GDP in the short run. The results showed that a 1 unit increase in institutional quality at lag one would lead to a 0.017% increase in economic growth. Similarly, the results indicated a significant positive relationship between political stability and real GDP at lag 1. The results showed that a 1% increase in political stability at lag 1 would lead to a 0.046% increase in economic growth. In the same vein, the results revealed a significant positive relationship between the interaction term (LSEXP_POS) and real GDP at lag 1, suggesting that the effectiveness of security expenditure in promoting economic growth is contingent upon political stability.

Conversely, the results also indicated that external shocks, as proxied by crude oil prices, significantly negatively impact economic growth in Nigeria. Specifically, the coefficient of the lagged external shock variable (LEXSH(-2)) is negative and statistically significant at the 5% level, indicating that a 1% increase in external shocks is associated with a 0.035% decrease in economic growth. More so, the results revealed an insignificant positive relationship between

human capital development and economic growth at lag 1 2. Specifically, the results showed that a 1% increase in human capital development at lag 1 would lead to a 0.028% increase in economic growth in Nigeria.

Finally, the R-squared value stood at 0.552719, indicating that the model explains approximately 55% of the variation in real GDP growth. The F-statistic of 12 suggested that the explanatory variables collectively significantly impact economic growth at a 5% level.

4.7 Diagnostic Tests

The diagnostic tests are presented in Table 8 and Figure 1

Table 8: Diagnostic Tests**:**

Panel A: VEC Residual Heteroskedasticity Tests		
Null Hypothesis: No heteroskedasticity		
Joint test:		
Chi-sq	Df	Prob.
501.7704	504	0.5197
Panel B: VEC Residual Serial Correlation LM Tests		
Null Hypothesis: No serial correlation		
Lags	LM-Stat	Prob
1	64.48633	0.0681
2	58.46314	0.1668
3	39.20561	0.8403
4	39.62426	0.8281

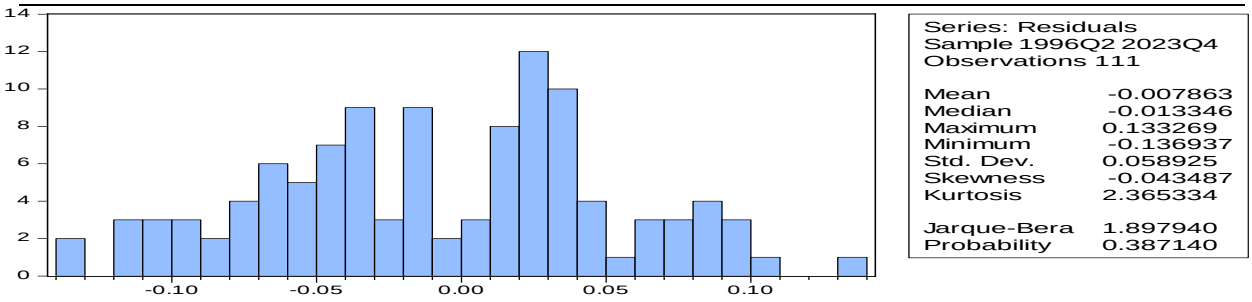

Figure 4.1: Jarque-Bera Normality Test
Source: Authors' Computation (2025) using EVIEWS 9

Panel A of Table 8 reports residual heteroskedasticity tests. The chi-squared statistic (501.7704 with 504 degrees of freedom) and a p-value of 0.5197 indicate that the null hypothesis of no heteroskedasticity cannot be rejected. The result suggests the residuals have constant variance. Panel B of Table 8 shows VEC residual serial correlation LM tests. For lag lengths 1 to 4, the

results (LM-statistic and p-values > 0.05) indicate that the null hypothesis of no serial correlation cannot be rejected. The result means there is no evidence of serial correlation in the residuals.

4.8 Discussion of Results

Economic theory posits that security spending should have a beneficial impact on Nigeria's economic growth. However, contrary to this expectation, the results show that the impact of security expenditure on economic growth is positive but insignificant at the 5% level both at lag 1 and 2. One possible explanation for this finding is Nigeria's ineffective or inefficient allocation of security expenditure. Corruption, mismanagement, and inefficiencies may divert a significant portion of security spending, negating its potential benefits for economic growth, which is particularly concerning, given the substantial resources allocated to security spending in Nigeria. In contrast with the findings of this study are the work of Nwoye et al. (2024) and Nteegah (2020), which found a positive and significant relationship between security spending and economic growth.

Furthermore, theoretical expectations suggest institutional quality is crucial in shaping economic growth outcomes. This expectation is based on the institutional economics literature, which argues that high-quality institutions are essential for promoting economic growth and development (Acemoglu & Robinson, 2012; North, 1990). The results of this study confirm this expectation, showing a significant positive relationship between institutional quality at lag one and real GDP. The findings of this study align with the well-established principles of institutional economics, which emphasize the critical role of high-quality institutions in driving economic growth and development. Numerous studies, including those conducted by Wandeda et al. (2021) and Ali (2022), have consistently shown that robust institutions are essential for fostering a favourable business environment, promoting economic stability, and attracting investments.

Political stability is theoretically considered a critical factor for sustainable development in Nigeria, as it enables the effective implementation of economic policies and promotes a stable and favourable business environment. The results of this study confirm this expectation, showing a significant positive relationship between political stability and real GDP at lag 1. This finding suggests that a stable political environment can stimulate economic growth by promoting investor confidence, reducing uncertainty, and encouraging long-term investment. This result is consistent with the existing literature, which emphasizes the importance of political stability for economic

growth. For instance, Zeeshan et al. (2022) found that political instability hurts economic growth by creating uncertainty and discouraging investment.

On the other hand, the results revealed an insignificant positive relationship between human capital development and economic growth at lag 1 and 2. One likely explanation for this finding is Nigeria's inadequate funding for education, healthcare, and other human capital development initiatives. This underinvestment has resulted in a shortage of skilled and productive workers, hindering significant economic growth. Nigeria's education sector, for instance, faces numerous challenges, including inadequate infrastructure, insufficient teacher training, and poor funding. Similarly, the country's healthcare system struggles with limited access to quality healthcare services, inadequate medical infrastructure, and a shortage of skilled healthcare professionals. This finding is consistent with the findings of Bekele et al. (2024) and Keji (2021), which found that human capital development is essential for economic growth but that inadequate investment in human capital can hinder economic growth.

Conversely, the results also indicated that external shocks, as proxied by crude oil prices, significantly negatively impact economic growth in Nigeria. Specifically, the coefficient of the lagged external shock variable (LEXSH(-2)) is negative and statistically significant at the 5% level, indicating that a 1% increase in external shocks is associated with a 0.035% decrease in economic growth. The significant negative impact of external shocks on economic growth in Nigeria can be attributed to the country's heavy dependence on oil exports. As a major oil-producing country, Nigeria's economy is highly vulnerable to fluctuations in global oil prices. When oil prices decline, Nigeria's government revenue decreases, reducing public spending, lowering economic activity, and slowing economic growth. Studies by Awolaja et al. (2024) and Adigun & Ogunleye (2021) found that external shocks, including oil price shocks, can significantly negatively impact economic growth in oil-dependent economies.

On the other hand, the results revealed a significant positive relationship between the interaction term (LSEXP_POS) and real GDP at lag 1, suggesting that the effectiveness of security expenditure in promoting economic growth is contingent upon political stability. This finding is consistent with the institutional theory by Acemoglu & Robinson (2012) that political stability provides a favourable environment for investment, innovation, and economic growth.

5. Conclusion and Recommendations

The study reveals that security expenditure has a positive but insignificant impact on economic growth in Nigeria, while institutional quality and political stability have significant positive impacts. Notably, the effectiveness of security expenditure in promoting economic growth is contingent upon political stability, as evidenced by the significant positive impact of the interaction term between security expenditure and political stability. This suggests that security expenditure can only translate to economic growth in a stable political environment. Conversely, external shocks have a significant negative impact on economic growth, highlighting the vulnerability of the Nigerian economy to external factors. These findings suggest that efforts to promote economic growth should focus on improving institutional quality, ensuring political stability, and diversifying the economy to reduce vulnerability to external shocks. Based on the results, the study suggests the following recommendation:

i. The government of Nigeria should prioritize optimizing security expenditures to make them more effective in promoting economic growth. This can be achieved by aligning security expenditures with national priorities and development goals, such as promoting stability and protecting critical infrastructure.
ii. The government should also focus on enhancing institutional quality, which can be achieved by promoting judicial reform, enhancing the capacity of law enforcement agencies, and ensuring that anti-corruption agencies are effective and independent.
iii. The government should also prioritize promoting political stability, which can be achieved by implementing measures such as inclusive governance, ensuring that all stakeholders are represented and have a voice in the decision-making process. Furthermore, the government can address the root causes of conflict and instability, such as poverty, inequality, and social injustice, by implementing policies and programs that promote economic development, social welfare, and human rights.
iv. The government should mitigate the impact of external shocks on the economy by implementing policies aimed at diversifying the economy, reducing dependence on a single industry or export commodity, and promoting economic resilience. This can be done by investing in infrastructure, promoting entrepreneurship and innovation, and supporting the development of non-oil sectors such as agriculture, manufacturing, and services.

References

Acemoglu, D., & Robinson, J. A. (2012). Why nations fail: The origins of power, prosperity, and poverty. Crown Publishers.

Ahmed, S. (2003). Sources of economic fluctuations in Latin America. IMF Working Paper.

Anam, B. E., Ijim, U. A., Ironbar, V. E., Otu, A. P., Duke, O. O., & Achuk Eba, M. B. (2024). Economic recovery and growth plan, economic sustainability plan, and national development plan (2021-2025): The Nigerian experience under President Muhammadu Buhari. *Cogent Social Sciences*, *10*(1), 2289600.

Babajić, A., Nurikić, M. B., Karabegović, N., and Nuhanović, A. (2024). Institutional Quality as a Determinant of Economic Growth: Analyzing GDP Trends in Western Balkan Countries. *Journal of Economics, Management and Trade. Doi*, *10*.

Berebon, C. (2025). The nexus between security, human development, and economic stability: Addressing insecurity as a threat to national growth in Nigeria. *Advances in Law, Pedagogy, and Multidisciplinary Humanities*, *3*(1), 28–47.

Bisong, A. E., Joshua, Y. B., Adofu, I., and Obadiah, G. (2025). Institutional Quality, Trade Openness, and Economic Performance: Evidence from Nigeria. International journal of research and innovation in social science (IDRISS), IX(II), 485-502

Blanchard, O. (2009). Macroeconomics (5th ed.). Pearson Prentice Hall.

Blanchard, O. J., & Quah, D. (1989). The dynamic effects of aggregate demand and supply disturbances. American Economic Review, 79(4), 655–673.

Chidinma, G. A. C., & Inimino, E. E. (2024). Recurrent expenditure on internal security and economic growth in Nigeria. *European Journal of Social Sciences Studies*, *9*(4).

Dragomir, A. (2023). Resources of the Security Concept. *Annals–Series on Military Sciences*, *15*(2), 13-34.

Duwal, N., and Suwal, S. (2024). Institutional quality and economic growth. *Uygulamalı Ekonomi ve Sosyal Bilimler Dergisi*, *6*(1), 13-31.

Elisha, J. A., Adofu, I., and Ogiri, I. A. (2024). Institutional quality and economic growth in Nigeria. POLAC economic review (PER), 4(1),124-135

Emmanuel, N., Usifoh, K. S., and Adu, M. J. (2024). Institutional quality, government expenditure, and economic growth nexus in Nigeria. *NG Journal of Social Development*, *13*(1), 1–19.

Erdal Tümer, A., & Kabaklarlı, E. (2024). Forecasting OECD countries' gross domestic product (GDP) based on digital transformation indicators: ANN approach. *EDPACS*, *69*(1),

Financial Times. (2013). Malabu oil scandal: Nigeria seeks $1.1bn from JP Morgan. Financial Times.

Geng, L., Abban, O. J., Hongxing, Y., Ofori, C., Cobbinah, J., Ampong, S. A., and Akhtar, M. (2024). Do military expenditures impede economic growth in 48 Islamic countries? A panel data analysis with novel approaches. *Environment, Development and Sustainability*, *26*(7), 18725-18759

Ibrahim, M. (2025). An analysis of the impact of human capital development on economic growth in Nigeria. *Journal Of Economics And Allied Research (JEAR)*, 374.

International Monetary Fund. (2018). World economic outlook: Challenges to steady growth

Jan, M., Baloch, A., and Yousaf, H. (2025). The Impact of Institutional Quality on Inclusive Growth in Developing Countries. *Journal of Development and Social Sciences*, *6*(1), 170–180.

Joseph, A. I., Abu, S. I., and Christian, L. (2022). Defense Expenditure and Economic Growth in Nigeria. *UMYU Journal of Accounting and Finance Research*, *4*(2), 101–115.

Lucas, R. E. (1988). On the mechanics of economic development. Journal of Monetary Economics, 22(1), 3–42.

Moses OUSEIBAI, S. G., & TOMBOFA, S. S. (2024). National Defence Expenditures, Internal Security Expenditures, and Real Economic Growth. *Ekonomik Yaklaşim*, *35*(132).

Nigeria National Bureau of Statistics (NBS). (2023). Annual Report. NBS

North, D. C. (1991). Institutions. Journal of Economic Perspectives, 5(1), 97–112.

Nteegah, A. (2020). Security Expenditure: Implications on Economic Growth in Nigeria," International Journal of Economics, Business and Management Studies, Online Science Publishing,7(2); 234–246.

Nugroho, D. A., and Purwanti, E. Y. (2021). Is the impact of military expenditure on economic growth encouraging or constraining? *JEJAK: Jurnal Ekonomi Dan Kebijakan*, *14*(1), 9-20.

Nwachukwu, E. U. (2024). Impact of Institutional Framework on Economic Growth of Nigeria (1996 to 2022). *International Journal of Research And Innovation In Social Science* (IJRISS) 8(1);1185-1198

Nwoye, C. O., Alexander, A. A., Saheed, Z. S., Bernard, O. A., and Ayodeji, S. (2024). Impact of internal security expenditure on economic growth in Nigeria. *International Journal of Intellectual Discourse*, *7*(1), 48–58.

Nyanje, J. (2023). Match fixing'in investor state arbitration: process & industrial developments limited v federal republic of Nigeria: John S Nyanje. *African Journal of Commercial Law*, *2*(1), 221-235.

Olatunji, H. (2024). Universal Basic Education (UBE) and life-skill experience in North-West Nigeria: A case for entrepreneurial education. *Journal of Educational Review*, *15*(1), 139-146.

Onyendi, G. C. N. (2025). National security challenges and Nigeria's international image perceptions, 1999-2023. *Multidisciplinary Journal Of Law, Education And Humanities*, *2*(1).

Pradhan, R. P., Arvin, M. B., Nair, M. S., Bennett, S. E., and Brem, A. (2024). Do innovation and institutional quality elevate economic growth? Empirical evidence from developing countries. *International Journal of Innovation and Technology Management*, *21*(02), 2450011.

Romer, P. M. (1986). Increasing returns and long-run growth. Journal of Political Economy, 94(5), 1002–1037.

Ross, M. L. (2015). What have we learned about the resource curse? Annual Review of Political Science, 18, 239–259.

Saeed, L. (2025). The impact of military expenditures on economic growth: A new instrumental variables approach. *Defence and Peace Economics*, *36*(1), 86–101.

Solow, R. M. (1956). A contribution to the theory of economic growth. Quarterly Journal of Economics, 70(1), 65-94.

Sule-Iko, S. S. S., & Nwoye, M. I. (2023). Effect of International Crude Oil Prices on Nigeria's Gross Domestic Product from 1985 to 2020. *Journal of Human Resource and Sustainability Studies*, *11*(1), 118–137.

Upadhaya, B., Soobaroyen, T., Ntim, C., Adhikari, P., Jayasinghe, K., Zalata, A., & Haque, F. (2024). To what extent do public financial management systems support fiscal transparency and public accountability?. PEFA RESEARCH PAPER SERIES, 1-87

World Bank. (2024). World Development Indicators 2024. World Bank.

World Bank. (2023). Worldwide Governance Indicators. World Bank.

World Governance Indicators. (2023). Control of Corruption Indicator. World Bank.

Yinusa, O. G., Aworinde, O. B., & Odusanya, I. A. (2020). Institutional quality, financial development, and inclusive growth: Asymmetric cointegration approach. International *Journal of Management, Economics and Social Sciences (IJMESS)*, 9(3), 182-205.