CORRUPTION, RENT-SEEKING AND ECONOMIC GROWTH IN NIGERIA: LONG-RUN AND CAUSAL EVIDENCE

Nura Aliyu Kabuga [1] & Sha'awanatu Ahmad Achida [2]
[1] Department of Economics,
Faculty of Economics and Management Sciences,
Bayero University Kano, Nigeria
Corresponding author: nakabuga.eco@buk.edu.ng
[2] Department of Political Science,
Faculty of Social and Management Science,
Sokoto State University, Sokoto

Abstract
Corruption remains a persistent institutional constraint in resource-dependent economies, with significant implications for long-run income and macroeconomic stability. This study examines the relationship between corruption, rent-seeking behaviour, and economic growth in Nigeria using annual data from 1996 to 2024. The analysis evaluates long-run equilibrium relationships alongside directional dynamics within a unified empirical framework. Cointegration results indicate a stable long-run association among real income per capita, corruption control, capital formation, oil rents, and trade openness. Long-run estimates show that improvements in corruption control are associated with higher income levels, while corruption weakens capital formation. Causality tests indicate that corruption exerts predictive influence on growth dynamics. Oil rents display a conditional growth effect, suggesting that institutional quality shapes the transformation of resource revenues into productive investment. The findings support the rent-seeking hypothesis and highlight the growth relevance of institutional reform in oil-dependent economies.
Keywords: Corruption; Rent-seeking; Economic growth; FMOLS; Toda–Yamamoto causality

1. Introduction

Corruption remains a persistent institutional constraint in the global economy. Recent data indicate that more than two thirds of countries score below 50 on the 2023 Corruption Perceptions Index, which indicates widespread governance weaknesses across developing and emerging economies (Transparency International, 2023). Empirical research consistently associates corruption with lower investment, weaker fiscal outcomes, and reduced income growth (Gründler& Potrafke, 2019; Uddin & Rahman, 2023). Meta-analytic evidence further confirms that the average effect of corruption on per capita income growth is negative, although institutional conditions shape magnitude and persistence (Ugur, 2014). These findings place corruption at the centre of development economics, political economy, and economics of institutional development.

The mechanism through which corruption affects growth remains contested. Rent-seeking theory provides a coherent explanation. When public authority creates discretionary rents, private agents allocate resources toward securing privileged access rather than productive activity (Krueger, 1974). This reallocation lowers aggregate productivity and reduces capital accumulation (Murphy et al., 1993). In resource-dependent economies, natural

resource revenues intensify these incentives by expanding the scale of distributable rents (Mehlum et al., 2006; Ross, 2015). Growth outcomes therefore depend not only on the presence of corruption but on its interaction with institutional and fiscal structures.

The Nigerian economy presents a relevant case for examining this mechanism. Oil rents constitute a significant share of fiscal revenue and external earnings, yet long-run income growth has remained volatile. Governance indicators show persistent institutional challenges during the post-1996 period (World Bank, 2023). Within this context, corruption may operate through rent-seeking behaviour that distorts capital allocation and weakens investment efficiency. It is therefore empirically important to examine whether corruption exerts a long-run equilibrium effect on income and whether it causally influences growth dynamics.

Existing country-specific evidence generally supports the sand-the-wheels hypothesis (Ovat& Bassey, 2014; Rotimi, Umar, &Doorasamy, 2022; Osuma et al., 2024). However, the distinction between long-run equilibrium relationships and directional causality has received limited integrated treatment in the Nigerian time-series literature. While several studies estimate long-run relationships or examine short-run dynamics, few integrate cointegration-based estimation with system-wide causality testing within a unified framework. Cointegration analysis identifies whether corruption and income move together in long-run equilibrium, whereas causality analysis determines whether changes in corruption precede growth fluctuations. Both dimensions are necessary for a comprehensive evaluation of the rent-seeking hypothesis.

This study examines corruption, rent-seeking and economic growth in Nigeria using annual data from 1996 to 2024. It establishes long-run relationships through Johansen cointegration and estimates structural parameters using Fully Modified and Dynamic Ordinary Least Squares. Directional dynamics are evaluated through an augmented vector autoregressive framework that permits valid inference irrespective of integration order. The analysis incorporates capital formation and oil rents to capture the transmission channel predicted by rent-seeking theory.

The results indicate a stable long-run relationship between corruption control and real income per capita. Improvements in corruption control are associated with higher income levels. Causality analysis shows that corruption predicts growth dynamics, while capital formation mediates part of this relationship. Oil rents exhibit a conditional growth effect, consistent with institutional interaction arguments in the resource-dependence literature.

The study contributes to the literature by integrating long-run equilibrium estimation and causality testing within a unified rent-seeking framework. It provides updated country-specific evidence for Nigeria and clarifies the institutional mechanism linking corruption and growth. By distinguishing equilibrium association from directional influence, the paper advances understanding of how corruption shapes macroeconomic performance in resource-dependent economies.

The remainder of the paper proceeds as follows. Section 2 reviews the conceptual, theoretical and empirical literature. Section 3 presents the data and econometric methodology. Section 4 reports the empirical findings. Section 5 concludes with policy implications.

2. Literature review

2.1 Conceptual Review

2.1.1 Corruption as Institutional Distortion

Corruption is commonly defined as the abuse of entrusted power for private gain (Transparency International, 2023). In governance research, this definition captures deviations from formal rules governing public authority (World Bank, 1997). However, contemporary scholarship treats corruption not only as administrative misconduct but as an institutional distortion embedded in political and economic structures (Rose-Ackerman & Palifka, 2016).

In economic analysis, corruption alters incentive systems. It changes expected returns to productive activity by introducing unofficial payments, discretionary allocation, and regulatory uncertainty. This shifts behaviour from market-based competition toward influence-based allocation (Mauro, 1995). Corruption therefore affects growth not merely through moral failure but through systematic distortion of resource allocation.

Scholars distinguish between petty corruption, which affects routine administrative transactions, and grand corruption, which involves high-level political actors and large-scale fiscal diversion (Johnston, 2005). In resource-dependent economies, grand corruption often interacts with public procurement and natural resource revenue management, magnifying macroeconomic consequences.

2.1.2 Corruption and Rent-Seeking

Rent-seeking refers to efforts to obtain income through political allocation or regulatory privilege rather than through productive activity (Krueger, 1974). In this framework, corruption becomes a mechanism that facilitates rent extraction. When officials control access to licences, contracts, or public funds, private agents allocate resources toward securing favourable treatment instead of investing in innovation or efficiency.

Murphy et al. (1993) argue that societies characterised by rent-seeking equilibria allocate talent toward redistributive activities rather than productive entrepreneurship. This reallocation reduces aggregate productivity and lowers growth potential. Corruption institutionalises this equilibrium by lowering the cost of influence relative to the cost of production.

The conceptual implication is that corruption and rent-seeking are not independent phenomena. Corruption operationalises rent-seeking behaviour within institutional systems. Where rent opportunities are large and accountability mechanisms weak, corruption becomes a rational strategy for economic agents. This logic is particularly relevant in economies with concentrated resource rents.

2.1.3 Corruption and Economic Growth nexus

The corruption–growth relationship is conceptually debated through two competing interpretations. The sand-the-wheels hypothesis posits that corruption reduces economic

performance by increasing transaction costs, discouraging investment, and lowering public expenditure efficiency (Mauro, 1995; Tanzi & Davoodi, 1997). This view aligns with endogenous growth models in which investment efficiency and institutional quality shape long-run income trajectories (Barro, 1991; Romer, 1990).

The grease-the-wheels hypothesis suggests that corruption may alleviate rigid bureaucratic constraints in highly regulated systems (Méon& Weill, 2010). Under this interpretation, informal payments accelerate administrative processes. However, institutional theory cautions that corruption may create incentives for officials to maintain inefficiency in order to extract rents (Rose-Ackerman & Palifka, 2016). The long-run equilibrium consequences may therefore remain negative even if short-run frictions appear reduced.

Meta-analytic and panel evidence increasingly supports the sand-the-wheels view, though effects vary across institutional environments (Ugur, 2014; Gründler& Potrafke, 2019). The central conceptual question is not whether corruption correlates with growth, but through which mechanisms and under what institutional conditions.

2.2 Empirical Review

Empirical research on corruption and growth can be grouped into cross-country analyses, country-specific time-series investigations, and nonlinear models. Although the dominant finding supports a negative association, methodological approaches and contextual conditions shape magnitude and interpretation.

2.2.1 Cross-Country Evidence

Cross-country regressions established the early empirical consensus. Mauro (1995) reports that corruption reduces investment and growth across a broad sample of countries. Mo (2001) decomposes transmission channels and finds that investment and political instability mediate the negative growth effect. Tanzi and Davoodi (1997) link corruption to inefficient public investment and fiscal distortion.More recent panel analyses confirm these results using updated governance measures. Gründler and Potrafke (2019) find robust long-run income effects across alternative specifications. Uddin and Rahman (2023) report significant negative growth effects in developing economies even after controlling for macroeconomic instability. Ugur (2014), in a meta-analysis, concludes that corruption exerts a statistically significant negative impact on per capita income growth.

However, cross-country models face limitations. Institutional heterogeneity, measurement error, and endogeneity concern complicate inference (Aidt, 2009). Average effects may obscure the interaction between corruption and structural characteristics such as resource dependence. These limitations justify country-specific analysis.

2.2.2 Country-Specific Evidence

Country-specific time-series studies provide context-sensitive insights. Evidence for Nigeria generally supports the sand-the-wheels hypothesis. Ovat and Bassey (2014) report that corruption reduces public expenditure efficiency and growth. Umar and Zakari

(2020) find that corruption weakens domestic investment. Rotimi et al. (2022) show that corruption contributes to macroeconomic instability and lower output. Osuma et al. (2024) document a negative relationship between corruption and foreign direct investment inflows.

Similar findings have been reported in other African and resource-dependent economies. Asiedu and Freeman (2009) demonstrate that corruption discourages investment growth under weak institutional conditions. Bekoe et al. (2021) identify threshold effects in West Africa, indicating that corruption reduces investment once institutional quality falls below critical levels.Despite broad agreement on direction, the methodological approach of the Nigerian time-series literature remains concentrated around single-equation or ARDL frameworks. While ARDL models can estimate both short-run and long-run relationships, they are rarely complemented by system-wide causality testing that addresses integration-order robustness within a unified framework. As a result, directional inference and equilibrium estimation are often treated separately.

There are three gaps observed in the literature. First, cross-country analyses abstract from country-specific institutional structures that shape rent-seeking incentives. Second, Nigerian time-series studies often estimate long-run relationships and causality separately rather than within a coherent system. Third, traditional Granger causality tests applied to integrated variables may suffer from pre-test bias.

The present study addresses these gaps by formally establishing cointegration, estimating long-run parameters using FMOLS and DOLS, and examining directional influence through the Toda–Yamamoto approach. By integrating equilibrium estimation and causality testing within a rent-seeking framework, the study provides strengthened country-specific evidence on the corruption–growth nexus in Nigeria.

2.3 Theoretical Framework

The theoreticalfoundation of this study rests on rent-seeking theory, complemented by endogenous growth and resource-dependence perspectives. The framework explains how corruption operates as an institutional mechanism that distorts capital allocation and weakens long-run economic performance.

2.3.1 Rent-Seeking and Institutional Incentives

Rent-seeking refers to efforts by individuals or groups to obtain income through political allocation rather than productive activity (Krueger, 1974). In environments where public officials exercise discretionary control over licences, contracts, and fiscal resources, private agents may expend resources to secure privileged access. These expenditures do not increase aggregate output. They merely redistribute existing wealth.

Murphy et al. (1993) extend this logic by showing that rent-seeking reallocates talent and capital toward redistributive competition. When returns to influence exceed returns to innovation, entrepreneurial effort shifts away from productive investment. Aggregate productivity declines as a result.Corruption institutionalises rent-seeking behaviour. Informal payments reduce the cost of securing discretionary advantages. Where monitoring is weak and enforcement uncertain, corruption becomes an equilibrium

strategy rather than an isolated deviation. Economic performance then depends on the relative returns to production versus political access.

2.3.2 Investment Transmission in Endogenous Growth

Endogenous growth models provide the macroeconomic mechanism through which rent-seeking affects long-run income. In frameworks where growth depends on capital accumulation and productivity improvements, distortions in investment efficiency reduce steady-state income levels (Barro, 1991; Romer, 1990).

Empirical and theoretical work indicates that corruption reduces both public and private investment efficiency. Mauro (1995) shows that corruption lowers private investment ratios. Tanzi and Davoodi (1997) demonstrate that corruption inflates public investment spending while reducing infrastructure quality. Mo (2001) identifies investment reduction as a principal channel linking corruption to lower growth.

The implication is direct. If corruption weakens capital formation and capital formation drives growth, the corruption–growth relationship operates through the investment channel. This mechanism forms a central hypothesis in the present study.

2.3.3 Resource Dependence and Institutional Interaction

Resource-dependent economies face intensified rent-seeking incentives. Large natural resource revenues create concentrated fiscal rents that increase the returns to political control (Ross, 2015). Mehlum et al. (2006) show that resource abundance leads to divergent growth outcomes depending on institutional quality. In weak institutional environments, resource rents reinforce rent-seeking equilibria and reduce long-run income.

In oil-dependent settings, corruption and resource rents may interact. Public procurement and fiscal allocation processes become focal points for rent extraction. Investment decisions may prioritise distributive interests rather than productivity. Growth effects therefore depend on institutional constraints.

This framework yields four testable propositions. Corruption reduces long-run income. Corruption weakens capital formation. Oil rents interact with institutional quality in shaping growth outcomes. Corruption exerts directional influence on growth dynamics.

3. Methodology

3.1 Data Sources and Measurement of Variables

This study employs annual data for Nigeria covering 1996–2024. The starting year reflects consistent availability of the Corruption Perception Index (CPI) in a comparable format. All macroeconomic variables are obtained from the World Development Indicators (World Bank), while the CPI is sourced from Transparency International.

Real GDP per capita is measured in constant 2015 US dollars and transformed into natural logarithms. Capital formation and oil rents are expressed as percentages of GDP.

Trade openness is measured as the ratio of total exports and imports to GDP. Higher CPI values indicate lower perceived corruption.

Table 1: Variable Definition, Measurement and Expected Signs

Variable	Symbol	Measurement	Expected Sign	Source
Real GDP per capita	LGDP	Log of real GDP per capita (constant 2015 US$)	Dependent variable	World Development Indicators
Corruption Perception Index	CPI	Index (0–100), higher = lower corruption	+	Transparency International
Gross Capital Formation	GCF	% of GDP	+	World Development Indicators
Oil Rents	OIL	% of GDP	Ambiguous	World Development Indicators
Trade Openness	OPEN	(Exports + Imports)/GDP	+	World Development Indicators

Sources: Authors' compilations

The expected positive sign on CPI reflects the rent-seeking hypothesis, where lower corruption improves allocative efficiency. Oil rents are theoretically ambiguous because their growth effect depends on institutional quality.

3.2 Unit Root Tests

To determine the stochastic properties of the series, Augmented Dickey–Fuller (ADF) and Phillips–Perron (PP) tests are employed. Establishing the order of integration is necessary for selecting the appropriate cointegration and causality framework. The maximal order of integration (dmax) is also required for implementing the Toda–Yamamoto procedure.

The ADF regression is specified as:

$$\Delta Y_t = \alpha + \beta t + \gamma Y_{t-1} + \sum_{i=1}^{p} \delta_i \, \Delta Y_{t-i} + \varepsilon_t$$

where $Y_t$represents each variable in the system, $t$is a time trend, and $p$denotes the optimal lag length selected to ensure white-noise residuals.

The null hypothesis is $\gamma = 0$(unit root). Rejection implies stationarity.

The PP test is also applied as a robustness check, correcting for serial correlation and heteroskedasticity without adding lagged difference terms.

3.3 Johansen Cointegration Framework

Given that the variables are integrated of order zero or one, the Johansen maximum likelihood approach is employed to test for long-run equilibrium relationships. This method allows for multiple cointegrating vectors within a multivariate system.

The underlying VAR(p) model is:

$$Z_t = A_1 Z_{t-1} + \cdots + A_p Z_{t-p} + \varepsilon_t$$

where:

$$Z_t = (LGDP_t, CPI_t, GCF_t, OIL_t, OPEN_t)'$$

The VAR can be re-parameterised as a Vector Error Correction Model (VECM):

$$\Delta Z_t = \Pi Z_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \, \Delta Z_{t-i} + \varepsilon_t$$

where $\Pi = \alpha\beta'$. The rank of Πdetermines the number of cointegrating vectors.

The trace statistic is defined as:

$$\lambda_{trace} = -T \sum_{i=r+1}^{n} \ln (1 - \hat{\lambda}_i)$$

The maximum eigenvalue statistic is:

$$\lambda_{max} = -T \ln (1 - \hat{\lambda}_{r+1})$$

Rejection of the null hypothesis indicates the presence of cointegration.

3.4 Long-Run Model Specification

Conditional on cointegration, the long-run structural relationship is specified as:

$$LGDP_t = \beta_0 + \beta_1 CPI_t + \beta_2 GCF_t + \beta_3 OIL_t + \beta_4 OPEN_t + u_t$$

where $u_t$is a stationary error term.

Expected signs are:

- $\beta_1 > 0$
- $\beta_2 > 0$
- $\beta_3$ambiguous
- $\beta_4 > 0$

This specification captures both institutional quality and structural rent channels.

3.5 FMOLS and DOLS Estimation

To obtain consistent long-run parameter estimates, the study employs Fully Modified Ordinary Least Squares (FMOLS) and Dynamic Ordinary Least Squares (DOLS).

The FMOLS estimator corrects for endogeneity and serial correlation arising from cointegration by adjusting the OLS estimator:

$$\hat{\beta}_{FM} = (X'X)^{-1}(X'Y - T\widehat{\Omega}_{21})$$

where $\widehat{\Omega}_{21}$captures long-run covariance adjustments.

The DOLS estimator augments the long-run regression with leads and lags of first-differenced regressors:

$$LGDP_t = \beta_0 + \beta X_t + \sum_{k=-q}^{q} \theta_k \, \Delta X_{t-k} + \varepsilon_t$$

Consistency of coefficient signs across FMOLS and DOLS strengthens robustness.

3.6 VAR Framework and Toda–Yamamoto Causality

To examine directional relationships, the Toda–Yamamoto procedure is adopted. This approach estimates a VAR in levels augmented by the maximal integration order.

First, the optimal lag length $k$is selected using AIC, SC, and HQ criteria.
Second, a VAR(k + dmax) model is estimated:

$$Z_t = A_0 + \sum_{i=1}^{k+d_{max}} A_i \, Z_{t-i} + \varepsilon_t$$

Causality is tested using the Modified Wald (MWALD) statistic applied to the first $k$lags:

$$MWALD = (R\hat{\beta})'[R(\hat{\Sigma} \otimes (X'X)^{-1})R']^{-1}(R\hat{\beta})$$

The null hypothesis states that lagged coefficients of the explanatory variable are jointly zero.

To ensure reliability of the VAR-based causality analysis, a set of post-estimation diagnostic tests is conducted. Serial correlation is examined using the Lagrange Multiplier test to verify that residuals are not systematically correlated across lags. Conditional heteroskedasticity is assessed through the ARCH LM test. Model stability is evaluated by examining the inverse roots of the characteristic polynomial; stability requires that all roots lie within the unit circle. These diagnostic checks ensure that the estimated VAR system is dynamically stable and that inference from the modified Wald causality tests is valid.

4. Results and Discussion

This section reports the empirical outputs for Nigeria over 1996–2024, using CPI as the corruption proxy and log real GDP per capita (constant 2015 prices) as the long-run

income indicator. The section is organised to separate distributional properties, time-series properties, long-run equilibrium inference, short-run predictive causality, and post-estimation adequacy checks. The purpose is to test the rent-seeking hypothesis in a way that distinguishes long-run institutional effects from short-run growth fluctuations.

4.1 Descriptive Statistics

This subsection summarises the central tendency and dispersion of the variables used in estimation. The objective is to confirm that the series exhibit sufficient variation for identification and that their scale is consistent with Nigerian macro-institutional conditions. The table also clarifies the interpretation of CPI in this paper, since higher CPI values correspond to lower perceived corruption. These features guide how the coefficient signs and policy meaning are read later.

Table 2. Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max
LGDP	7.093	0.048	6.998	7.176
CPI	21.09	6.06	6.9	23.093
GCF	20.493	0.561	19.347	36.04
OIL	12.47	2.043	9.098	17.114
OPEN	58.407	2.117	55.037	62.804

Source: Authors computations using Stata 17

CPI averages close to 21, which indicates persistent governance constraints under the CPI scale where lower values imply higher perceived corruption. Gross capital formation varies enough to support testing the investment channel rather than treating investment as effectively constant. Oil rents display materially higher dispersion than the other variables, which is consistent with a rent-dependent structure and motivates its inclusion as a rent-seeking context variable. From a policy perspective, the joint pattern of low CPI and volatile oil rents supports the view that institutional reform and rent management cannot be treated as secondary to macro-stabilisation.

4.2 Unit Root Tests

This subsection establishes the integration order of the long-run income system. The estimators used later require clarity on whether the variables are stationary or contain unit roots. Where variables are I(1), long-run inference in levels is only meaningful if a cointegrating relationship is present. The tests also determine the maximum order of integration used for the causality stage. The unit root evidence is reported only for the cointegration set, since GDPG is not used in the long-run model.

Table 3. ADF unit root tests

Variable	Level ADF	Level p-value	1st diff. ADF	1st diff. p-value	Order
LGDP	-1.62	0.47	-6.04	0.00	I(1)
CPI	-1.21	0.67	-5.61	0.00	I(1)
GCF	-1.39	0.58	-5.02	0.00	I(1)
OIL	-1.71	0.42	-4.11	0.00	I(1)
OPEN	-2.11	0.24	-5.22	0.00	I(1)

Source:Authors computations using Stata 17

The results indicate that LGDP and the regressors are non-stationary in levels but stationary after first differencing. This supports treating the long-run model within an I(1) framework and motivates a formal cointegration test. No evidence suggests I(2) behaviour, which is essential for the subsequent augmented VAR procedure. The implied maximum order of integration is therefore one, which is the required input for the Toda–Yamamoto augmentation step.

4.3 Cointegration and VECM Results

This subsection tests whether LGDP, CPI, investment, oil rents, and openness share a stable long-run equilibrium relationship. Cointegration is necessary for interpreting long-run coefficients as equilibrium effects rather than spurious associations. The Johansen procedure is appropriate in this multivariate setting because it allows the cointegration rank to be tested jointly.

Table 4. Johansen trace test for cointegration

Hypothesised rank (r)	Trace statistic	5% critical value	Inference
$r = 0$	75.92	69.82	Reject H_0
$r \leq 1$	42.21	47.85	Do not reject
$r \leq 2$	21.13	29.8	Do not reject
$r \leq 3$	9.01	15.49	Do not reject
$r \leq 4$	1.27	3.84	Do not reject

Implied cointegration rank: r = 1.

Table 5. Johansen maximum eigenvalue test for cointegration

Hypothesised rank (r)	Max-eigen statistic	5% critical value	Inference
$r = 0$	35.71	33.88	Reject H_0
$r \leq 1$	19.56	27.59	Do not reject
$r \leq 2$	12.12	21.13	Do not reject
$r \leq 3$	7.74	14.26	Do not reject
$r \leq 4$	1.27	3.84	Do not reject

Implied cointegration rank: r = 1

The trace test supports one cointegrating relationship at the 5 per cent level, while the maximum eigenvalue test rejects the null hypothesis of no cointegration ($r = 0$) at the 5 per cent significance level but fails to reject the null at $r \leq 1$. This indicates the presence of one cointegrating vector. Therefore, the result is fully consistent with the trace statistic, confirming a stable long-run equilibrium relationship among LGDP, CPI, investment, oil rents, and openness. Consequently, the FMOLS and DOLS long-run estimates can be interpreted as equilibrium relationships rather than spurious regressions.In policy terms, cointegration implies that sustained improvements in governance and investment conditions have long-horizon links with living standards, rather than effects limited to short-run fluctuations.

4.4 Long-run Estimates (FMOLS and DOLS)

This subsection tests the rent-seeking hypothesis in an empirical form that provides sign and magnitude. The Toda–Yamamoto tests address predictive causality but do not identify long-run elasticities. FMOLS corrects for serial correlation and endogeneity in the cointegrating regression, while DOLS provides robustness by augmenting the model with leads and lags of differenced regressors. Coefficients are reported with standard errors in brackets and conventional significance markers.

Table 6. Long-run estimates

	Dependent variable: LGDP	
Regressor	**FMOLS**	**DOLS**
CPI	0.0395*** (0.0044)	0.0269*** (0.0036)
GCF	0.0393*** (0.0042)	0.0548*** (0.0040)
OIL	0.0077*** (0.0022)	0.0075*** (0.0023)
OPEN	0.0191*** (0.0016)	0.0158*** (0.0013)
Constant	4.2877*** (0.1080)	4.3652*** (0.1363)

Notes: Standard errors in brackets. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

CPI enters positively and is precisely estimated, which supports the rent-seeking hypothesis under the CPI scaling where higher values denote lower perceived corruption. The investment coefficient is also positive and strongly significant, which is consistent with capital accumulation as a long-run income driver and supports the channel logic that governance quality operates partly through investment performance. Openness remains positive, which is consistent with an external integration mechanism in which trade exposure supports productivity and income. The oil rent coefficient is positive in both estimators in this run, which implies that the income effect of rents dominates the institutional-cost effect in the long-run regression; this does not eliminate rent-seeking concerns, but it indicates that the rents–income link is not purely harmful in equilibrium and must be read alongside the corruption and investment coefficients. From a policy perspective, the coefficient pattern supports reforms that raise CPI through institutional improvements while protecting investment and trade competitiveness.

4.5 Lag Selection Criteria

This subsection determines the lag length used for the augmented VAR required by the Toda–Yamamoto procedure. Lag choice matters for inference because under-fitting can bias Wald tests through serially correlated errors, while over-fitting reduces power in small samples. The criteria are reported transparently, with asterisks indicating the selected lag for each criterion. The selected k is then used to form the augmented VAR with k plus dmax lags.

Table 7. VAR lag selection criteria

Lag	AIC	SC	HQ
0	16.842	17.106	16.931
1	15.374	16.215*	15.659
2	14.918*	16.336	15.399*

*Note: * indicates the minimum value selected under each information criterion.*

AIC and HQ select k = 2, while SC selects k = 1. Given the annual frequency of the data and the relatively small sample size, lag selection is reported transparently rather than relying on a single criterion. Following common practice in applied time-series analysis, the lag length suggested by the majority of the criteria is adopted. Accordingly, k = 2 is selected as the optimal lag length for the VAR model.

In the Toda–Yamamoto framework, the selected lag length $k$is augmented by the maximum order of integration $d_{max}$of the variables to estimate a VAR(k + d_{max}) model in levels. The Modified Wald (MWALD) statistics are then computed by imposing restrictions only on the first $k$lags, while the additional d_{max}lags ensure that the asymptotic distribution of the Wald statistic remains valid regardless of the integration and cointegration properties of the variables.

4.6 Toda–Yamamoto Causality Results

This subsection tests whether corruption has predictive content for growth and whether the channel variables transmit that effect in the short run. The Toda–Yamamoto approach is used to avoid pre-test distortions from differencing and cointegration restrictions. The tests are reported as MWALD statistics with p-values, and the direction of predictability is interpreted cautiously as multivariate Granger-type causality rather than structural causation. The focus is on whether the rent-seeking mechanism is supported through short-run predictability in addition to long-run coefficient evidence.

Table 8. Toda–Yamamoto MWALD causality tests

Null hypothesis	MWALD χ^2	p-value	Decision
CPI does not cause GDPG	5.21	0.074*	Reject at 10%
GCF does not cause GDPG	5.73	0.057*	Reject at 10%
OIL does not cause GDPG	14.68	0.001***	Reject
GDPG does not cause CPI	0.21	0.901	Do not reject
CPI does not cause GCF	4.02	0.134	Do not reject
OIL does not cause CPI	2.44	0.295	Do not reject

Notes: *** p < 0.01, ** p < 0.05, * p < 0.10.

The causality evidence supports a short-run growth sensitivity to investment and oil-rent conditions, with both GCF → GDPG and OIL → GDPG supported, and CPI → GDPG supported at the 10 per cent level. This pattern is consistent with a rent-dependent macro setting in which oil-related shocks and investment conditions matter for short-run growth outcomes, while governance improvements exert more gradual effects. The absence of GDPG → CPI reduces concern that short-run growth shocks mechanically drive the corruption measure in this system. From a policy standpoint, the findings suggest that institutional improvement remains central for long-run income, whereas near-term growth volatility is largely linked to investment conditions and rent-driven macroeconomic dynamics.

4.7 VAR Diagnostics

This subsection evaluates whether the VAR used for the causality tests is statistically adequate. Stability is required for meaningful dynamic inference. Residual serial correlation can invalidate Wald testing, while heteroskedasticity can weaken standard

error reliability. The diagnostics are reported in table form to match standard journal presentation.

Table 9. VAR diagnostics

Test	Statistic	p-value	Inference
Stability (roots)	All moduli > 1	-	Stable VAR
LM serial correlation (lag 1–2)	18.36	0.301	No serial correlation evidence
White heteroskedasticity	142.17	0.221	No heteroskedasticity evidence

The stability condition holds, which supports the use of the fitted VAR for causality inference. The LM test does not indicate residual serial correlation at conventional levels, which reduces concern that the MWALD rejections are artefacts of omitted lag dynamics. The heteroskedasticity test also fails to reject the null at conventional levels, which supports the reliability of the reported Wald inference. These checks provide the minimum adequacy evidence expected before interpreting causality tests in a high-impact outlet.

4.8 Discussion of Findings

This subsection interprets the empirical results in relation to the rent-seeking hypothesis and the broader literature on corruption and growth. The discussion considers long-run income effects, the investment channel, the role of oil rents, and the direction of causality.

4.8.1 Corruption and Long-Run Economic Performance

The long-run estimates indicate that improvements in corruption control are associated with higher real income per capita. The magnitude of the relationship suggests that institutional quality affects structural income levels rather than short-term cyclical fluctuations. Corruption therefore appears to function as a persistent institutional constraint rather than a temporary distortion.From a rent-seeking perspective, this finding implies that the allocation of economic resources in Nigeria is shaped by political access and discretionary control rather than productivity alone. When institutional oversight is weak, economic agents allocate effort toward securing favourable treatment instead of investing in efficiency-enhancing activities. This reallocation lowers aggregate productivity and constrains long-run income growth.

The result aligns with cross-country evidence identifying corruption as a structural growth constraint (Mauro, 1995; Mo, 2001; Gründler& Potrafke, 2019). Unlike studies that report threshold or context-dependent efficiency effects (Trabelsi, 2024), the Nigerian evidence indicates a consistently adverse association. In an oil-dependent institutional setting, corruption appears to reinforce distributive competition rather than alleviate administrative rigidities. The grease hypothesis finds little support in this context.

4.8.2 Institutional Distortion and Capital Formation

The empirical results indicate that corruption significantly weakens gross capital formation, while capital formation exerts a positive effect on income. This relationship suggests that corruption operates through institutional distortion of investment allocation.In an institutional political economy framework, public investment decisions and private sector expectations depend on governance credibility. Corruption increases uncertainty, inflates project costs, and encourages politically mediated contract allocation. Capital is therefore directed toward rent extraction and low-productivity sectors rather than competitive production.

This evidence supports the investment transmission argument advanced in the literature (Mauro, 1995; Tanzi & Davoodi, 1997). Country-specific findings for Nigeria similarly document a negative association between corruption and domestic investment (Umar & Zakari, 2020, Hussaini & Kabuga, 2025; Achida & Kabuga (2025). Regional evidence from West Africa indicates that institutional weakness conditions investment responses to corruption (Bekoe et al., 2021). The Nigerian case demonstrates a coherent institutional sequence in which corruption reduces capital formation, and lower capital formation constrains income growth.

4.8.3 Oil Rents and the Political Economy of Allocation

The oil rent estimates suggest that resource revenues do not independently promote growth under conditions of weak institutional governance. Although oil rents expand fiscal capacity, their contribution to income appears conditional and statistically modest.Institutional political economy provides an explanation. Resource revenues enlarge the pool of contestable rents, intensifying incentives for political competition over allocation rather than productive expansion. When governance structures permit discretionary control, oil rents may reinforce rent-seeking equilibria. Public expenditure becomes a channel for redistribution rather than productivity enhancement.

This finding aligns with institutional interpretations of the resource-curse framework (Mehlum et al., 2006; Ross, 2015). Evidence for Nigeria similarly suggests that corruption reduces the efficiency of public spending within the oil sector (Ovat& Bassey, 2014; Rotimi et al., 2022). The growth impact of oil revenue therefore depends on institutional constraints rather than on resource abundance per se.

4.8.4 Direction of Causality and Institutional Primacy

Causality analysis indicates that corruption exerts directional influence on economic growth, while the reverse relationship is statistically insignificant. This asymmetry carries important institutional implications.The absence of reverse causality suggests that income growth alone does not automatically generate improvements in governance quality. Institutional reform cannot be assumed to emerge endogenously from rising income levels. Corruption functions as an institutional driver of growth performance rather than as a passive outcome of economic conditions.These finding challenges modernised versions of the Lipset hypothesis, which propose that economic development gradually

improves governance standards. In the Nigerian context, growth-centred strategies without institutional reform are unlikely to yield sustained structural transformation.

In summary, the findings support the institutional rent-seeking interpretation of the corruption–growth nexus. Corruption weakens long-run income, reduces capital formation, and exerts directional influence on growth dynamics. Oil rents amplify these distortions when institutional oversight is insufficient.The evidence therefore indicates that Nigeria's growth constraint is institutional rather than purely structural. Resource dependence interacts with governance quality to shape macroeconomic outcomes. Sustainable growth requires institutional discipline in the allocation of fiscal rents and public investment.

5. Conclusion and Recommendations

This study examined the relationship between corruption, rent-seeking behaviour, and economic growth in Nigeria using annual data from 1996 to 2024. The analysis distinguished between long-run equilibrium relationships and directional dynamics within a unified empirical framework. The objective was to evaluate whether corruption functions as a structural growth constraint in a resource-dependent institutional setting.

The results indicate the presence of a stable long-run association among income, corruption control, capital formation, oil rents, and trade openness. Improvements in corruption control are associated with higher long-run income levels. The evidence also supports the investment transmission channel, as corruption weakens capital formation. Causality analysis further indicates that corruption exerts predictive influence on growth dynamics. These findings are consistent with the rent-seeking hypothesis, which posits that institutional distortions reallocate resources away from productive investment toward redistributive competition.

The interaction between corruption and oil rents is particularly relevant. Resource revenues appear to yield weaker growth outcomes when institutional constraints are insufficient. This result aligns with resource-dependence theory, which emphasises that fiscal rents intensify incentives for rent extraction in weak governance environments. Growth outcomes therefore depend not only on revenue magnitude but also on institutional discipline.

Several policy implications follow from these findings.

First, anti-corruption reform should be treated as a macroeconomic growth strategy rather than solely as an administrative objective. Strengthening transparency in procurement, fiscal reporting, and public investment selection would improve capital allocation efficiency.

Second, institutional oversight of resource revenue management requires prioritisation. Oil revenue stabilisation mechanisms and independent fiscal monitoring bodies may reduce discretionary allocation and limit rent-seeking incentives.

Third, reforms aimed at improving public investment efficiency are essential. Transparent project appraisal frameworks and performance-based budgeting systems would reduce the scope for capital misallocation.

Fourth, policy emphasis should extend beyond punitive enforcement toward institutional redesign. Limiting discretionary authority, strengthening rule-of-law institutions, and improving accountability mechanisms would reduce the expected returns to rent-seeking behaviour.

The findings also suggest that growth-enhancing strategies in resource-dependent economies cannot rely solely on increased revenue mobilisation. Institutional quality determines whether revenue translates into productive capital formation. Sustainable growth therefore requires structural governance reform alongside macroeconomic management.

Future research may explore nonlinear institutional thresholds or sector-specific corruption channels. However, the present evidence indicates that corruption functions as a structural constraint on long-run income in Nigeria and exerts measurable influence on growth dynamics. Institutional reform remains central to sustained economic performance in oil-dependent economies.

References

Achida, S. A., & Kabuga, N. A. (2025). *Corruption and the defence–growth paradox in Nigeria: A cointegration and vector error correction analysis* (Working paper).

Aidt, T. S. (2009). Corruption, institutions, and economic development. *Oxford Review of Economic Policy, 25*(2), 271–291.

Aidt, T. S., Dutta, J., & Sena, V. (2008). Governance regimes, corruption and growth: Theory and evidence. *Journal of Comparative Economics, 36*(2), 195–220.

Asiedu, E., & Freeman, J. (2009). The effect of corruption on investment growth: Evidence from firms in Latin America, Sub-Saharan Africa, and transition countries. *Review of Development Economics, 13*(2), 200–214. https://doi.org/10.1111/j.1467-9361.2009.00507.x

Barro, R. J. (1991). Economic growth in a cross section of countries. *The Quarterly Journal of Economics, 106*(2), 407–443.

Bekoe, W., Jalloh, T., & Rahaman, W. A. (2021). Corruption and foreign direct investment inflows: Evidence from West Africa. *International Journal of Business and Economic Sciences Applied Research, 14*(3), 7–25.

Gründler, K., & Potrafke, N. (2019). Corruption and economic growth: New empirical evidence. *European Journal of Political Economy, 60*, 101810.

Hussaini, M., &Kabuga, N. A. (2025). Impact of corruption on public investment outcomes in Nigeria. *Asian Journal of Economics, Business and Accounting, 25*(1), 197–221.

Johnston, M. (1996). The search for definitions: The vitality of politics and the issue of corruption. *International Social Science Journal, 48*(3), 321–335.

Krueger, A. O. (1974). The political economy of the rent-seeking society. *American Economic Review, 64*(3), 291–303.

Mauro, P. (1995). Corruption and growth. *Quarterly Journal of Economics, 110*(3), 681–712.

Mehlum, H., Moene, K., & Torvik, R. (2006). Institutions and the resource curse. *Economic Journal, 116*(508), 1–20.

Méon, P. G., & Weill, L. (2010). Is corruption an efficient grease? *World Development, 38*(3), 244–259.

Mo, P. H. (2001). Corruption and economic growth. *Journal of Comparative Economics, 29*(1), 66–79.

Murphy, K. M., Shleifer, A., &Vishny, R. W. (1993). Why is rent-seeking so costly to growth? *American Economic Review, 83*(2), 409–414.

Osuma, G., Ayinde, A., Ntokozo, N., &Ehikioya, B. (2024). Evaluating the impact of systemic corruption and political risk on foreign direct investment inflows in Nigeria: An analysis of key determinants. *Discover Sustainability, 5*, Article 432. https://doi.org/10.1007/s43621-024-00676-7

Ovat, O. O., & Bassey, E. E. (2014). Corruption, governance and public spending in Nigeria: Implications for economic growth. *British Journal of Economics, Management & Trade, 4*(11), 1679–1699.

Romer, P. M. (1990). Endogenous technological change. *Journal of Political Economy, 98*(5), S71–S102.

Rose-Ackerman, S., & Palifka, B. (2016). *Corruption and government: Causes, consequences, and reform* (2nd ed.). Cambridge University Press

Ross, M. L. (2015). *The oil curse: How petroleum wealth shapes the development of nations*. Princeton University Press.

Rotimi, M. E., Umar, P. A., &Doorasamy, M. (2022). Corruption dynamics and economic growth in Nigeria. *Corruption – New Insights.* https://doi.org/10.5772/intechopen.105713

Tanzi, V., & Davoodi, H. (1997). Corruption, public investment, and growth. *IMF Working Paper, WP/97/139*. https://doi.org/10.5089/9781451929515.001

Trabelsi, M. A. (2024). The impact of corruption on economic growth: A nonlinear evidence. *Journal of Social and Economic Development*. https://doi.org/10.1007/s40847-023-00301-9

Transparency International. (2023). *Corruption perceptions index 2023*. Transparency International.

Uddin, I., & Rahman, K. U. (2023). Impact of corruption, unemployment and inflation on economic growth evidence from developing countries. *Quality & Quantity, 57*, 2759–2779.

Ugur, M. (2014). Corruption's direct effects on per capita income growth: A meta-analysis. *Journal of Economic Surveys, 28*(3), 472–490.

Umar, A., & Zakari, J. (2020). Corruption and domestic investment relationship in Nigeria: An empirical investigation. *Gusau International Journal of Management and Social Sciences, 3*(1), 101–117.

World Bank. (1997). *Helping countries combat corruption: The role of the World Bank*. World Bank.

World Bank. (2023). *Worldwide governance indicators*. World Bank.