

IMPACT OF CORRUPTION ON ECONOMIC GROWTH: EVIDENCE FROM SELECTED AFRICAN COUNTRIES

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Abstract

Corruption has a critical barrier to Africa's economic growth, costing the continent an estimated \$148bn annually. This study examined the impact of corruption on the economic growth while controlling for key macroeconomic variables including inflation, trade openness, investment, and oil rent over the period 2010–2024. In addition to a panel study of four African countries- Nigeria, Ghana, Rwanda, and Botswana- the study made a comparative analysis of these countries to examine the individual effects of corruption on economic growth of the respective countries. Preliminary investigation supported using the Pooled Ordinary Least Square (OLS) technique for the panel data while the simple OLS technique was used for the country-specific models. The results reveal that corruption is commonly significant at the panel level while statistically insignificant at the country-specific level. Furthermore, the comparative analysis shows that Nigeria had the highest corruption perception and that corruption impedes growth in Nigeria while for the other three countries with lower corruption perception, the findings indicate positive effect of corruption. The study therefore aligns with the inverted U-link theory that suggests a threshold relationship between corruption and growth. The study therefore recommends that African countries, and particularly Nigeria, should reduce corruption to its barest possible level by strengthening of anti-corruption institutions, enforce procurement transparency, and stabilize prices.

Keywords: Corruption, economic growth, grease-the-wheel, Threshold

Introduction

Within the last two decades, the menace of corruption has increasingly become one of the most entrenching threats to Africa's economic development. The nexus between corruption and stunted growth is well established in African political economy literature. Undeniably, corruption undermines institutions and perpetuates poverty. The African Union estimates that Africa loses over \$148 billion annually to corruption, equivalent to 25% of the continent's average GDP, with illicit financial flows, procurement fraud, and public sector graft draining resources needed for infrastructure, health, and education [United Nations Economic Commission for Africa, (UNECA,) 2018]. Amundsen (2019) stated that in the context of African states, 20–30% of public contract value is lost to kickbacks, delivering substandard infrastructure that imposes recurring maintenance costs on future budgets. Unfortunately, despite two decades of anti-corruption commissions, legislative reforms, and civil society advocacy, Transparency International's 2025

Corruption Perception Index (CPI) ranks 44 African countries below the global average, signaling a systemic failure to convert policy into performance.

According to the World Bank, Sub-Saharan countries can achieve up to 300% increase in their per capita income if they move from the 25th percentile to the 75th percentile mark in control of corruption. (World Bank, 2020). Conceited anti-corruption efforts have been made within the continent. Under Agenda 2063, the African Union targets a 50% reduction in illicit financial flows by 2030 and aspires to achieve capable institutions and transformed leadership (UNECA, 2018). Achieving this requires country-level evidence on what works and Africa also offers evidence that corruption is not immutable. Rwanda and Botswana present contrasting models of reform. Rwanda's post-2000 reforms combined e-procurement, mandatory asset declarations with verification, and specialized anti-corruption courts resulted to reduced bribery incidence from 36% to 6% in a decade. Hope and Chikulo (2017) attributed the success of Botswana to an independent Directorate on Corruption and Economic Crime, transparent diamond revenue management, and strong judicial enforcement, which together moved the country to 39th position in the transparency global index on the 2025 CPI. These cases suggest that institutional design, political will, and technology can disrupt corruption equilibrium (Hope, 2017; Amundsen, 2019)

Nigeria has also attempted similar anti-corruption reforms. The Treasury Single Account, Bank Verification Number policy, and Open Government Partnership which were introduced to enhance transparency are some examples of Nigeria's anti-corruption attempts. Despite these attempts, curbing corruption still remains an illusion, judging by the 3,785 convictions secured by the Economic and Financial Crime Commission between 2015 and 2023 [EFCC, 2024]. Reforms remain fragmented and politically vulnerable, with anti-corruption agencies subject to executive interference and courts lacking procedural efficiency (Adebayo, 2021). Ugwu and Eke (2022) further argue that Nigeria's federal structure creates "accountability gaps" where states have limited audit capacity, enabling subnational leakage of FAAC allocations. Thus, while tools exist, their alignment within a coherent National Integrity System is weak.

The Economic and Financial Crimes Commission (EFCC) estimates that Nigeria lost an average of ₦2.6 trillion annually between 2015 and 2024 to contract inflation, abandoned projects, and oil revenue diversion alone [EFCC, 2024]. Similarly, Rotimi, Obasanju and Lawal (2020) argued that oil revenue diversion in Nigeria between 2010 and 2019 accounted for 38% of total unremitted earnings, depriving the federation account of funds for health and education. The country reflects endemic corruption, having a CPI score of 26/100 and a transparency ranking of 145th out of 180 nations in the year 2025 (Transparency International, 2025). In addition, judicial delays erodes deterrence, thereby catalysing the corruption cycle to a suboptimal state where firms, citizens, and officials adapt to corruption as the norm, raising transaction costs across the economy (Ajayi, 2019; Adegbite, 2023).

Being Africa's largest economy with a GDP of \$477 billion, a population exceeding 220 million, and possessing the human and natural capital to drive continental growth, Nigeria's size and complexity makes it a critical test case. If corruption can be curtailed in a highly diverse, federal, resource-rich state like Nigeria, the model is replicable across Africa. Against this background, this study therefore examines the impact of corruption on economic growth in Nigeria, and further provides a comparative analysis with Ghana, Rwanda, and Botswana to draw policy-relevant insights on effective anti-corruption and growth strategies.

This paper is organized into five sections; section 1 is on Introduction, Section 2 focuses on review of related literature and empirical literature. Section 3 covers methodology while section 4 deals on result analysis and discussion, while section 5 is the conclusion and recommendation.

Conceptual Literature

The growth of an economy is typically measured using its Gross Domestic Product (GDP). GDP is the total value of all final goods and services produced within the physical borders of a country within an accounting year. Kerschner and O' Neill (2015) opine that healthy economies are those having Economic growth rate of not less than 2%. Lower growth rates are seen as causes of policy concerns, often resulting in designing policies aimed at stimulating investments. In recent times however, growth paradigms evolved beyond mere growth to include sustainability issues. Sustainable economic growth therefore became more relevant to policy makers who viewed sustainable economic growth as the ability to meet present needs without compromising the ability of future generations to meet their own needs. Devi (2023) maintains that sustainable growth requires integrating economic, social, and environmental dimensions to ensure that present growth is not achieved at the expense of future generations. This requires a multi-dimensional institutional framework which integrates sustainability principles into economic policies and decision-making processes. However, discuss and policy focus on sustainable growth have myopically emphasized ecosystem preservation while ignoring the ethical requirements of sound institutions, despite its significant effect on attaining sustainable growth. Syrmali, Sfakianakis and Agiomirgianakis (2023) emphasized that the strategic pillar for sustainable growth is a sound institutional quality. They maintained that sound institutions imply an environment devoid of inimical practices such as corruption

Drawing from a compendium of concepts in existing literature, it is apt to broadly conceptualize corruption as an embodiment of deviations from accepted moral norms, motivated by greed, the desire to retain or increase one's power, or perversely enough, by the desire to maintain a supposed greater good (Stapenhurst & Sedigh, 1999; Obasanjo, 2013; Umaru, 2020). Dikwa (2016) conceptualized corruption as any systematic vice associated with the derivation of undue gains and benefits. Transparency international (2025) conceptualized corruption as the abuse of entrusted power for private gain, manifesting as bribery, embezzlement, nepotism, and state capture. To Mbaku (2020), corruption is both a symptom and cause of "institutional decay" where formal rules are subordinated to informal networks of extractive bureaucracies and public office is treated as a means of private accumulation rather than service delivery.

Syrmali et al. (2023) opine that corruption is a socio-economic issue existing in all countries, though varying in terms of its intensity and complexity based on the structural conditions of individual countries. These structural conditions include bureaucratic tradition, political development and social history. They however stressed that corruption is more pronounced in less developed countries where institutions are weak, large income inequalities and inefficient social and government enforcement mechanisms exist. To Fhima, Nourira & Sekkat, (2023), the impact of corruption on sustainable development is regime-specific and dependent on the quality of governance. Djouadi, Zakane and Abdellaoui (2024) added that under certain circumstances of bureaucratic inefficiencies, strict regulations and in some economic contexts, corruption can potentially foster growth, particularly investment endeavors. On the other hand, UNECA (2018) maintain corruption is inimical to Africa's growth because Africa lost an average of \$148 billion annually to corruption, equivalent to 25% of the continent's average GDP; thereby draining resources needed for infrastructure, health, and education.

The main causes of corruption include Structural weaknesses of the public sector, the lack of competitiveness, inadequacies and inefficiencies in the exercise of governance (Uslaner, 2011). Countries with high-quality governance are expected to have lower levels of corruption (Alesina & La Ferrara, 2002). Corruption is, therefore, a symptom of failed governance and it is recognized as one of the greatest impediments to sustained economic growth. Countries focused on achieving sustainable economic growth planning regimented on to reduce corruption, therefore, requires setting up or strengthening mechanisms for exercising good governance (World Bank, 1992, Transparency International, 2020).

Theoretical Literature

Logical reasoning alludes corruption as a social malaise, inimical to social and economic well-being of any society. The Klitgaard (1988)'s theory, known as the "corruption formula," posits that corruption occurs when there is a monopoly of power, limited accountability, and ample discretion. According to Klitgaard, these three factors create an environment conducive to corrupt practices. The debate on whether a corrupt environment is growth-enhancing or growth-depressing has been of increasing concern and this has generated theoretical opinions on the effect of corruption on an economy. One of such opinion is the grease-the wheel or sand-the wheel hypothesis accredited to Leff (1964) and Huntington (1968). The sand-the-wheel perspective leans on the classical (traditional) position that development can best proceed through the policies of transparent government and sound bureaucratic processes. This perspective sees corruption as an economic problem deriving from the political, economic, and ideological interests of particular groups. On the contrary, the grease-the-wheel perspective argue that corruption acts as a decentralized mechanism for allocating scarce bureaucratic efficiency in countries plagued by inefficient, rigid or predatory bureaucracies. Corruption therefore compensates for institutional failures in such economies. The hypothesis argues that besides being an hedge against poor government policies, corruption can increase investment by reducing investors' fears about government policy. In addition, the hypothesis contend that corruption actually supports innovation since in a corrupt environment, economic innovations can be implemented without acquisition of political power. Proponents of the grease-the-wheel or sand-the-wheel theory opine that the effect of corruption on economic growth may not follow a linear trajectory. They contend that there is an inverted U threshold of corruption such that there is a positive relationship between corruption and growth below the threshold and a negative relationship between them above the threshold. The threshold level differs from country to country, depending on factors which include their level of development, institutional quality and political inclination (Aidt, Dutta & Sena, 2005).

Empirical Literature

Though common wisdom dictates that corruption is an impediment to growth and as such, does not require empirical validation, empirical studies however, reveal diverse outcomes in different countries. This has raised questions about whether corruption is a catalyst to growth, inimical to sustainable growth or has a threshold level. Consequently, research interest has been increasing since the last two decades as documented by Fayad (2023) who made a systematic review of 66 empirical studies on the impact of corruption on economic growth. The review revealed that the effect of corruption on growth varies according to the country's stage of economic development, political system, legal system and time period under consideration. An earlier systematic evaluation of the effect of corruption on growth conducted by Campos, Dimova and Saleh (2016) using 460 estimates from 41 studies revealed that despite publication bias, corruption has a negative effect on growth.

A confirmation of the negative impact of corruption on economic growth is the study done by Ertimi (2016) who used a cross-section of 14 OIC countries over the years 2003-2010. Results using economic freedom index (EFI). Grundler and Potrafke (2019) also confirmed a negative relationship by examining the nexus between corruption and economic growth using panel data for 175 countries over the period 2012-2018. In addition to confirming a negative effect, the results also revealed that the effect of corruption on economic growth is especially pronounced in autocracies. Densumite (2024) investigated the relationship between corruption and economic growth in 12 countries over 26 years using panel data spanning from 1995 to 2020. The results of the panel Dynamic Ordinary Least Squares (DOLS) and the panel Vector Error Correction Model

(VECM) estimations conducted show that corruption generates a negative effect on economic growth.

For Peru, Coayla (2022) analysed the association and causality between corruption, political polarization, economic growth, and income inequality over the period 1998-2020. The results point to a significant negative correlation between corruption and economic growth. Despite the seeming unanimity in these results, Grundler *et al* (2019), Densumite (2024) and Coayla (2022) independently suggested the existence of threshold effects of corruption on economic growth, recommending further studies in that line. A fair number of threshold studies are contained in extant literature. One of the significant threshold studies is that of Djouadi, Zakane, and Abdellaoui (2024) who investigated the relationship between corruption and growth using a panel study of 23 Asian and African countries (1996-2019) based on the assumption that the influence of corruption on economic growth may not follow a linear trajectory. Their findings indicate an inverted U link between corruption and growth and suggested a threshold of 0.2228, where corruption in these counties has a beneficial impact on growth and a harmful impact above it.

Empirical results obtained using data on Nigeria are inconclusive. Adopting the the Classical Linear Regression Model (CLRM) Adewuyi (2021) scrutinized the extent to which corruption have undermine economic growth using data spanning from 1999 to 2016. The result established a significant positive relationship between corruption and economic growth. On the other hand, Njoku, Mbionwu and Njoku (2025) found no significant relationship between corruption and sustainable development in Nigeria from 2015 to 2023 employing qualitative approach. The Auto-regressive Distributed Lag (ARDL) results of Briggs and Boma (2026) heightened the controversy by revealing a strong negative and statistically significant effect of corruption on GDP growth.

Using Nigeria, Ghana and Benin Republic for their panel study, Onimisi, Rafatu, Ahmed & Momoh (2025) established positive effect of corruption on economic growth, thereby supporting the grease the wheel hypothesis of corruption. For Ghana, Awadzie (2021) found an insignificant and negative relationship existing between corruption and economic growth using multiple regression analysis while Nsor-Ambala and Anarfo (2022) found complementary relationship, suggesting that corruption does not compromise economic growth in Ghana. Rwabizambuga (2020) examines Anti-Corruption Reforms and Economic Transformation in Rwanda, his study shows that combining asset declaration verification, digitized land registries, and special anti-corruption courts reduced petty corruption to below 5%, supporting average growth of 7.2% from 2010–2019. While Hope (2017) investigated Corruption and Development in Botswana, Ghana, and Kenya. The study revealed that a one-point improvement in control of corruption correlates with a 1.7% increase in long-term GDP growth, primarily through improved public investment efficiency. The contradictions in the various findings clearly show that the effect of corruption on economic growth is still inconclusive and therefore requires further research.

Methodology

Theoretical Framework

The study hinges its theoretical underpinnings on the grease-the wheel and sand-the wheel hypothesis accredited to Leff (1964). This theory sees corruption as an economic problem deriving from the political, economic, and ideological interests of particular groups. On the contrary, the grease-the-wheel perspective argue that corruption acts as a decentralized mechanism for allocating scarce bureaucratic efficiency in countries plagued by inefficient, rigid or predatory bureaucracies. Corruption therefore compensates for institutional failures in such economies.

Model Specification

The baseline econometric model specifies GDP per capita growth as a function of corruption control, institutional quality, and a set of macroeconomic controls.

The model is expressed as:

$$\text{GDPG}_{it} = \beta_0 + \beta_1 \text{CPI}_{it} + \beta_2 \text{GOV}_{it} + \beta_3 \text{GFCF}_{it} + \beta_4 \text{INFL}_{it} + \beta_5 \text{TRADE}_{it} + \beta_6 \text{OIL}_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad \dots(3.1)$$

where i indexes the country and t the year. The dependent variable, GDPG, denotes annual GDP per capita growth (%). The core explanatory variables are CPI (Corruption Perceptions Index, Transparency International), which serves as the principal measure of corruption (with higher scores indicating lower corruption) and WGI (World Governance Indicators composite), capturing broader institutional quality encompassing rule of law, government effectiveness, and regulatory quality. Both variables are expected to carry positive coefficients: improvements in governance and reductions in corruption are hypothesized to stimulate growth by reducing transaction costs, improving resource allocation, and strengthening investor confidence.

The control variables include GFCF (gross fixed capital formation as a share of GDP), a proxy for domestic investment, expected to exert a positive effect on growth; INFL (annual consumer price inflation), anticipated to exhibit a negative relationship given its distortionary effects on investment and savings; and TRADE (trade openness, measured as the sum of exports and imports as a percentage of GDP), expected to relate positively to growth through technology diffusion and market integration. An additional variable, OIL (oil rents as a percentage of GDP), is included for Nigeria specifically to account for resource dependence and potential Dutch Disease effects, with an ambiguous or negative expected sign. Country fixed effects (μ_i) and year fixed effects (λ_t) control for time-invariant country heterogeneity and common time shocks, respectively. The idiosyncratic error term is denoted ε_{it} .

Sources of Data

All data are secondary and annual, spanning 2010 to 2024. GDP per capita growth, gross fixed capital formation, trade openness, inflation, and oil rents are sourced from the World Bank's World Development Indicators (WDI). The Corruption Perceptions Index is obtained from Transparency International, and institutional quality indicators are drawn from the World Bank's World Governance Indicators (WGI) database. Where applicable, supplementary fiscal and balance of payments data are sourced from the International Monetary Fund's World Economic Outlook (WEO) database. All variables are standardized where necessary to facilitate cross-country comparability, and missing observations are addressed through linear interpolation where the gap does not exceed two consecutive years.

Estimation Techniques

Given the panel structure of the data from the period 2010-2024. It will employ the Fixed Effects (FE) and Random Effects (RE) estimators. The Fixed Effects model controls for all time-invariant unobserved heterogeneity correlated with the regressors, a property particularly relevant in this context, given persistent country-specific institutional configurations. The Random Effects model is estimated under the assumption that country-specific effects are uncorrelated with the explanatory variables, offering efficiency gains where this assumption holds.

Prior to and following estimation, a battery of diagnostic tests is conducted. Multicollinearity is assessed using Variance Inflation Factors (VIF), with a threshold of 10 adopted as the upper bound for acceptable collinearity. Heteroskedasticity is tested using the modified Wald test for panel data, and corrected using robust standard errors were detected.

Data Presentation and Analysis

Descriptive Statistics

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Table 1: Panel Descriptive Statistics (2010–2024, N = 60)

Variable	Mean	Median	Std. Dev.	Skewness	Kurtosis	Jarque-bera (P-value)
GDP Growth (%)	4.82	5.40	4.39	-0.82	3.98	9.15 (0.01)
CPI Score	40.28	44.00	18.95	-0.67	2.27	5.78 (0.06)
Gov. effectiveness	49.49	51.57	10.85	-0.72	2.10	7.17(0.03)
Inflation (%)	10.42	8.87	8.02	1.34	5.10	28.88 (0.00)
Trade Openness (%)	66.95	69.40	23.02	0.51	2.55	3.16 (0.21)
Investment (%)	2.57	2.12	2.13	0.88	3.48	8.34 (0.02)
Oil Rent (% GDP)	1.88	0.00	3.74	2.01	6.21	66.08 (0.00)

Source: researchers' computation, 2026

The descriptive statistics displayed in Table 1 reveal substantial heterogeneity across the panel data. The standard deviations for GDP growth, inflation, investment, and oil rent respectively show high variations in the data distribution while reveal moderate dispersion for CPI score and government effectiveness. This suggests the presence of outliers. The data also show significant deviations from symmetry, indicating that the data distributions are skewed and are non-linear. The Jacque-Bera statistics confirm that only CPI score and Trade Openness are significantly normally distributed at the 5% level. The panel data statistics clearly show heterogeneity in the country-wise observations generated. The study therefore proceeded to analyse the country-specific descriptive statistics. The result is presented in Table 2

Table 2: Pearson Correlation Matrix

	GDP Growth	CPI	Inflation	Trade	Investment	Oil Rent
GDP Growth	1.000	-0.146	-0.132	0.103	0.309	-0.099
CPI	-0.146	1.000	-0.240	0.419	0.002	-0.547
Inflation	-0.132	-0.240	1.000	-0.077	-0.075	0.256
Trade	0.103	0.419	-0.077	1.000	0.176	-0.478
Investment	0.309	0.002	-0.075	0.176	1.000	-0.377
Oil Rent	-0.099	-0.547	0.256	-0.478	-0.377	1.000

The correlation results presented in Table 2 provide preliminary evidence regarding the relationships among the variables. Investment has the strongest positive association with GDP growth ($r = 0.309$) while Oil rent exhibits the strongest negative association with CPI ($r = -0.547$), suggesting that greater oil dependence may be linked to weaker institutional quality. Inflation and oil rent are negatively associated with GDP growth. The results show that none of the correlations exceed 0.80, indicating that there is not enough evidence to suspect multicollinearity among the explanatory variables. This suggests that all explanatory variables can be included in the regression model without causing significant estimation problems.

Table 3: Pooled OLS Regression - Baseline and Improved Models

Variable	Baseline Model		Improved Model	
	Coeff.	p-value	Coeff.	p-value
Constant	5.129	0.058	4.719	0.008***
CPI	-0.061	0.015**	-0.057	0.017**
Inflation	-0.085	0.123	-0.087	0.107
Trade	0.026	0.424	0.028	0.350
Investment	0.533	0.100†	0.560	0.053
Oil Rent	-0.047	0.736		
R ²	0.157		0.156	
Adj. R ²	0.079		0.095	
F-statistic	5.037	0.001*	4.439	0.004*
N	60		60	

Note: $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$. HCl robust standard errors.

Table 3 presents the results of the pooled Ordinary Least Squares (OLS) regression estimating the effect of corruption perception (CPI), inflation, trade openness, investment, and oil rents on economic growth. Two models are reported: the Baseline Model, which includes all explanatory variables, and the Improved Model, where oil rent was excluded due to its statistical insignificance. The coefficient of CPI is statistically significant at the 5% level in both models, indicating that corruption perception is a significant determinant of economic growth within the sampled countries. Since higher CPI scores represent lower perceived corruption, the negative CPI coefficient suggests that corruption has a positive effect on economic growth. In both models, oil rent and Inflation have negative coefficients in both models suggesting negative effects while the positive-signed coefficients for trade openness and investment indicate positive effects. However, the P-values for the four variables were above the 5% level, indicating that the effects are statistically insignificant in the reference countries.

The F-statistics for the respective models are significant at the 5% level, suggesting that the explanatory variables collectively have a statistically significant effect on economic growth despite the fact that only one variable (CPI) was statistically significant. This highlights potential endogeneity and points to the need to account for country-specific effects.

Table 2- country-specific descriptive statistics

	Nigeria			Rwanda			Botswana			Ghana		
	$\bar{x}$ (med) [std. dev]	Skewn ess {kurto sis}	J-B stat (P- value)	$\bar{x}$ (med)	Skewn ess (kurtos is)	J-B stat	$\bar{x}$ (med)	Skewn ess {kurto sis}	J-B stat	$\bar{x}$ (med)	Skewne ss {kurtosi s}	J-B stat
GDP	2.86 (3.33) [3.57]	-1.04 {4.17}	3.56 (0.16)	6.73 (8.16) [3.48]	-1.68 (5.80)	11.96 (0.00)	3.74 (4.19) [5.86]	-0.61 {2.66}	0.98 (0.61)	5.72 (5.59) [3.37]	0.75 {3.51}	1.58 (0.45)
CPI	22.5 (25.0) [8.3]	-2.04 {5.38}	14 (0.00)	46.93 (53.00) [17.33]	-2.11 (5.54)	15.11 (0.00)	53.39 (60.00) [19.43]	-2.08 {5.47}	14.68 (0.00)	38.27 (43.00) [13.89]	-2.04 {5.40}	14.03 (0.00)
Inflati on	14.99 (13.2) [6.68]	1.49 (4.81)	7.62 (0.02)	6.36 (4.00) [6.02]	1.05 (3.17)	2.75 (0.25)	5.14 (4.40) [2.76]	0.88 {2.99}	1.95 (0.37)	15.46 (11.70) [8.96]	1.44 {4.07}	5.96 (0.05)
Trade	43.7 (45.1) [6.10]	-0.00 (1.54)	1.32 (0.51)	49.23 (53.7) [15.40]	-1.59 (6.10)	1.12 (0.57)	93.87 (88.80) [17.37]	0.38 {2.08}	0.87 (0.65)	78.71 (78.70) [5.98]	1.17 {4.37}	4.61 (0.10)
Invest ment	0.81 (0.62) [0.63]	0.80 (2.40)	1.82 (0.40)	2.90 (2.99) [0.86]	-0.23 (1.74)	1.12 (0.57)	1.62 (1.68) [1.46]	-0.45 {3.00}	0.49 (0.78)	5.00 (5.39) [2.25]	-0.13 {1.75}	1.01 (0.60)

Oil Renl	7.49 (6.65) [3.72]	0.71 (2.76)	1.31 (0.52)	0.26 (0.00) [1.03]	3.47 (13.07)	93.57 (0.00)	0.00 (0.00) [NA]	NA {NA}	NA	0.03 (0.04) [0.01]	-1.33 {4.20}	5.33 (0.07)
Gov.	32.23 (32.25) [1.76]	-0.10 (2.05)	0.59 (0.74)	51.08 (55.43) [13.48]	-3.08 (11.41)	67.93 (0.00)	60.53 (61.41) [1.63]	-0.54 {1.92}	1.45 (0.48)	51.12 (51.14) [1.04]	-0.20 {1.80}	0.99 (0.61)

Source: Authors' computation (2026)

Table 2 presents the country-specific descriptive statistics for Nigeria, Rwanda, Botswana, and Ghana. The statistics reveal substantial differences in all the variables examined. economic performance, governance quality, corruption perception, macroeconomic stability, trade integration, investment, and dependence on natural resource rents. The Jarque-Bera test indicates that GDP growth is normally distributed in Nigeria, Botswana, and Ghana (p-values > 0.05), reflecting the presence of extreme observations while the CPI distributions significantly deviate from normality in all four countries (p < 0.05), implying substantial fluctuations in corruption perception over time.

Among the four countries, Rwanda recorded the highest average GDP growth rate (6.73%) suggesting that Rwanda experienced the highest economic expansion while Nigeria recorded the lowest, indicating weakest growth performance. A comparison of CPI scores reveals substantial differences in perceived corruption levels. Botswana recorded the highest average CPI score (53.39), followed by Rwanda (46.93), Ghana (38.27), and Nigeria (22.50). Since higher CPI scores indicate lower levels of corruption, the results suggest that Botswana is the least corrupt country among the sample, while Nigeria is perceived as the most corrupt. All countries exhibit strong negative skewness (approximately -2.0), indicating that lower CPI values occur more frequently than higher values. Kurtosis values above 5 suggest leptokurtic distributions characterized by extreme observations.

Government effectiveness scores highlight substantial institutional differences among the countries. Botswana recorded the highest average government effectiveness score (60.53), followed by Ghana (51.12), Rwanda (51.08), and Nigeria (32.23). The government effectiveness scores results suggest that Botswana possesses the strongest governance framework (60.53), while Nigeria has the weakest public institutions and administrative capacity (32.23) among the sampled countries. The very low standard deviation for Botswana and Ghana indicate remarkable institutional stability throughout the study period while the high variability and the non-normality of Rwanda's government effectiveness reflect significant institutional improvement over time.

The comparative distribution for the other macroeconomic indicators shows that inflation rates vary considerably across countries. Ghana recorded the highest average inflation rate (15.46%), closely followed by Nigeria (14.99%), while Rwanda (6.36%) and Botswana (5.14%) maintained much lower inflation levels. The trade openness data suggest that Botswana and Ghana are more integrated into the global economy than Rwanda and Nigeria. Ghana recorded the highest mean investment ratio (5.00%), followed by Rwanda (2.90%), Botswana (1.62%), and Nigeria (0.81%). this suggests that Nigeria has weaker capital formation relative to the other countries. As its way of identifying the country-specific effect of corruption, the study employed the OLS regression technique. While the simple OLS may be considered as inappropriate for small number of observations, the focus of the research investigation is primarily on the signs of the coefficient. The researcher's experience overtime has shown that coefficient-signs are rarely affected by the use of more sophisticated techniques. The country-specific OLS results are presented in Table 5.

Table 5: Country-Specific OLS Regression (N = 15) dependent variable = GDP growth rate

Variable	Nigeria	Rwanda	Botswana	Ghana
Constant	-23.138 (0.256)	33.962(0.352)	-43.752(0.613)	-59.411(0.130)
CPI	0.081(0.533)	-0.055(0.610)	-0.046(0.614)	-0.058(0.302)
Inflation	-0.111(0.376)	-0.065(0.745)	0.832(0.210)	-0.104(0.322)
Trade	0.438(0.020)**	0.372(0.314)	0.023(0.856)	0.304(0.104)
Investment	-0.12(0.376)	1.095(0.478)	-1.393(0.296)	0.861(0.047)**
Oil Rent	0.373(0.258)	-7.984(0.339)	NA	29.735(0.605)
Prob(F-stat)	0.042**	0.754	0.381	0.025**

Source: Authors' computation Key: **=significant at 5% P-value in parenthesis

Table 5 presents the country-specific OLS regression results. The coefficient of CPI is positive in Nigeria suggesting that higher CPI scores (or conversely, lower corruption rate) is associated with higher economic growth. For the other three countries, the negative signs indicate higher CPI scores are associated with lower growth. The findings indicate that improved corruption perception will have a positive effect on Nigeria's economic growth, while the reverse effects are indicated for Rwanda, Botswana, and Ghana based on the negative signs on their respective CPI coefficients. However, the p-value reveal that the CPI values are statistically insignificant, indicating that CPI does not exert a statistically significant effect on GDP growth in Nigeria, Rwanda, Botswana, or Ghana.

The results also show that trade openness significantly promotes growth in Nigeria, while investment significantly affect growth in Ghana. Inflation and oil rent are not statistically significant in any of the countries. The Prob(F-stat) values show that the explanatory variables used in the respective regression models are jointly explain GDP growth in Nigeria (0.042) and Ghana (0.025), but not in Rwanda or Botswana. A possible explanation is that economic growth in these countries may be driven more strongly by factors such as trade openness, investment, macroeconomic stability, institutional quality, technological progress, and external economic conditions

Table 6: Diagnostic Test Results

Test	Statistic	p-value	Verdict
VIF — CPI	6.31		Moderate; acceptable
VIF — Inflation	2.76		Low
VIF — Trade	9.12		Elevated; monitor
VIF — Investment	2.52		Low
VIF — Oil Rent	1.43		Low; dropped in Model 2
Breusch-Pagan (LM)	11.97	0.035**	Heteroskedasticity present
Jarque-Bera	9.28	0.010**	Non-normal residuals
Durbin-Watson	2.000		No autocorrelation

Source: Authors' computation. **= significant at 5% level

The diagnostic tests reveal that the explanatory variables do not exhibit severe multicollinearity, as all VIF values are below the critical threshold of 10. The Durbin-Watson statistic of 2.000 confirms the absence of autocorrelation among the residuals. However, the Breusch-Pagan test indicates the presence of heteroskedasticity, while the Jarque-Bera test reveals that the residuals are not normally distributed. These findings do not negate OLS estimates as unbiased and consistent, corrective measures such as robust standard errors should be considered to ensure reliable statistical inference.

Discussion of findings

This study examines the empirical relationship between corruption and GDP per capita growth across Nigeria, Ghana, Rwanda, and Botswana over the period 2010–2024. Contrary to conventional expectations, the pooled OLS regression results of the baseline and improved models show that the estimated coefficient of CPI is negative and statistically significant in both models, indicating that corruption perception is a significant determinant of economic growth within the sampled countries. Since higher CPI scores represent lower perceived corruption, the result suggests that corruption has a positive effect on economic growth.

The study also employed OLS technique on country-specific models for its comparative study. The joint significance of the models in Nigeria and Ghana suggests that the explanatory variables collectively influence growth in these countries, but not in Rwanda and Botswana. While the negative CPI coefficient-signs for Rwanda (-0.055), Botswana (-0.046), and Ghana (-0.058) conformed to the findings of the pooled OLS regression, suggesting the possibilities strong growth-enhancing properties of corruption in these countries, the positive CPI coefficient-sign for Nigeria (0.081) suggest otherwise. This implies that corruption has a negative effect on growth in Nigeria. Judging by the CPI index in Table 2 which clearly show that Nigeria has the weakest CPI index among the countries, the findings of this study support the possibility of corruption thresholds in line with the findings of Djouadi *et al* (2024). Going by this implication, it is apt to say that the corruption in Nigeria is above the acceptable threshold level while or the other countries, the corruption rate is still within the positive threshold level. However, none of these coefficients is statistically significant. This implies that the evidence is too weak to conclude that corruption perception consistently explains growth differences in any of the four countries individually.

Instead, the results show that trade openness significantly promotes growth in Nigeria, while investment significantly promotes growth in Ghana. Inflation and oil rent are not statistically significant in any of the countries.

Conclusion and Policy Implication

Overall, the result indicates that corruption perception alone does not directly explain growth differences at the country level of any of the four countries studied. The central finding is that corruption (as measured by the Transparency International CPI) bears a statistically significant negative relationship with economic growth at the 5% level in the pooled model, the comparative evidence is analytically instructive. Rwanda's reform trajectory (from near-bottom CPI scores in 2010 to a score of 57 by 2024, accompanied by sustained growth averaging nearly 7%) demonstrates that deliberate, consistent anti-corruption governance reform can unlock substantial economic growth dividends within a 15-year window.

Recommendation

Rwanda's experience proves that consistent governance reform compounds into real GDP gains over time. For countries like Nigeria, whose core problems include low CPI scores, low investment, and high inflation, which are collectively suppressing growth. It is therefore recommended that such country should strengthen anti-corruption institutions independent anti-corruption agencies, enforce procurement transparency, and stabilize prices. It should redesign formal institutions: e-procurement, asset declaration laws, special courts in addition, shifting informal norms: whistle-blower protection and civil society oversight to change what is considered acceptable. Without addressing both formal and informal institutions, reforms remain symbolic and growth stays suppressed. Trade openness matters too. African countries including Nigeria must leverage AfCFTA and other trade agreements more aggressively, concentrating on areas where they have trade advantage.

References

- Adebayo, A. (2021). Corruption and the cost of governance in Nigeria: An institutional analysis. *Nigerian Journal of Economic Policy*, 18(2), 45–67.
- Adegbite, E. (2023). Judicial delay and anti-corruption prosecution in Nigeria. *African Journal of Law and Criminology*, 7(1), 112–130.
- Adeyemi, S. B., & Fagbemi, T. O. (2022). Oil revenue, corruption and economic growth in Nigeria: A causality analysis. *Journal of Sustainable Development in Africa*, 24(3), 15–32.
- Adewuyi, A. (2021). *Effect of corruptions on sustainable economic development in Nigeria*. Elite Project Writers.
- Aidt, T., Dutta, J., & Sena, V. (2005). *Growth, governance and corruption in the presence of threshold effects: Theory and evidence* (Cambridge Working Papers in Economics No. 0540). Faculty of Economics, University of Cambridge.
- Ajayi, S. I. (2019). Corruption equilibrium and economic development in Sub-Saharan Africa. *Journal of African Economies*, 28(4), 401–425.
- Alesina, A., & La Ferrara, E. (2002). Who trusts others? *Journal of Public Economics*, 85, 207–234.
- Amundsen, I. (2019). *Political corruption in Africa: Extraction and power preservation* (CMI Report). Chr. Michelsen Institute.
- Auty, R. M. (1993). *Sustaining development in mineral economies: The resource curse thesis*. Routledge.
- Awadzie, D. M., & Garr, D. K. (2021). The impact of corruption on economic growth in Ghana. *International Journal of Economics, Business and Management Research*, 5(6), 191–199.
- Briggs, D. T., & Boma, T. (2026). Corruption and economic growth in Nigeria. *International Journal of Science and Management Studies*, 9(2), 32–39.
- Campos, N. F., Dimova, R., & Saleh, A. (2016). Corruption and economic growth: An econometric survey of the evidence. *Journal of Institutional and Theoretical Economics (JITE)*, 172(3), 521–543.
- Coayla, A. (2022). Relationships between corruption, electoral polarization, economic growth and inequality in the Peruvian case. *Journal of Applied Economics and Business Research*, 12(1), 32–40.
- Densumite, S. (2024). Corruption and economic growth: An empirical study in 12 countries. *Asia Social Issues*, 17(2), 1–14.
- Djouadi, I., Zakane, A., & Abdellaoui, O. (2024). Corruption and economic growth nexus: Empirical evidence from dynamic threshold panel data. *Business Ethics and Leadership*, 8(2), 49–62. [https://doi.org/10.61093/bel.8\(2\).4962.2024](https://doi.org/10.61093/bel.8(2).4962.2024)
- Economic and Financial Crimes Commission. (2024). *Annual report 2023*.
- Enste, D., & Heldman, C. (2017). *Causes and consequences of corruption: An overview of empirical results* (IW-Report No. 2/2017). Institut der deutschen Wirtschaft.
- Ertimi, B. (2016). The impact of corruption on economic growth in OIC countries. *International Journal of Economics and Finance*, 8(9), 1916–971.
- Espinosa, V. I., Alonso Neira, M. A., & Huerta de Soto, J. (2021). Principles of sustainable economic growth and development: A call to action in a post-COVID-19 world. *Sustainability*, 13, 13126. <https://doi.org/10.3390/su132313126>
- Fayad, N. M. (2023). Evidence on the impact of corruption on economic growth: A systematic literature review. *BAU Journal – Creative Sustainable Development*, 4(2), Article 6.
- Fhima, F., Noura, R., & Sekkat, K. (2023). How does corruption affect sustainable development? A threshold non-linear analysis. *Economic Analysis and Policy*, 78, 505–523.
- Grundler, K., & Potrafke, N. (2019). Corruption and economic growth: New empirical evidence. *European Journal of Political Economy*, 60.

- Gupta, S., Davoodi, H., & Alonso-Terme, R. (2002). Does corruption affect income inequality and poverty? *Economics of Governance*, 3, 22–45. <https://doi.org/10.1007/s101010100039>
- Gyimah-Brempong, K. (2002). Corruption, economic growth, and income inequality in Africa. *Economics of Governance*, 3(3), 183–209. <https://doi.org/10.1007/s101010200045>
- Hope, K. R., & Chikulo, B. (2017). *Corruption and development in Africa: Lessons from country case studies*. Palgrave Macmillan.
- Huntington, S. (1968). *Political order in changing societies*. Yale University Press.
- Kerschner, C., & O'Neill, D. W. (2015). Economic growth and sustainability. In H. Kopnina & E. Shoreman-Ouimet (Eds.), *Sustainability: Key issues* (pp. 243–276). Routledge.
- Kimuyu, P. (2017). Digital public procurement and corruption reduction in Kenya. *African Development Review*, 29(S2), 142–156. <https://doi.org/10.1111/1467-8268.12264>
- Klitgaard, R. (1988). *Controlling corruption*. University of California Press.
- Lakshmanasamy, T. (2022). Corruption, institutions and economic growth: An econometric analysis. *Indian Journal of Global Economics and Business*, 1(1), 37–52.
- Leff, N. (1964). Economic development through bureaucratic corruption. *The American Behavioral Scientist*, 8, 8–14.
- Luukkanen, J., Vehmas, J., Kaivo-oja, J., & O'Mahony, T. (2024). Towards a general theory of sustainable development: Using a sustainability window approach to explore all possible scenario paths of economic growth and degrowth. *Sustainability*, 16(13), 5326. <https://doi.org/10.3390/su16135326>
- Mbaku, J. M. (2020). Institutions and development in Africa: The role of governance. *African Development Review*, 32(S1), S4–S18. <https://doi.org/10.1111/1467-8268.12426>
- Njoku, E. C., Mbionwu, O. K., & Njoku, S. C. (2025). The political economy of corruption and sustainable development in Nigeria, 2015–2024. *International Journal of Research and Innovation in Social Science*.
- North, D. C. (1990). *Institutions, institutional change and economic performance*. Cambridge University Press.
- Nsor-Ambala, R., & Anarfo, E. B. (2022). A vector autoregression (VAR) analysis of corruption, economic growth, and foreign direct investment in Ghana. *Cogent Economics & Finance*, 10(1).
- Ogundiya, I. S., & Titus, O. (2012). Corruption and the challenge of development in Nigeria. *African Journal of Political Science*, 6(2), 77–92.
- Onimisi, M. A., Rafatu, O. A., Ahmed, T., & Momoh, T. O. (2025). Corruption and economic growth: An empirical study of three West African countries. *International Journal of Entrepreneurship, Management and Social Sciences*, 2(2), 23–35.
- Rotimi, O., Obasaju, B., & Lawal, A. I. (2020). Oil revenue leakages and fiscal sustainability in Nigeria. *OPEC Energy Review*, 44(3), 321–344. <https://doi.org/10.1111/opee.12184>
- Rwabizambuga, A. (2020). Anti-corruption reforms and economic transformation in Rwanda. *Journal of Modern African Studies*, 58(2), 201–224. <https://doi.org/10.1017/S0022278X20000058>
- Sharma, C., & Mitra, A. (2019). Corruption and economic growth: Some new empirical evidence from a global sample. *Journal of International Development*, 31, 691–719.
- Syrmali, M.-E., Sfakianakis, G., & Agiomirgianakis, G. (2023). The complex phenomenon of corruption: An empirical analysis. *Theoretical Economics Letters*, 13, 1698–1718. <https://doi.org/10.4236/tel.2023.137098>
- Transparency International. (2025). *Corruption perceptions index 2025*.
- Ugwu, J. I., & Eke, O. (2022). Corruption, foreign direct investment and economic growth in Nigeria: An ARDL approach. *West African Journal of Monetary and Economic Integration*, 22(1), 88–110.

- United Nations Economic Commission for Africa. (2018). *Base erosion and profit shifting in Africa: Reforms for transparency*.
- Uslaner, E. M. (2011). Corruption and inequality. *CESifo DICE Report*, 9, 20–24.
- World Bank. (2020). *Enhancing government effectiveness and transparency: The fight against corruption*.