INFLUENCE OF GOVERNANCE PRACTICES ON SUSTAINABLE DEVELOPMENT OF THE SUB-SAHARAN AFRICAN COUNTRIES

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Abstract: *The study sought to assess the influence of governance practices on sustainable development of the Sub-Saharan African countries. The research was guided by legitimacy theory. The study used a longitudinal panel design and incorporated both the descriptive and explanatory elements that looked at sustainability dynamics in the Sub-Saharan African region. The study adopted a positivist research philosophy. It sourced data from 49 Sub-Saharan African countries over 24 years, from 2000 to 2023. The study relied on secondary data from the World Bank Data Bank (2025), UNDP (2025), Fund for Peace (2025) and Sustainable Development Report (2024). Descriptive analysis and regression models were used for analysis. The study found that governance improvements in areas of control of corruption, voice and accountability and government effectiveness did not directly contribute to sustainable development in Sub-Saharan Africa. Practical interventions should focus on enhancing governance effectiveness through capacity building and institutional reforms.*

Keywords: *Sustainable Development, Governance Practices, Sub-Saharan Africa, Secondary Data.*

I. INTRODUCTION

Sustainable development is a multidimensional concept that intends to harmonize economic growth, environmental stewardship, and social equity. According to the Brundtland Report (1987), sustainable development refers to the capacity to fulfil the demands of the current generation without jeopardizing the capacity of the future generation to fulfil their demands (Obamen et al., 2020). This concept implies that economic, environmental, and social factors should be taken into account in the national decision-making processes that demand that short-term thinking be substituted by long-term thinking in the process of creating a policy. Ruggerio (2021) mentions that the transition to sustainable development implies the emergence of frameworks that would be planet-boundary and inclusive, growth-oriented. Through the merging of national policies and governance systems with the concept of Environmental, Social and Governance (ESG), nations would be able to meet Sustainable Development Goals (SDGs) (Han and Gao, 2024).

Some significant indices that may be taken as measures of attaining sustainable development include the Human Development Index (HDI), Genuine Progress Index (GPI), adjusted savings index, mortality index and Gini index. HDI is a program that was developed by the United Nations Development Programme (UNDP) to rank countries based on life expectancy, education, and per capita earnings, which is the measure of well-being in a broader sense, as opposed to GDP. GPI adjusts the development of the economy, taking into account the aspects of environmental degradation, income inequality and social factors, which gives a more detailed analysis of the progress (Sachs et al., 2022).

Sustainable development within Africa is also an endeavour which is complicated by various legal, socio-economic and environmental factors. Governments and stakeholders have to manoeuvre such complexities to achieve inclusive growth and, at the same time, encourage ecological conservation (Muigua, 2023). Ojeyinka and Osinubi (2022) also investigated how financial development affects the globalisation-sustainable development nexus, which in turn observed that sound financial systems play a significant role in ensuring sustainability initiatives.

Governance practices encompass the structures, policies and institutional frameworks through which authority is exercised in the management of a country's economic, political, and social resources. In the context of Sub-Saharan Africa, governance practices are particularly significant given the region's unique historical, cultural, and political landscape. These practices include regulatory quality, the rule of law, control of corruption, government effectiveness, voice and accountability, and political stability (Achim et al., 2023). The quality of governance determines how efficiently public resources are managed, how transparently decisions are made, and how accountable leaders are to their citizens. Countries such as Rwanda and Botswana have demonstrated that strong governance systems, characterized by ethical leadership, transparent institutions, and effective public service delivery, can transform national development trajectories. Conversely, nations plagued by weak governance structures often experience resource misallocation, diminished investor confidence, and persistent socio-economic challenges that hinder progress (Correa-Mejia et al., 2024).

The relationship between governance practices and sustainable development is deeply interconnected, as the quality of governance fundamentally shapes a nation's capacity to achieve economic growth, social equity and environmental protection. Effective governance practices create an enabling environment for sustainable development by establishing clear regulatory frameworks, ensuring the enforcement of environmental laws, promoting social inclusion, and fostering equitable resource distribution (Sarkodie & Adams, 2020). The influence of governance practices on sustainable development outcomes in Sub-Saharan Africa is profound and multifaceted, determining whether nations successfully navigate the complex interplay between economic advancement, environmental conservation, and social justice. Countries with robust governance frameworks, such as Rwanda and Mauritius, have made remarkable progress in improving their Human Development Index scores and advancing towards the Sustainable Development Goals through strategic policy implementation, anti-corruption measures and inclusive development planning (Biermann et al., 2022). These nations demonstrate that effective governance enables the mobilization of domestic resources, attraction of foreign investment and implementation of long-term sustainability initiatives. In contrast, countries like South Sudan and the Central African Republic, characterized by political instability and weak institutional frameworks, continue to experience low human development indicators and significant challenges in adopting sustainable practices (Reyers et al., 2022).

The Sub-Saharan African nations would be a role model in terms of the adoption of sustainable practices in national policies. The principle of sustainable development would be completely implemented by governments and institutions, being fluent throughout government structures and approach to operations to stimulate an environmentally and socially inclusive economic development (Cracknell, 2023). By having a sound sustainability initiative as a governance priority, nations would undertake to have a balance between economic performance and environmental protection, as well as social accountability.

However, sustainable development has a significant intersection, which poses a challenge to the region (Cracknell, 2023). The abundance of different sustainable development studies in different regions has brought a lot of knowledge on the relationship between sustainable developments in a multifaceted relationship. It is also apparent that there is a gap in the body of knowledge on the particular facts within the Sub-Saharan African states, taking into account the shifting regional and global trends in sustainable development (Sadiq et al., 2020). This study aimed to fill this gap and provide insightful information about the dynamics of sustainable development in Sub-Saharan African countries, offering a valuable resource for policymakers and national leaders. Using empirical research and analysis, this study aimed to assess the influence of government practices on sustainable development of Sub-Saharan African countries.

Purpose of the Study:

To assess the influence of governance practices on sustainable development of the Sub-Saharan African countries.

LITERATURE REVIEW

Empirical Literature Review

Sustainable development is anticipated to be incorporated in the main policies of governments and organizations globally, which is in line with the wider objectives of sustainable development. The United Nations, the Global Sustainable Investment Alliance (GSIA) and the GRI are some of the international organizations that support the concept of universalising sustainable development models to propel environmental custodianship, social justice and fair governance (Cracknell, 2023). It is agreeable that countries all over the world are expected to integrate these principles into their decision-making in order to not only improve profitability, but also bring about transparency, corporate responsibility and long-term resilience (Ndung'u & Onyuma, 2023).

The association between social and governance performance and economic success in the context of the UK was investigated by Cek (2023), who found that the two are positively associated. The research, however, failed to establish any significant link between environmental performance and economic success, and this might reduce the interpretation of the impact of governance practices on sustainable development within that setting. The UK-specific focus raises questions about the overall applicability of the findings to other areas. In turn, Gundogdu and Aytekin (2022) overcome this shortcoming by examining the effects of sustainable governance on multidimensional sustainable development at the global level. Their results

show that the SDGs are positively affecting the improvement of internet use, e-government development, human development, environmental performance and political reform.

These studies have raised an issue due to the differences in their focus, as an indicator of the complexity of governance practices in sustainable development. Although the work done by Cek emphasizes the beneficial role of social and governance to the economic success in the UK, it also shows a drawback in addressing the entire range of governance effects, especially those of environmental aspects. This is contrary to Gundogdu and Aytekin (2022), who discovered that governance practices, such as environmental performance-related practices, are essential in the realization of the SDGs on a global scale. The level of governance capacity and the impact on sustainable development results, as defined by Gundogdu and Aytekin (2022), demonstrate the difference between the governance capacity of Nordic countries and the challenges experienced by less stable countries.

The correlation analysis between national governance, sustainability and SDGs in 42 countries over 6 years by Alsayegh et al. (2023) involved panel regression analysis to determine how national governance and sustainability are related to SDGs. The study established a positive relationship between national governance and sustainability, sustainability and SDGs and the relationship between sustainability governance and sustainability adoption. On the other hand, the national governance and SDGs relationship was seen to be negative, and sustainability was a mediator. This paper highlights sustainability as an important issue to step in between governance practice and SDGs. Nevertheless, the discovery of a negative relationship between national governance and SDGs indicates that the relationship may not be entirely consistent with other research.

The research of Batae et al. (2020) gave a detailed discussion of the ESG practice of the European banks, indicating that there were significant differences in the ESG performance between the developed and the emerging European regions, between the Eurozone and non-Eurozone countries. Their results highlight the fact that the practices of governance, as well as their effects upon sustainable development, may be tremendously different in Europe. Particularly, the analysis indicates that developed areas are likely to have higher ESG performance than the emerging ones. Nevertheless, these insights are limited to Europe, thus hindering their applicability to other environments of the world. This limitation implies that the research is quite informative in the region; however, it might not capture the full picture of how different governance practices vary across the globe and how they impact sustainable development.

Conversely, Correa-Mejia et al. (2024) examined the influence of governance on setting SDGs priorities in emerging markets, using the example of 312 Latin American companies. Their study used structural equation modelling to determine the connections between CG, financial performance (FP) and SDG prioritization. The researchers obtained a positive correlation between the prioritization of CG and SDG, and FP was a partial mediator. The study can help in comprehending the contribution of governance practices in facilitating SDGs, especially in Latin America and the significance of CG in promoting SDGs. The results are correlated with the idea that strong governance practices can increase the SDG prioritization, but it seems to concern the emerging economies, not the developed ones.

The article by Ahmed (2023) examined the connection between governance processes and integrated reporting (IR) in South Africa and how the two variables influence the country in developing SDGs. The study was conducted using a mixed methods approach, with multiple regression analyses being carried out to determine the impact of different governance mechanisms that include board characteristics and risk management committees on the practice of integrated reporting in the South African firms. The findings showed that the governance characteristics, such as the board size, board independence and independence of the risk management committee, had a positive impact on IR practices. Also, the paper has identified the significance of IR in the progress of SDGs through incorporating sustainability into national policies and ensuring the prioritization of long-term value. The study is relevant to the research on the improvement of IR practices by particular governance mechanisms to promote the SDG goals of the country.

The qualitative case study approach was employed in the influence of effective governance on sustainable development in Ghana by Towah (2019). The paper has come up with major themes such as the significance of proactive governance in meeting the needs of citizens, the role of governance in policy making and implementation, as well as the importance of fair governance and observing the rule of law. Towah highlighted how Ghana succeeded in balancing Western patterns of governance and indigenous cultural beliefs so as to achieve sustainable development. This paper emphasizes the importance of good governance in dealing with various developmental challenges, including poverty reduction as well as conservation of the environment.

The article by Buniamin et al. (2022) researched the effects of governance practices on SDG involvement in Malaysia and discovered that the size of the board, gender diversity, frequency of meetings, and independence of boards all significantly contributed to national-level SDG activities. This is connoted by the fact that Towah stresses good governance in achieving sustainable development, which strengthens the notion that certain forms of governance can play a major role in SDG participation. Nonetheless, the emphasis of Buniamin et al. on Malaysia shows that although governance practices are positive, they may not be effective in some locations and industries; in Kenya, local conditions might influence the achievement of governance and sustainable development initiatives.

Theoretical Review

The Theory of Legitimacy, initially proposed by Suchman (1995), can be used as the basis of understanding the process of how nations negotiate their way through the social expectations and norms of staying legitimate. The theory states that there is a need for countries to continue to demonstrate their compliance with the values and expectations of society to gain and retain legitimacy. Even though such a theory was developed by Suchman, other scholars, including Deegan (2014) and Mousa and Hassan (2015), expounded on the theory and made it more useful in various settings. This theory dwells on legitimacy as relevant in the broader social context (Suchman, 1995). In order to be legitimate, the countries engage in congruent practices and behaviours that do not conflict with the prevailing norms and values of the society (DiMaggio and Powell, 1983). The theory argues that one can only survive and have long-term success of any given entity by legitimizing it (Dossou et al., 2023). This is normally achieved through society assimilation or the token gestures that act as a sign of being in tandem with the societal norms.

The legitimacy theory is based on the ontological hypothesis according to which legitimacy is conditional on the harmony of the societal values and expectations (Suchman, 1995). The nation is viewed as a regime where the survival and prosperity of a nation thrive on how the country is seen to abide by the norms and values of society. The legitimacy aspect is assumed to be relational in terms of the ability of a nation to meet the expectations of society and gain the acceptance of society. According to this view, the act of a nation is always founded on the social perception and norms, and it is important to mention the element of societal conformity in the upholding of legitimacy (Deegan, 2014).

It has an epistemological postulation of creating information on the legitimacy of a country based on analyzing appropriateness of practices that countries adhere to in accordance with the preferences and expectations of the society (Suchman, 1995). This knowledge is acquired by the examination of the behaviour of the nation, the symbolic type of behaviour and communication strategies that illustrate compliance with the values of the society. The theory contends that knowledge of legitimacy implies scrutinizing the capacity of the nations to manage their image to society, and take part in the activities that are likely to satisfy the societal needs (DiMaggio and Powell, 1983). The knowledge approach in this case is interested in the impact of the symbolic acts and open reporting on the legitimacy of a nation (Dowling and Pfeffer, 1975).

The legitimacy theory implies that to be legitimate, nations must be able to make sure that their practices and policies in the field of governance are compatible with what society expects them to be. The acceptance of environmental, social and governance models that capture the cultural values and development issues within the region can fit in this case in Sub-Saharan Africa. Conformity to standards and demands of society might make the countries gain credibility and trust of their citizens and other stakeholders. Symbolic acts play a very crucial role in indicating how a country abides by the norms and values of society. The governments in sub-Saharan Africa can make a symbolic step, such as the national corporate social responsibility (CSR) programs or disclosing the ESG through financial development vehicles. These actions might be regarded as indicators of sustainability and corporate goodwill that may enhance national legitimacy and positively affect the opinions of people concerning the responsible condition of affairs. These forms of countries are not merely about conforming to the demands of society but also building trust and accountability that would be most important in long-term development and sustainability of the region.

METHODOLOGY

This study used a longitudinal panel design and incorporated both the descriptive and explanatory elements that looked at sustainability dynamics in the Sub-Saharan African region within the 24-year period in a comprehensive manner. The descriptive element of the design was applied to capture in a systematic manner and to document the nature, trend and current situation of the sustainability practices, institutional quality and sustainable development in the region and over time. Simultaneously, the dynamic relations and causal inferences between the independent and dependent variables were examined using the explanatory component. Precisely, the research aimed at providing an explanation of the joint effects of sustainability practices and institutional quality on sustainable development outcomes over time.

The study adopted a positivist research philosophy to investigate the relationships between sustainability practices, institutional quality and sustainable development in Sub-Saharan African countries. Grounded in the belief that reality was objective and measurable, positivism emphasized empirical evidence, hypothesis testing, and statistical analysis.

The study examined data from 49 Sub-Saharan African countries over a 24-year period from 2000 to 2023 to analyze sustainability practices, institutional quality and their influence on sustainable development. The period after 2000 is a milestone in the history of the region, with a rise in attention to sustainability in the world and the adoption of the SDGs in 2015 and the development of more ESG-related policies and investment trends in the emerging economies (World Bank, 2023).

The study relied exclusively on secondary data from reputable sources, including the World Bank Data Bank (2025), UNDP (2025), Fund for Peace (2025) and Sustainable Development Report (2024). The World Bank provided data on environmental indicators like greenhouse gas emissions, renewable energy, and forest cover, alongside governance metrics such as corruption and government effectiveness indices. The UNDP supplied data on social rights, gender equality, and child labour from Human Development Reports. The Fragile States Index, acquired by the Fund for Peace, was used as the

measurement of institutional quality. No permissions were needed as data came from open-access or licensed sources accessed via institutional subscriptions.

The heteroskedasticity-consistent standard errors were used to address the instability of the variance in the countries. Although system GMM is resistant to heteroskedasticity when the estimation is done in two steps with the use of Windmeijer-corrected standard errors, the completeness of the test was achieved by performing a White (1980) test to make sure that the variance of the residuals is not used to bias the estimation of the standard errors. This is the model specification.

$$Y_{it} = \beta_0 + \beta_1 Y_{1it-1} + \sum_{k=1}^{K} \beta_{2k}\, GOV_{k,it} + \mu_{it} + \epsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.3a$$

$$Y_{it} = \beta_0 + \beta_1 Y_{1it-1} + \sum_{k=1}^{K} \beta_{2k}\, GOV_{k,it} + CV_{it} + \mu_{it} + \epsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.3b$$

Where,

Y_{it} = Dependent Variables over time period

Y_{1it-1} = One time period Lag of the dependent variables

$GOV_{k,it}$ = Independent variable over time period

β_0 = Intercept

$\beta_1 - \beta_2$ = Slope of Coefficients

μ_{it} = Country-specific effects over time period

ϵ_{it} = Error term over time period

RESULTS AND DISCUSSION

General Information

The study utilized secondary data from 49 Sub-Saharan African countries covering the period 2000–2023. The data were a structured balanced panel, with annual observations across the 14-year period. Initially, the dataset consisted of 1,176 observations based on 49 SSA countries, but was reduced to 1,080 as Eritrea, Eswatini (formerly Swaziland), Somalia and South Sudan were deleted due to missing data. All indicators were measured annually and standardized to indices to ensure comparability across countries and over time. Table 1 presents a summary of the dataset characteristics.

Table 1: General Information on Study Data

Indicator	Description	Coverage
Countries Included	Sub-Saharan African countries	45
Unit of Analysis	Country-level annual observations	Panel data
Number of Observations	Total dataset size	1,080 (45 × 24 years)
Panel Structure	Dataset structure	Strongly balanced panel
Measurement Periodicity	Frequency of data collection	Annual

Descriptive Statistics

This section presents the descriptive statistics of the study variables, including governance practices and sustainable development, for the 45 Sub-Saharan African countries over the period 2000–2023. The results summarize the distribution of the variables in terms of their mean and standard deviation, providing an overview of central tendencies and variations across countries and years.

The descriptive statistics for governance indicators revealed consistently low performance across all dimensions. The Control of Corruption Index showed a moderate average (M = 0.377, SD = 0.127), suggesting modest progress in tackling corruption. The Voice and Accountability Index recorded a similar level (M = 0.396, SD = 0.139), reflecting ongoing challenges in political freedoms and civic participation. The Government Effectiveness Index posted the lowest mean among governance indicators (M = 0.35, SD = 0.119), indicating substantial weaknesses in public service delivery and policy implementation. These results point to pervasive governance challenges that remain critical barriers to sustainable development in SSA.

The descriptive statistics for sustainable development measures showed mixed progress with positive environmental adjustments. The Human Development Index recorded a moderate average (M = 0.517, SD = 0.112), reflecting ongoing development challenges. The Adjusted Net Savings Index showed reasonable performance (M = 0.571, SD = 0.128). The Child Mortality Index reflected substantial health improvements (M = 0.840, SD = 0.096), though with remaining disparities between countries. These results present a portrait of moderate development progress that is constrained by persistent structural challenges (Table 2).

Table 2: Descriptive Statistics for the Variables

Variable	Obs	Mean	Std. Dev.
corr_ctrl_index	1,080	0.377	0.127
voice_acc_index	1,080	0.396	0.139
gov_eff_index	1,080	0.350	0.119
hdi_index	1,080	0.517	0.112
nat_save_index	1,080	0.571	0.128
mort_ind_index	1,080	0.840	0.096

Note: All indices normalized to 0-1 scale, where higher values indicate better performance.

This synthesis aligns closely with the broader document analysis on Sub-Saharan Africa's development trajectory. The finding of modest progress against persistent structural challenges resonates with established analyses from major development institutions. For instance, the World Bank (2023) reports that the region's average Human Development Index improved between 1990 and 2021.

Diagnostic Tests

Panel Unit Root Tests and Stationarity Tests

This section presents the application of panel unit root tests to examine the stationarity properties of the data, an essential step in ensuring the validity of econometric analysis and avoiding spurious regression results. To achieve comprehensive and reliable conclusions, two established tests were employed. The LLC test assessed stationarity under the assumption of a common unit root process across all panels. The Fisher-type test combined p-values from individual unit root tests for each panel, offering further robustness.

Among the stationary variables, the results were highly significant. The Mortality Index (mort_ind_index) exhibited the strongest evidence of stationarity (adjusted $t^* = -30.6473$, $p < .001$). The three World Governance Indicators, Control of Corruption, Voice and Accountability and Government Effectiveness, also showed very pronounced stationarity, with large negative adjusted t-statistics and p-values of 0.0000. Human Development Index (hdi_index) rejected the null hypothesis of non-stationarity, though with varying degrees of statistical strength. The results for the majority of variables confirm they meet the critical assumption of stationarity required for subsequent panel regression analysis, while the two financial credit variables warrant first-difference transformation (Table 3).

Table 3: Levin-Lin-Chu unit-root test for the variables

Variable	Unadjusted t	Adjusted t*	p-value
corr_ctrl_index	-20.1634	-10.1432	0.0000
voice_acc_index	-21.6605	-10.8248	0.0000
gov_eff_index	-19.9664	-9.6145	0.0000
hdi_index	-9.4484	-2.4561	0.0070
nat_save_index	-8.1004	-8.1004	0.0000
mort_ind_index	-34.3783	-30.6473	0.0000

Note: H_0: Panel contains unit roots (non-stationary).

The Fisher-type panel unit root test results, presented in Table 4, indicate that five variables demonstrate strong evidence of stationarity, with both Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests rejecting the null hypothesis of non-stationarity at the 5% significance level. These stationary variables include the three World Governance Indicators (corr_ctrl_index, voice_acc_index, gov_eff_index), Adjusted Net Savings Index (nat_save_index) and Mortality Index (mort_ind_index).

Human Development Index (hdi_index) show evidence of non-stationarity, with both tests failing to reject the null hypothesis ($p > 0.05$).

Table 4: Unit root test using ADF and PP (Fisher type) tests

Variable	ADF test	p-value	PP test	p-value
corr_ctrl_index	13.8610	0.0000	9.5238	0.0000
voice_acc_index	21.0260	0.0000	19.6203	0.0000
gov_eff_index	17.9911	0.0000	19.7396	0.0000
hdi_index	-1.0158	0.8451	-1.4473	0.9261
nat_save_index	5.2035	0.0000	18.8535	0.0000
mort_ind_index	38.8301	0.0000	17.6178	0.0000

Note: H_0: Panel contains unit roots (non-stationary).

Multicollinearity Test

The Variance Inflation Factor (VIF) analysis confirms the absence of harmful multicollinearity in the independent variable across the different model specifications. For every variable group, both individual and mean VIF values are substantially below the standard critical threshold of 10, with most falling well below the more conservative threshold of 5. The governance practices model, while having the highest mean VIF at 3.42, remains well within acceptable limits, with individual VIF values of 2.45–4.19 (Table 5).

Table 5: Multicollinearity Test Results

DV	Independent Variable	VIF	1/VIF	Mean VIF

SD	corr_ctrl_index, voice_acc_index, gov_eff_index	4.19, 2.45, 3.62	0.238, 0.407, 0.238	3.42

System GMM Model Diagnostics

The system GMM regression results reveal significant insights into the determinants of sustainable development (SD) across Sub-Saharan Africa. The lagged dependent variable (L.SD) demonstrates a strong positive and statistically significant coefficient ($\beta = 0.593$, $p < 0.001$), indicating substantial persistence in sustainable development outcomes. This suggests that previous levels of sustainable development strongly influence current performance, with approximately 59% of prior SD levels carrying forward to the current period. This finding underscores the path-dependent nature of sustainable development, where past achievements create momentum for future progress.

Governance practices demonstrated uniformly insignificant relationships with sustainable development. Control of Corruption ($\beta = 0.015$, $p = 0.906$), Voice and Accountability ($\beta = 0.010$, $p = 0.851$), and Government Effectiveness ($\beta = 0.025$, $p = 0.807$) all failed to reach statistical significance. This counterintuitive finding may indicate that governance improvements in SSA have not yet translated into measurable, sustainable development gains within the study period (Table 6).

Table 6: Two-Step System GMM Estimation Results

Variable	Coefficient (β)	Std. Error	t-statistic	p-value	95% Confidence Interval
Lagged Dependent Variable					
L.SD	0.5933	0.0946	6.27	0.000***	(0.4078, 0.7789)
Governance Practices					
corr_ctrl_index	0.0146	0.1236	0.12	0.906	(-0.2277, 0.2569)
voice_acc_index	0.0098	0.0521	0.19	0.851	(-0.0923, 0.1119)
gov_eff_index	0.0250	0.1020	0.24	0.807	(-0.1750, 0.2249)
Constant					
_cons	0.0824	0.0617	1.34	0.182	(-0.0385, 0.2033)

The model diagnostics confirm the validity of the estimation approach. The Arellano-Bond tests show appropriate serial correlation patterns, with significant AR(1) ($p = 0.007$) and insignificant AR(2) ($p = 0.798$), satisfying the key assumption for GMM estimation (Table 7).

Table 7: Arellano-Bond test for serial correlation

Test	z-statistic	p-value	Conclusion
AR(1) in first differences	-2.69	0.007	Serial correlation present
AR(2) in first differences	0.26	0.798	No serial correlation

The Hansen J-test of overidentifying restrictions showed a χ^2 statistic of 24.49 with 974 degrees of freedom and a p-value of 1.000, failing to reject the null hypothesis that the instruments are valid. This non-significant result confirms the validity of the instrument set used in the system GMM estimation. The Difference-in-Hansen test for the GMM instruments for levels yielded a χ^2 statistic of -7.83 with 94 degrees of freedom and a p-value of 1.000, indicating that the exogeneity assumption for this instrument subset cannot be rejected. These diagnostics confirm the appropriateness of the model specification and the reliability of the instruments used (Table 8).

Table 8: Instrument validity by Hansen J-test and Difference-in-Hansen test

est	χ^2 statistic	df	p-value	Conclusion
Hansen J-test of overid. restrictions	24.49	974	1.000	Instruments valid
Difference-in-Hansen (GMM instruments for levels)	-7.83	94	1.000	Exogeneity not rejected

The White's test was conducted to test the null hypothesis (H_0) that the regression model exhibits homoskedasticity (constant variance of the error term). The results provide strong evidence to reject the null hypothesis of homoskedasticity at the 1% significance level. This conclusion is based on the statistically significant chi-squared statistic for the heteroskedasticity component ($\chi^2(135) = 268.70$, $p < 0.001$) (Table 9).

The decomposition of the IM-test reveals distinct patterns in the error structure. While the heteroskedasticity component is highly significant ($p < 0.001$), the skewness component is not statistically significant at conventional levels ($\chi^2(15) = 15.12$, $p = 0.443$), indicating that the distribution of residuals is approximately symmetric. However, the kurtosis component shows statistical significance ($\chi^2(1) = 4.31$, $p = 0.038$), suggesting some deviation from normal distribution in the tails of the residual distribution. The combined total test statistic ($\chi^2(151) = 288.12$, $p < 0.001$) confirms the overall presence of non-spherical errors. These results indicate that while the residuals are symmetrically distributed, they exhibit heteroskedasticity and some non-normal kurtosis. This finding validates the use of robust standard errors in the GMM estimation to address the heteroskedasticity concern and ensure reliable inference despite the non-normal error distribution characteristics.

Table 9: White's Test for Heteroskedasticity

Test Component	Chi²	df	P-value
Heteroskedasticity	268.70	135	0.0000
Skewness	15.12	15	0.4430
Kurtosis	4.31	1	0.0380
Total	288.12	151	0.0000

Before model estimation, a comprehensive series of diagnostic tests was conducted to ensure the robustness and validity of the empirical strategy. Panel unit root tests confirmed the stationarity of the transformed series. Tests for multicollinearity indicated that the explanatory variables were not highly correlated, mitigating concerns of inflated variances. Critically, the specification of the dynamic panel model was validated: the Arellano-Bond test confirmed the absence of second-order serial correlation in the differenced errors, and the Hansen J-test supported the validity of the instrument set. With all key econometric assumptions satisfied, the study proceeded to estimate the System GMM models to test the formulated hypotheses and draw causal inferences.

Inferential Statistics

The system GMM results for this research indicate that the Governance Practices Index (GPI) has a statistically insignificant relationship with sustainable development ($\beta = 0.0089$, $p = 0.874$). The lagged dependent variable shows strong persistence ($\beta = 0.8574$, $p < 0.001$), explaining approximately 86% of current sustainable development levels, as shown in Table 10. This empirical finding represents a significant variation from the literature established by Gundogdu and Aytekin (2022), Achim et al. (2023), and Alsayegh et al. (2023), which consistently reported positive relationships between governance quality and sustainable development outcomes. The null result suggests that in Sub-Saharan Africa, improvements in control of corruption, voice and accountability, and government effectiveness, while theoretically foundational, do not translate into measurable advancements in the composite sustainable development index within the study period. This finding aligns more closely with Cek's (2023) UK-specific study that found no significant relationship between ESG performance and economic success, indicating that governance impacts may be dimension-specific and context-dependent rather than universally positive.

Table 10: Governance Practices and Sustainable Development

Variable	Coefficient (β)	Std. Error	z-statistic	p-value	95% Confidence Interval
Lagged Dependent Variable					
L.SDI	0.8574	0.0319	26.84	0.000***	(0.7947, 0.9200)
GPI	0.0089	0.0565	0.16	0.874	(-0.1018, 0.1197)
_cons	0.0676	0.0216	3.13	0.002***	(0.0252, 0.1099)

H_{03}: Governance practices do not influence the sustainable development of the Sub-Saharan African countries.

The lagged dependent variable demonstrates exceptionally strong persistence, the highest among all hypotheses tested. This overwhelming path dependence suggests that governance reforms face tremendous institutional inertia in SSA, supporting Towah's (2019) qualitative findings about the challenges of integrating Western governance models with indigenous systems in Ghana. The strong autoregressive effect indicates that governance improvements may require generational timeframes to break entrenched development patterns, particularly in contexts with historical governance deficits and institutional weaknesses.

This empirical outcome challenges the governance-development nexus discussed by Correa-Mejia et al. (2024) and Bula and Makhamara (2022). While governance characteristics show positive effects on SDG prioritization in Latin America and strategic HRM in Africa, these micro-level relationships do not aggregate to significant macroeconomic impacts at the regional level in SSA. The findings suggest that governance improvements in SSA may be either too incremental, inadequately implemented, or insufficiently integrated with other development dimensions to produce measurable impacts on the composite sustainable development index. This supports Zhan's (2023) caution about insufficient empirical validation of governance benefits and aligns with Buniamin et al.'s (2022) finding that governance impacts vary significantly across regions and sectors.

The acceptance of the null hypothesis aligns with Alsayegh et al.'s (2023) finding of a negative relationship between national governance and SDGs in some contexts, suggesting complex mediation effects. While sustainability was identified as a positive mediator, the direct governance-SDG relationship showed negative tendencies in certain specifications. This complexity is further supported by Ahmed's (2023) South African study, which found that specific governance mechanisms, such as board characteristics, affect integrated reporting but may not directly translate to broader development outcomes. The finding suggests that governance may operate through indirect channels or require complementary conditions not captured in this direct relationship model.

The result particularly challenges the direct governance-development link assumed in much of the literature and underscores Mukwarami et al.'s (2022) emphasis on sector-specific governance impacts. In SSA, where governance challenges are systemic and historical, governance improvements may need to be coupled with capacity building, resource allocation, and implementation support to produce developmental returns. The finding does not imply that governance is unimportant for

sustainable development, but rather that current governance improvements in Sub-Saharan Africa may be insufficient in scale, depth, or integration to overcome structural constraints and produce measurable impacts within the study timeframe. This perspective is consistent with Bowman's (2022) analysis of Kenya, where progressive ESG regulations face implementation challenges, including greenwashing and enforcement gaps.

The Arellano-Bond test results for the Governance Practices model show appropriate serial correlation patterns for valid GMM estimation. The significant AR(1) test (z = -2.52, p = 0.012) indicates first-order serial correlation in the first-differenced errors, which is expected in dynamic panel models. The insignificant AR(2) test (z = 1.12, p = 0.261) confirms the absence of second-order serial correlation, satisfying the key assumption that the error term in the level equation is not serially correlated. This pattern validates the moment conditions and supports the reliability of the GMM estimator (Table 11).

Table 11: Arellano-Bond Test for Serial Correlation for Governance Practices Model

Test	z-statistic	p-value	Conclusion
AR(1) in first differences	-2.52	0.012	Serial correlation present
AR(2) in first differences	1.12	0.261	No serial correlation

The instrument validity tests confirm the appropriateness of the instrument set used in the Governance Practices GMM estimation. The Hansen J-test yields a χ^2 statistic of 44.32 with 525 degrees of freedom and a p-value of 1.000, failing to reject the null hypothesis that the instruments are valid. The Difference-in-Hansen test for the GMM instruments for levels shows a χ^2 statistic of 0.00 with 43 degrees of freedom and a p-value of 1.000, indicating that the exogeneity assumption for this instrument subset cannot be rejected. These results collectively support the validity of the instruments (Table 12).

Table 12: Instrument Validity Tests for Governance Practices Model

Test	χ^2 statistic	df	p-value	Conclusion
Hansen J-test of overid. restrictions	44.32	525	1.000	Instruments valid
Difference-in-Hansen (GMM instruments for levels)	0.00	43	1.000	Exogeneity not rejected

CONCLUSION AND RECOMMENDATION

The study concludes that governance improvements in areas of control of corruption, voice and accountability, and government effectiveness do not directly contribute to sustainable development in Sub-Saharan Africa. This finding challenges conventional wisdom that governance reforms automatically lead to better development outcomes, suggesting instead that governance improvements may need to be more targeted or accompanied by other complementary interventions. On economic practices, the study concludes that economic policies related to domestic credit, natural resource management, and trade openness do not significantly influence sustainable development. This implies that current economic strategies in the region may not be sufficiently aligned with sustainable development principles or that their effects are too diffuse to be captured in aggregate measures.

Practical interventions should focus on enhancing governance effectiveness through capacity building and institutional reforms. While governance improvements alone did not show significant impacts, they remain foundational for sustainable development. Practical interventions should include strengthening public sector capacity for policy implementation, improving transparency mechanisms for sustainability initiatives, and establishing clear accountability frameworks for sustainable development outcomes. Specific attention should be paid to local-level governance structures that directly interface with sustainability implementation.

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