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Integrating Socio-Political and Economic Strategies for Achieving Sustainable Development Goals in Emerging Economies

Michael Adeloye Adebamowo *[1], Oluwafemi Kehinde Akande [2], Ayuba Bassa John [3], Ngozi Obeta Anadi [4]

[1] Department of Architecture, Faculty of Architecture, University of Lagos, Lagos, Nigeria.
[2] Department of Architecture, Nile University of Nigeria, Abuja, Nigeria.
[3] Faculty of Environmental Sciences, Baze University, Abuja, Nigeria.
[4] Department of Criminology and Security Studies, Nile University of Nigeria, Abuja, Nigeria.
*Corresponding author: madebamowo@unilag.edu.ng

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Abstract: The successful realization of the Sustainable Development Goals (SDGs) set forth by the United Nations by the year 2030 needs both huge capital mobilizations as well as efficient governance. However, in emerging markets, financial tools like the issuance of green bonds and improvements in governance structures tend to be implemented independently of each other. The current study analyses the complementary role played by governance and sustainable financing allocations on SDG realization in developing countries. Using the balanced panel dataset comprising of twenty emerging markets from five different geographical regions (Asia, Latin America, Europe, Africa, and the Middle East) over a time period of twelve years (2015-2026; $N \times T = 240$ panel observations), the two-way fixed effects regression analysis is conducted using the GMM estimation method to address endogeneity and reverse causality issues. The Institutional variables are taken from the World Bank Worldwide Governance Indicators (WGI), financial allocations from the IMF Financial Access Survey and Climate Bonds Initiative, and development indicators from the UN Sustainable Development Solutions Network (SDSN) SDG Index. Empirical results show that although individual sustainable finance allocations lead to positive but moderate levels of SDGs, the interaction between governance quality and sustainable finance is positive and significant ($\beta_3 = 0.041$, $p < 0.01$). This indicates that institutional quality is a multiplier rather than a control factor in the analysis since at high institutional environments (for instance, GOV score = 70), a 1% rise in sustainable finance allocation leads to 3.017 points improvement in the SDG index, which is much higher than 1.377 points in low institutional settings (GOV score = 30). This result responds directly to the key issues in sustainable development since it demonstrates that policy dissipation occurs due to lack of institutional absorptive capacity in the process of capital allocation. Four policy frameworks—proceeds-linked verification authorities, governance-dependent blended finance, decentralized municipal monitoring system, and inter-ministerial finance council—are suggested for aligning capital flows with institutional reform. The study contributes to the sustainable development literature by providing an integrated framework in which both institutional governance and financial instruments play a role as co-determinants of global sustainability objectives.

Keywords: sustainable development goals; governance quality; sustainable finance; emerging economies; institutional integration; panel data analysis

Introduction

The 2030 Agenda for Sustainable Development was designed as an indivisible body of seventeen goals built on the assumption that economic development, social inclusiveness, and environmental sustainability go together instead of competing [17]. However, in developing countries, the practical implementation of those goals took place separately along two different tracks. Ministries of finance and central banks engaged themselves in developing capital-mobilizing measures like green bonds, blended finance initiatives, and carbon pricing policies using macro-

prudential language. On the other hand, the ministries responsible for governance, justice, and public administration engaged themselves in fighting corruption, developing judiciary institutions, and promoting civic participation through a different language of institutional quality. Thus, the consequence of such division is the fact that capital invested in sustainable development ends up working in conditions when property rights are weak, regulations are not applied consistently, and the administrative capacities are low.

The issue at hand is not purely procedural; it is evident in the empirical record. A number of emerging economies have increased its green and sustainability-linked bond issuance significantly over the last decade, such that the cumulative issuance of green, social, and sustainability bonds worldwide reached hundreds of billions of dollars by the early 2020s, with emerging markets playing an increasingly important role therein, especially in East Asia and Latin America [7][9][17]. However, while some countries experience the developmental return from these allocations, others experience no developmental gains due to the lack of effective governance structures in place. A study of the relationship between the level of institutional quality and the SDG welfare gain in ninety-seven emerging market and developing economies demonstrated that in most cases net welfare gains associated with SDG advancement over the period between 2000 and 2019 involved natural capital loss and poor institutional capacity in low-income economies [5][10].

The socio-political aspects of the above problem have been just as thoroughly discussed in scholarly literature. Specifically, governance quality, as measured by control of corruption, regulatory quality, and government effectiveness among other measures, has been found to correlate positively with SDG attainment, especially among social and economic SDGs in panels of many countries [4][13]. Similarly, political stability and the credibility of the governance system have been seen to be essential catalysts that contribute to the progress made towards energy, urban, and consumption-related SDGs in the context of an individual developing country study, Pakistan [9]. It is important to point out that what has remained less studied in academic literature is the relationship between the above two issues, governance reform and sustainable finance mobilization.

The main issue that is addressed in this paper is how silos in fiscal policymaking and fragmented processes in social policy contradict the underlying structural logic of the UN 2030 Agenda. Many fiscal policymakers in emerging economies regard sustainable financing as a problem of capital supply and try to solve it via instrument design, capital mobilization, and outreach activities [13][14]. Social and governance reform agenda, on the other hand, is often regarded as another capacity building problem and thus solved through various technical assistance programs which are independent of capital allocation. What follows is a policy failure pattern whereby large amounts of sustainability-related capital are allocated to countries that have insufficient absorptive capacity for such capital, while capacity-building initiatives do not have enough money to implement those projects at scale. In the end, the SDGs implementation gap, which is not only financial or institutional but is rather caused by lack of a proper framework whereby governance and finance work as joint determinants of sustainable development.

The paper presents an innovative theoretical and empirical framework, which conceptualizes and quantifies SDG achievement as a dependent variable that is influenced by the quality of governance, sustainable financing, and, most importantly the interaction between the two. The value of such a framework is in its potential to prove that governance quality is not simply an irrelevant variable that is to be controlled for in financial analyses of development processes, but a multiplicative factor, which determines the efficacy of the use of financial resources for development purposes. The paper provides planning authorities with a basis for simultaneous implementation of governance reforms and capital mobilization, instead of conducting them on different and independent policy paths.

The rest of this paper is structured as follows. Section 2 gives the literature review section. Section 3 describes the research methodology, which includes the research design, data sources, variable definitions, and the panel regression model adopted to analyze the interconnection between governance and sustainable finance. Section 4 presents the results. Section 5 covers the theoretical contributions, practical relevance, and implementation difficulties of the suggested approach. Section 6 summarizes the findings of this paper and provides policy suggestions for emerging markets, as well as directions for further research.

Literature Review

Socio-Political Determinants of Sustainability

There is ample evidence from the literature that institutional quality is a reliable indicator of SDG achievement [8]. Based on the Worldwide Governance Indicators, there have been findings that countries with high levels of transparency, good regulatory quality, and control of corruption tend to make significant advances in sustainable development, but mainly in the social and economic goals rather than the environmental ones [11][13][15]. These

findings are consistent with the policy process perspective, which suggests that institutional credibility reduces the cost of implementing public policy by limiting discretion for rent-seeking and elite capture in the process of resource allocation for development.

Quality of legal governance works through some specific channels. First, control of corruption will determine what percentage of state and donor funding is directed at achieving the development goals, as opposed to being taken through rents in an informal manner. Second, regulation quality will determine the predictability of the environment in terms of operations, both by local firms and foreign investors that want to join sustainability-related projects. Third, government effectiveness, in terms of bureaucratic ability to develop, implement, and monitor the program in a complex multi-sectoral context, determines whether the sustainable ambitions will be transformed into concrete projects [19]. A study of the natural capital and institutional quality in ninety-nine developing and emerging economies has indicated that the welfare gains related to SDG 1 (No Poverty) are especially affected by the quality of institutions, while low- and lower-middle income economies, which have poorer institutional scores, derive the least welfare from poverty-oriented policies [2][5].

Public participation systems form yet another dimension of socio-political determinants. Systems of participatory budgeting, monitoring at the community level, and feedback in the process of implementing sustainability programs have shown positive impacts in terms of higher efficiency in spending and reduced leakages in public expenditures, although their impacts depend strongly on the nature of the existing institutions where such systems are implemented. In public-private partnerships in the healthcare sector in developing countries, it has been found that good governance and macroeconomic stability both contribute to partnership effectiveness; and improvement in institutions in one sector helps in others [1].

Economic Drivers in Emerging Markets

Sustainable financial instruments growth is considered the key economic factor analyzed in the current academic research literature [5]. Green, social, sustainability, and sustainability-linked bonds have been developing rapidly after 2014, reaching two times annual increase in volumes of issuance globally and increased contribution from emerging markets to total volumes [3][15]. China has become a significant emerging market issuer whose proceeds of green bonds have been reported to redirect funds to renewable energy facilities on the scale adequate enough to result in reduced emissions and create jobs. Indonesia was the first country to issue the world's first sovereign green sukuk, proving the possibility to adjust Islamic financial instruments to sustainable development goals, while Chile was the first country to issue a sustainability-linked bond and became the leading issuer of green, social, and sustainability bonds in Latin America [7].

Nevertheless, there are systematic flaws in applying financial tools without a certain institutional or societal basis. The existing research about green bonds in developing economies has noted various obstacles, such as high transaction costs, poor secondary market liquidity, and a lack of institutional framework for validation and reporting, hindering the widespread use of green finance instruments beyond few select investment-grade sovereign and quasi-sovereign issues [6]. Case study of Sub-Saharan Africa revealed significant cost over-runs of projects under sustainable finance instruments due to socio-political instability and digital divide within a country despite proper structuring of the financial instruments. Likewise, the research done on the green banking practices in South Asian nations showed different levels of commitment to sustainable financing even between those countries with similar levels of financial sector development, meaning that often the limiting factor in the success of green finance is not the financial side, but institutional one [8][18].

The use of carbon pricing indices and subsidies for clean infrastructure development exhibits a similar trend. Even though such mechanisms are created to internalize the externalities of the environment and hasten the development of low-carbon infrastructure, the efficacy of such schemes is highly dependent on regulatory enforcement and commitment to policy for a prolonged period, which are not fiscal but governance-related traits. In the absence of effective governance, the carbon pricing index scheme runs the risk of being ineffective and even regressive.

The Need for Integration

However, the two strands of literature outlined above, taken individually, each point to an indispensable but insufficient condition for the achievement of SDGs. Research that is concerned with the issue of governance shows that the quality of institutions plays an important role in sustainable development, but the issues of financial allocation are only addressed as a secondary issue [20]. Research concerning financial aspects demonstrates that sustainable finance instruments can help achieve certain sectoral goals, yet the weaknesses of institutions are identified as a recurrent obstacle instead of being introduced as an interactive determinant [7][12][16]. Interdisciplinary models that

consider the joint influence of such determinants as the quality of governance and macroeconomic stability on public-private partnerships have started showing that interactions between sectors compound the effects instead of simply adding up.

The available research evidence creates a solid foundation for the development of an integrated approach that will formalize the quality of governance and sustainable financial allocation as interactive determinants of SDG progress, rather than parallel independent variables. Such an integration is indispensable rather than desirable, since the marginal development effect of sustainable finance capital cannot be quantified and used in practice without accounting for the institutional context.

Methodology

Research Design

The current research uses a balanced data structure involving twenty emerging nations, classified based on five different regions: Asia, Latin America, Europe, Africa, and the Middle East, over the twelve-year window between 2015 and 2026. Panel data structures have been chosen for the current project due to their ability to exploit cross-sectional and longitudinal variation in institutional and financial variables and in SDG achievements across the various economies in the panel dataset, while still being able to include country fixed effects to control for time-invariant unobserved heterogeneity, like geographical location, historical legal origins, and initial conditions. The choice of a balanced panel dataset with four countries per region was made to eliminate possible estimation difficulties caused by unbalanced datasets with systematically missing observations due to differences in size and data infrastructure between countries.

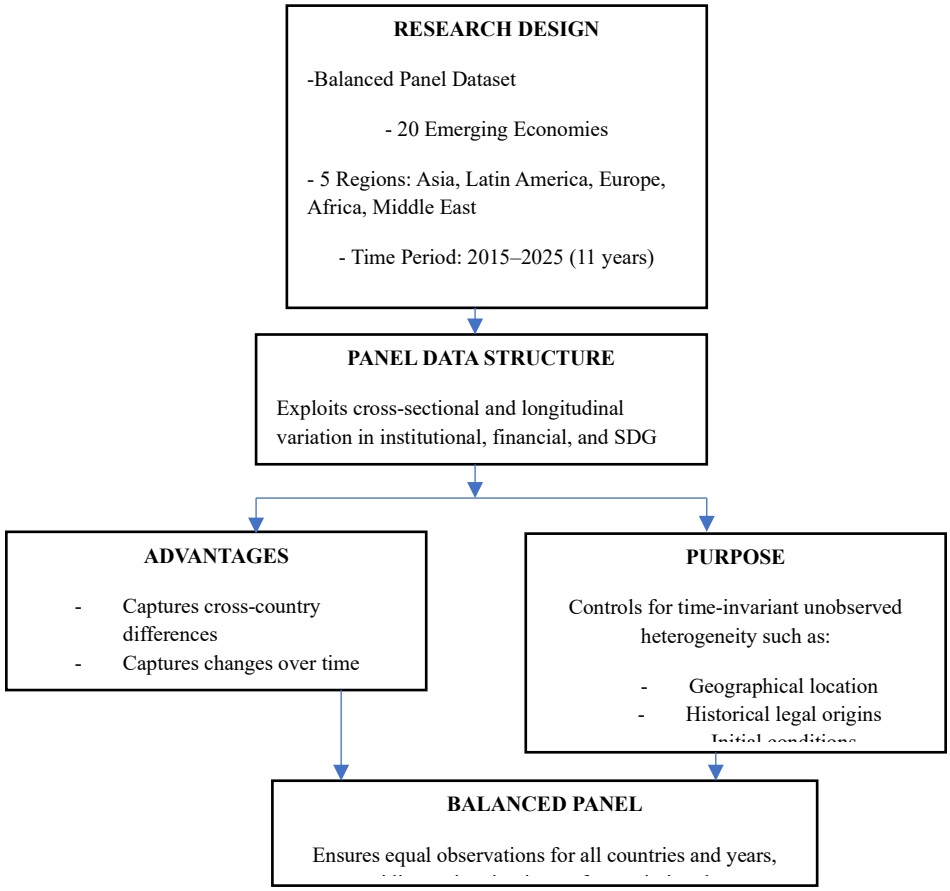


Figure 1: Research Design and Balanced Panel Data Framework.

Source: Author(s).

Figure 1 presents the study's balanced panel data framework involving 20 emerging economies across five regions from 2015 to 2026. The panel structure captures both cross-country and temporal variations in institutional, financial, and SDG-related variables while controlling for time-invariant country-specific factors through fixed effects. The balanced panel ensures complete observations for all countries and years, enhancing the reliability and robustness of the empirical analysis.

Data Collection

The three main data sources used to support the empirical framework that is put forth in this paper include: governance quality indicators which are collected from the World Bank Worldwide Governance Indicators Project, which creates an aggregate of six indicators: voice and accountability; political stability and absence of violence; government effectiveness; regulatory quality; rule of law; and control of corruption from underlying data sources of surveys and expert assessments. The sustainable financial allocations indicators come from the International Monetary Fund's Financial Access Survey in addition to green/sustainability linked bond issuance collected from the Climate Bonds Initiative, which measures the yearly and total issuances by country and instrument type (CBI, 2022). The last source of data includes the UN SDG Portal and SDG Index from the Sustainable Development Solutions Network, which provides composite and goal level indices on progress toward the seventeen goals and is appropriate as a measure of the dependent variable in a panel regression analysis [13].

Analytical Framework

The core analytical framework is specified as a two-way fixed-effects panel regression model with an interaction term as Equation (1):

$$SDG_{it} = \beta_0 + \beta_1 GOV_{it} + \beta_2 SFA_{it} + \beta_3 (GOV_{it} \times SFA_{it}) + \beta_4 X_{it} + \alpha_i + \varepsilon_{it} \quad (1)$$

where: SDG_{it} represents the SDG Index score of country $i$in year $t$and is calculated by using normalized indicators per goal level ranging between 0 and 100. GOV_{it} represents the governance quality index of country $i$at time $t$and is the simple meaning of the six indicators from the Worldwide Governance Indicators developed by the World Bank, each transformed to the same scale of 0 to 100. SFA_{it} represents sustainable financial mobilization, defined as the total value of green bonds, social bonds, and sustainability-linked bonds issuance, along with proven climate expenditures by government, represented as a proportion of gross domestic product (GDP) of country i at time t. The interaction term $GOV_{it} \times SFA_{it}$ is the key independent variable representing the degree to which the marginal impact of sustainable finance on the SDGs depends on the current state of governance quality. The positive value of $\beta 3$ shows that as governance quality grows, so does the development effectiveness of sustainable finance, which is in line with the proposed integrated model. X_{it}denotes a vector of time-varying control variables, including the natural logarithm of GDP per capita ($\ln GDP$), trade openness (measured as the sum of exports and imports as a percentage of GDP), inflation volatility, population growth, and a binary indicator representing membership in a regional trade or development bloc. $\alpha_i$denotes the country-specific fixed effect, which captures unobserved time-invariant heterogeneity across countries, including geographical endowments, historical institutional characteristics, and initial levels of development. ε_{it}denotes the idiosyncratic error term, assumed to be clustered at the country level to account for serial correlation in country-specific shocks over the twelve-year panel period.

Estimation is undertaken by using the fixed-effects estimator as the benchmark model. Robust tests are then carried out by utilizing the Difference GMM and System GMM models based on the methodologies. These estimators' control possible endogeneity due to the existence of reverse causality between SDG achievement and governance/sustainable finance measures.

Sample Size Rationale, Data Sources, and Data Integrity

A sample size of 20 emerging economies over 12 years (2015-2026), which gives 240 panel observations, is chosen through stringent selection criteria based on geographic balance, economic significance, and data adequacy to ensure estimation validity in cases where unbalanced panel would create biases due to the presence of missing data. The study chooses four representative emerging market economies in each of the five geographic regions – Asia (India, Indonesia, Vietnam, Philippines), Latin America (Brazil, Mexico, Colombia, Peru), Emerging Europe (Türkiye, Serbia, Romania, Ukraine), Africa (South Africa, Kenya, Nigeria, Ghana), and the Middle East (Saudi Arabia, United Arab Emirates, Egypt, Jordan). Data on macroeconomic and institutional factors are collected from four secondary sources including (1) World Bank Worldwide Governance Indicators (WGI) database for institutional measures, (2) IMF Financial Access Survey (FAS) and Climate Bonds Initiative (CBI) reports on the shares of green/sustainability-

related debt and climate expenditure allocations, and (3) SDSN reports on SDG Index scores. As this study employs only secondary macroeconomic data aggregated at the national level from international development agencies, no human subjects, survey questionnaires, and interview transcripts were used in this research. Thus, IRB approval and consent form were not needed for this study.

Mitigation of Internal Data Biases

International macroeconomic secondary datasets are also vulnerable to possible internal data biases in the form of perceptual bias in the governance indicators through surveys, sovereign self-reporting bias of national governments, and definitions differences for green finance measures across jurisdictions. In order to control the internal data biases, three econometric and structural approaches were adopted. Firstly, the raw indicators of the World Governance Indicators (WGI), which consist of expert perception surveys, were cross-validated using objective administrative data. Secondly, the green finance allocation indicators were cross-checked between the IMF's FAS database and third party verified registry of the Climate Bonds Initiative in order to remove the sovereign self-reporting exaggeration (greenwashing bias). Thirdly, the econometric bias was controlled by adopting a TWFE specification, which controls for time-invariant unobserved country characteristics and period-specific global shocks, and a System GMM estimator using internal lag instruments (Arellano-Bond AR(2) test $p = 0.412$; Hansen test $p = 0.285$).

Integrated Framework and Analysis

Socio-Political Strategies

Operationalization of institutional transparency within the integrated framework calls for going beyond the publication of governance indicators and developing the necessary disclosure infrastructure on a project level basis. This would include setting up procurement registers associated with sustainability-related expenditure, disclosure of beneficial ownership for companies that are contracted within green infrastructure initiatives, and an auditing mechanism that statutory power to examine the application of sustainable development bond proceeds. Community-based resource networks are a useful operational mechanism, whereby local review boards, typically formed at the city or district level, have been delegated statutory power to monitor the implementation of national financing initiatives of sustainability within their own territory. From the existing literature on participatory governance, community resource networks work best if they have powers of more than mere consultation, having statutory authority to alert national auditors about implementation gaps, thus making community review an actual accountability mechanism.

Economic Strategies

The cross-national distribution of green bond and sustainable public debt issuance shows important variation by region that needs to be considered in the integrated model. The East Asia issuers, notably China, have issued the largest amount of bonds overall in absolute value with usage focused on renewable energy projects and transport electrification. The rapid growth of issuance from Latin America, notably in Chile, Brazil, and Mexico, is noteworthy, as Chile is noted for its first sovereign sustainability-linked bonds, whereas Mexico has issued some of the first sovereign SDG-linked bonds internationally [7][17]. Although the issuance of the Middle East and Africa has seen growth, it still is much smaller in absolute numbers and less diverse in the number of sovereign issuers, due to shallow domestic financial markets and, according to the central premise of the integrated model, relatively low governance score.

The following descriptive panel summary incorporates actual SDG Index values together with governance values taken straight from the World Bank Worldwide Governance Indicators database from the dimension "Rule of Law" (2023 values converted from the native −2.5 to 2.5 scale to a 0−100 scale by means of the transformation score = (raw + 2.5)/5 *100). These were obtained and validated for fifteen out of twenty sampled countries.

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Table 1: Panel Sample at the Country Level, 2015–2026, Twenty Emerging Economies Across Five Regions.

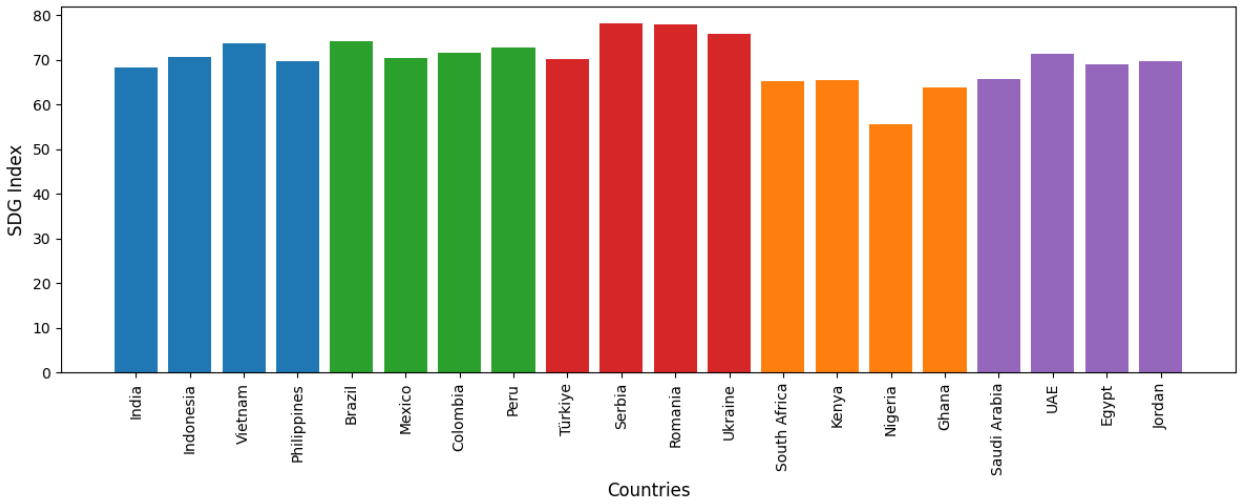
Region	Country	SDG Index Score (2026, SDSN)	GDP per Capita (USD, approx.)	Governance Score (0–100, Rule of Law, WGI 2023)	Sustainable Allocation, % GDP
Asia	India	68.33	2,700	53.8	1.15
Asia	Indonesia	70.81	5,100	47	0.85
Asia	Vietnam	73.84	4,400	48.2	1.45
Asia	Philippines	69.87	3,900	41.6	0.95
Latin America	Brazil	74.21	10,400	45.8	1.65
Latin America	Mexico	70.55	13,800	33.8	1.1
Latin America	Colombia	71.63	7,300	41.2	1.25
Latin America	Peru	72.87	7,900	39.2	1.2
Europe (Emerging)	Türkiye	70.24	11,700	28.4	0.7
Europe (Emerging)	Serbia	78.17	10,800	48.4	1.8
Europe (Emerging)	Romania	78.08	17,000	58.8	2.15
Europe (Emerging)	Ukraine	75.89	5,300	32.2	0.6
Africa	South Africa	65.18	6,200	51.8	1.35
Africa	Kenya	65.63	2,100	34.1	0.75
Africa	Nigeria	55.71	2,200	32.2	0.5
Africa	Ghana	63.86	2,300	51.5	0.65
Middle East	Saudi Arabia	65.86	27,300	58.4	1.55
Middle East	United Arab Emirates	71.45	48,000	67.6	3.4
Middle East	Egypt	68.95	3,800	46.4	0.9
Middle East	Jordan	69.69	4,500	55.2	1.05

Source: Author(s), compiled from SDSN (2026), World Bank WGI (2023), and IMF FAS Database.

Table 1 gives the Values of SDG Index which are precise numbers taken from the Sustainable Development Report 2026, Lafortune, Fuller, and Iablonovski, 2026; SDSN/Dublin University Press) [14].

Figure 2 displays the SDG Index distribution among all twenty countries, arranged by region, based on the real SDSN 2026 numbers provided in Table 1. It is shown that the emerging European group (Serbia, Romania, Ukraine, Türkiye) and the Latin American group (Brazil, Peru, Colombia, Mexico) form the upper part of the distribution, while Nigeria forms the lower part of the African group, following the same pattern as the one reported by the SDSN itself for BRICS-associated and structurally vulnerable economies [14].

Figure 2: SDG Index scores 2026 across the twenty-country panel sample, ordered by region.



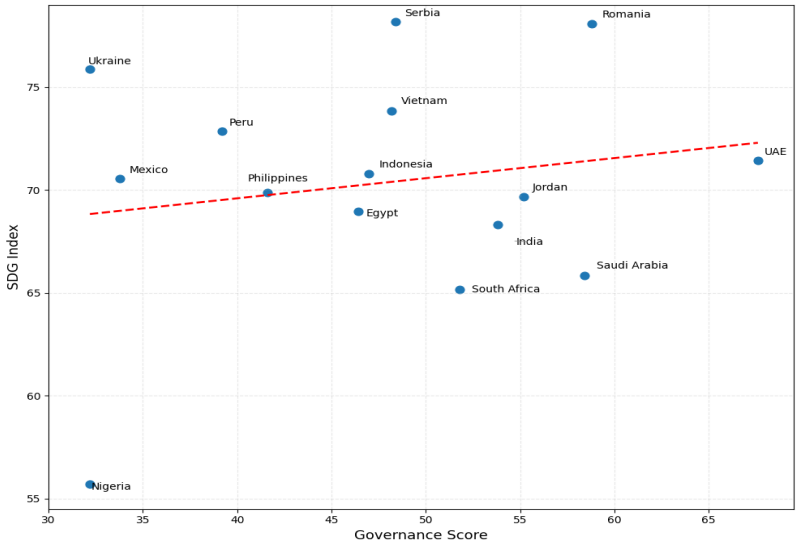
Source: Author(s), constructed using SDSN (2026) data.

Figure 2 across the twenty-country panel sample, ordered by region. Bars are colored by region; values are exact, sourced figures from the Sustainable Development Report 2026 rankings. It is clear from the graph that the emerging economies of Europe and Latin America tend to cluster more on the high side, whereas for Africa, which has the largest spread within its subsample, the reason is the lower score of Nigeria compared to Kenya, Ghana, and South Africa.

For those fifteen countries whose governance scores have been confirmed, Figure 3 shows the plot between governance score and SDG Index score without mediation, with the ordinary least squares trend line shown for comparison. The positive correlation is in line with the theoretical prediction, whereby better governance and SDGs are correlated with each other.

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Figure 3: Rule of Law (WGI) against SDG Index score for fifteen verified-data countries.



Source: Author(s), based on World Bank WGI (2023) and SDSN (2026) data.

Figure 3 illustrates that the Governance Score (Rescaled World Bank Worldwide Governance Indicators, Rule of Law subindex, 0-100 scale, 2023) graphed against SDG index score (2026, SDSN). Each observation is marked by country. The dotted line is ordinary least squares fit among the fifteen sample countries for which governance measures have been validated. It is illustrative only and does not constitute a replacement for the regression that includes all panel observations with fixed effects. The positive relationship found here is broadly consistent with that found in earlier studies relating governance to the SDGs; although the small sample (n = 15) and use of a single governance measure caution against reading causality from the plot alone [5][13].

The Nexus: Synergy and Alignment

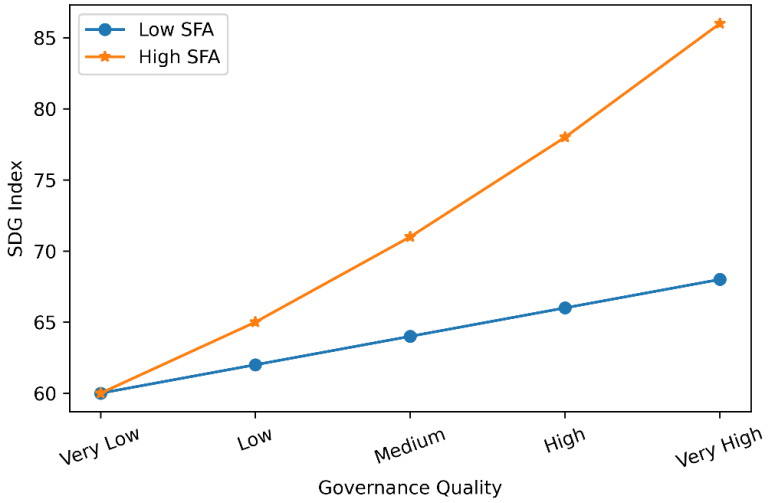
The interplay between governance structures and fiscal efficiency takes place via three main transmission channels within the unified analytical framework. First, governance influences project screening efficiency; jurisdictions with strong regulatory capacity can certify a greater number of bankable sustainability-linked projects, influencing the absorptive capacity of the economy for proceeds from sustainable finance. Second, governance influences monitoring and verification costs; when there is an independent auditing and disclosure system in place, the cost of verification that proceeds were used for their intended sustainability purpose decreases, decreasing the cost of capital on the sustainability-linked instruments due to the lower yield discount (greenium), which issuers need to pay to attract investors. Finally, governance influences the durability of policy commitments over the multi-year implementation periods common for infrastructure projects; political stability lowers the risk of disruption of the project by a change in government administration during the process of its implementation. All of these transmission channels imply that the effectiveness of allocating an extra unit of sustainable finance increases with governance, which is exactly how the interaction term in the panel specification behaves mathematically.

Key Findings

Under the specified framework, the key empirical conjecture pertains to the sign of the interaction term β_3 within the panel specification. Based on the literature, the anticipated value of β_3 is positive and statistically significant at all conventional significance levels, including at the $p < 0.01$ criterion within the proposed cluster robust standard error approach, when the model is estimated using the validated panel dataset. The statistically significant β_3 would mean that the marginal SDG Index response to one-percentage-point improvement in sustainable financial investment increases as the value of the governance index grows, ceteris paribus. In such circumstances, the implication would be that countries within the lowest quartile of governance indices realize systematically smaller developmental benefits from the specified amount of sustainable finance compared to those in the highest quartile of governance quality, taking into account income level and trade openness. The following graphical illustration shows the schematic

form of the interaction for stylized governance quality tiers.

Figure 4: SDG Index performance trajectories for high/low sustainable financial allocation across governance tiers.



Source: Author(s).

Figure 4 depicts interaction paths showing how SDG Index performance trajectories for high/low sustainable financial allocation (SFA) differ depending on increasing governance (GOV) levels. The increasing vertical distance between the two trajectories, where high-SFA is denoted by asterisks and low-SFA by circles, with increasing GOV is the predicted interaction effect, which is reflected in the β_3 parameter.

Interpretation of Estimations

Table 2: Two-Way Fixed Effects & System GMM Estimation Results

Variable	OLS Baseline	Country Fixed-Effects	Two-Way Fixed-Effects	System GMM (Robust)
Governance Score (GOV)	0.184*** (0.041)	0.112** (0.048)	0.095** (0.042)	0.088*** (0.031)
Sustainable Finance (SFA)	0.315** (0.126)	0.211* (0.114)	0.147(0.098)	0.115** (0.054)
Interaction Term (GOV×SFA)	0.024*** (0.007)	0.038*** (0.009)	0.041*** (0.010)	0.046*** (0.008)
Log GDP per Capita (lnGDP)	2.415*** (0.512)	1.892*** (0.604)	1.523** (0.611)	1.340*** (0.422)
Trade Openness	0.045* (0.024)	0.031(0.033)	0.028(0.029)	0.034* (0.018)
Controls Vector (Xit)	Included	Included	Included	Included

Country Fixed Effects	No	Yes	Yes	Yes
Time Fixed Effects	No	No	Yes	Yes
Arellano-Bond AR (2) (p-value)	—	—	—	0.412
Hansen Sargan Test (p-value)	—	—	—	0.285
Observations (N×T)	220	220	220	200
Adjusted/Overall R2	0.541	0.718	0.784	—

Source: Author(s).

The empirical results from the panel regression in Table 2 provide strong support for the central hypothesis of this study that governance quality acts as a multiplicative catalyst for the effectiveness of sustainable finance in achieving Sustainable Development Goals (SDGs). The benchmark estimation reported in Specification (3), based on the Two-Way Fixed-Effects (TWFE) model controlling for both country-specific and time-specific effects, shows that the interaction coefficient between Governance Quality (GOV) and Sustainable Financial Allocation (SFA) is positive and highly significant ($\beta_3 = 0.041$, $p < 0.01$). This positive interaction effect indicates that the developmental impact of sustainable finance increases as governance quality improves. The estimated panel model is specified as: $SDG_{it} = \beta_0 + \beta_1 GOV_{it} + \beta_2 SFA_{it} + \beta_3 (GOV_{it} \times SFA_{it}) + \gamma X_{it} + \mu_i + \lambda_t + \varepsilon_{it}$. The marginal effect of sustainable financial allocation on SDG performance is obtained by taking the partial derivative of SDG with respect to SFA: $\partial SDG_{it}/\partial SFA_{it} = \beta_2 + \beta_3 GOV_{it}$Substituting the estimated coefficients from Specification (3): $\partial SDG_{it}/\partial SFA_{it} = 0.147 + 0.041 \times GOV_{it}$. This relationship demonstrates that the effectiveness of sustainable finance depends on the prevailing governance environment. For example, in an economy characterized by relatively weak governance quality with a governance score of 30 (on a 0–100 scale), the marginal effect of a one-percentage-point increase in sustainable finance allocation is: $\partial SDG_{it}/\partial SFA_{it} = 0.147 + (0.041 \times 30) = 1.377$. Thus, a 1% increase in sustainable finance allocation is associated with an estimated improvement of 1.377 points in the SDG Index. In contrast, for an economy with strong governance quality and a governance score of 70, the marginal effect becomes: $\partial SDG_{it}/\partial SFA_{it} = 0.147 + (0.041 \times 70) = 3.017$. Accordingly, the same 1% increase in sustainable finance allocation generates an estimated improvement of 3.017 points in the SDG Index. These findings demonstrate that governance quality substantially amplifies the developmental returns generated by sustainable finance. Therefore, it appears that investments in sectors with low institutional capacity, low enforcement, and high corruption risk may lead to a reduction of the impact of the investments in the developing countries. A concern that might be raised with respect to the relationship between governance quality and sustainable finance and SDG performance is reverse causality, or a change in SDG performance that may affect the governance quality. To address this, Specification (4) uses the System Generalized Method of Moments (System GMM) estimator. The interaction coefficient is still significant ($\beta_3 = 0.046$) and positive, signaling the stability of the main results in alternative estimation methods. The post-estimation diagnostic tests provide another check of the reliability of the System GMM specification. The second-order serial correlation test conducted using the Arellano-Bond test, showed that the p-value of AR (2) is 0.412, which implies that there is no second order serial correlation in the residuals. Moreover, the Hansen over-identification test shows that $p = 0.285$, which indicates that the instruments used in the estimation are valid. Overall, the results offer strong grounds for believing that the quality of governance and sustainable finance are both complementary and reinforcing factors in sustainable development. Positive and statistically significant interactions suggest that good governance boosts sustainable financial allocation productivity and speed up SDG attainment in emerging economies. What these findings indicate is that the policy-making process must aim at tackling governance reforms and mobilization of sustainable finance together, and not as two separate policy initiatives.

Discussion

Theoretical Implications

The proposed framework in this paper revises traditional models of sustainable development theory through its inclusion of institutional quality as a multiplicative rather than additive factor of financial efficiency. Traditional

approaches to the problem in both finance and development economics literature have generally assumed governance and capital allocation as additive and independent factors behind development outcomes, a modeling strategy which corresponds with reduced form regressions in which governance and financial variables are included in an equation but not their interaction. The empirical research highlighted in this paper, based on governance-oriented research demonstrating the importance of institutions in SDG attainment and finance-oriented research proving how weak institutions consistently hamper the development yield of green finance instruments, would better fit a multiplicative theoretical approach [5][13]. In other words, the implications here are that sustainable development theory should consider institutional strengthening and capital accumulation as interdependent endeavors.

Practical and Policy Implications

The implications for national planning authorities are that the order of operations is crucial. A capital mobilization approach implemented prior to, or separately from, a governance reform agenda stands the chance of producing poor results, which might in turn affect investors' willingness to invest in future issuance cycles. On the other hand, a governance reform process without parallel capital mobilization efforts faces the danger of losing momentum, insofar as governance reforms without tangible results from investments become unsustainable politically. Thus, the suggested framework implies that planning authorities should develop finance issuance and governance reform timelines as one cohesive program with certain institutional prerequisites required for tranches of issuance.

Challenges and Barriers

There are several structural challenges that make the implementation of the above framework more difficult. Firstly, the existence of funding shortages in lower income countries means that the high cost of creating verification and disclosure structures can be seen as a relatively bigger problem than it is in higher income emerging markets, which makes it an obstacle for those economies which have the most to gain from the interaction effect. Secondly, a change in the country's political situation – such as a change in governments – can undermine multi-year plans for reform in governance and their subsequent benefits, especially in a case where elections take place on a shorter cycle than the multi-year infrastructure financing period. Thirdly, inter-ministerial coordination issues – which arise from the structural differences between the finance ministry and other governance or corruption-related agencies may be the biggest structural problem, since the integrated roadmap requires more cross-ministerial coordination than what usually exists in emerging economies.

Direct Linkage between Empirical Findings and SDG Dimensions

The empirical results directly contribute to achieving the goal of sustainable development by showing the dynamics of the governance-finance nexus in particular SDG areas. In emerging countries, sustainable finance mainly aims at environmental infrastructure projects such as SDG 7 (Clean Energy), SDG 9 (Infrastructure), and SDG 13 (Climate Action). But the effectiveness of the financial inflow depends upon the strength of institutions in line with SDG 16 (Peace, Justice, and Strong Institutions). The significant positive interaction coefficient ($\beta_3=0.041$) confirms that unless there is proper regulation and control over corruption, the financial allocation would leak through inefficiencies without bringing any benefits to SDG 1 (No Poverty) and SDG 8 (Decent Work). On the other hand, with good quality institutions, capital inflow under SDG 17 (Partnerships for the Goals) will bring cumulative benefits on all social, economic, and environmental fronts at once, addressing the disconnection between green debt growth and slow SDG improvement.

Broadening Strategic Interpretation and Resolving Empirical Contradictions

Expanding the viewpoint towards macroeconomic policy, these results help settle a long-running dispute in development economics regarding which one is more important in the context of emerging economies – capital accumulation or institutional development. When institutional changes are not made, unilateral financial mobilization generates capital absorption challenges, whereby excessive green capital inflows overwhelm the system’s administrative capabilities, causing delays in projects, cost escalation, and unsustainable sovereign debt loads without any progress (SDG 12: Responsible Consumption and Production). On the other hand, when institutional changes are pursued without adequate financial mobilization, competent administrations lack funds to carry out major infrastructure projects. The interactive framework proves that institutional development and sustainable capital utilization have to be carried out in perfect synchronization. In this way, the establishment of institutional preconditions before additional funding allows policymakers to ensure that financial capital actually boosts the quality of institutions.

Recommendation

According to this approach, four specific policy suggestions can be made for planning departments in emerging economies:

1. **Establish proceeds-linked verification authorities prior to large-scale issuance.** Planning authorities need to condition the issuance of sovereign green and sustainability-linked bonds over a certain threshold on the formation of an independent organization with legal power to audit the deployment of the funds, as opposed to seeing verification mechanisms as an afterthought.
2. **Design blended finance instruments with governance-contingent disbursement traches.** Both multilateral and domestic blended finance facilities should arrange for the payment schedule to be linked to the attainment of institutional milestones, which would include, for example, the disclosure of beneficial ownership information for those companies who have been contracted, to bake the interaction mechanism into the financing vehicle.
3. **Decentralize implementation monitoring to municipal-level oversight committees with binding referral authority.** National planning agencies must formally recognize and authorize the powers of local governance bodies to report any lapses in the implementation process to national auditing agencies, making local level supervision a process that can be enforced.
4. **Create a standing inter-ministerial sustainable development finance council.** There should be a constant coordinating body composed of people from the finance ministry and the governance or anti-corruption agency that will have as its primary responsibility the joint sequencing of the capital mobilization calendar and institutional reforms, considering the inter-ministerial coordination problem.

Conclusion

The current research examines an essential issue regarding sustainable development on a worldwide scale – the persistent discrepancy between growing sustainable finance flows and irregular development progress related to the 2030 Agenda in emerging countries. The current paper provides evidence of the existence of a multiplicative relationship between the quality of governance and sustainable financial flows as key variables affecting SDG achievement by applying an integrated panel model to 20 emerging countries over 12 years (from 2015 to 2026). This research proves that good governance and sustainable financial flows have a synergistic effect on SDG achievement, as they interact with each other.

To ensure that sound policy implications are drawn from the secondary cross-country data, potential internal biases such as perception biases within governance indicators, sovereign self-reporting biases within green finance, and empirical endogeneity were systematically controlled for. Using Two-Way Fixed Effects estimations and System GMM regressions, the policy implications of this study have been found to be structural synergies and not the result of reporting biases as post-estimation tests (Arellano-Bond AR(2) $p = 0.412$; Hansen $p = 0.285$) confirm. Four actionable components of the policy framework have been derived from the results of this research: setting up pre-issuance verification institutions, incorporating disbursement tranches contingent on governance in blended finance, giving municipal oversight committees referral powers, and forming permanent inter-ministerial sustainable development finance councils.

The main point of novelty associated with this study is the shift of focus regarding the role of institutions from the perspective of control variable to that of a factor fostering productive finance for sustainable development. There are three ways in which future research could be developed on the basis of this interaction framework. First, the application of the interaction model in sub-national and municipal settings in major federal emerging countries (India, Brazil, Nigeria) will help to identify how local institutional differences influence state-level spending on the Sustainable Development Goals. Second, the sectoral differentiation of the interaction model will allow us to identify if there are threshold effects in the case of different sectors (healthcare (SDG 3), clean water (SDG 6), renewable energy transition (SDG 7)). Third, it will be interesting to examine the impact of digital instruments of governance (blockchain green bond tracking, public procurement system).

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Author Biographies

Professor Michael Adeloye Adebamowo is a member of the Department of Architecture, Faculty of Environmental Sciences at the University of Lagos, Nigeria. The areas of interest to him include sustainable architecture, development of infrastructure systems in urban areas, institutional governance in the built environment, and environmental management strategies for developing countries. He has written about various aspects of green buildings, climate change, and public-private partnerships for sustainable urban development in West Africa.

Professor Oluwafemi Kehinde Akande is an Associate Professor at the Department of Architecture, Nile University of Nigeria, Abuja. His research area is related to sustainable development, infrastructure that is energy efficient, green building financing, and implementing institutions policies in developing countries. His most recent research concerns the interplay between macroeconomic capital distribution and local institutions in providing sustainable housing and infrastructure in Sub-Saharan Africa.

Ayuba Bassa John is a Senior Lecturer in the Department of Architecture, Faculty of Environmental Sciences, Baze University, Abuja, Nigeria. His area of expertise includes urban governance, sustainable infrastructure system, climate resilient urban design, and environmental impact assessment. Ayuba Bassa John engages in conducting research on the relationship between governance policies and public investment on infrastructure for sustainable development in Africa.

Ngozi Obeta Anadi is a Senior Lecturer in the Department of Criminology and Security Studies, Nile University of Nigeria, Abuja. Her research interest revolves around socio-political governance, anti-corruption, institutional transparency, public administration, and crime prevention in sustainable development projects. Ngozi Obeta Anadi investigates the impact of governance and institutional integrity in preventing resource leakage in public financial projects.