

The role of institutional efficiency in achieving the SDGs: evidence from Africa

Influence of institutional quality on SDGs

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Abstract

Purpose – The objective of this study is to analyze the influence of institutional quality on the attainment of the Sustainable Development Goals (SDGs) using a data set comprising 45 African nations during the timeframe 2000 to 2020.

Design/methodology/approach – The data are divided into two periods, with the Millennium Development Goals (MDGs) data covering the years 2000–2015 and the SDGs data spanning from 2015 to 2020. Controlling for other factors, the researcher employs an index of institutional quality and applies the generalized method of moments (GMM) method to analyze the data.

Findings – The findings demonstrate a noteworthy inverse relationship between institutional quality and the achievement of both the MDGs and SDGs. The findings reveal a significant and positive link between economic growth and the achievement of the MDGs, while the impact on the SDGs is shown to be insignificant. Population growth significantly drives the SDGs. The results further reveal that trade openness and industrialization contribute positively to the achievement of both the MDGs and SDGs.

Practical implications – The findings emphasize the importance of improving institutional quality, promoting economic growth and supporting trade openness and industrialization for sustainable development in African countries.

Originality/value – The contribution of the study is twofold. Firstly and to the best of the author's understanding, this research marks an initial endeavor to empirically investigate the nexus between institutional quality and the SDGs in the context of Africa. Secondly, it adds novelty to the literature by examining how institutional quality influences both the SDGs and their precursor the MDGs, providing insights into the actual contribution of institutions to development within the framework of these two major global compacts.

Keywords Institutional quality, Sustainable development goals, Africa, GMM technique

Paper type Research paper

1. Introduction

The idea of sustainable development has gained increasing prominence in recent years as an objective for human civilization (Sofrankova *et al.*, 2021). Sustainable development “focuses on addressing the economic, social, and environmental aspects in a way that fulfills the needs of the current generation while safeguarding the well-being of future generations” (International Institute for Sustainable Development, 2015). Over the years, sustainable development has garnered global attention following the adoption of the Sustainable Development Goals (SDGs) by the United Nations (UN) in 2015. Prior to the SDGs, the

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Millennium Development Goals (MDGs) were in place. The MDGs, developed by the UN in 2000, consisted of eight goals aimed at alleviating poverty and improving the quality of life in developing nations. These goals included “reducing extreme poverty and hunger, achieving universal primary education, promoting gender equality and empowering women, reducing child mortality, improving maternal health, combating HIV/AIDS, malaria, and other diseases, ensuring environmental sustainability, and developing a global partnership for development.” In terms of achieving the MDGs in Africa, the continent experienced varying degrees of success. While there were some significant achievements such as a reduction in extreme poverty and a rise in primary education enrolment, many targets were not fully met (United Nations, 2015). Challenges such as high rates of maternal and child mortality, the prevalence of HIV/AIDS and malaria and other obstacles persisted (World Health Organization, 2015).

Building upon the lessons learned from the MDG era, the UN approved the SDGs in 2015 to drive global development. These internationally agreed-upon goals are interrelated and represent an ambitious attempt to tackle major global challenges holistically. The SDGs are comprehensive and consist of 17 goals and 169 targets (United Nations, 2015), covering areas such as poverty reduction, educational attainment, gender equality, infrastructural development, climate action and industrial innovation, within a framework of partnerships and cooperation. Collaboration among key stakeholders and relevant organizations is thus imperative for formulating effective policies to achieve these goals. However, Africa faces significant obstacles in reaching the SDGs, including inequality, poverty, inadequate infrastructure, limited access to essential services and weak governance (United Nations Development Programme, 2017). Additionally, the instability and conflicts that plague many African nations pose additional challenges to implementing development initiatives (World Bank, 2017).

To make progress in achieving the SDGs in Africa, it is critical to address the underlying factors that contribute to poverty and inequality and to establish and strengthen collaborations for a more inclusive and sustainable development path in the region. Although there has been some progress in Africa toward attaining the SDGs, particularly in areas such as improving access to education, reducing child mortality and providing clean water, challenges persist. For instance, the proportion of children attending primary school in Africa has increased, with 91% of eligible children currently enrolled (United Nations, 2020). Similarly, the under-five mortality rate has decreased, with an estimated 38 deaths per 1,000 live births in 2018, compared to 90 deaths per 1,000 live births in 2000 (World Health Organization, 2020). However, progress has been slow in other critical areas, such as poverty reduction, inequality alleviation, improved health outcomes and combating climate change. Poverty rates, for instance, remain high across the continent, with approximately 41% of the population living below the international poverty threshold of \$1.90 per day (World Bank, 2020).

Understanding the driving forces behind the attainment of the SDGs is essential for effective policy formulation, consolidating achievements and making further progress in Africa’s overall SDG score. The ultimate objective is to achieve significant improvements in key development outcomes and enhance the socioeconomic well-being of the population. This research aims to contribute to this understanding by investigating how institutional quality facilitates the achievements of the SDGs in Africa. The impact of institutional quality on SDGs is worth examining, as institutional structures significantly influence social interactions among individuals, entities and social actors, which are fundamental to the SDGs.

Indeed, the role of institutions in promoting economic development has received considerable attention in academic discourse. Development economists, in particular, have examined this mostly in the now-familiar institutions and geography debate. For instance,

Rodrik *et al.* (2002) and Easterly and Levine (2002) argued for the primacy of institutions in explaining economic growth, emphasizing that geographical characteristics, at best, have indirect effects on economic growth. Similarly, Acemoglu and Robinson (2012) argued that economic success depends on a political order anchored on inclusive institutions. This paper thus pursues the institutional hypothesis, specifically focusing on the role of institutional quality in attaining the globally agreed-upon SDGs. Hence, the study seeks to answer the following research question: Does institutional efficiency influence the attainment of the SDGs in Africa?

The contribution of the study is twofold. First, to the best of our knowledge, this study represents an initial endeavor to investigate, through empirical means, the link between institutional quality and the SDG in the African context. Aside from this, the paper adds novelty to the literature by examining how institutional quality influences both the SDGs and their precursor, the MDGs. This allows us to determine the actual contribution of institutions to development in the context of two major global frameworks. The study also employs the system generalized method of moments (GMM) method to deal with possible endogeneity issues inherent in panel studies.

The next section reviews the existing literature on the nexus between institutions and development. Section 3 discusses the research approach, Section 4 presents the key findings and the final section concludes with some recommendations.

2. Literature review

2.1 Theoretical Underpinning

This study focuses on institutional economics theory, which emphasizes the importance of institutions in shaping economic behavior. Institutional economics theory can be classified into two categories: Old Institutional Economics (OIE) and New Institutional Economics (NIE). The OIE theory, introduced by Hamilton (1919) in the late nineteenth century, highlights how culture and history influence institutions. It recognizes the role of informal institutions such as norms and conventions in shaping a country's economic performance, aspects that are often overlooked in conventional economics. On the other hand, the NIE theory emerged in the late twentieth century and emphasizes the effectiveness of institutions in supporting economic development. According to NIE theorists (Williamson, 1985; Schotter, 1981; Hayek, 1982), factors such as property rights, the rule of law and the degree of corruption significantly impact economic growth.

In summary, the OIE theory emphasizes the cultural and historical foundations of institutions, whereas the NIE theory focuses on the effectiveness of institutions and their contribution to economic development. The OIE theory takes a more qualitative approach with less formal structures, whereas the NIE theory is more quantitative and formalized. Accordingly, this study predominantly adopts the framework of the new institutional economics theory.

2.2 Empirical literature on institutions and development outcomes

In recent years, the empirical literature on the influence of institutions on development has significantly expanded, with a wide range of research investigating the link between institutions and various development outcomes. For example, a study conducted by Nguyen *et al.* (2018) found a strong and positive relationship between institutional quality and economic growth in a selected group of emerging markets. Salman *et al.* (2019) explored the connection between growth and institutional quality in a panel of three East Asian nations between 1990 and 2016, showing that strong institutions promote economic growth. Hayat (2019) applied the system GMM estimation technique with data from 104 countries and

revealed that the quality of institutions strongly influences economic growth. [Kunawotor et al. \(2020\)](#) investigated the influence of institutional quality on income inequality in Africa from 1990 to 2017, discovering that institutional quality factors significantly reduce income inequality. Pursuing similar themes, [Szczepaniak et al. \(2022\)](#) demonstrated that changes in institutional factors, such as economic freedom, regulatory quality and voice and accountability, considerably decreased income inequalities in the case of Indonesia. Finally, [Dossou et al. \(2023\)](#) found in Latin America that governance quality plays a significant role in reducing poverty. From the empirical review, the link between institutional quality and development outcomes is strong.

Institutions also have a significant impact on human development outcomes. Studies have indicated that countries with stronger institutions typically have higher levels of human development, including better outcomes in the areas of health and education. Regarding health outcomes, [Rehmat et al. \(2020\)](#) demonstrated that institutional quality helps improve life expectancy and lower infant mortality rates. Similarly, using different proxies for institutional quality, [Ouedraogo et al. \(2020\)](#) found that institutions contribute to increased life expectancy at birth in sub-Saharan Africa. [Dhrifi \(2020\)](#) found that the quality of institutions has a crucial influence on how health spending affects infant mortality rates, acting as a key factor in shaping their relationship. On the other hand, [Bunyaminu et al. \(2022\)](#) provided evidence that health spending lowers life expectancy in Africa through the mediating influence of effective governance.

In other contexts, [Ahmed \(2023\)](#) suggested that at the firm level, integrated reporting plays a crucial part in achieving the Sustainable Development Goals (SDGs). This is achieved by utilizing integrated thinking, which incorporates sustainable practices into the organization's strategy and facilitates the assimilation of various forms of capital. [Ye et al. \(2023\)](#) revealed that investing in the environment and social activities contributes positively to achieving the SDGs in China. [Huang \(2023\)](#) demonstrated that eliminating obstacles related to the economy, society and technology positively enhances the attainment of the SDGs in ASEAN countries.

Generally, empirical research on the influence of institutions on development highlights the importance of institutions in determining economic growth and development. However, the link between institutions and development remains complex, and further research efforts are needed to understand its intricacies. Specifically, the impact of institutional efficiency on achieving the SDGs has not been extensively studied. Hence, the primary objective of this research is to fill this gap in the existing literature and enhance our understanding of the significance of institutional efficacy in the realization of the SDGs in Africa.

Accordingly, the plausible hypothesis for this study is stated as follows:

Null hypothesis: Institutional efficiency has no significant influence on the SDGs in Africa.

Alternative hypothesis: Institutional efficiency has a significant influence on the SDGs in Africa.

3. Research methodology

3.1 Data and variables

The study primarily relies on secondary data and considers 45 African countries, which are listed alphabetically in [Table 1](#). The SDG index serves as the dependent variable, obtained from the 2022 Sustainable Development Report (SDR), which includes both the MDGs and SDGs. Therefore, we split the data into two periods: the MDGs data covering 2000–2015, and the SDGs data spanning from 2015 to 2020. This division allows for comparative analysis. Institutional quality (INSQ) is the independent factor, also constructed as an index using different sub-indicators of institutions, including “control of corruption (COC), rule of law

1. Angola	2. Benin	3. Botswana	4. Burkina Faso	5. Burundi
6. Cabo Verde	7. Cameroon	8. Central African Republic	9. Chad	10. Comoros
11. Congo, Dem. Rep	12. Congo, Rep	13. Cote d'Ivoire	14. Equatorial Guinea	15. Ethiopia
16. Gabon	17. Gambia, The	18. Ghana	19. Guinea	20. Guinea-Bissau
21. Kenya	22. Lesotho	23. Liberia	24. Madagascar	25. Malawi
26. MAli	27. Mauritania	28. Mauritius	29. Mozambique	30. Namibia
31. Niger	32. Nigeria	33. Rwanda	34. Sao Tome and Principe	35. Senegal
36. Sierra Leone	37. Somalia	38. South Africa	39. South Sudan	40. Sudan
41. Tanzania	42. Togo	43. Uganda	44. Zambia	45. Zimbabwe

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Table 1.

List of countries

Source(s): Author's own computation

(ROL), regulatory quality (RQ), and voice and accountability (VA)". The data for institutional quality are retrieved from the Worldwide Governance Indicators. The study employs the methodology applied by [Yakubu *et al.* \(2021\)](#) to construct an index of institutional quality, employing the principal component analysis (PCA) technique. PCA "is a technique used for reducing dimensions of a dispersed multivariate data set into a smaller set of uncorrelated data without losing information" ([Bartholomew, 2010](#); [Banda and Kumarasamy, 2020](#); [Bashiru *et al.*, 2023](#)). [Table 2](#) displays the results of the PCA considering the sub-institutional factors.

In addition to examining the quality of institutions, the study also considers the influence of economic growth (ECG), population growth (POP), trade openness (TOP) and industrialization (IND). GDP per capita is used as a metric to assess the level of economic growth. Population represents the annual population growth rate. Trade openness is defined as the aggregate of merchandise exports and imports as a percentage of GDP ([Yakubu and Bunyaminu, 2021](#)). Following the work of [Musah and Yakubu \(2022\)](#), industrialization is measured using manufacturing value added as a percentage of GDP. The data for these variables are obtained from the World Bank.

Component	Eigenvalue	Difference	Proportion	Cumulative
1	3.5045	3.2472	0.8761	3.5045
2	0.2573	0.0849	0.0643	3.7618
3	0.1724	0.1067	0.0431	3.9343
4	0.0657	–	0.0164	4.0000

Principal components (eigenvectors)				
Variable	PC 1	PC 2	PC 3	PC 4
COC	0.5018	–0.0197	–0.8007	0.3268
ROL	0.5154	–0.3284	0.0081	–0.7915
RQ	0.5019	–0.4417	0.5359	0.5156
VA	0.4803	0.8347	0.2678	–0.0308

Source(s): Author's own computation

Table 2.
Principal component analysis

3.2 Empirical model

The basic empirical model for examining the effect of institutional quality on the SDGs is specified as follows:

$$SDG_{it} = \alpha + \beta'X_{it} + v_i + \varepsilon_{it} \quad (1)$$

where the subscripts i and t , respectively, denote the country and year. The constant term is indicated by α . The variable X represents the independent variables, and β represents their coefficients. The letter v represents unobservable country characteristics, and the error term is ε .

3.3 Estimation method

Since the data used in this study are cross-sectional, several cross-panel regression approaches can be applied for data analysis. The most commonly used methods include pooled ordinary least squares (OLS), fixed-effects and random-effects techniques. However, it is important to acknowledge that these approaches do not account for endogeneity issues that are often present in panel data. Therefore, the data analysis in this study employs the GMM technique, which was developed by [Arellano and Bond \(1991\)](#) and improved upon by [Blundell and Bond \(1998\)](#). This method is specifically designed for panel data analysis and addresses potential endogeneity problems in such studies. Furthermore, the GMM technique is capable of producing estimates that are consistent concerning heteroskedasticity and autocorrelation.

With the GMM technique, the lagged value of the dependent variable is introduced. In this case, [equation \(1\)](#) is re-specified as follows:

$$SDG_{it} = \alpha + \gamma SDG_{it-1} + \beta'X_{it} + v_i + \varepsilon_{it} \quad (2)$$

4. Results and discussion

4.1 Descriptive statistics

[Table 3](#) displays the summary statistics for the variables. The mean of MDGs is 50.1469, ranging from 38.4494 to 66.8114. Similarly, the average value of SDGs is 53.8930, with maximum and minimum scores of 68.4647 and 38.4494, respectively. Institutional quality has an average value of 2.70E-16. The mean of economic growth is 4590.0870. Population growth has an average value of 2.4616%. Trade openness is averaged at 64.1460%. The mean of industrial value added (a proxy for industrialization) is 10.2778%. Furthermore, all the variables are positively skewed, except SDGs and population growth. Based on the findings of the Jarque-Bera test, it can be deduced that the variables do not exhibit a normal distribution at a significance level of 5%.

	MDG	SDG	INSQ	ECG	POP	TOP	IND
Mean	50.1469	53.8930	2.70E-16	4590.0870	2.4616	64.1460	10.2778
Maximum	66.8114	68.4647	4.3033	28313.4300	4.0429	146.4021	25.7506
Minimum	38.4494	38.4494	-3.8452	0.0000	0.0023	0.7846	1.7686
Std. Dev	5.4894	6.1167	1.6647	5087.0130	0.7701	28.3283	4.5743
Skewness	0.3286	-0.4191	0.2190	2.2599	-0.9971	0.4736	0.6242
Kurtosis	3.4758	3.5132	2.9843	7.7575	4.1839	3.1788	3.1832
Jarque-Bera	17.9955	9.9003	2.1616	484.4427	60.5048	9.4445	15.4565
Probability	0.0001	0.0071	0.3393	0.0000	0.0000	0.0089	0.0004
Observations	656	246	270	270	270	244	233

Table 3.
Descriptive statistics

Source(s): Author's own computation

4.2 Correlation analysis

The findings displayed in Table 4 demonstrate the outcomes of the correlation analysis, illustrating the associations between the independent variables. Overall, the results reveal low correlation coefficients among the variables, with the highest coefficient recorded as 0.4605. According to Kennedy (2003), a strong correlation exists when the coefficient surpasses 0.80. Applying this threshold from Kennedy (2003), we can infer that this study does not encounter any issues of multicollinearity. Additionally, the variance inflation factor (VIF) and tolerance tests are less than 10 and greater than 0.1, respectively. This indicates the absence of multicollinearity among the independent factors (Gujarati, 2003 cited in Yakubu, 2019).

4.3 Regression results

Table 5 presents the output of the GMM estimation. The appropriateness of the instruments used is verified by the Hansen J test, affirming their validity. The significance of the model is further supported by the p -value derived from the Wald test. Moreover, the absence of second-order autocorrelation is evident from the p -value obtained from the AR (2) test. These

	INSQ	ECG	POP	TOP	IND
INSQ	1.0000				
ECG	0.3404	1.0000			
POP	-0.4605	-0.2804	1.0000		
TOP	0.1669	0.3150	-0.3685	1.0000	
IND	-0.2054	0.2905	-0.0710	0.1056	1.0000
VIF	1.6217	1.8297	1.6330	1.1946	1.1199
Tolerance	0.6166	0.5465	0.6124	0.8371	0.8929

Source(s): Author's own computation

Table 4.
Correlation analysis

Variables	MDGs	SDGs
SDG _{t-1}	0.9919*** (0.0085)	0.7160*** (0.0937)
INSQ	-0.0122*** (0.0037)	-2.6278** (1.0328)
ECG	0.0002*** (0.00003)	0.0003 (0.0002)
POP	0.0168 (0.0218)	1.0392* (0.5925)
TOP	0.0071*** (0.0017)	0.0309*** (0.0122)
IND	0.0068** (0.0035)	0.3116* (0.1755)

Diagnostics

Wald (χ^2)	41184.63	15.3577
(p value)	[0.0000]	[0.0000]
Arellano-Bond AR(2) test	0.003888	-0.3489
(p value)	[0.9969]	[0.7272]
Hansen test	33.1810	18.9930
(p value)	[0.4094]	[0.1233]

Note(s): Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$

Source(s): Author's own computation

Table 5.
Regression results

findings collectively indicate that the study fulfills the necessary conditions for conducting GMM estimation.

The findings indicate that in Africa, there exists a significant negative relationship between institutional quality and the achievement of both the MDGs and SDGs. In other words, as the quality of institutions decreases, the achievement of both the MDGs and SDGs is negatively impacted. This inverse link might be attributable to the apparent weakness of institutions in most African states. Indeed, World Bank data reveal that the quality of institutions in many African countries is lower compared to other regions across the globe. Corruption, deficiencies in the rule of law, lack of accountability and dysfunctional governments are leading causes of this shortcoming. These issues impede the ability of institutions in Africa to provide the necessary foundation for successfully implementing policies and programs, contributing to poor results in meeting many development goals.

The findings suggest a positive link between economic growth and the achievement of the MDGs and SDGs, though the effect is insignificant for the SDGs. The intuition is that when a country's economy expands, it creates more revenue and resources that may be utilized to fund social initiatives aimed at decreasing poverty and enhancing the availability of educational and healthcare services.

The study also establishes that population growth promotes the achievement of the SDGs. This signifies that as a country's population increases, its potential to accomplish the SDGs also increases. We infer from this finding that population growth can result in higher labor force participation, which can boost economic growth and augment government revenue mobilization to help finance development initiatives that focus on improving the well-being of citizens.

The study further finds a significant positive influence of trade openness and industrialization on both the MDGs and SDGs. This suggests that trade openness and industrialization contribute immensely to promoting sustainable development in Africa. The implication is that trade openness and industrialization foster economic growth and job creation, providing a more favorable climate for achieving development goals and improving living standards.

5. Conclusion and policy implications

The research investigates how the quality of institutions influences the attainment of the MDGs and SDGs within a sample of 45 African nations. The study covers two time periods, namely 2000–2015 and 2015–2020. By employing the system GMM approach, the findings demonstrate a notable negative influence of institutional quality on both the MDGs and SDGs. Additionally, the analysis reveals that economic growth has a positive and statistically significant impact on the MDGs, while its effect on the SDGs is deemed insignificant. Moreover, population growth is found to exert a positive and significant influence on the SDGs. The outcomes of the study also indicate that trade openness and industrialization play a constructive role in advancing progress toward achieving both the MDGs and SDGs.

In this study, we aim to shed light on the role of institutional quality in the attainment of the globally agreed SDGs. We extend our investigation to cover the precursor MDGs to allow for a deeper interrogation of the role of institutions in attaining global development goals. The study's findings have important policy implications in the short, medium and long term. In the short term, the policy focus should be on improving institutional quality, particularly in governance, the rule of law and tackling corruption. This can be achieved by implementing policies that promote investment and entrepreneurship, thereby encouraging economic growth. Boosting trade openness and industrialization through policies that promote exports, foreign investment and industrial development can also contribute to the achievement of

SDGs. In the medium term, attention should be given to addressing population growth through policies that promote family planning and education. Improving the quality of education and healthcare services is also essential in supporting the attainment of the SDGs. Sustainable development policies should also be implemented, striking a balance between economic growth, environmental considerations and social equity. In the long term, structural issues related to institutional quality, such as political reform, constitutional reform and public sector reform, should be addressed. It is crucial to tackle the root causes of poverty, inequality and social exclusion through policies that promote inclusive growth and human development. Global challenges related to climate change, natural resource depletion and global economic imbalances can also be addressed through international cooperation and multilateralism.

As for future research directions, there is a significant potential for studying the attainment of the SDGs, considering other key determinants such as foreign aid. This will provide a more holistic comprehension of the factors influencing the attainment of the SDGs. Likewise, comparing the results of this study with other regions, such as Asia or Europe, could serve as a useful benchmark for evaluating the progress of African countries toward the achievement of the SDGs.

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