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Economic Complexity and Good Governance in Sub-Saharan Africa: A Cross Country Analysis

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Abstract: The underlying problems of Sub-Saharan African development are a result of a crisis in governance. Over the years, issues of governance and economic development have been the focus of debate in academia. However, the existing literature has not adequately explored the association between good governance and economic complexity. The purpose of this study is therefore to investigate the short-run and long-run relationships between economic complexity and good governance in 27 Sub-Saharan African countries for the period 1996–2019 using the PMG-ARDL model. The findings reveal that economic complexity, foreign aid, and the Gini coefficient have a positive and statistically significant long-run impact on good governance in Sub-Saharan Africa. Thus, the null hypothesis that economic complexity has a significantly positive impact on good governance is accepted by these findings. The short-run dynamics results reveal that economic complexity and foreign aid have a negative and insignificant impact on good governance, while foreign direct investment, the Gini coefficient, and unemployment have a positive and insignificant impact on good governance in Sub-Saharan Africa. Based on the findings, it is recommended that policymakers in the region place more emphasis on structural transformations to transform their productive structures, which will ultimately lead to higher economic growth in Sub-Saharan Africa. Policies geared towards the diversification of exports (i.e., economic complexity) in the region for economic growth and development are also recommended.

Keywords: economic complexity; good governance; Sub-Saharan Africa; PMG-Panel ARDL; economic development

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1. Introduction

Most scholars are of the view that good practices of governance are the main prerequisite to rapid economic growth rates in countries [1,2]. However, other scholars hold the view that there are fewer countries that can stimulate economic growth expeditiously without an execution of good governance practices at first [3]. Thus, this study seeks to contribute to the ongoing debate in the development literature on whether quality institutions of governance matter for economic growth or not in Sub-Saharan African (SSA) countries. Furthermore, the present study examines the interconnections between economic growth (through the channels of economic complexity) and institutions of governance in Sub-Saharan African countries.

According to Hidalgo [4], the concept of "economic complexity" can be defined as an application of network science as well as machine learning techniques for the purposes of explaining and predicting changes in the economic structure of countries. Simultaneously, Hausmann and Hidalgo [5] stated that this network science assumes that products require different sets of productive capabilities, and that countries tend to differ in the completeness of these capabilities. On the other hand, the World Bank [6] describes good governance as customs, unwritten laws and institutions set out in order to exercise authority in a country. This process involves the selection, monitoring, and replacement of governments, as well

as the capacity of the selected governments to make and implement sound policies for the benefit of the masses [7]. Discussions on economic complexity and good governance are compelling due to their correlation with a nation's development. Mini [8] asserts that Sub-Saharan African countries have relatively low levels of economic complexity when compared to other regions such as Asia. The Sub-Saharan African region's economies primarily focus on producing simple goods, with agriculture serving as the primary source of employment in the region [7].

Due to the lack of sophistication in the productive structures in the region, this has led to poverty that is primarily concentrated in rural Africa, with 75 percent of the poor population living in rural areas and drawing their livelihood and food from agriculture; thus, the SSA region is home to more than a quarter of a billion people living in extreme poverty [9]. Furthermore, with a continuous increase in population, scholars like Bhorat et al. [10,11] are of the view that, in order to exploit this huge, predicted growth in the labour force, which consequently gives a demographic dividend, Sub-Saharan African countries will have to industrialise their economies and undergo a process of structural transformation. The pioneers of economic complexity, Hidalgo et al. [12], reveal that countries can only grow by continuously upgrading the types of products they produce. Moreover, we can easily adapt the technology, capital, institutions, and skills needed to make such new products from some to others.

According to Bräutigam and Knack [13], the admixture of these resources and technical support can be beneficial to the efficiency and effectiveness of governance. Baita and Adzima [14]) posit that for decades, governance issues have been the focus of debate in the research community and have been the subject of a large body of work that supplies convergent and divergent results. As the public discourse on critical governance continues, Fegbemi, et al. [15] see a need for the adoption of an effective approach to addressing institutional problems for meaningful development to take place. This is crucial for Sub-Saharan Africa, where socio-economic issues or conditions are taking a toll on the lives of ordinary people.

The concept of good governance has gained prominence in the literature, and it is extensively discussed among scholars and policymakers [16]. The images of "bad governance and lack of accountability" have often been presumed to be characteristic of public services organisation (Sub-Saharan African institutions are no exception to this, as they receive much attention from the public; keeping transparency and good governance practices is still a challenge for many SSA countries). In essence, governance is mainly concerned with how an organisation or institution regulates and oversees its activities, as well as providing direction and laying out strategies that conform with social norms, regulations, and social expectations [17]. According to Chaudhry et al. [18], good governance can be described as an instrument for political, economic and administrative authorities to manage nations' affairs. Moreover, Garcia-Sanchez et al. [19] describe governance as a sophisticated concept that bounds all the activities of the authority through formal and informal institutions in the management of the resource endowment of a state. Its effectiveness refers to whether public administration does well in what it is supposed to do. Thus, it could be argued that government effectiveness is oriented towards more closely matching services with citizen preferences and moving governments closer to the people they are intended to serve, as well as ensuring accountability in the public sector.

Bräutigam and Knack [13] postulate that inadequate institutions, weak rule of law, lack of accountability, rigorously controlled information and eminent corruption still distinguish many Sub-Saharan African countries today. Furthermore, economic crises, excessive debt, wars of rebellion and political uncertainty have become increasingly rampant over the past few decades. All of this is attributed to colonialism, which hardly ever developed strong, domestically rooted institutions that could tackle the developmental challenges of modern countries. Ukwandu and Jarbandhan [20] believe that poor governance in Sub-Saharan Africa begins with the predominance of policies that are meant to enrich only the few politically connected elite in the region, while leaving most of the population in poverty.

More than 30 years ago, the World Bank [21] argued that the underlying problems of Sub-Sahara African development are a result of a crisis in governance. Ever since then, issues of governance have been the focus of debate in academia. Over time, the economic performance of the region has been dismal, as revealed by indicators of development, and the region lags behind other regions of the world. The empirical literature has looked at the impact of good governance on economic growth and development, but there are no studies investigating the relationship between economic complexity and good governance. The seems to be consensus among researchers, because most of their studies do show that "good governance" is a determining factor for "economic growth and development".

The empirical literature [13,15,20] argues that socio-economic problems in Sub-Saharan African countries result from poor governance effectiveness, weak rule of law, a lack of accountability, high levels of corruption, and poor quality of regulation. However, these studies have failed to provide evidence as to whether economic growth can sustain good governance, or how possible it is to promote and sustain good governance in the world's poorest countries, such as Sub-Saharan Africa. Moreover, Feyisa et al. [22] found no strong scientific evidence to support the claim that quality institutions of governance would promote economic growth in African countries. Moreover, Pere [1] states that not all components of "good governance" have the same effect on economic growth, and for some components, the impact is faster than others. Hence, Asmara and Sumarwono [3] state that good governance practices in developing countries are complex processes that require special preconditions in which every country has capacity, resources, and unique institutional patterns. This shows that "good governance" practices do not always lead to economic growth.

There is insufficient literature on good governance and economic complexity; hence, the main objective of the present study is to examine the impact of economic complexity (which is the new determining factor of economic growth) on good governance in Sub-Saharan Africa, with a null hypothesis that economic complexity has a significantly positive impact on good governance. Hidalgo and Hausmann [5] demonstrate that economic complexity can explain cross-country income differences between countries and predict future economic growth. The empirical literature does not show that good governance for economic growth is conditional or subject to the level of economic development of the countries under consideration, as suggested by Fayissa and Nsiah [23]. Therefore, this research aims to guide policymakers to prioritise policies that promote structural transformations (diversification of productive structures) in the region, thereby influencing economic growth in Sub-Saharan Africa.

2. Method

2.1. Data Sources

The present study employs the PMG-ARDL (Pool Mean Group–autoregressive distributed lag) model to estimate the long-run and short-run relationship between economic complexity and good governance from 1996 to 2019 in 27 Sub-Saharan African countries using annual data from the following databases (at the time of writing, economic data were only available for the years 1996–2019 on the Atlas of Economic Complexity). The economic complexity index (ECI) data are derived from the Atlas of Economic Complexity database [https://atlas.cid.harvard.edu/rankings, accessed on 18 May 2022], and the data on the Gini index are derived from the Deininger and Squire database (https://microdata.worldbank.org/index, accessed on 23 August 2022)]. The data on the variables of good governance index (Gov_index) were sourced from Worldwide Governance Indicators [https://databank.worldbank.org/source/worldwide-governance-indicators, accessed on 18 May 2022)], and the data on foreign direct investment (FDI), foreign aid (F_Aid), and unemployment were also derived from the database of World Development Indicators [https://databank.worldbank.org/source/world-development-indicators, accessed on 18 May 2022]. In analysing the impact of economic complexity on good governance, the study employs six variables: ECI, Gov_index, F_Aid, GINI, and Unemp. To

measure the variables of the economic complexity index (ECI) for 136 countries and the complexity of each of the products, Hildago and Hausman [5] used the Harmonised System (HS) data classification. HS data cover approximately 5000 products across 10 categories in the years ranging from 1995 to 2019, with HS categories containing six-digit detail levels. The economic complexity of a country is calculated as the weighted average (i.e., the weight is the share of the product in the country's export basket) of the sophistication of the products exported by the country [24]. Good governance is measured using the Worldwide Government Indicators, WGI, [6]. The WGI summarises the views on the quality of governance provided by many enterprises, citizens, and expert survey respondents in industrial and developing countries. The good governance index is composed of six dimensions: violence and accountability, political stability and absence of violence or terrorism, government effectiveness, regulatory quality, rule of law, and lastly, the control of corruption. Principal Component Analysis (CPA) has been used to compute the index of good governance. The variables used in the study are described in the following table.

2.2. Variable Descriptions

Governance indexing is a process that consists of traditions and institutions by which authority in a country is exercised [25]. Principal Component Analysis has been used to construct the index. The computation of the index has been performed through statistical software called STATA, through which all the above variables were standardised for a covariance matrix. The index is composed of six dimensions, which are: violence and accountability; political stability and the absence of violence or terrorism; government effectiveness; regulatory quality; rule of law; and lastly, the control of corruption.

The economic complexity index is a ranking of countries based on how sophisticated and complex their productive structures are. It shows the level of "productive knowledge" that a country possesses. This productive knowledge can be referred to as the "technical know-how" that is required to produce a product. The index is provided by the Atlas of Economic Complexity [https://www.theglobaleconomy.com/, accessed on 11 May 2022].

Foreign aid (in USD millions): This is the net Official Development Assistant (ODA) that is made up of the payments of loans on concessional terms and grants by official agencies of the members of the Development Assistance Committee (DAC), by the so-called multilateral institutions as well as by the non-DAC countries in order to stimulate economic development and welfare in nations on the DAC list of ODA recipients. The ODA is made up loans with a grant portion of at least 25 percent [https://www.theglobaleconomy.com/, accessed on 18 May 2022].

Foreign direct investments, expressed as a percentage of GDP, refer to the net inflow of investments made by an entity to acquire a significant ownership stake (10 percent or more of voting stock) in a business operating in a different economy than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments [https://www.theglobaleconomy.com/, accessed on 18 May 2022].

The GINI coefficient quantifies the degree to which the distribution of income or consumer spending among people or households within an economy deviates from a state of perfect equality [26].

Unemployment rate is the proportion of the workforce that is not employed but actively looking for a job. The data have been made available by The Global Economy [https://www.theglobaleconomy.com/, accessed on 18 May 2022]. Table 1 below is the list of variables.

Table 1. List of variables.

Variable	Notation	Data Source	Unit
ECI	Economic complexity index	Harvard lab	Index
Gov_index	Good governance index	Global Economy [Worldwide Governance Indicators/World Bank]	Points
F_Aid	Foreign aid	Global Economy [World Bank]	Million, U.S. dollars
FDI	Foreign direct investment	Global Economy [World Bank]	Foreign direct investment, percentage of GDP
GINI	GINI coefficient	Deininger and Squire Database	Index points
Unemp	Unemployment	Global Economy [World Bank]	Percentage rate

2.3. Panel Unit Root Test

The first step that is taken before proceeding to co-integration is to verify if all variables are integrated at order zero (I(0)) and/or order one (I(1)). To do so, a panel unit root test is chosen among cross-sectional independence tests; these tests include the Im–Persaran–Shin test [27], the Levin–Lin–Chu test [28], Breitung [29], and Fisher-type unit root tests using ADF and PP (Augmented Dickey–Fuller and Phillips–Perron), which were proposed by Maddala and Wu [30]. Researchers use all three specifications as a rule of thumb when testing for the unit root, and as such, this study opted for LLC, ADF, and PP, as they allow for the unit root to also be tested at "non" for comparison purposes.

2.4. Model Specification and Techniques

The model specification used in the investigation is as follows:

$$Gov_index_{it} = \alpha_{it} + \beta_1 ECI_{it} + \beta_2 F_Aid_{it} + \beta_3 FDI_{it} + \beta_4 GINI_{it} + \beta_5 Unemp_{it} + \varepsilon_t \quad (1)$$

where Gov_index is the good government index, ECI stands for economic complexity index, F_Aid is the foreign aid, FDI represents foreign direct investment, $GINI$ stands for Gini coefficient, and lastly $Unemp$ stands for unemployment. The error term is represented by ε_t, and $\beta_1 - \beta_5$ represent the factors to be assessed. Thus, according to Equation (2) Gov_index is influenced by the explanatory variables ECI, F_Aid, FDI, $GINI$, and $Unemp$.

2.5. Pool Mean Group–ARDL Model

The PMG-ARDL estimator involves both pooling and averaging, and it is estimated using the ARDL model. What makes this estimator stand out from other estimators lies in its ability to allow intercepts, short-run coefficients, and error variances to differ freely across groups. The PMG-ARDL method offers a higher degree of parameter heterogeneity compared to commonly used estimator techniques in empirical studies. This approach imposes common long-run relationships across regions or countries, while allowing for variation in the short-run responses and intercepts [31]. According to Pesaran, Shin, and Smith [32], as cited in Garidzirai and Muzindutsi [33], this approach is useful because it simultaneously provides estimates for both short-run and long-run dynamics, and also accommodates the integration of different orders (i.e., variables integrated at I(0), I(1), or a combination of I(0) and I(1), but none of the variables should be integrated at order I(2)). Scholars such as Azmi and Azmi [34], Hongxing, Abban, Boadi, and Ankomah-Asare [35], Khan et al. [36] and Pumphrey and Salah [37] employed a similar estimator. Thus, to examine the long-run and short-run relationships between the variables, the panel

autoregressive distributed lag (P-ARDL) model has been applied. According to Pesaran et al. [32], cited in Behera and Mishra [38], ARDL dynamic heterogeneous panel regression can be written using the ARDL (p, q) approach, whereby "p" is the lag of the dependent variable and "q" represents the lag of the independent variables. The time period t = 1, 2, . . ., 15 and groups i = 1, 2, . . ., 7, thus the panel model, can be written as follows:

$$y_{it} = \sum_{j=1}^{p} \lambda_{ij} y_{i,t-j} + \sum_{j=0}^{q} \delta_{ij} X_{i,t-j} + \mu_i + \epsilon_{it} \quad (2)$$

where y represents Gov_index_{it}, which is the dependent variable, X_{it} is the $k \times 1$ vector of the explanatory variables (which are ECI, F_Aid, FDI, $GINI$, and $Unemp$), δ_{it} stands for the $k \times 1$ coefficient vectors, and λ_{it} represents the scalar coefficients of the lagged dependent variables.

When the variables in Equation (1) are I(1) and there is co-integration, the error term is an I(0) process for all i. A key characteristic of co-integrated variables is their ability to adapt to any deviation from long-term equilibrium. This feature suggests an error correction model wherein the deviation from equilibrium influences the short-run dynamics of the system's variables. One can express the error correction model in the following way:

$$\Delta y_{it} = \varnothing_i (y_{i,t-1} - \theta_i X_{it}) + \sum_{j=1}^{p-1} \lambda_{ij}^{*} y_{i,t-1} + \sum_{j=0}^{q-1} \delta_{ij}^{*} \Delta X_{i,t-j} + \mu_i + \epsilon_{it} \quad (3)$$

where

$$\varnothing_i = -\left(1 - \sum_{j=1}^{p} \lambda_{ij}\right),\ \theta_i = \frac{\sum_{j=0}^{q} \delta_{ij}}{1 - \sum_k \lambda_{ik}},\ \lambda_{ij}^{*} = -\sum_{m=j+1}^{p} \lambda_{im}\ j = 1,\ 2, \ldots,\ p-1,\ and\ \delta_{ij}^{*} = -\sum_{m=j+1}^{q} \delta_{im}\ j = 1,\ 2, \ldots, q-1. \quad (4)$$

The parameter $\varnothing_i$ stands for the error-correcting speed of the adjustment term. If, for instance, $\varnothing_i = 0$, then that would mean there is no evidence of a long-run relationship. The parameter is expected to be significantly negative under the a priori assumption that the variables show a return to a long-run equilibrium.

3. Empirical Results and Discussions

This section presents the results from the econometric analysis and supplies an interpretation based on the findings. The section begins with descriptive statistics and thereafter presents the findings' results.

Table 2 below shows the output results of the mean, median, maximum, and standard deviations generated from Sub-Saharan African data from 1996 to 2019. According to the output results, the mean describes the average of individual variables for 23 years in the region of Sub-Saharan Africa. This implies that between 1996 and 2019, the average share of economic complexity in SSA was −0.89, while the maximum economic complexity was 0.89 and the minimum was −2.34. This shows that most of the countries in the region have "poor" productive structures or a lower economic complexity index. Furthermore, the average share of the good governance index is 4.41, the maximum value is 4.33, and the minimum is −2.41. The figures are significantly low, which indicates a lack of "good governance" in the Sub-Saharan African region. Foreign aid has an average share of USD 898.97 million; the maximum share is USD 11,431.96 billion; and the minimum is USD 10.92 million. The figures are huge, indicating that Sub-Saharan Africa is heavily reliant on external donors. Foreign direct investment has an average value of 4.11 percent, a maximum value of 103.34 percent, and a minimum value of 10.72 percent. Most of the FDI figures are low, suggesting that there is a lack of investment coming into the region. GINI has an average share of 57.12 points, a maximum of 76.86 points, and a minimum of 35.54 points. The GINI figures are relatively high, which suggests that there is high

income inequality in Sub-Saharan Africa. Finally, unemployment has an average value of 8.58 percent, with the maximum at 33.29 percent and the minimum at 0.60 percent. These figures are relatively low, implying that most Africans can find employment through the informal sector, resulting in low unemployment rates.

Table 2. Descriptive statistics.

	GOV_INDEX	ECI	F_AID	FDI	GINI	UNEMP
Mean	4.41×10^{-10}	−0.886211	898.9715	4.109503	57.12121	8.582269
Max	4.328868	0.890000	11,431.96	103.3400	76.86300	33.29000
3rd Quartile	0.489769	−0.550000	1166.2675	4.452500	59.044250	10.61750
2nd Quartile/Median	0.042468	−0.880000	612.4150	2.180000	56.25850	4.785000
1st Quartile	−0.4907425	−1.220000	225.47000	0.980000	54.770000	3.2775000
Min	−2.408867	−2.340000	−10.92000	−10.72000	35.54100	0.600000

Source: EViews and author's own computations (2023).

Table 3 presents the correlation matrix between good governance and explanatory variables in the region of Sub-Saharan Africa for the period of 1996 to 2019. The correlations among the variables in the study are significantly low, which indicates that most of the economies in Sub-Saharan Africa are not closely correlated to each other.

Table 3. Matrix correlation.

Correlation Probability	GOV_INDEX	ECI	F_AID	FDI	GINI	UNEMP
GOV_INDEX	1.000000 --------					
ECI	0.453131 0.0000 ***	1.000000 ---------				
F_AID	−0.078953 0.0621 *	−0.144643 0.0006 ***	1.000000 --------			
FDI	−0.128619 0.0023 ***	−0.051211 0.2267	0.013015 0.7588	1.000000 ---------		
GINI	0.402817 0.0000 ***	0.460522 0.0000 ***	−0.392146 0.0000 ***	−0.078136 0.0649 *	1.000000 ---------	
UNEMP	0.391180 0.0000 ***	0.405629 0.0000 ***	−0.360017 0.0000 ***	−0.041662 0.3255	0.472062 0.0000 ***	1.000000 ---------

Source: EViews and author's own computations (2023). ***, ** and * denote significance at 1%, 5%, and 10%, respectively.

Table 4 above shows the necessary steps that must be performed to determine if the time-series data contain a unit root test or not. The presence of a unit root in a time series produces spurious results; spurious results imply certain relationships, but with the presence of a unit root, such a relationship does not exist. As has been indicated earlier, the study employs LLC and Fisher-type tests (ADF and PP) developed by Levin–Lin–Chu [28] and Maddala and Wu [30] to test the time series data of Sub-Saharan Africa from 1996 to 2019. The test results suggest that the series is stationary at levels and at the first difference, namely, Gov_index, ECI, F_Aid, FDI, Gini, and unemployment. Therefore, it can be concluded that the variables employed in the study are integrated at order zero and order one (i.e., they follow I(0) and I(1) processes). Thus, the study went on to estimate a panel autoregressive distributed lag model.

Table 5 presents the results of the panel PMG-ARDL model for economic complexity and good governance in Sub-Saharan Africa from 1996 to 2019. The optimal lag for PMG-ARDL (1, 1, 1, 1, 1) is selected based on the Akaike Information Criteria (AIC) value, which has the lowest value of −1.171752 compared to other criteria, such as the Bayesian information criterion (BIC) and the Hannan–Quinn (HQ) criteria, which have values of 0.579208

and −0.482074, respectively. The error correction term (ECT) is negative and statistically significant, indicating a stable long-term relationship between the dependent variable and independent variables used in the study. It also represents the rate of adjustment required to restore equilibrium in the dynamic model after a disturbance. When disequilibrium occurs, the error correction term coefficient is −0.34, indicating that the speed of adjustment is about 34 percent in returning to equilibrium each year.

Table 4. Unit root tests (stationarity test).

LLC	**Intercept**		**Trend and Intercept**		**Non**	
Variables	**Levels**	**1st DIFF**	**Levels**	**1st DIFF**	**Levels**	**1st DIFF**
GOV_INDEX	0.1138	0.0000 ***	0.0972 *	0.0000 ***	0.0000 ***	0.0000 ***
ECI	0.0007 ***	0.0000 ***	0.0003 ***	0.0000 ***	0.0219 **	0.0000 ***
F_AID	0.2544	0.0000 ***	0.2358	0.0000 ***	0.9952	0.0000 ***
FDI	0.0024 ***	0.0000 ***	0.0280 **	0.0000 ***	0.0001 ***	0.0000 ***
GINI	0.0000 ***	0.0229 **	0.0000 ***	0.5865	0.8646	0.0000 ***
UNEMP	0.0000 ***	0.0000 ***	0.0134 **	0.0000 ***	0.9917	0.0000 ***
ADF—Fisher	**Intercept**		**Trend and Intercept**		**Non**	
Variables	**Levels**	**1st DIFF**	**Levels**	**1st DIFF**	**Levels**	**1st DIFF**
GOV_INDEX	0.2515	0.0000 ***	0.4998	0.0000 ***	0.0001 ***	0.0000 ***
ECI	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.7159	0.0000 ***
F_AID	0.5156	0.0000 ***	0.3811	0.0000 ***	0.9367	0.0000 ***
FDI	0.0002 ***	0.0000 ***	0.0078 ***	0.0000 ***	0.0188 ***	0.0000 ***
GINI	0.0000 ***	0.0051 ***	0.0078 ***	0.4051	0.9317	0.0000 ***
UNEMP	0.0145 **	0.0000 ***	0.0171 **	0.0000 ***	0.8840	0.0000 ***
PP—Fisher	**Intercept**		**Trend and Intercept**		**Non**	
Variables	**Levels**	**1st DIFF**	**Levels**	**1st DIFF**	**Levels**	**1st DIFF**
GOV_INDEX	0.0098 ***	0.0000 ***	0.0050 ***	0.0000 ***	0.0000 ***	0.0000 ***
ECI	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.7039	0.0000 ***
F_AID	0.0105 **	0.0000 ***	0.0000 ***	0.0000 ***	0.4931	0.0000 ***
FDI	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***
GINI	0.0000 ***	0.0281 **	0.8434	0.6687	0.0000 ***	0.0000 ***
UNEMP	0.9972	0.0000 ***	0.9832	0.0000 ***	0.9617	0.0000 ***

Source: EViews and author's own computations (2023); ***, ** and * denote significance at 1%, 5%, and 10%, respectively.

Table 5. PMG-ARDL model. Dependent variable: Good Governance.

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob. ***
Long Run Equation				
ECI	0.445024	0.069478	6.405229	0.0000 ***
LF_AID	0.166718	0.037795	4.411175	0.0000 ***
FDI	−0.005574	0.004539	−1.228040	0.2202
GINI	0.020491	0.002305	8.890174	0.0000 ***
UNEMP	−0.026763	0.009225	−2.901218	0.0039 ***
Short Run Equation				
ECT(-1)	−0.341061	0.073254	−4.655884	0.0000 ***
D(ECI)	−0.001682	0.039287	−0.042821	0.9659
D(LF_AID)	0.007991	0.040578	0.196928	0.8440
D(FDI)	0.003048	0.006686	0.455838	0.6488
D(GINI)	4.383274	4.466746	0.981312	0.3271
D(UNEMP)	0.020809	0.151489	0.137361	0.8908
C	−0.589073	0.157190	−3.747523	0.0002 ***

***, ** and * denote significance at 1%, 5%, and 10%, respectively.

The economic complexity index's results show a statistically significant and positive effect on good governance in the long run, whereas the study's results show that economic complexity has a negative and insignificant effect on good governance in the short run. The results indicate that in the long run, a one-unit increase in the economic complexity index in Sub-Saharan Africa will help increase good governance by 0.45 points. Therefore, this finding confirms the null hypothesis that "economic complexity significantly positively impacts good governance". The results of the examination of economic complexity and good governance suggest that Sub-Saharan African countries should industrialize and undergo structural transformation, given the region's poor productive structures. Countries in Sub-Saharan Africa would be better equipped to establish institutions that support good governance if they improve their productive structures, which in turn would result in faster economic development. The study's results contrast with the findings of Barros et al. [39] and Mini [8], who investigated the correlation between good governance and economic complexity. According to their study, there is evidence of the positive impact of good governance on economic complexity. They used good governance as an explanatory variable and economic complexity as the outcome variable. This research examines the correlation between economic complexity and good governance, with economic complexity being the independent variable and good governance being the dependent variable.

Furthermore, foreign aid has a positive and significant long-term effect on good governance, which aligns with the study's a priori expectations. The result aligns with the findings of Lemi, Solomon, and Asefa [40], which demonstrate a positive impact of foreign aid on good governance in African countries. In the long run, foreign direct investment has a negative and insignificant effect on good governance, but in the short run, the effect is positive and insignificant. In the long run, the Gini coefficient has a positive and significant effect on good governance; in the short run, it is also positive but insignificant. According to the United Nations [41], this situation arises because income inequality and poor institutional quality reinforce each other. For example, wealthy and well-connected people who benefit from poor governance and weak institutions may not be willing to support institutional change and improve governance in order to protect their own interests. This implies that impoverished individuals have no alternative but to adapt their social norms to thrive within institutional environments and the governmental structure. According to Kuznets [42], this scenario is common in developing countries, particularly in low-income countries, where there are low levels of income per capita. This often raises the question of how individuals in these countries manage to survive. Lastly, Kuznets [42] indicates that higher income inequality in developing countries occurs because of governance failures to effectively bolster the weak positions of lower-income classes. This finding is consistent with Ahrlind's [43]. Finally, unemployment has a negative and significant long-term effect on good governance, which is consistent with the study's a priori expectations. The result is also consistent with the findings of Oueghlissi and Derbali [44], who reveal that higher unemployment rates have a negative effect on the control of corruption (i.e., one of the measures of good governance). This implies that in Sub-Saharan Africa, higher levels of unemployment promote corruption, which ultimately weakens institutions of governance.

4. Conclusions and Recommendations

Some scholars believe that practicing "good governance" principles is the main prerequisite to accelerating national economic growth. However, some argue that there are only a few emerging nations capable of achieving fast economic development without first following concepts of "governance". The objective of this research is to provide insights into the continuing discussion in the development literature about the significance of excellent governance institutions for economic growth in Sub-Saharan African nations. This research investigated the influence of economic complexity, a factor that determines economic development, on governance systems in Sub-Saharan African nations. Hence, the research used panel data from 27 countries in Sub-Saharan Africa, using the PMG-ARDL

technique to estimate over the time frame spanning from 1996 to 2019. This study adds to the current body of literature on this subject, since there is a lack of research that has examined the impact of economic complexity in Africa as a whole. The study's results indicate significant disparities in the correlation between economic complexity and good governance in Sub-Saharan Africa.

Economic complexity has a positive effect on good governance, which is significant at the 5 percent level of significance. According to the empirical literature, good governance is the determinant of economic complexity, and African countries must adopt strategies that ensure institutional quality to promote economic complexity in the region. However, this study departs from this perspective, as many Sub-Saharan African countries are impoverished, making it challenging for them to uphold and sustain good governance in the absence of development. Therefore, we recommend achieving a certain level of development in the region for good governance to have a significant impact. Therefore, to foster economic growth and development, Sub-Saharan Africa must implement policies aimed at diversifying its exports, thereby increasing economic complexity.

The present study had some limitations, such as a lack of prior studies that employed the index of "good governance" as a dependent variable; rather, the available studies have employed the governance index as a predictive variable of economic growth and foreign aid. This suggests a limited exploration of good governance as a dependent variable, making it difficult to locate academic papers that align with the study's findings. Thus, the empirical literature is one-sided on the issue of "good governance". However, the current study has shown that we can leverage the capabilities and financial support that accompany economic complexity and foreign aid, specifically the net Official Development Assistant, to establish institutions that foster good governance in Sub-Saharan African nations.

Furthermore, there are some other limitations that might have impacted the present study. We sourced the economic complexity index from the Atlas of Economic Complexity database [https://atlas.cid.harvard.edu/rankings, accessed on 18 May 2022)]. The Atlas covers GDP and export information for countries with a population above 1 million and countries with an average trade value that is above USD 1 billion. This leaves only 133 countries with reliable data, and 27 of those countries are from Sub-Saharan Africa. Therefore, future research could concentrate on the effects of economic complexity on energy consumption, carbon emissions, and ecological footprint in Sub-Saharan African countries.

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