Impact of Governance Indicators on Inclusive Growth and the Achievement of the Sustainable Development Goals in Africa

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Abstract This study aims to assess the impact of good governance on inclusive growth in Africa. In a sustainable insight, this study explores the widely debated relationship between governance indicators and economic growth rate over time and from a sustainable and inclusive perception. Indeed, from a methodological perspective, the empirical material is compiled from a panel database of 49 African countries. After profiling the state of governance in Africa, a test of the exploratory relationship between governance indicators and the growth rate from 2007 to 2020. We choose the β-convergence test to assess the process of convergence and inclusion of economic growth in African countries. The results of this study indicate the positive effect of governance on economic growth in Africa. Then, the less developed countries of the continent are improving faster than the more developed countries because they have improved their governance rate over time. Therefore, promoting inclusive and sustainable growth in Africa requires a good governance foundation as a perfect stepping stone to achieving the Sustainable Development Goals.

Keywords Africa · Governance · Inclusive growth · SDGs

1 Introduction

The issue of sustainability in Africa remains linked to governance factors. The field of African development is subject to inter-African disparities (Cilliers 2021). Thus, despite the vast reforms undertaken in the fight against corruption in particular and good governance in general. The governance indicators recorded remain low in most African countries. In this context, the question of inclusiveness and sustainability of economic growth in Africa arises. Current research considers governance as a tool for inclusive and sustainable growth, at the international, regional, national, or

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local level (Ibourk and Raoui 2021, 2022). By definition, the inclusive growth model offers all segments of society and all local territories the opportunity to participate in achieving economic performance.

Research on the importance of governance for sustainable and inclusive growth is growing (Cheeseman 2015; Awan et al. 2018). Inclusive growth as an economic development strategy has received attention due to the growing concern that the benefits of economic growth are not equitably shared (Khaled et al. 2017; Jallab 2012). Good governance facilitates the effective and efficient use of the potential and resources available to each country for its equitable development (UNESCO 2019).

In addition, good governance remains the essential ingredient for sustainable development (Murshed and Mredula 2018). Hence, this may explain from a research perspective why the good economic performance of some African countries in the recent years is slow to be followed by improvements in their SDG performance.

1.1 Governance Issue in Africa

Africa is the least developed and least advanced continent in the world. Although enough of Africa's growth between 2000 and 2020 has improved, less than the rest of the world. The continent ranks second in the world in income inequality, after Latin America. Sub-Saharan Africa's overall gross domestic product (GDP) was $1,743 billion in 2018 or 2.05 percent of global GDP. The GDP study reveals wide regional disparities. For example, in 2015, three countries-Nigeria, South Africa, and Egypt-alone accounted for more than half of Africa's GDP. By 2021, Africa will account for 17% of the world's population but only 3% of global GDP. This fact has raised concerns about the inclusiveness of African growth. The African continent faces several challenges that are most often related to the issue of governance (Sachs 2019; Booth 2012).

Our concern is to test how improving governance in Africa can promote sustainable and inclusive growth and what is the opportunity to achieve the Sustainable Development Goals?

- Countries that have developed their governance indicators over time had the chance to improve their economic status.
- The bad governance and corruption impede the attainment of economic growth and sustainable development in some African countries.

The choice of the panel data sample will allow us to assess the state of the relationship between economic growth and governance indicators that must be explained in its dual spatial and temporal dimensions. Indeed, to verify the nature of the relationship between governance indicators and economic growth, we choose the β-convergence test to assess the process of convergence and inclusion of economic growth in African countries.

2 Literature Review

The study of the consequences of corruption and bad governance on the growth and economic development of countries has not always been unanimous among the authors.

The relationship between governance and growth is presented by two schools: The first believes that corruption promotes economic growth (Goorha et al. 2010; Flatters and MacLeod 1995; Lui 1985; Huntington 1968; Leff 1964;), while contrarians see it as destructive to the economy (Bardhan 1997). However, the originality of this study comes from the extension of the widely debated relationship between governance indicators and economic growth rate in the sustainable and inclusive dimensions.

Existing empirical studies suggest that corruption is favorable for growth in contexts where institutions do not fully fulfill their roles. It can thus have incentive properties to attract investment by allowing firms to avoid burdensome regulations (Méon and Sekkat 2005; Méon and Weill 2010; Egger and Winner 2005; Aidt and Dutta 2008; Houston 2007). For his part, Mendez (2006) suggests that corruption promotes growth in countries with low levels of economic freedom but that this effect fades as the freedom economy improves. However, the studies on the negative impact of corruption. Guetat (2006) and Gyimah-Brempong (2002) confirm the negative impact, respectively, of the case of MENA and African countries. The study by Anoruo and Braha (2005) suggests that corruption hinders the growth of African economies directly through reduced productivity.

3 Methodology

3.1 Database and Source

In order to explain economic growth by governance indicators over time between 2007 and 2020. The empirical materiel uses the 49 African countries, the first indicator we have mobilized in this study is the gross domestic product (GDP) per capita in Africa. GDP per capita is a key indicator of the economic inclusion progress because it reflects economic productivity and relative living standards. It is a relatively crude measure because it does not take into account quality of life or the distribution of economic output across the population. It is calculated by simply dividing a country's total economic output (GDP) in a year by the total population. Because of this simplicity, it remains the most popular measure of national economic productivity and allows for easy comparison of different countries. This first indicator was collected from the World Bank database (2007/2020). We mobilized six indicators of governance: "Voice and accountability", "Political instability and violence", "Government effectiveness", "Regulatory burden", "Rule of law" collected from The Economist Intelligence Unit's (2007/2020), and the "Corruption" represented by the

Table 1 Specification of variables

Nature of the variable	Variable	Symbol	Source
Exogenous variable (Economic growth)	GDP per capita	Y1it	World bank database (2007/2020)
Endogenous variable (Governance)	Corruption perception index	X1it	Transparency International (2007/2020)
	Electoral process and pluralism Government functioning Political participation Political culture Civil liberty	X2it X3it X4it X5it X6it	The Economist Intelligence Unit's (2007/2020)

Source Author's own elaboration

perception of corruption indicator. The data on the perception of corruption was collected from the Transparency International database (2007/2020) (Table 1).

3.2 Estimation Method

This study mobilizes a panel data model, which can be divided into three types: Ordinary Least Squares model, fixed effect model (FE), and random effect model (RE). Indeed, the null hypothesis is that the preferred model is random effects; the alternate hypothesis is that the model is fixed effects. Essentially, the tests are used to see if there is a correlation between the unique errors and the regressors in the model. The null hypothesis is that there is no correlation between the two.

Therefore, the model selection path can be divided into at most two steps. First, the F-test is used to determine whether an individual effect exists. If the p-value of the F-test is significantly greater than 10%, this indicates that there is no significant individual effect, and that a mixed-effects model is therefore appropriate. However, if the p-value of the F-test is significantly less than 10%, this indicates that there is a significant individual effect and that the mixed-effect model will not be appropriate. Then, in the second step, the Hausman test is used to choose between the fixed effect model and the random effect model. If the p-value of the Hausman test is significantly less than 10%, it indicates that the null hypothesis should be strongly rejected, as well as the random error term; therefore, the fixed effect model will be appropriate.

However, if the p-value of the Hausman test is significantly greater than 10%, the random effect model will be appropriate.

Where:

$$\text{yit} = \beta 0 + \beta 1 \times 1\text{it} + \beta 2 \times 2\text{it} + \beta 3 \times 3\text{it} + \beta 4 \times 4\text{it} + \beta 5 \times 5\text{it} + \beta 6 \times 6\text{it} + + \text{uit} \quad (1)$$

$$\text{yit} = \beta 0 + \beta 1 \times 1\text{it} + \beta 2 \times 2\text{it} + \beta 3 \times 3\text{it} + \beta 4 \times 4\text{it} + \beta 5 \times 5\text{it} + \beta 6 \times 6\text{it} + \text{uit} \quad (2)$$

$$\text{yit} = \beta 0 + \beta 1 \times 1\text{it} + \beta 2 \times 2\text{it} + \beta 3 \times 3\text{it} + \beta 4 \times 4\text{it} + \beta 5 \times 5\text{it} + \beta 6 \times 6\text{it} + \text{uit} + \varepsilon \text{i} \quad (3)$$

3.3 Convergence Analysis

The concept of convergence was originally used to describe the process by which poorer economies should catch up with those that initially enjoyed a higher level of per capita income. This is because growth rates in developing countries were assumed to be higher than those in economically more advanced countries over a long period of time, thus narrowing the gap between the levels of development of these two groups of countries.

3.4 The β-Convergence

Beta-convergence refers to the process of adjustment over time of economies toward the same growth path or toward a reference value. Indeed, in growth theories, the idea that poor countries will catch up with rich countries if they achieve a higher growth rate leads to the use of the β-convergence test procedure. It consists of regressing the annual growth rate of a country i's gross domestic product per capita (yit) on its initial level (yi0), while controlling for differences in steady state, i.e., differences in preferences, savings rates, technologies, population growth rates, etc. All these variables are contained in the vector yit of the following equation, which can be estimated using panel data:

$$\frac{\Delta y_{it}}{y_{it-1}} = \alpha + \beta * \log_{(yi0)} + y\text{i}t + \varepsilon_{it} \quad (4)$$

The estimated Eq. (4) would lead to a β-convergence if the coefficient β is negative and statistically different from zero. This β-convergence is said to be conditional if the parameter γ is different from zero (i.e., the zits are different across countries). In contrast, β-convergence is said to be absolute when $\gamma = 0$ (i.e., the zits are identical). The idea of β-convergence can also be based on the presence of a mechanism of adjustment over time of economic variables toward a reference value (y*) considered as an attractor.

If $\gamma = 0$ (statistically insignificant): we speak of absolute real convergence, with $\beta \neq 0$ ($\beta < 0$) *et* $0 < |\beta| < 1$;

If $\gamma \neq 0$ (statistically significant): we talk about conditional real convergence or relative, with $\beta \neq 0$ ($\beta < 0$) *et* $0 < |\beta| < 1$.

In this type of analysis, the null hypothesis sustains that none of the countries considered converge, whereas the alternative hypothesis sustains that all countries converge without taking intermediate situations into consideration.

(ii) Estimating an "attraction relationship" as follows:

$$\Delta y_t = \beta^* \left(y_{t-1} - y^* \right) \tag{5}$$

Equation (5) verifies the presence of an adjustment mechanism over time of the economic variables toward a reference value ($Y*$) considered as an "attractor". Note that if $\beta < 0$ *et* $\beta \neq 0$ (statistically significant), this implies that there is a mechanism for correcting deviations from the reference value, i.e., there is beta-convergence.

3.5 The σ-Convergence

Sigma convergence measures the degree of convergence, over time, between several economies, concerning one or more indicators or criteria. The analysis is based on the study of the evolution of the dispersion of the series considered. Convergence of the whole sample will occur when the dispersion decreases over time. The indicator of dispersion used can be the variance or the standard deviation of the series. If Xi, t represents the value of the variable X for country i, at date t (with i = 1, …, n and t = 1, …, p), the variance is determined from the following relationship:

$$(\text{var } x \text{ i}t) = \frac{1}{n} \sum_{i=1}^{n} (x_{it} - u)^2 avec\, u = \frac{1}{n} \sum_{i=1}^{1n} x_{it} \tag{6}$$

The standard deviation is calculated from the following relationship:

$$\sigma x_t = \sqrt{\text{var}(x_t)} \tag{7}$$

It would be possible to speak of "perverse convergence" when, in the case of real convergence, e.g., the decrease in the standard deviation leads to a decrease in the GDP per capita of the initially richer countries relative to the poorest.

4 Analysis/Results Interpretation

The descriptive analysis indicates that the GDP per capita (current US) ranges from $172.5 for Burundi to a max value of $22,943 for Equatorial Guinea. The intra-African inequalities in economic growth are presented by a standard deviation of 3.023. Indeed, from 2007 to 2020, the GDP rate has varied from −1.117 to 1.344 (Table 2).

The analysis of governance indicators shows the corruption perception index (×1) indicator ranging from a min value of 00 in Swaziland Eswatini to 65 in Botswana. Then, the electoral process and pluralism indicator (×2) ranges from 00 in Burundi to 9.580 in Swaziland Eswatini. Then, the indicator of government functioning (×3) ranges from 00 in Burundi to 8.210 in Swaziland Eswatini.

The political participation indicator (X4) ranges from 00 for Chad to 8.330 for South Africa. The political culture indicator (X5) ranges from 1.880 for the Central African Republic to 8.750 for Mauritius. The Civil Liberties indicator (X6) ranges from 0.880 for the Democratic Republic of Congo to 9.710 for Mauritius. Moreover, the overall governance indicator ranges from 3.947 for the Democratic Republic of Congo to 16.67 for Botswana. The SDG SCORE index (Africa SDG Index and Dashboards Report 2019) ranges from 29.18 for South Africa to 66.01 for Mauritius and Tunisia. Indeed, intra-African inequalities in progress and achievement of the SDGs in Africa are presented by a standard deviation of 7.425. Since the distribution of the indicators according to four typological groups:

Group 1 includes countries with high governance and high SDGs score:

This group represents a percentage of 44% which includes Uganda, Mali, Kenya, Ethiopia, Algeria, Ivory Coast, Malawi, Gambia, Zambia, Burkina Faso, Tanzania,

Table 2 Descriptive statistics

Variables	N	Mean	Sd	Min	Max
GDP per capita current US	686	2,379	3,023	172.5	22,943
Ln (GDPt/GDP2007)	686	0.233	0.311	−1.117	1.344
Ln (GDP2007)	686	7.028	1.052	5.150	9.675
X1	686	22.11	17.27	0	65
X2	686	4.253	3.016	0	9.580
X3	686	3.508	2.216	0	8.210
X4	686	4.137	1.618	0	8.330
X5	686	5.213	1.235	1.880	8.750
X6	686	4.768	2.097	0.880	9.710
Overall governance indicator	686	9.182	3.104	3.947	16.67
SDGs Index SCORE	686	52.29	7.425	29.18	66.01

Source Authors own elaboration

Morocco, Rwanda, Swaziland Eswatini, Senegal, Ghana, Tunisia, Namibia, Mauritius, Cape Verde, and Botswana.

Group 2: countries with high governance and low SDGs score:

Through a proportion of 10%, this group includes Liberia, Sierra Leone, Benin, South Africa, and Lesotho.

Group 3: Low governance and high SDGs score countries:

By a proportion of 10%, this group includes Libya, Egypt, Cameroon, Zimbabwe, Togo, and Gabon.

Group 4: countries with low governance and low SDGs score:

This group represents a proportion of 36%, this group includes the Democratic Republic of Congo, Equatorial Guinea, Chad, Sudan, Guinea-Bissau, Central African Republic, Republic of Congo, Eritrea, Comoros, Mozambique, Djibouti, Angola, Guinea, Nigeria, Mauritania, Niger, Burundi, and Madagascar.

According to the descriptive results, countries with low economic growth also have low governance indicators and low progress toward the SDGs (Table 2).

The empirical results (Table 3) indicate a positive effect between governance and economic growth, R-squared = 0.34. Countries recording a high perception of corruption, better government functioning, and political culture enjoy high economic growth. Thus, according to the Breusch pagan test, the p-value = $0.000 > \alpha = 0.05$. This result indicates that the random effects model is better than the fixed effects model. The most suitable model is the random effect model. Indeed, from the beta-convergence test, the question is whether there are patterns in the data that indicate that poorer African countries are growing faster than richer African countries?

The results of our analysis support this conclusion, as we find a negative and statistically significant coefficient of −0.160 (0.0267). These results confirm a true conditional convergence. The poorest countries in the sample with lower initial economic growth grow faster because they have improved their governance over time.

Based on the results of the convergence, clubs appear first for African countries that moved quickly from lagging to leading: Rwanda-0.0510443, Benin-0.1829983, Gambia-0.4013478, Lesotho-0.0713833, Madagascar-0.0489846, and Mozambique-0.1215395 Rwanda's ambition is to become a middle-income economy by 2035 and to join the high-income countries by 2050. Rwanda's reforms have enabled it to implement two economic development and poverty reduction strategies from 2008 to 2018 with excellent socio-economic results. The country's growth has averaged 7.2 percent over the past decade, while GDP per capita has increased by 5% per year. Indeed, the countries that have gone backward in time have been affected by the Arab Spring—the case of Libya and Egypt in North Africa. The situation is also clearly backward for countries generally in civil war: Burkina Faso, Niger, Nigeria, and Burundi. However, it is necessary to emphasize that governance in Africa has improved since 2007, even if it remains lower than in the rest of the world. Peace and security problems translate into governance problems (Williams 2016; Donnenfeld and Akum 2017; Marshall and Elzinga 2017; Stapleton 2018). The correlation

Table 3 β-convergence test

Variables	Ln (GDPt/GDP2007)
Ln (GDP2007)	−0.160*** (0.0267)
X1	0.00474*** (0.000552)
X2	−0.0305*** (0.00849)
X3	0.0688*** (0.0110)
X4	−6.08e-05 (0.0113)
X5	0.00373 (0.0146)
X6	−0.0143 (0.0143)
Constant	1.187*** (0.193)
R-squared	0.34
Breusch-Pagan LM test	0.0000
Hausman test	0.0701
Appropriate model	Random effects model
Observations	684
Countries	49

Standard errors in parentheses
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$
Source Authors own elaboration

between economic growth and governance progress provides insight into how to improve sustainable and inclusive growth in Africa.

5 Conclusions

This study examines the impact of good governance in ensuring inclusive and sustainable growth in Africa. The fact that Africa is the most unequal continent worldwide has inspired us to reflect on the test required for growth inclusiveness in Africa. Through the study of the β-convergence test, the results indicate a positive effect of good governance on the growth rate in Africa. The growth inclusiveness test for intra-African countries affirms the existence of β-convergence. Countries with the lowest economic growth have a higher growth rate than the most developed countries because they have improved their governance over time. This reality has a positive

effect on the progress of African countries in achieving the Sustainable Development Goals.

We have shown that countries that have improved their local, regional, and international governance have benefited the most from positive economic growth. The most concrete example is Rwanda, which has attempted to improve its state of governance by decreasing the subnational poverty rate for more inclusive growth. Second, political instability in some countries has worked against their economic growth over time. The challenges of peace and security translate into governance issues, such as managing elections, even terrorism issues, managing diversity, and development, all related to governance. The correlation between economic growth and governance progress sheds light on how to improve inclusive growth in Africa.

In fact, the health crisis has had a significant impact on African countries. Progress toward the SDGs and corrective measures are needed to close the growing inequality gap. African countries that are lagging behind need to invest strategically to put in place these key governance actions to ensure inclusive growth for African women and youth, on the one hand, but also to meet the commitments of the 2030 Agenda, while good governance is the 16th sustainable development goal in its own all other SDGs.

Finally, although our study covers the most representative indicator of inclusion of economic growth in African countries (GDP per capita), indeed, it will be interesting as a future study to test the empirical relationship between governance indicators and other socio-economic indicators, especially the Human Development Index (HDI).

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