Economics Bulletin

Volume 38, Issue 1

Governance in Africa: Convergence or Divergence?

Oasis Kodila-Tedika
Université de Kinshasa, Département d''Economie, RDC

Abstract

This research focuses on governance in Africa, precisely on the evolution or change in governance. Our results suggest that there is a negative relationship between the state of governance of the initial period and the current governance. However, this relationship is only significant when controlling other parameters. Therefore this is evidence of the existence of a conditional convergence. Also, the sigma convergence has not been found: there is less divergence.

I thank Simplice A. Asongu, the editors and referreds for comments.
Citation: Oasis Kodila-Tedika, (2018) "Governance in Africa: Convergence or Divergence?", *Economics Bulletin*, Volume 38, Issue 1, pages 71-88
Contact: Oasis Kodila-Tedika - oasiskodila@yahoo.fr.
Submitted: October 11, 2016. **Published:** January 21, 2018.

1. Introduction

The key question this paper seeks to address is to find out whether or not we could hope for a convergence of governance in Africa. In other words, should one expect catch-up in governance? The question of convergence is often situated at the heart of the research problem related to growth or income (Baumol, 1986; De Long, 1988; Barro, 1991, 2012; Barro and Sal-i-Martin, 1992; Sala-i-Martin, 1996; Caselli et al., 1996; Quah, 1993; Pritchett, 1997; Jones, 2002; Grier and Grier, 2007; Rodrik 2011; Ssozi & Asongu, 2016; Heckelman, 2013b; Asongu, 2014a). However, the question of convergence was also well studied to tackled other economic problems such as poverty (Ravallion, 2012), inequality (Panizza, 2001; Bleaney and Nishiyama, 2003; Ravallion, 2003), financial development (Bruno et al, 2012; Narayan et al., 2011; Asongu, 2013a ; Heckelman, 2013a; Heckelman and Mazumder, 2013), health (Deaton, 2004; Canning, 2012), the manufacturing sector (Rodrik 2011), the fiscal sector (Annala, 2003), software piracy (Andrés & Asongu, 2016; Asongu, 2013b); capital flight (Asongu, 2014b) and terrorism (Asongu & Nwachukwu, 2017).

The main objective of this research is to provide answer to the research question mentioned above. Keefer and Knack (1997) and Knack (1996) believe that the institutional similarity could explain the convergence in income between countries. The empirical study of Hall (2015) shows the existence of β-convergence in economic freedom, in a cross-section study of all countries. Savoia and Sen (2016) examined the question of institutional convergence using 121 countries. Their results suggest that the significance of the dummy variable for sub-Sahara African countries is unstable. Thus, the present research intends to investigate if the African continent is isolated from other continents (countries) or behaves in the same manner. The study also seeks to point out the existence of the convergence or divergence between countries. Beyond these two problem statements, we use a general measure of governance ad hoc to African countries (Kodila-Tedika, 2014). Such a research problem is of an essential

interest to guide policy making in the case of conditional convergence. The research problem also has some practical implications, as governance is fundamental to economic development (Acemoglu et al., 2005). This study contributes to the existent knowledge on the concept of institutional dynamic.

There are at least two arguments to support the hypothesis that there may be convergence. The quality of governance is determined by the quality of leaders, the dynamics of national human capital and the middle class, *inter alia* (Dreher et al. 2009; Kodila-Tedika, 2014; Kodila-Tedika et al., 2016). Africa is witnessing a new dynamic, notably by a new political class coming to power with a certain background and a culture of governance, for it is formed, in particular, in countries where governance is judged better, but also a new intellectual elite and new entrepreneurs (Igué, 2010). Available studies show the effect of the quality of these new leaders on some African performances. This is the case, for example, with Constant and Tien (2010). Constant and Tien (2010) reveal that in Africa, foreign education is a significant determinant of Foreign Direct Investment (FDI) inflows, beyond other standard characteristics. Secondly, there should be a convergence also due to the diffusion effect. Studies show that governance at the level of border countries affects the neighbor (Attila, 2008; Correa et al., 2014). In other words, if the quality of governance improves in the neighbor, this increases the demand for better governance. Thus, there should be a contagion effect.

The motivation for this research is to complement the extant literature on the issue of convergence, which now goes beyond the issues of growth as we have indicated. It therefore brings arguments to the young literature of institutional convergence. A second motivation for this research is in understanding the determinants of governance. It is in this context that a question about convergence in Africa finds its importance especially given that a clear empirical answer on the existence of convergence is important to policy. Indeed, this could

justify structural reforms that might change the issue of governance in Africa, especially given the comparatively week standards of governance across the continent. For instance, Asongu and Nwachukwu (2016) have assessed convergence in governance variables in order to predict the 2011 Arab Spring.

From an economic standpoint, catch-up or convergence implies that nations with a lower level in a given economic phenomenon are reaching the levels of their counterparts with higher values in the corresponding phenomenon. In other words, convergence implies that cross-country differences in a given economic or institutional signal are decreasing and reducing cross-country difference is an indication of the feasibility of common cross-country policies. This intuition and economic relevance of convergence is broadly in accordance recent literature on policy harmonization by means of decreasing cross-country difference in macroeconomic signals (Narayan et al., 2011; Bruno et al., 2012; Asongu, 2013a).

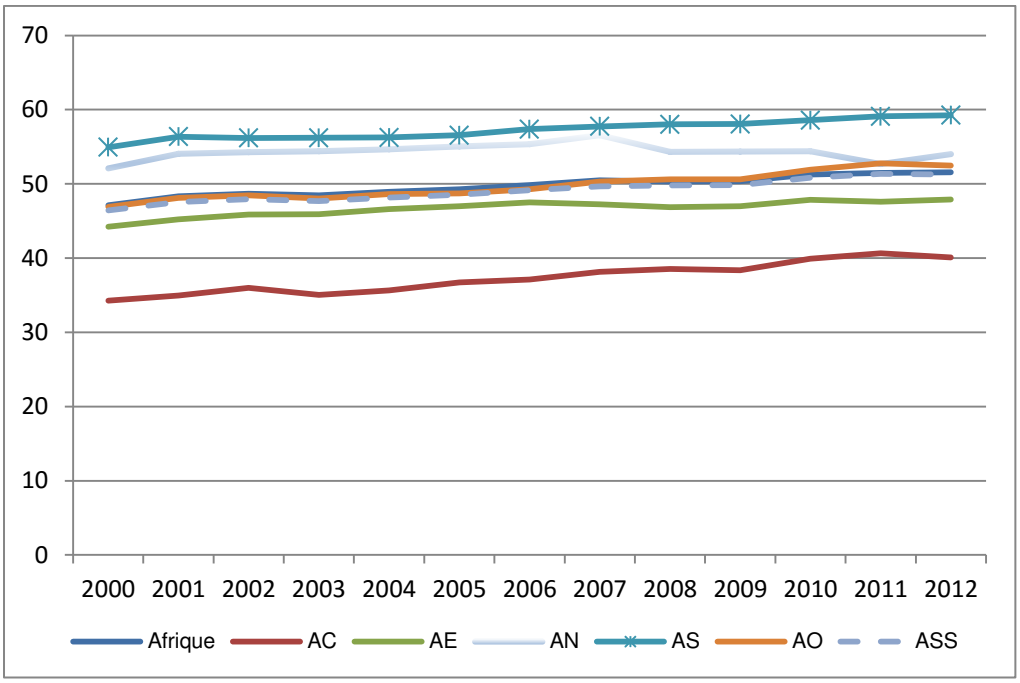
The paper is structured in four sections: section 2 provides an overview of governance in the African continent. Section 3 focuses on the methodological approach, then presents the results of the study. The last section, discussion the result and present the conclusion.

2. An overview of governance in Africa

Governance in Africa, in general, is far from being the best as the Foundation Mo Ibrahim index[1] indicates. Figure 1 shows the evolution of such governance. After several decades, it is only recently that Africa has moved to the green zone. As indicates in Figure 1, the evolution of governance in Africa was less than 50, which is the average note. Additionally, in the current decade, Africa has only succeeded to gain 4.8 points toward the evolution of governance. This progress of governance in Africa is currently estimated at 51.6 on average.

[1] A typical African indicator

Figure 1. Evolution of governance in Africa and sub-regions



From Figure 1, one can consider the difference between Africa considered as a whole and its sub-regions. It is clear to observe that all the sub-regions have made some progress in term of governance. For instance, the central Africa (AC) gained 5.82 points, the west Africa (AO) gained 5.55 points, the southern African (AS) 4.81 points, the sub-Sahara Africa (ASS) 4.31 points, the east Africa 3.64 points, and the northern Africa 1.92 points. The trend of the evolution of governance in all sub-regions is high during the period 2000-2012. However, one can observed a slight drop of the evolution of governance curve for both the central and west Africa in 2011. The regions with the highest note in tern of the evolution of governance, is the southern African region with 59.2 points, follow by the northern part of Africa with 54 points, after the eastern side of Africa with 52.5 point. The sub-Sahara Africa area has recorded 51.3 points. In East Africa, the evolution of governance scored 47.9 points and lastly in central Africa, this scored was estimated at 40.1 points. On the other hand, one can highlight that the evolution of governance is strongly correlated with the one of Africa as a whole.

Regional organizations in Africa do not seem to go away from the geographical configuration. As such, the Southern African Development Community (SADC) is the regional organization

which takes the lead with a note of 58.3 and the Intergovernmental Authority on Development (IGAD), which is at the bottom with a note of 40.9. Other regional organizations such as Arab Maghreb Union (AMU) takes the second position with a note of 53.8 followed by the CAE with a note of 53.6, just after the Economic Community of West African States (ECOWAS), with a note of 52. The Common market for Eastern and Southern Africa (COMESA) with a note of 51.4 and the Economic Community of Central African States (ECCAS) with a note of 42.9. This presentation can be explained without any doubt with the fact that most of these regional organizations are firstly based on the geographical proximity.

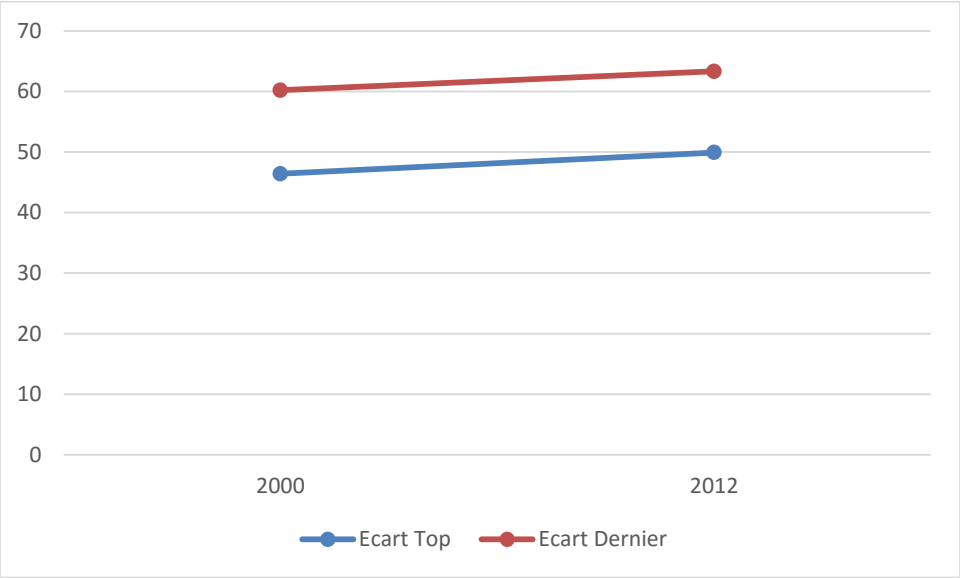
Another point to bring forth concern the dispersion between countries that is not observed based on the average note considered in the present paper. In 2000, countries that recorded high note in term of the evolution of governance consist of: Maurice (77.1), Botswana (74.1), Cape Verde (73.2), Seychelles (70.5), and South Africa (70.1). Countries with low notes in tem of the evolution of governance in 2000 include: Equatorial Guinea (30.7), Angola (25.8), DR-Congo (23) and Somalia (9.2). One can observe a considerable gap between the first countries (46.4) and the last ones (60.2) of each groups.

Similarly, in 2012, the same five countries improved their notes in terms of the evolution of governance. In this regard, Maurice (82.9), Botswana (77.6), Cape Verde (76.7), Seychelles (75.0), and South Africa (71.3). However, countries with low notes in 2012, included: Chad (33), Central African Republic (32.7), Eritrea (31.9), DR-Congo (31.3) and Somalia (8). Once again, one can observe a considerable gap between the first countries (49.9) and the last ones (63.3) of each groups.

Another point to bring forth is the ambiguity of the evolution of governance in Africa. Figure 2 shows tensions between countries. It is important to mention that tensions here refer to the gaps considered in the previous facts. One can observe an arithmetic progression of difference

3 for the indices. This could lead to a deterioration of the situation, between countries highly positioned and those not so well positioned.

Figure 2. Evolution of tensions



Things are not as simple as one could think. In the top five group (EcartTop), no change is observed in the club despite that the speed at which progress occurs differ from one country to another in general. However, in the top of countries lower classified (EcartDernier), between the two period (2000 and 2012), one observe that the configuration has changed: Only DRC and Somalia have remained in the red zone, despite that DRC experienced an amelioration while Somalia experienced a deterioration.

In the list of top five countries that experience a positive change, is Liberia (24.8), Angola (18.1), Sierra Leon (14.8), Rwanda (10.9) and Burundi (8.8). For the first two countries mentioned, the changes experienced explain the fact that these countries have left the group of countries lower classified. Countries that experienced an important deterioration during 2000 and 2012 are: Madagascar (-11.7), Eritrea (-5.5), Guinea Bissau (-1.8) Somalia (-1.7) and Libya (-0.4).

3. Model Statistics and data

3.1 Econometrics models

Beta- convergence

From the literature viewpoint, two type of convergence can be presented: the unconditional and conditional convergence. Cross sectional data are more appropriate in this regards. The equation model of the unconditional convergence is as follows:

$$\left(\frac{GOV_{iT}-GOV_{i0}}{T}\right) = \delta_i - (\frac{1}{t})(1 - e^{-\beta t})GOV_{i0} + \varepsilon_i \text{avec i= 1, …, N} \quad (1)$$

This represents an expression close to the log-linear model of the dynamic transitory model of Solow (Barro&Sala-i-Martin, 1991). The left side of the equation express the growth rate of governance during the period considered. δandβ are the parameters to estimate and ε the error term which measures different chocks more likely to affect states. $GOV_{it}$is the measure of governance for country i. t = 0 refers to the beginning of the period considered (2000), while t = T, refers to the end of the period (2012)[2].

On talk about convergence if the parameter β is negative ($b \equiv (\frac{1}{t})(1 - e^{-\beta t}) > 0 \leftrightarrow \beta > 0$). Otherwise, it is a divergence. The magnitude of the coefficient denotes the speed of the convergence. Equation (1) means that institutions of countries converge toward others in the long-term independently of their initial conditions. This means that differences are transitory. This convergence is made possible if countries with institutions of lower quality improve their institutions quicker than countries with institution of high quality to the point of filling in the gap.

In order to test the conditional convergence hypothesis, the econometric model can be presented as follows:

$$\left(\frac{GOV_{iT}-GOV_{i0}}{T}\right) = \delta_i - (\frac{1}{t})(1 - e^{-\beta t})GOV_{i0} + \varphi\aleph_{i0} + \varepsilon_i \text{avec i= 1, …, N} \quad (2)$$

[2] The choice of this period is justified by the availability of data during these periods. This governance indicator is exclusively available for African countries. This indicator was made available from 2000 to date.

Equation (2), is equation (1) with א added. This represents is a vector of the control variables which represent some classical determinants of governance institutions.

Equation (2) shows that institutions of countries with structural characteristics identical converge. The convergence process is much quicker than the case of unconditional convergence.

Sigma-convergence

Beside the convergence idea, Barro and Sala-i-Martin (1991), introduced the concept of sigma-convergence to refer to the idea that the convergence is also valid if the variance of observations is decreasing in the time periods. This can be translated mathematically, using the notation σ_t (square root of the variance) in cross sectional at t date of$GOV_{it},\ i = 1, \dots, N$, as follows:

$$\sigma_{t+T} < \sigma_t \tag{3}$$

Where,

$$\sigma_t = \left[N^{-1} \sum_{i=1}^{N} \left(GOV_{it} - \left(N^{-1} \sum_{k=1}^{N} GOV_{kt} \right) \right)^2 \right]^{\frac{1}{2}}$$

We can show that (1) and (2) are linked to (3) in writing:

$$\frac{\sigma_t^2}{\sigma_{t-1}^2} = (1-b)^2 + \frac{\sigma_\mu^2}{\sigma_{t-1}^2}$$

σ_μ^2represents the variance of chocks which affect a state. As such, one can deduce that the degree of convergence is function of β-convergence, σ_μ^2 and the initial level of governance. This can therefore lead to a divergence ($\sigma_t^2 / \sigma_{t-1}^2 > 1$), at the same time that $b > 0$ ($\beta - convergence$) if the variance of chocks is relatively important.

3.2 Data

We exploit governance data from the Mo Ibrahim Foundation Governance Index. This indicator compiles 86 indicators of governance regrouped into 14 subcategories and four categories (security and rule of law, participation and human rights, sustainable economic

development and human development). The Mo Ibrahim Index constitutes the most complete annual collection of quantitative information which is suitable for cross-country empirical studies of governance in African economies. Moreover, the index is sponsored by an African institution. Kodila-Tedika (2014) and Kodila-Tedika et al. (2017) uses this indicator in a recent study. The data exploited cover the period from 2000 to 2012. This is an average.

In these vectors of control variables, we consider the part of dominant religions of the 1980s (catholic and protestant) coming from La Porta et al. (1999), the ethnical fragmentation (Alesina et al., 2003), the origin of law (La Porta et al., 1999), the initial level of GDP per head (Heston et al. 2011), the latitude position (La Porta et al., 1999) and malaria (Carstensen et Gundlach, 2006).

Control variables are used because in the literature on determinants of institutions there is a list of variables that are recognized as determinants. Also, retaining the unconditional a priori convergence hypothesis can be confirmed only because of an omission bias. Finally, a priori one must leave the data to confirm which of two hypotheses are verifiable.

Table 1 presents the descriptive statistics of different variable used in this study[3]. These are variables well recorded as determinant of institutions.

Table 1: Descriptive statistics

Variable	Obs	Moyenne	Ecart-type	Min	Max
Mean change in governance	52	.008	.013	-.02	.06
Governance	52	47.099	13.609	9.68	75.57
Malaria	49	.770	.385	0	1
Origin of French Law	52	.654	.480	0	1
Origin of English law	52	.346	.480	0	1
Latitude	52	13.55	9.859	.2	36
Ethnicfragmentation	48	.639	.249	0	.930
Proportion of Catholic	47	24.062	25.993	0	95.9
Proportion of Muslims	47	34.158	36.986	0	99.8
GDP per capita (log)	44	5.743	.587	4.717	6.975

[3] Countries used are extended in the appendix list

4. Empirical results

4.1 Beta-convergence

Figure 3 shows the correlation between the initial level of governance and the average growth of governance during the period considered. This graph seems to validate the hypothesis of the unconditional convergence. In other words, one expect that countries with weak institutions improve rapidly on their institution to the level of reaching the level of countries having institutions with high quality. However, the significance and the speed of the convergence process can be well evaluated based on regressions especially that the regression is not so inclined.

Figure 3: Initial level of governance and variation of governance

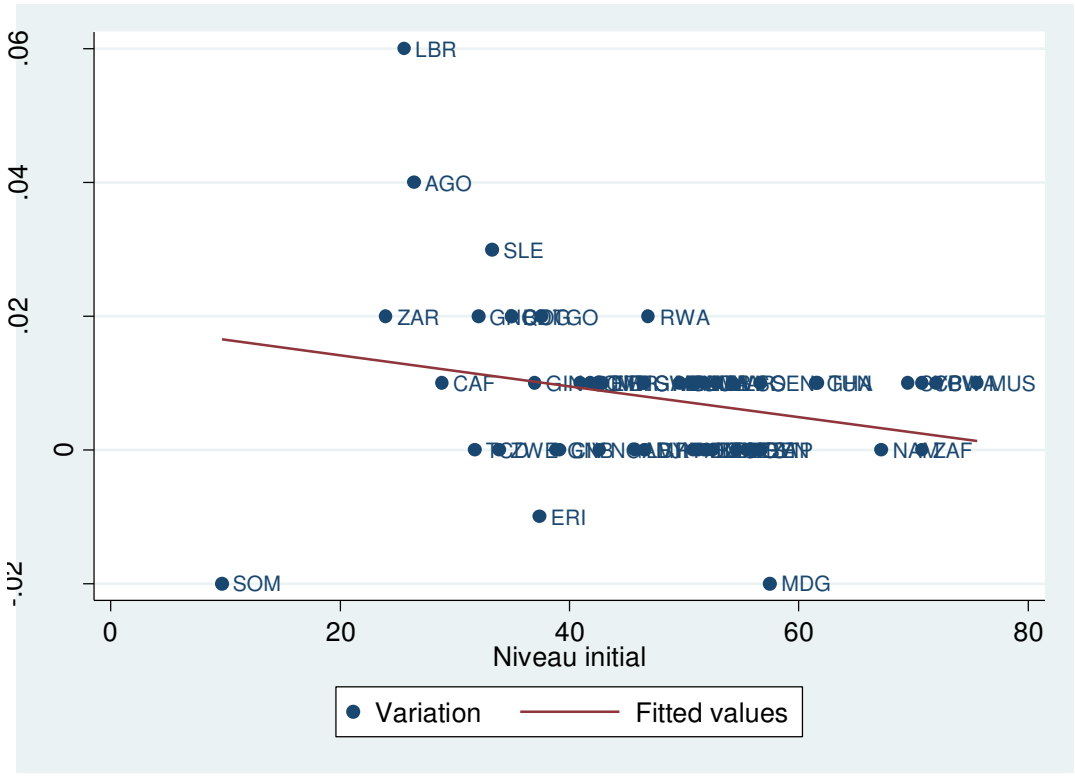


Table 2 presents the econometrics estimations. The first colon is a simple regression between the average growth rate of governance and the initial level of governance considered. One can observe a negative slope and a weak convergence speed giving the magnitude of the coefficient. However, the variable was found not significant, which explain the weak incline

of the regression line of the previous figure. Thus, one can deduce that the hypothesis of the unconditional convergence is not verified.

The second colon test the hypothesis of the conditional convergence, supposing that countries that share the same structure could converge more rapidly. Clearly, this hypothesis is verified. However, it is truly a process which may take several years as the gap difference is filled by 0.1 percent on average each year *ceteris paribus.*

Table 2. Empirical test for convergence

	Unconditional Convergence	**Conditional Convergence**
Initial Governance	-0.000	-0.001*
	(0.000)	(0.000)
Malaria		-.004
		(.005)
Latitude		-.000
		(.000)
Ethnic fragmentation		-.009
		(.011)
GDP per capita (log)		.001
		(.001)
Origin of French Law		-.006
		(.004)
Catholic		.000
		(.000)
Muslims		.000
		(.000)
Cons	0.007	0.069**
	(0.010)	(0.028)
Observation	52	40
R2	0.061	0.649

note: .01 - ***; .05 - **; .1 - *;

For the empirical test of convergence, two countries are used to illustrate: Somalia which has a level of 9.86, considered as the lowest in 2000, and Maurice with a level of 75.57, considered as the highest during the same period. These two countries are situated in the both

extremity of the regression visualized. Based on our estimations, the value of the yearly growth expected for Somalia is 0.262 and 2.115 for Maurice[4].

One also observe that the speed at which growth occurs between these two countries differs. This could be the dynamic which prevails at each sub-region level. It is possible that the average regional level would not be that level which leads other sub-region. Table 3, provides answers to this issue. In certain regions, the hypothesis of convergence seems to be no significant. The difference of convergence is infinitesimal in the sub African regions.

[4] Somalia : 0,028 – 0,001 x 9,68 and Maurice : 0,028 – 0,001 x 75,53

Table 3. Regional convergence

	Unconditional Convergence	Conditional Convergence
Initial Governance	-0.001**	(dropped)
	(0.000)	
Malaria		-.0059
		(.008)
Latitude		-0.001**
		(.000)
Ethnic fragmentation		-.001
		(.011)
GDP per capita (log)		.001
		(.002)
Origin of French Law		-.005
		(.005)
Catholic		.000
		(.000)
Muslims		.000
		(.000)
North	0.001***	0.001
	(0.000)	(0.000)
South	0.001**	0.000
	(0.000)	(0.000)
West	-0.000	-0.000
	(0.001)	(0.000)
East	0.001**	-0.001***
	(0.000)	(0.000)
Central		-0.001**
		(0.000)
Cons	0.007	0.069**
	(0.010)	(0.028)
Observation	51	40
R2	0.302	0.649
note: .01 - ***; .05 - **; .1 - *;		

4.2 ***Sigma- convergence***

The results of the sigma-convergence are reported in figure 4. The evolutions of the square root of the variance, in cross sectional presents a declining trend although the progress occurs with sawtooth. This could bring forth the idea of convergence. However, the movement is not that uniform. The variance improved in 2002, but only for a short period. One observe a

divergence of governance in 2007. Two years are enough to observe the reduction in size of the variance. The evolution of the sigma-convergence can be provided as follows:

Fig 4. Evolution of the sigma-convergence

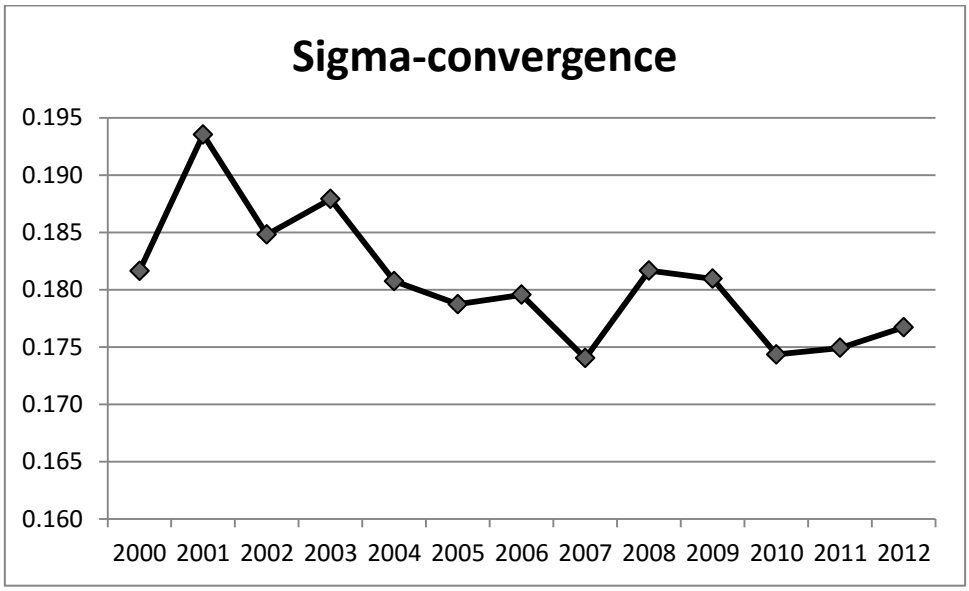


Table 5 presents couple of tests conducted to verify the sigma-convergence hypothesis between the initial year (2000) and the final year (2012) considered in the study. The two first tests measure the dispersion for the years considered. Mathematically, we observe a drop of these measures. This is what emerges naturally from the previous graph (Fig 2). However, one can go beyond and test the significance of this change. This provides rationale for the last colon in table 5.

The p-values of Table 5 present the test results of the comparison of variance for the Fischer, Levene, and Bartelett test respectively. The null hypothesis of the Fischer states that the relationship between the variances is equal to 1. For the Levene and Bartelett test, the null hypothesis states that the variances are identical. In the case of the first test, the risk of rejecting the null hypothesis H_0 is 92.24%. The risk of rejecting the null hypothesis H_0 is 67.60% for the Levene test and 92.4% for the Bartelett test. Thus, once can deduce that the sigma-convergence is not totally real, statistically.

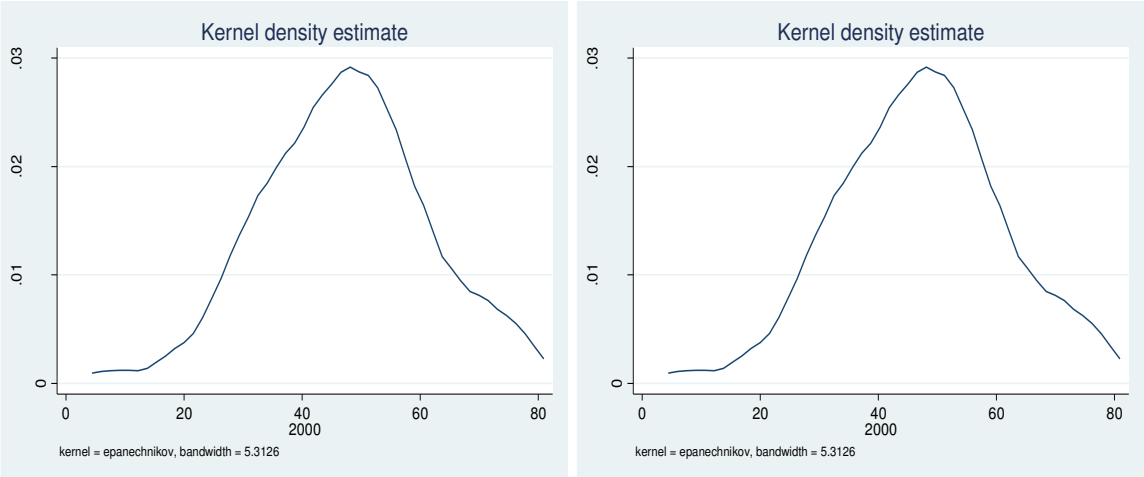
Table 5 Descriptive statistics

Variables	2000	2012	p-value F de Fischer	p-value Levene	p-value Bartelett
Standard deviation	13.609	13.423			
Variance	181.635	176.721	0.922**	0.676**	0.922**
Skewness	-.1039	-.1938			
Kurtosis	3.048	4.220			

*** Significance level of 1%; ** significance level of 5%;* significance level of 10%;

The two last tests (Skewness and Kurtosis) enable for the normality test. The probabilities of these two tests are 0.134 and 0.835 respectively for 2012 and 2000. We fail to reject the null hypothesis of the normal distribution, as portray in Fig 5. These different element emphasize on a divergence less significant, statistically.

Figure 5. The normality distribution of governance



5. Conclusion

This study intended to look at the behaviour of governance in Africa from 2000 to 2012. The fundamental question aimed at founding out whether or not governance in Africa varies in the positive or negative direction. In other words, do countries which were poorly governed managed to catch up with those countries well quoted in term of governance? Does the tendency converge or seems to diverge?

The econometrics results suggest a convergent tendency. Moreover, the result indicates a negative correlation between the governance of the year 2000 and 2012. This correlation is

only significant while one controls for a certain number of variables. This is a proof of a conditional convergence.

This conclusion confirms our assumption that there is first a convergence in governance in Africa, although this is conditional. This has concrete implications. First, there is reason to hope that African countries can improve their governance over time. Second, it is useful for poor countries to actively work to change the structures of the country in order to improve the quality of governance. The direct corroboration of this implication is the place of the choices this gives to the intellectual elite but also to society as a whole.

Références

Acemoglu, D., S. Johnson, and J.A. Robinson, (2005). "Institutions as a Fundamental Cause of Long-Run Growth",.In Philippe Aghion and Steven N. Durlauf, eds., *Handbook of Economic Growth*, Vol IA, Amsterdam, The Netherlands: Elsevier North-Holland.

Andrés, A. R., & Asongu, S. A., (2016). "Global trajectories, dynamics, and tendencies of business software piracy: Benchmarking IPRs harmonization", *Journal of Economic Studies*, 43(5), pp. 780-800.

Annala, C.N. (2003). "Have state and local fiscal policies become more alike? Evidence of beta convergence among fiscal policy variables". *Public Financ Rev*, 31(2):144-165.

Asongu, S. A. (2014b). "Fighting African Capital Flight: Empirics on Benchmarking Policy Harmonization", *European Journal of Comparative Economics*, 11(1), pp. 93-122.

Asongu, S. A., & Nwachukwu, J. C., (2016). "Revolution empirics: predicting the Arab Spring", *Empirical Economics*, 51(2), pp. 439-482.

Asongu, S. A., & Nwachukwu, J. C., (2017). "Fighting Terrorism: Empirics on Policy Harmonisation", *German Economic Review*. DOI: 10.1111/geer.12126.

Asongu, S. A., (2013a). "African Stock Market Performance Dynamics: A Multidimensional Convergence Assessment", *Journal of African Business*, 14(3), pp. 186-201.

Asongu, S. A., (2013b). "Harmonizing IPRs on Software Piracy: Empirics of Trajectories in Africa", *Journal of Business Ethics*, 118(3), pp. 667-682.

Asongu, S. A., (2014a). "African Development: Beyond Income Convergence", *South African Journal of Economics*, 82(3), pp. 334–353.

Attila, G (2008), "Is corruption contagious? An econometric analysis". NUPI Working paper 742.

Barro R.J. (2012). Convergence and Modernization Revisited, NBER Working Paper 18295.

Barro, R. and Sala-i-Martin, X. (1992). "Convergence". *Journal of PoliticalEconomics* 100:223-251.

Barro, R.J. (1991). "Economic growth in a cross section of countries". *Quarterly Journal of Economics* 106(2):407-443.

Baumol, W. J. (1986). "Productivity Growth, Convergence, and Welfare: What the Long-Run Data Show", *American Economic Review*, 76, 1072-1085.

Bleaney, M. and Nishiyama, A. (2003). "Convergence in inequality: differences between advanced and developing countries", *Economics Bulletin* 4, 1-10.

Bruno G., De Bonis R. and Silvestrini A. (2012). "Do Financial Systems Converge? New Evidence From Financial Assets in OECD Countries", *Journal of Comparative Economics*, 40: 141-155.

Canning D. (2012). "Progress in Health around the World", *Journal of Development Studies*, 48(12): 1784-1798

Carstensen, K. and Gundlach, E. (2006). "The Primacy of Institutions Reconsidered: Direct Income Effects of Malaria Prevalence", *The World Bank Economic Review*, 20(3), pp. 309–339

Constant, A. F. and Tien, B. N. 2010. “African Leaders: Their Education Abroad and FDI Flows”, IZA Discussion Papers 5353, Institute for the Study of Labor (IZA).
Correa, E.A., Davila, J. B., Jetter, M., Montoya Agudelo, A., Morales, D. 2014, “Corruption: Transcending borders”, mimeo.
De Long, J. B. (1988). “Productivity Growth, Convergence, and Welfare: Comment”, *American Economic Review*, 78, 1138-1154.
Deaton A. (2004). “Health in an Age of Globalization”, *Brookings Trade Forum 2004*, Brookings Institution Press, pp.83-130.
Dreher, A., Lamla, M. J., Lein, S. M. and Somogyi, F., 2009. “The impact of political leaders' profession and education on reforms”, *Journal of Comparative Economics*, 37(1), 169-193.
Grier, K. and Grier, R. (2007). “Only income diverges: A neoclassical anomaly”. *Journal Development of Economics*, 84(1):25-45.
Hall, J.C. (2015). “Institutional Convergence: Exit or Voice?”, Working Paper No. 15-40.
Heckelman, J.C. (2013a). “Cross-country convergence of financial reforms”. *European Economics Letter* 2(1):20-33.
Heckelman, J.C. (2013b). “Income convergence among U.S. states: Cross-sectional and time series evidence”. *Canadian Journal of Economics* 46(3):1085-1109.
Heckelman, J.C. and Mazumder, S. (2013). “Are we there yet? On the convergence of financial reforms”. *Econ Gov* 14(4):385-409.
Igué, J.O. (2010), « Une nouvelle génération de leaders en Afrique : quels enjeux ? » *Revue internationale de politique de développement*, DOI :10.4000/poldev.120
Jones, B., (2002). “Economic Integration and Convergence of Per Capita Income in West Africa”, *African Development Review*, 14(1), pp. 18–47.
Keefer P. and Knack S. (1997). “Why Don’t poor Countries Catch Up? A Cross-National Test of an Institutional Explanation”, *Economic Inquiry*, 35: 590-602.
Khanna T., Kogan J. and Palepu K. (2006). “Globalization and Similarities in corporate Governance: A Cross-Country Analysis”, *Review of Economics and Statistics*, 88(1): 69-90
Knack S. (1996). “Institutions and the Convergence Hypothesis: The Cross-National Evidence”, *Public Choice*, 87: 207-228
Kodila-Tedika, O. (2014). “Governance and Intelligence: Empirical Analysis from African Data”, *Journal of African Development*, 16(1), 83-97.
Kodila-Tedika, O., Asongu, S. & Mukendi-Kayembe, J. (2016). “Middle Class in Africa: Determinants and Consequences”, *International Economic Journal*, 30 (4), 527-549.
Kodila-Tedika, O., Asongu, S. and Tcheta-Bampa, A., (2017). “The Long-Term Effects of African Resistance to European Domination: Institutional Mechanism”, mimeo.
Narayan, P.K., Mishra, S., & Narayan, S., (2011). “Do market capitalization and stocks traded converge? New global evidence”. *Journal of Banking and Finance*, 35(10), pp.2771-2781.
Panizza, U. (2001). “Convergence in income inequality”, *Journal of Income Distribution* 10, 5-12.
Pritchett, L. (1997). “Divergence, big time”. *Journal of Economic Perspective,* 11(3): 3-17.
Quah, D. (1993). “Galton’s Fallacy and tests of the convergence hypothesis”. *Scandinavian Journal of Economics*, 95: 427–443.
Ravallion M. (2003). “Inequality Convergence”. *Economics Letters*, 80: 351-356.
Ravallion M. (2012). “Why Don’t We See Poverty Convergence?” *American Economic Review*, 102(1): 504-523.
Rodrik D. (2011). “The Future of Economic Convergence”. NBER Working Paper 17400.
Rodrik D. (2013). “Unconditional Convergence in Manufacturing”. *Quarterly Journal ofEconomics*, 128(1): 165-204.
Sala-i-Martin, X. (1996). “The classical approach to convergence analysis”. *The Economic Journal*, 106(437): 1019-36.
Savoia, A. and Sen, K. (2016). “Do We See Convergence in Institutions? A Cross-Country Analysis”, *The Journal of Development Studies* 52(2), 166-185.
Ssozi, J., & Asongu, S. A., (2016). “The Comparative Economics of Catch-up in Output per Worker, Total Factor Productivity and Technological Gain in Sub-Saharan Africa”, *African Development Review*, 28(2), pp. 215-228.

List of countries

Algeria
Angola
Benin
Botswana
Burkina Faso
Burundi
Cameroon
Cape Verde
Central African Republic
Chad
Comoros
Democratic Republic of Congo
Congo
Ivory Coast
Djibouti
Egypt
Equatorial Guinea
Eritrea
Ethiopia
Gabon
Gambia
Ghana
Guinea
Guinea-Bissau
Kenya
Lesotho
Liberia
Libya
Madagascar
Malawi
Mali
Mauritania
Mauritius
Morocco
Mozambique
Namibia
Niger
Nigeria
Rwanda
Sao Tome & Principe
Senegal
Seychelles
Sierra Leone
Somalia
South Africa
Swaziland
Tanzania
Togo
Tunisia
Uganda
Zambia
Zimbabwe