Governance and Intelligence: Empirical Analysis from African Data

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13 May 2012

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Firth version

Abstract

This study aims at testing the relation between intelligence and governance. It is based on African data. This study finds that countries with high-IQ populations enjoy good governance.

Keys-word : institution, governance, intelligence, Africa

JEL Classification: D73, I2

INTRODUCTION

In spite of some grey areas (e.g. Méndez and Sepúlveda, 2006; Méon and Weill, 2010; Meisel and Ould Aoudia, 2008; Arndt, 2009), economists now generally admit that institutions or governance matter for the performance of a nation, especially from an economic point of view (e.ge. Acemoglu, Johnson et Robinson, 2005 ; Djankov, Glaeser, La Porta, Lopez-de-Silanes et Shleifer, 2003 ; Davis, Owen et Videras, 2009 ; Baland, Moene et Robinson, J., 2010). However this consensus collapses once one tries to include/understand the impulses or the determinants of institutions or gouvernance. Moreover, the *ad hoc* literature is still in development (e.g. North, 2005; Acemoglu and Robinson, 2005; North, Wallis and Weingast, 2010; Baland, Moene and Robinson, 2010).

This article is precisely in line with this research program. It raises the following question: does intelligence explain the level of governance of a State? Let us recall quickly that recently the issue of intelligence started to draw the attention of economists. Work of Jones and Schneider (2006), Weede and Kämpf (2002) and Jones (2011) empirically assign a positive effect of intelligence on growth. Potrafke (2012) thinks of a negative effect of intelligence on corruption. It is also studied within the framework of game theory (Jones, 2008; Jones and Podemska 2010). One realizes quickly that much is left to study. This study contributes its share to the research, by thus marrying the need to include/understand the determinants of governance to the recent research by economists on the effects of intelligence.

While thinking of the concern of this article, one would be first tempted to think of a truism. That would be wrong. Intelligence being "the very general

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I thank Niklas Potrafke, Isaac Kanyama Kalonda and Emmanuel Martin for helpful suggestions.

mental capacity which implies in particular the ability to reason, to plan, to solve problems, to think abstractedly, to correctly understand complex ideas, to learn quickly and to benefit from one's experiments." (Gottfredson, 1997; Larivée and Gagné, 2006), it is almost natural to deduce that the level of intelligence influences the governance of a nation, but the expected sign is not possible to determine a priori nor is the direction of the effect (direct or indirect). One cannot determine *ex ante* the effect of intelligence. If intelligence can be useful for the good, it can also be used to circumvent rules or to seek rents, which for example contributes to strengthen atypical or counterproductive regimes. Africa is precisely populated with anecdotes of this kind.

Because Africa is a backward continent, it remains a candidate for the Gerschenkron effect (Gerschenkron, 1962): the effect to be able to benefit from the experiments of the others in order to take off (even in terms of governance). Theories of endogenous growth (imitation/transfer of technology or innovation) also agree with this. And here, it is in particular the level of intelligence which is requested.

Indeed, if the highest aberrant values in the distribution of intelligence are used advisedly in a society, it is very likely to benefit from a good elite both at the level of State management as in civil society. This can only encourage good governance and make society benefit from the Gerschenkron effect or of the advantages of imitation and innovation predicted in theories of endogenous growth (Aghion and Howitt, 2009), and, *in fine,* generate a virtuous circle. The reversed effect is also not to be completely excluded. But if the standard deviation of this distribution is close to zero, the effect of intelligence depends then on the absolute level of intelligence. If all the population enjoys higher intelligence, it is likely that political equilibrium will be optimal, with a positive consequence on governance. Under the assumption that the level of intelligence is lower, social equilibrium is very low with, consequently, a probable "capture" of society by the dominant coalition.

The object of this study is, as we underlined it, to study the relation between governance and intelligence on the basis of African data. Interest for Africa is justified initially by the African specificity which has always been . Then and finally, the second reason is due to the originality of data on governance.

The rest of the article is organized as follows. The following section is concerned with the presentation of the data and the strategy of econometric estimate. Then we present the results. Lastly, a conclusion is suggested.

DATA AND ESTIMATION STRATEGY

From the econometric point of view, we borrow the approach of Potrafke (2012). The equation to be estimated is as follows:

With I = 4… N and m representing the various listed African countries.It is about Angola (AGO), Benin (BEN), Botswana (BWA), Burkina Faso (BFA), Burundi (BDI), Cameroon (CMR), Central African Republic (CIF), Chad (TCD), DRC (ZAR), Côte d'Ivoire (CIV), Egypt (EGY), Ethiopia (ETH), Ghana (GHA), Guinea-Bissau (GNB), Kenya (KEN), Lesotho (LSO), Madagascar (MDG), Malawi (MWI), Mali (MLI), Mauritania (MRT), Maurice (DRIVEN), Morocco (MAR), Mozambique (MOZ), Namibia (NAM), Niger (NER), Rwanda (RWA), Senegal (SEN), Sierra Leone (SLE), South Africa (ZAF), Togo (TGO), Tunisia (TUN), Uganda (UGA), Tanzania (TZA), Zambia (ZMB) and Zimbabwe (ZWE).

Gov is a proxy of Governance. We exploit the data of the Ibrahim Foundation. This indicator compiles 86 indicators gathered in 14 subcategories and four categories (secuirty and rule of law, participation and human right, sustainable economic development and human development) which evaluate the effective service of goods and public services delivered to African citizens. The Ibrahim Index constitutes the most complete collection of quantitative information leading to an annual evaluation of the performance with regard to governance in each African country, only. This index is financed and controlled by a African institution. It is not exploited yet in the empirical literature. In addition, in our estimates, Gov2010 relates to the level of the governance in 2010 and Gov2005 on the level of the governance in 2005.

IQ relates to the mean intelligence quotient of the general population. Gouillon (2002) affirms that IQ is the tool more used in psychometry. It allows in form simple to quantify a great number of cognitive capacities of the subject and her general intelligence (the factor G). Psychologists regularly resort to it (Neisser, 1998; Larivée and Gagné, 2006). We make use of it to approximate intelligence. In the estimates, QI2006 relates to the level of intelligence in 2006 and QI2002 on the level of the intelligence in 2002.

The data on IQ come from Lynn et al. (2002, 2006 and 2010). In Table 1, i.e. basic estimates, we employ the data of Lynn and Vanhanen (2006), which was also used by Jones and Schneider (2010), Potrafke (2012). The data of Lynn and Vanhanen (2002) are employed in the section of tests of robustness. Let us specify here that the concern first was to also use the data of Lynn and Meisenberg (2010). However, this data base does not cover enough countries of

our sample. Moreover, this way of testing the robustness of results is used in particular by Potrafke (2012).

Reg is a regional dummy variable. It takes the value 1 if the country belongs to the area, and 0 if not. We distinguish five sub-regions : Central Africa, East Africa, West Africa, Southern Africa and North Africa. This variable makes it possible to control the variation of governance from a sub-region to another.

X is a vector of control variables, including the log of GDP per capita (Penn World Tables 6.3), a dummy of the democracy-dictatorship of Cheibub et al. (2010) (Demo). We also control economic globalization by the KOF index used by Dreher (2006) and Dreher et al. (2008), expressed by GEKOF in the econometric results.

Lastly, OrigDroit variable is taken in La Porta et al. (1999). We distinguish two for Africa from them from our sample: the English origin of law (OrigDroitAng) on the one hand and the French origin of law (OrigDroitFr) on the other.

DESCRIPTIVE STATISTICS

Before moving to estimates, let us seize initially the statistical characteristics of our variables. Table 1 following takes care some.

Table 1. Descriptive statistics

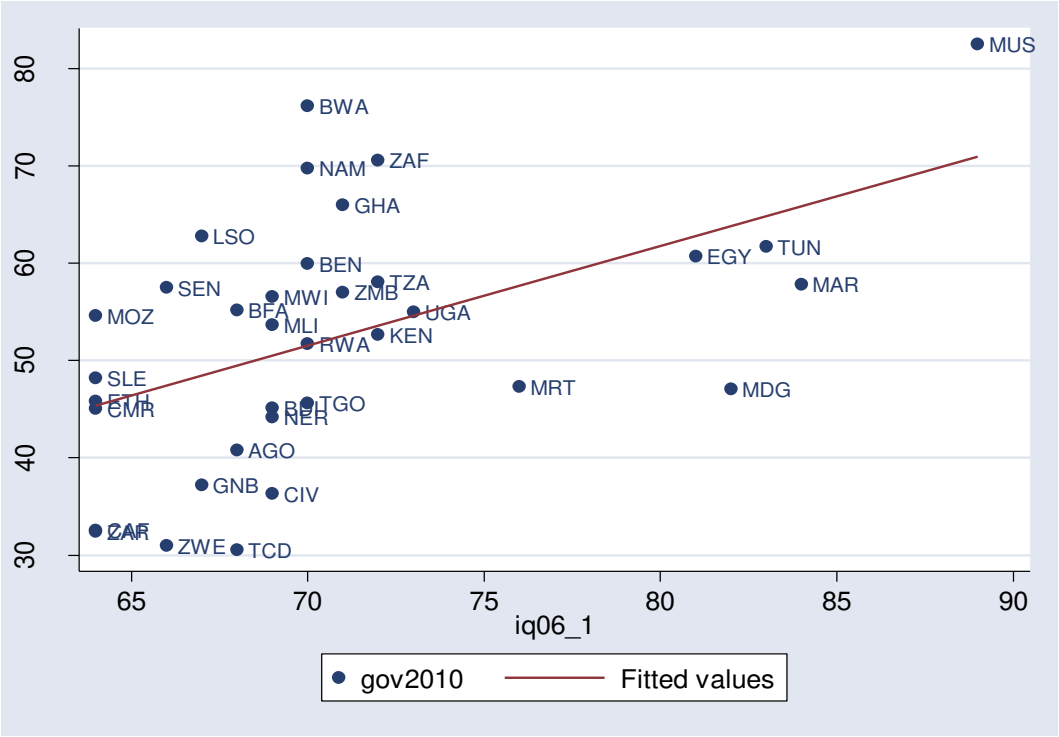
Variables	Obs.	Mean	Std-dev.	Min	Max
Central Africa	35	0,085	0,284	0	1
Southern Africa	35	0,343	0,482	0	1
East Africa	35	0,171	0,382	0	1
North Africa	35	0,114	0,323	0	1
West Africa	35	0,286	0,458	0	1
Log GDP per capita	35	7,560	0,883	5,903	9,817
Demo	35	0,343	0,483	0	1
GEKOF	35	48,490	10,599	30,384	67,185
QI2006	35	70,719	6,219	64	89
QI2002	35	71,286	5,644	63	85
Gov2010	35	52,244	12,649	30,561	82,465
Gov2005	35	50,905	13,100	28,120	77,933
OrigDroitAng	35	0,343	0,486	0	1
OrigDroitFr	35	0,657	0,486	0	1

By considering only the variable to be estimated and the variable of interest (intelligence), Mauritius appears as the African country which is distinguished very positively in terms from governance and of intelligence. And one notes a

positive change from 77 to 82 out of 100, between 2005 and 2010. However, the last rank changes in time. In 2005, DRC occupies the last rank with a note of 28 out of 100. But in 2010, this position is occupied by Chad. Guinea-Bissau and Ethiopia have the weakest IQ in 2002, but in 2006 the place of the last is shared by four States: Cameroon, RCA, Mozambique and Sierra-Leone.

Graph 1 presents the correlation between the variable of interest (IQ) and the level of governance in Africa. Whatever the variable considered, one notes the existence of "clubs of convergence".

Graph 1.IQ and gouvernance



RESULTS

Basic results

Table 2 hereafter shows the first five basic estimates. Except for (1), in the other columns, the absence of estimated coefficients of certain variables is due to the multicolinearity which these variables cause in the estimates. The majority of variables of control are not statistically significant. The increase in income tends to make level of governance increase, given the high significativity and the importance of its coefficient. According to (5), on average, countries of West and East Africa have a level of governance higher than countries of central Africa, whereas the performances of countries of North and Southern Africa do not differ much. Curiously, legal origin does not seem to have significant effect from the statistical point of view. In an undifferentiated way, this conclusion applies to OrigDroitFr and OrigDroitAng.

The level of intelligence statistically influences governance. In columns (1) and (3), the degree of confidence is 99%; it drops however to 95% in the other columns. This result is considerable insofar as an increase in one percentage point in the degree of confidence, compared to its standard deviation, directly involves an increase of 4,35 points in the level of governance. The fundamental question for which it is necessary to find an answer is: can one affirm that this conclusion is robust?

Table 2. Results of the estimates

	Gov2010				
	(1)	(2)	(3)	(4)	(5)
QI2006	1,02***	1,02**	1,35***	0,62**	0,70**
	(0,29)	(0,45)	(0,40)	(0,30)	(0,28)
Central Africa		-9,07		-6,35	
		(7,61)		(7,51)	
East Africa		5,53		9,35	15,78**
		(5,52)		(6,62)	(6,09)
North Africa			-10,45		5,94
			(5,59)		(7,44)
Southern Africa		11,13		5,88	12,94
		(6,82)		(4,15)	(6,98)
West Africa		6,43		9,08	16,83***
		(6,94)		(4,14)	(6,15)
Log GDP per capita				8,00***	8,01***
				(2,25)	(2,22)
Demo				2,12	
				(4,96)	
GEKOF				-0,00	0,06
				(0,30)	(0,24)
OrigDroitFr				-6,49	-6,86
				(4,64)	(4,41)
Constant	-20,03	-25,64	-41,96	-54,51	-63,64***
	(20,41)	(36,54)	(27,64)	(26,00)	(22,57)
Obs.	35	35	35	34	34
Adj. R^2	0,25	0,37	0,25	0,50	0,52

Notes: Absolute value of t statistics in brackets; * significant at 10%; ** significant at 5%; *** significant at 1%

Robustness checks

Given the limited options to validate these results in terms of robustness, we resort to the same exercise of robustness used by Potrafke (2012). It is a question of changing the years for the variable of control as well as for the variable to be

estimated. To have the same result suggests that this one remains insensitive with change in specification or variation of time. The results of this gymnastics are included in table 2. But beyond this way of testing robustness of results, we tried to introduce other variables of control: means of instruction age, opening of Penn World Tables 6.3 in place of GEKOF. We also used the corrected IQ of Potrafke to take into account criticisms of Wicherts et al. (2010). In spite of this change[2], the conclusion remains the same: intelligence statistically affects governance, in a positive way.

Table 2. Search for robustness

	Gov2005				
	(1)	(2)	(3)	(4)	(5)
QI2002	1,18***	1,37***	1,59***	1,06*	1,13**
	(0,29)	(0,48)	(0,39)	(0,53)	(0,47)
Central Africa		-9,66		-17,44**	-19,12**
		(6,67)		(4,95)	(7,55)
East Africa		8,70		2,17	-1,42
		(5,92)		(7,45)	(5,39)
North Africa			-11,25	-9,92	-14,16
			(5,50)	(10,16)	(8,73)
Southern Africa		11,75		-2,18	-4,03
		(5,19)		(6,72)	(5,55)
West Africa		10,22			6,15)
		(8,21)			
Log GDP per capita				6,54**	6,95
				(2,87)	(3,01)
Demo				4,90	
				(4,85)	
GEKOF				0,03	-0,08
				(0,38)	(0,22)
OrigDroitAng				4,44	5,22
				(5,37)	(3,99)
Constant	-33,17	-53,46	-61,40	-74,56	-74,60**
	(21,12)	(39,03)	(27,11)	(32,98)	(33,07)
Obs.	35	35	35	34	34
Adj. R^2	0,25	0,37	0,25	0,45	0,45

Notes: Absolute value of t statistics in brackets; * significant at 10%; ** significant at 5%; *** significant at 1%

[2] Let us specify that we do not include in table 2, the results of all these changes, the interested reader can ask to the author his results.

CONCLUSION

We argue in this article that the level of intelligence of a population is likely to affect the governance of government in which this population lives. Indeed, because to be intelligent implies "the ability to reason, *to solve problems*, *to understand complex ideas* well*, to learn quickly and to benefit from one's experiments*", one can insinuate a nonreversible influence of this one on the governance.

Our econometric analysis made it possible to establish, while controlling for the impact of the average income and other traditional variables, a direct relation between intelligence and governance: to have a high level of intelligence guarantees a remarkable governance in our sample guarantees. This effect proved to be of an non negligible extent, since while increasing by one point compared to its standard deviation, intelligence is likely to directly involve an increase of 4,35 points of the level of the governance. Moreover, this relation seems robust.

These results, in conformity with our assumptions, must however be regarded as exploratory. The analysis appears to us to have to be prolonged in several directions, in particular the following ones. How does intelligence interact with other variables potentially likely to affect governance? Can one affirm with robustness the indirect effect of intelligence on governance? Does the level of intelligence of the leaders have a direct incidence on governance? Does intelligence boost the civil society and its capacity of empowerment? The econometric model could be specified so as to test the threshold effects and other nonlinearities: there a minimum level of intelligence from which the effects have an importance on governance? Remainder, how does this relation behave if the sample is widened, by breaking up governance into several dimensions?

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