# Estimating the Impact of Governance Quality on Development in Sub-Saharan Africa

Allexander Muzenda
Department of Research and Publications, Regenesys Business School; South Africa
E-mail of corresponding author:alexmuzenda02@gmail.com

**Abstract**
This aim of this study was to analyse the influence of governance quality on development in Southern Africa using a set of cross country panel data from 11 countries during 2005 to 2012. Based on the Breusch-Pagan Lagrangian Multiplier test and Hausman test procedures, a Random Effects model, the results show that political stability; and voice and accountability exhibit significant positive effects on development; with political stability indicating a more pronounced significant impact on development in the region. The estimated R-squared shows that nearly 25.97 percent total variation in development was accounted for by political stability and voice and accountability. The Wald chi-square (=29.75; p < 0.05) shows significance of the model.
**Keywords**: governance, quality, development, political stability, voice and accountability

## 1. Introduction

With the continued presence of malfunctioning governments across the globe remaining a widespread turmoil, lack of good governance has caused detrimental effects on the welfare and development of humans (Adsera, Boix & Payne, 2000). According to Akpan & Effiong (2012), good governance is an important instrument for poverty eradication. Virtually, improved governance systems strongly enhance the quality of human life through poverty eradication, reliable and affordable health care and access to sound education. Generally, governance comprises of institutional mechanisms through which political and administrative authority is exercised in managing the country's economic, social and political affairs; thus determining the processes through which citizens exercise their rights.

The World Bank (2013) regards governance as a process that consists of traditions and institutions by which authority in a country is exercised with regards to the process by which governments are selected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens and the state for the institutions that govern economic and social interactions among them. Previous studies that have examined the effect of governance on development include Mauro (1995), Hall & Jones (1997), Knack & Keefer (1995), Kaufman, Kraay & Zoido-Lobaton (1999a), Rodrik, Subramanian & Trebbia (2004), Meon & Weill (2005), Acemoglu & Johnson (2005), Barro (2007), Akpan & Effiong (2012) and Baek & Oh (2013).

The objective of this study was to analyse the impact of governance on development in Southern African region. The paper is organised as follows: Section 2 reviews literature on governance and development. Section 3 specifies the methodology and estimation procedure; while Section 4 presents and discusses the findings. Section 5 provides conclusion and recommendations.

## 2. LITERATURE REVIEW

The concept of governance dominates the center stage in the realm of public policy debates on development (Vadlamannati, 2008). Following Adsera, Boix & Payne (2000), although substantial constitutional mechanisms have been adopted to make public officials accountable to citizens, the sustained existence of malfunctioning governing institutions has generated detrimental socioeconomic effects on the welfare of citizens. From a governance perspective, the ways in which governance and administration are practiced in a country directly translate into the quality of human lives. Mauro (1995), Easterly & Levine (1997) and Kaufman, Kraay & Zoido-Lobaton (1999b) indicate that countries within which governments can be held accountable for their actions provide evidence that good governance is an effective instrument for enhancing human welfare. Borrowing from Barro (2007), Tridico (2007) highlights that improved human life generates a better skilled and productive labour force that further enhances economic growth.

Following Kaufmann, Kraay & Mastruzzi (2010), the quality of governance is best measured based on six indicators; namely Political Stability, Voice and Accountability, Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption. The ranking of these indicators follows a normal distribution of scores ranging between -2.5 to +2.5; with high scores reflecting better quality of governance and vice versa. Succeeding Kaufmann et al (1999a), the first dimension of governance comprises of two indicators; namely political stability; and voice and accountability. In broad terms, the respective two indicators measure the processes through which governments are selected, monitored and replaced. Individually, the political stability and absence of violence measures the perceived likelihood of destabilizing the government through

unconstitutional violent actions; while voice and accountability estimates the extent to which a country's citizens participate in the selection of government, exercise freedom of expression, association and press. Findings from the study by Tridico (2007) indicate that voice and accountability has a substantial effect on development; while political stability remains insignificant. From an economic development perspective based on income per capita, Akpan & Effiong (2012) find political stability as having a significant and positive effect on development sub-Saharan Africa. As such, it can be inferred that political stability and absence of violence are necessary conditions for stimulating economic development.

Proceeding further, the second dimension of governance captures government effectiveness; and regulatory quality. This dimension measures the capacity of government to effectively formulate and implement sound policies. Discretely, government effectiveness reflects the quality of public services, the quality of civil service and the degree of government independence from political pressures; as well as credibility of government's commitment. Regulatory quality reflects the perceptions of the ability of the government to formulate and implement sound policies and regulations that are conducive to private sector development. While Tridico (2007) finds regulatory quality as having no significant impact on development, government effectiveness, however demonstrates a statistically significant positive effect on development; indicating an efficient provision of social infrastructure public goods and services such as road networks, safe and clean water, energy and power supply, education and health facilities. Using the per capita income as a development indicator, Akpan & Effiong (2012) find that regulatory quality has a significant positive impact on development; signifying that the adoption of non-distortionary policies stimulate business confidence; market efficiency and development.

The last dimension of governance comprises of two indicators; namely the rule of law and control of corruption. These indicators collectively measure the respect for citizens and state of the institutions that govern citizens' economic and social interactions. While the rule of law reflects the extent to which agents have confidence in and abide by the rules of the society, the quality of contract enforcement, property rights, the police, the courts as well as the possibility of crime and violence; control of corruption measures the extent to which public power is exercised for private gain, including petty and grand corruption, as well as the state by elites and private interests. Based on the empirical findings by Tridico (2007) on emerging economies, both the rule of law and the regulatory quality have no significant effects on development. The results suggest that the respective two indicators of governance were perceived to be weak to the extent that they are not significant enough to enhance development. Measuring development based on the income per capita, Akpan & Effiong (2012) find control of corruption as having no significant positive effect on development; while the rule of law demonstrates a statistically significant and positive impact on development. From a governance perspective, these results signify that respecting and abiding by the rule of law is an effective instrument towards achieving economic development. Based on the recent literature, efforts to enhance development through improvement of governance quality should observe all the governance indicators as complements to each other rather than as substitutes (Campos & Nugent, 1999).

## 3. ECONOMETRIC METHODOLOGY

### 3.1 Data

The study uses cross-country panel data on development and governance indicators for a set of 11 countries in Southern Africa during the period 2005-2012. Data on countries' development indices was collected from the UNDP's Development Report 2013 online database. Similarly, the data on political stability; voice and accountability; government effectiveness, regulatory quality; rule of law and control of corruption was obtained from the World Bank's Worldwide Governance Indicators 2013 online database.

The development index was used as the ideal proxy for development; while the six governance indicators were used as determinants of development. While the development index measures the average achievement in three basic dimensions of development; namely a long and healthy life, knowledge and decent standard of living; governance indicators measure perceived quality of governance based on views of large numbers of survey respondents and expert assessments worldwide.

### 3.2 Estimation Procedure

The econometric procedure followed in selecting the appropriate estimation model was based on appraisal of three panel data models; namely Pooled OLS regression, GLS Random Effects (RE) and Fixed Effects (FE) models. The Breusch-Pagan Lagrangian Multiplier and Hausman test techniques were used to select the suitable models.

$$\text{Random Effects (RE) model}: Y_{it} = \alpha + X'_{it}\beta + (u_i + v_{it}); v_{it} \sim IID\left(0, \sigma_v^2\right) \quad \text{------------- (1)}$$

The Breusch and Pagan Lagrangian Multiplier test was run on the RE model to appropriately choose between the Pooled OLS and RE model. The respective LM test was run based on the formulation:

$$LM_u = \frac{nT}{2(T-1)}\left[\frac{\sum\left(\sum e_{it}\right)^2}{\sum\sum e_{it}^2}-1\right]^2 = \frac{nT}{n(T-1)}\left[\frac{\sum(T)\bar{e}_i}{\sum\sum e_{it}^2}-1\right] \sim \chi^2(1) \qquad \text{---------------------- (2)}$$

Following rejection of the hypothesis that the Pooled OLS regression was appropriate (Table 2), the Hausman test was run to choose between the RE model and FE model based on the formulation:

$$H = \left(\hat{\beta}_{FE}-\hat{\beta}_{RE}\right)'\left[\left(V\left(\hat{\beta}_{FE}\right)-V\left(\hat{\beta}_{RE}\right)^{\wedge}(-1)\right)\right]\left(\hat{\beta}_{FE}-\hat{\beta}_{RE}\right) \qquad \text{---------------------- (3)}$$

The Hausman test results were used to select the appropriate model between RE and FE at 5% level of significance. Differences across panels were measured by the interclass correlation (ρ); which approaches 1 if the respective individual effects dominates the idiosyncratic error.

### 3.3 Econometric Model
The econometric estimation method used in the study was a single equation model formulated as:

$$HDI = \alpha + \beta_1\,(PolStab) + \beta_2\,(VoiceAcc) + \beta_3\,(GvtEff) + \beta_4\,(\text{Re}\,gQual) + \beta_5\,(RulLaw) + \beta_6\,(CntrlCorr) + u_{it} \quad \text{-}$$

(6)
where: HDI symbolizes Development Index; PStab represents Political stability; VAcc denotes Voice and Accountability; GEff signifies Government Effectiveness; RQual symbolizes Regulatory Quality; RLaw represents Rule of law; and CCorr denotes Control of Corruption.

### 4. Results and Discussion
### 4.1 Breusch and Pagan Lagrangian Multiplier (LM) Test
The Breusch and Pagan LM test was applied on the estimates of the RE model (Table 1) to evaluate whether the Pooled OLS regression was appropriate model to apply for analysis.

**Table 1: GLS Random Effects**

| R-squared: within = 0.2594 | | | | | obs per group | : min = 8 |
| between = 0.2597 | | | | | | : avg = 8.0 |
| overall = 0.2597 | | | | | | : max = 8 |
| | | | | | Wald chi2(2) | = 29.75 |
| corr(u_i,x) = 0 (assumed) | | | | | Prob > chi2 | = 0.0000 |

| Development | Coeff. | Std. Err. | z | P > \|z\| | 95% Conf. Interval | |
|---|---|---|---|---|---|---|
| Political Stability | .0432169 | .0098269 | 4.40 | 0.000 | .0239566 | .0624772 |
| Voice and Accountability | .0513120 | .0223143 | 2.30 | 0.021 | .0075767 | .0950473 |
| _cons | .4824625 | .0316755 | 15.23 | 0.000 | .4203796 | .5445454 |
| sigma_u | .10355371 | | | | | |
| sigma_e | .01607852 | | | | | |
| rho | .9764593 | (fraction of variance due to u_i) | | | | |

The Breusch and Pagan Lagrangian Multiplier test for random effects results (Table 2) rejected the null hypothesis that the Pooled OLS regression was appropriate. All the other governance indicators were dropped out of the model as they remained statistically insignificant in influencing development.

**Table 2: Breusch and Pagan Lagrangian Multiplier test for Random Effects results**

| HDI [Country, t] = Xb + u [Country] + e [Country, t] | | |
|---|---|---|
| | Var | sd = sqrt(Var) |
| Development | .0109957 | .1048606 |
| e | .0002585 | .0160785 |
| u | .0107233 | .1035532 |
| Test: Var (u) = 0 | Chibar2(01) = 288.97 | Prob > chibar2 = 0.0000 |

The FE model was further run (Table 3) to make appropriately selection between the RE and FE models based on the Hausman test results.

**Table 3: Fixed Effects results**

| R-squared: within = 0.2594 | | | | | | obs per group: min = 8 | |
|---|---|---|---|---|---|---|---|
| between = 0.2596 | | | | | | : avg = 8.0 | |
| overall = 0.2595 | | | | | | : max = 8 | |
| | | | | | | F (2, 75) = 13.14 | |
| corr(u_i, Xb) = -0.0574 | | | | | | Prob > F = 0.0000 | |
| Development | Coeff. | Std. Err. | t | P> \|t\| | 95% Conf. Interval | | |
| Political Stability | .0432599 | .010011 | 4.32 | 0.000 | .0233160 | .0632037 | |
| Voice and Accountability | .0532143 | .025577 | 2.08 | 0.041 | .0022608 | .1041678 | |
| _cons | .4830355 | .008083 | 59.75 | 0.000 | .4669319 | .4991390 | |
| sigma_u | .0929549 | | | | | | |
| sigma_e | .0160785 | | | | | | |
| rho | .9709501 | | | | | | |
| F test that all u_i = 0: | | F (10, 75) = 266.29 | | | Prob > F = 0.0000 | | |

The Hausman test (Table 4) was run to select the appropriate model between RE and FE models.

**Table 4: Hausman test results**

| | Coefficients | | | |
|---|---|---|---|---|
| | (b) | (B) | (b-B) | sqrt(diag(V_b–V_B)) |
| | FE1 | RE1 | Difference | |
| Political Stability | .0432599 | .0432169 | .0000430 | .0011551 |
| Voice and Accountability | .0532143 | .0513120 | .0019023 | .0118786 |
| Test $H_o$: difference in coefficients not systematic: | | | | |
| chi2(2) = 0.03 | | | Prob > chi2 = 0.9867 | |

       The Hausman test was run to determine whether the individual effects are random. Given the null hypothesis that both the FE and RE models are consistent, and the alternative hypothesis that the RE is not consistent, results from the Hausman test performed implied non-rejection of the null hypothesis that the RE model was appropriate. The coefficient estimates of the RE model were therefore consistent.

       Based on the RE model results; both political stability; and voice and accountability demonstrated substantial positive effects on development in the Southern African region. In comparative terms, political stability had a more remarkable positive impact on development than voice and accountability. Results reveal that 1 percent improvement in political stability leads to approximately 4.32 percent improvement in development in respect of healthy life, knowledge acquisition and decent standard of living. Correspondingly, a 1 percent improvement in the quality of voice and accountability leads to nearly 5.13 percent improvement in the quality of citizens' health care, knowledge and standard of living. Overall, the R-squared statistic of the random effect model indicates that approximately 25.97 percent total variation in development in the respective region was accounted for by political stability; and voice and accountability during the period under review. Furthermore, the Wald chi2 (=29.75; p < 0.05) revealed significance of the estimated model; while the interclass correlation revealed that approximately 97.65 percent of the variance computed from the model was due to differences across panels.

## 5. Conclusion and Recommendations
### 5.1 Conclusion
This paper estimated the individual impacts of distinct governance indicators on development in Southern African region during the period 2005–2012. From the six world governance indicators, government effectiveness, regulatory quality, rule of law and control of corruption remained statistically insignificant towards influencing development. Only political stability; and voice and accountability demonstrated substantial positive impacts on development in the region. From the development perspective, the results yielded by political stability; and voice and accountability indicators provide evidence that improvements in processes through which governments are selected, monitored and replaced undoubtedly enhances the quality of human life. Although the direction of causality remains unclear, the notion by Campos & Nugent (1999) that the dimensions of governance are complimentary in nature conforms to the findings of this study. It can therefore be inferred that improvement in voice and accountability positively translates into political stability; while the presence of political stability provides an environment conducive for citizens to live with dignity, exercise their rights of freedom of expression; and hold the government responsible for formulation and implementation of policies that are responsive to people's socioeconomic needs and aspirations.

## 5.2 Recommendations

The strive to achieve development at country, regional and global levels requires commitment by parties vested with constitutional authority to creating conditions that citizens can develop a sense of self-worth, security and dignity. Given the conformity of the current results to development literature that governance quality plays an essential role in stimulating development, governments in the region need to observe that improvement in governance quality remains an effective instrument for achieving regional integration across social, political and economic dimensions. Governance reforms also need to be made at both regional and country levels; especially towards promoting legitimate inclusive participation in finding solutions development challenges. Given that the overall goodness of the model was not high, future research on the subject of governance and development nexus should integrate a large number of countries over a longer sample period in order to yield better results.

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