Turkish Economic Review
www.kspjournals.org
Volume 4 September 2017 Issue 3

Institutional quality and economic growth in East African economies

By Moga Tano JILENGA [a†] & Xu HELIAN [b]

Abstract. This study examines the effect of quality of institutions on economic growth in five East African countries using panel data for the period spanning from1996 to 2015. Fixed effects (FE) and random effects (RE) models were employed for estimation. Using Hausman test, FE was earmarked to be more appropriate model for this study. The empirical findings show that the quality of institution significantly impacts on economic growth. Political stability, government effectiveness, rule of law and control of corruption in particular are significant variables. Regulatory quality, voice and accountability indicate insignificant effect on growth. The results suggest that governance that promotes strong institutions is an important condition for economic growth. Particular focus should be focused on enhancing political stability, government effectiveness, rule of law and control of corruption so as to attain economic development.
Keywords. Institutional quality, Economic growth, East Africa, Fixed effects.
JEL. O43, E20, C33.

1. Introduction

Economic literature argue that, the rate of economic growth of a country is basically explained by resource endowment and technology. The determinants of economic growth and development can be traced back to the neoclassical model in 1950s (Solow, 1956; Swan, 1956). The standard neoclassical growth model identifies capital accumulation or investment as the central factor in explaining levels of per capita income. Most of these models focus primarily on the basic factors of production. In this case, factors of production like capital stock, labour force and level of technology needed to produce aggregate level of output determine the level of growth. The basic idea is that, output is influenced by the level of capital stock a country have and how many people work and how productive they are. Essentially, labour productivity in this case depends on the level of education and the general health of the population. It is also argued that a country that can develop and adapt to new technologies more quickly than others are likely to grow quickly.

In spite of different models explaining how different inputs can be combined to produce output; further analysis show that growth models hitherto fail to answer truly causal questions. Even if capital accumulation or technological innovation accounts for significant differences in long-run levels of per capita output across countries, the question remains why certain societies succeeded while others failed to take the actions necessary to accomplish such accumulation or innovation.

In trying to explain the causes of differences in growth among countries, Acemoglu *et al.,* (2005) used the role of institutions between two countries (South

[a†] College of Economics and Trade, Hunan University, Changsha 410079, China.
. +86 18573154774
. mjilenga@yahoo.com
[b] College of Economics and Trade, Hunan University, Changsha 410079, China.
. +86 13037319676
. xuhelian@163.com

Korea and North Korea) to explain its impact on economic growth. The two countries at the end of the Second World War actually differed little in terms of economic endowments or structure. The main difference has been in terms of subsequent choices in terms of institutional organization. South Korea maintained a system of private property and an economic model based on private incentives and market forces. South Korea thus followed the path of inclusive institutions and prospered, turning into one of the 'Asian economic miracles' in the 1960s. North Korea in contrast followed the communist model in abolishing private property and installing a centrally planned economy. The North Korean regime chose extractive institutions and has seen its economy lag that of its southern neighbour since, even falling back in terms of absolute economic welfare since the 1990s. This case clearly supports the view that institutional quality is an essential element in the enabling environment that drives long term economic progress.

Similarly, an enormous empirical studies on the relationship between institutional quality and economic growth support the view that institutional quality matters for economic growth and development (Acemoglu *et al.,* 2001; 2002; 2003; 2005, Easterly & Levine, 2001; Dollar & Kraay, 2003; Hall & Jones, 1999; Rodrik *et al.,* 2004; Rodrik *et al.,* 2002; Rodrik, 1999; Knack & Keefer, 1995; Mauro, 1995; Rodrik, Subramanian & Trebbi, 2004; Siddique & Ahmed, 2009; and Lee & Kim, 2009). According to this view, government policies influence economic output by affecting the allocation of economic resources and creating the incentives to use the factors of production in different ways. In particular, it has been found that there is a major role that is played by institutions in influencing the effects of either the human or physical capital or both in influencing the growth path of economies.

This paper examines institutional quality and how it impacts on economic growth. The findings from this study expects to contribute to the on - going debate over the institutions – growth linkage particularly for developing countries. The remainder of this paper is structured as follows: section 2 provides a review of literature and section 3 gives the description of the methodology and data used in the study. Section 4 shows analysis of findings before we conclude and provides avenues for further research.

2. Review of literature

2.1. Theoretical approach

North, (1990) argue that institutions set market rules, structure interactions among economic actors and ensure that economic actions are bounded by these rules. In this view, firms are encouraged in an environment protected by market rules as a result competition often leads to technological upgrading, innovation and productivity gains. According to Romer, (1986) knowledge is an important input that has the properties of increasing the return to scale. Indeed, if knowledge is central to potential increasing to scale in production and therefore economic growth; good institutions are required to reduce the uncertainty inherent in economic interactions by making information more readily available and the behavior of actors become predictable. They also provide protection of the intellectual properties of individual entrepreneurs and inventors. On the other hand bad institutions are often associated with high transaction costs and an increased, weak contact enforcement, corruption and risk for long term trade commitments.

A similar view by Hall & Jones (1999) pointed that overall productivity of factors of production in a country is driven by the quality of its institutions. Good quality institutions enhance the ability of a country to adopt new technologies invented elsewhere which may play an important role in upgrading the development process of a country (Bernard & Jones, 1996). Acemoglu & Robinson (2010) argue that institutions are the fundamental determinant of economic growth and cause development differences across countries.

The main argument regarding institutional theory is that, institutions strongly influence human behaviour and therefore have a strong relevance for the growth and development of countries (or lack thereof) (Acemoglu & Robinson, 2012). While there is no universally accepted definition of institutions, a broad consensus has been reached on what constitutes institutions and what their principal functions and effects are (for a comprehensive overview see Hodgson, 1998; and Williamson, 2000). Following North (1991; 1992), institutions are interpreted as 'humanly devised constraints that structure political, economic, and social interactions. They constitute the framework of a society, which to a high degree determines the individuals' activities by providing crucial information and therefore reducing uncertainty (Voigt, 2002).

2.2. Empirical studies

Several empirical studies have been undertaken to explore the linkage between institutional quality and long term economic growth. The relevant economic literature remains divided over the precise nature of this interlinkage. However, these studies suffer from qualitative nature of institutional variables, measurement problem of the variables reliability and subjectivity of data.

The central hypothesis of empirical research into the impact of the quality of institutions on economic development is that institutions that guarantee political and civil freedoms and rule of law are necessary for economic development (Acemoglu & Robinson, 2012). Both institutions and governance structures are important for understanding the path of economic growth and why some countries have been more successful than others in building market-compatible institutions (Beck & Laeven, 2005). In a similar line of reasoning, Pande & Udry (2005) proved that long-run growth is faster in countries that have higher quality contracting institutions, better law enforcement, increased protection of private property rights, improved central government bureaucracy, smoother operating formal sector financial markets, increased levels of democracy, and higher levels of trust.

Betancourt & Bensyishay (2010) recently showed a link between institutions and growth through the direct role of civil liberties and level of economic activity. They took data from Freedom House and disaggregated the civil liberties index and found that the sub category related to property rights institutions explains long term economic growth very well. Again, Kormendi & Meguira (1985) studied the impact of institutions on economic performance of nations. In their study they examined the effect of civil and political liberties, among other factors, on economic growth and investment for 47 countries during the period from 1950 to 1977. The result shows that countries that have high level of liberties are most successful.

One of the influential studies that highlight the importance of institutions in relation to economic growth, while correcting for endogeinety problems, is by Acemoglu *et al.,* (2001). In this study a case for differences in economic institutions as the 'fundamental cause of different patterns of economic growth was considered. They introduced settler mortality's as an instrument variable to deal with the issue of endogeneity. Their results showed that institutions in fact had a large impact on economic growth, while geography did not matter (at least not in a direct way). An important critique of this study is that the instrument used is not universally applicable, because not all poor countries were colonized.

According to Acemoglu & Robinson, (2012) institutional quality is pivotal for economic development. There is much evidence that democratic institutions, the absence of corruption, rule of law, and sound governance structures in the country's administration are conducive to promoting growth in terms of Gross Domestic Product (GDP), or to attracting foreign direct investment (FDI), to mention just some of its most relevant determinants. Democratic governance and accountability are not the end point after a country has undergone economic and social development, but rather the start point of a more sustainable development.To

emphasize, Grogan & Moers (2001) have found that the institutions had much importance for FDI and economic growth. Causation existed between growth and institutions. In FDI and institutions, the degree of causation was low.

Heckelman *et al.,* (2008) have developed a theoretical model and an empirical evaluation of the link between institutions, corruption and economic growth. Their theoretical model highlights a range of possible equilibrium configurations in the relationship between corruption, growth and institutional quality. According to them, corruption has a negative impact on growth in a regime with high institutional quality but has no impact if institutional quality is poor. Conversely, Zhuang *et al.,* (2010) highlight the role of institutions and governance in enhancing economic progress. The study emphasizes the measurement of institutional quality and its impact on economic performance. The results of the study indicate two way long run relations between institutional quality and economic performance.

Previous studies on the relationship between institutional quality and economic growth are yet not conclusive. This is due to the institutional variables chosen, the group of countries in the analysis, and the time period of the study, the results are mixed. This study uses six world governance indicators (WGI) as measures of institutional quality which are provided by the World Bank.

3. Methodology and data

3.1. Data

This study utilises panel data from secondary data source. The annual time series data have been collected for the period from 1996 to 2015 for five countries including Burundi, Kenya, Rwanda, Tanzania and Uganda. The data for gross domestic product (GDP), population growth, gross fixed capital formation, human capital, and inflation have been obtained from World development indicators (WDI). On the other hand, data for different indicators of institutions have been collected from Worldwide Governance Indicators (WGI) as per Kaufman, *et al.* (2010).

3.2. Model Specification

The relationships between variables have been quantified using powerful tools of econometrics. In order explore the relationship between institutions and economic growth, the following empirical model was estimated:

$$\ln Y_{it} = \alpha + \beta \times Inst_{it} + \sum_{k} \gamma^{k} \times control_{it}^{k} + \varepsilon_{it}$$

Where, $\ln Y_{it}$ is the log of GDP per capita in country i at period t, $Inst_{it}$ is a set of measures of institutional quality, $control_{it}^{k}$ is a vector of k other explanatory variables, ε_{it} is the error term, and (α β γ^{k}) is a vector of parameters to be estimated.

3.2.1. Definition and Measurement of variables

GDP is a dependent variable and refers to the logarithm of real Gross Domestic Product per capita. Other traditional determinants of economic growth are included in the regression as control variables. The choice of these variables is based on numerous previous growth theories (see for example Barro, 1991). Inflation (INF) is used as a control variable and is proxed as annual change in percentage point of consumer price index (CPI). In an economy, high inflation is a sign of macroeconomic imbalances and reduces economic growth. Gross fixed capital formation (GCF) is used as a proxy for the ratio of investment to GDP. A positive coefficient is expected as greater investment is related to positive effect on growth (Mankiw *et al.,* 1992). Human capital (HUC) refers to measure of economic value of an employees' skill set. Human capital is also considered to be the major

determinant of economic growth in endogenous growth theories advanced by Romer (1986, 1990) and Lucas (1988). We use the proxy of the net secondary ratio to represent the level of participation in the education system and literate rate.Population growth (POP) is an increase in the number of people that reside in a state or a country. We use the annual percentage growth rate of a country's population as a proxy for population growth.

In order to measure institutional quality, governance indicators provided by the World Bank are used and comprise six different indicators. These indicators are based on some opinion and perception-based surveys of various governance measures from investment consulting firms, non-government organizations, think tanks, governments, and multilateral agencies; they are classified as voice and accountability (VOA), rule of law (RUL), control of corruption (COC), regulatory quality (REQ), political stability (POS) and government effectiveness (GOE). In order to capture institutional quality we utilize six governance indicators pertaining to the seminal work by Kaufmann *et al.,* (2005). The indicators take the values ranging from -2.5 to 2.5 inclusive, with an increase consistently implying better quality of institutions.

3.2.2. Regression Models

The standard panel regression models of fixed effect (FE) and random effect (RE) is used for estimation. FE assumes that something within the individual country, firm or company may impact or bias the predictor or outcome variables and this need to be controlled. This is the rationale behind the assumption of the correlation between entity's error term and predictor variables. FE removes the effect of those time-invariant characteristics so that the net effect of the predictors on the outcome variable can be assessed. In addition, time-invariant characteristics are unique to the individual and should not be correlated with other individual characteristics. Each entity is different, therefore the entity's error term and the constant (which captures individual characteristics) should not be correlated with the others.

Unlike fixed effects model, random effects assume that variation across entities is random and uncorrelated with the predictor or independent variables included in the model. However, the hausman test is used to decide on the appropriate model between fixed effect and random effect model. The hausman test therefore tests the null hypothesis that random effects u_i and x_{it} are uncorrelated. If random effects and regressors are uncorrelated, then we estimate random effects model. On the other hand if they are correlated, the fixed effects model would be appropriate. If the Hausman statistic is smaller than its critical value then we fail to reject the null hypothesis that regressors and random effects are uncorrelated.

4. Empirical Analysis and findings

4.1. Descriptive statistics

Table 1 and 2 show summary descriptive statistics and pairwise correlations respectively. A number of variables for institutional quality have been used as well as other control variables for the regression as shown in the table below.

Table 1. *Summary statistics*

Variable	Obs	Mean	Std. Dev.	Min	Max
Real GDP	100	22.99	1.17	21.07	24.68
VOA	100	25.68	12.28	3.8	44.71
POS	100	17.70	12.53	0.48	47.87
GEF	100	30.69	14.03	2.93	57.35
REQ	100	34.95	15.68	4.41	61.54
RUL	100	27.59	14.96	2.39	61.06
COC	100	24.31	17.07	1.42	76.92
POP	100	3.00	0.95	1.36	7.99
GCF	100	20.18	6.66	2.78	33.24
HUC	100	0.37	0.95	0.18	0.51
INF	100	8.70	5.94	-2.41	31.11

Source: Authors

Table 2. *Pairwise correlation*

	GDP	POS	GEF	REQ	RUL	COC	VOA	POP	GCF	HUC	INF
GDP	1										
POS	0.386	1									
GEF	0.248	0.576	1								
REQ	0.287	0.629	0.478	1							
RUL	0.412	0.715	0.444	0.754	1						
COC	0.247	0.251	-0.164	0.648	0.608	1					
VOA	0.273	0.475	0.815	0.452	0.645	0.748	1				
POP	-0.035	0.143	-0.047	0.185	-0.153	-0.181	-0.183	1			
GCF	0.736	0.357	0.569	0.575	0.415	0.444	0.604	0.266	1		
HUC	0.632	0.305	0.644	0.367	0.649	0.765	0.523	0.141	0.781	1	
INF	-0.096	-0.246	0.016	-0.095	-0.302	-0.267	-0.256	-0.089	-0.102	-0.149	1

Source: Authors' computations

The summary statistics show data collected from five countries for the period covered from 1996 to 2015 resulting to 100 observations of a balanced panel. According to table 1, the values of standard deviations which measure the extent of dispersion indicate that the data are fairly spread from the mean. The values of minimum and maximum are also relatively close to the mean suggesting that there are no outliers.

Pairwise correlation as indicated in Table 2 show that GDP is positively related to political stability, government effectiveness, regulatory quality, rule of law, human capital, gross fixed capital formation, control of corruption, and voice and accountability as expected. In addition, GDP is negatively related to inflation as we also expected. However, population growth is negatively related to GDP. This relation was not anticipated. Among institutional variables rule of law is the most highly correlated with GDP while the least variable is control of corruption.

4.2. Empirical results

In our estimation, we use GDP as a dependent variable and six governance indicators as per Kaufmann, (2005) as explanatory variables. However, we also use other control variables as used in other previous studies.

The Fixed Effects estimation has been used after performing the Hausman test and find is significant, then we reject the null hypothesis that Random Effects model is appropriate (see Table 3).

Table 3. *Fixed effects estimates (Dependent variable GDP)*

Variable	Coefficient	Standard error	t-value	P-value
VOA	0.0021239	0.0034121	0.62	0.535
POS	0.0054344	0.0030171	1.80	0.075
GEF	-0.0117473	0.0030179	-3.89	0.000
REQ	-0.0041746	0.0029058	-1.44	0.154
RUL	0.0098502	0.0030041	3.28	0.002
COC	0.0047736	0.0026041	1.83	0.070
POP	-0.0267998	0.0213849	-1.25	0.214
GCF	-0.0044087	0.0050693	-0.87	0.387
HUC	3.983653	0.5279983	7.54	0.000
INFL	-0.000925	0.002768	-0.33	0.739
C	21.63942	.137887	156.94	0.000

Notes: $R^2 = 0.843$. F –Statistics 45.67 (0.000)

The regression results in Table 3 above show that all institutional variables except government effectiveness (GEF) and regulatory quality (REQ) have positive effect on economic growth. Political stability (POS) and control of corruption (COC) are positive and statistically significant at 10 percent level, implying that good political environment coupled with democracy, peace and stability in the country as well as lack of corruption provides better environment and enhances economic growth. Similarly, Rule of law (RUL) and government effectiveness (GEF) are statistically significant at 5 percent level of significance. This implies that strong legal system and rule of law have a great role to play in promoting economic growth and development. Again, government effectiveness is relevant for enhancing growth. Other control variables are not significant except human

capital which is statistically significant at 5 percent level of significance. Human capital has a coefficient of 3.983 showing a higher contribution to the real gross domestic product (GDP) as compared to other variables. The R – squared is 0.843 indicating that 84.3 percent of the variation in GDP is explained by independent variables. Only 15.7 percent of the variation in GDP is explained by other factors not included in the regression model.

5. Conclusion

The overall objective of this study was to examine the relationship between institutional quality and economic growth in five east African countries namely; Burundi, Kenya, Rwanda, Tanzania and Uganda. In order to achieve our objective we applied six governance indicators as proposed by Kaufmann, (1996). We used panel regression models of FE and RE in our estimation. Our findings show that political stability, rule of law, government effectiveness and control of corruption are significant variables to explain economic growth in East African countries. On the other hand regulatory quality and voice and accountability are insignificant variables. This result is consistent with other studies (see Acemoglu & Robinson, 2012; Barro, 1996; Zhuang *et al.,* 2010).

On the basis of our findings, institutions are crucial in achieving the development process due to its influence on economic growth. In this case governments should undergo reforms and formulation of good policies required for better allocation of resources. Additionally, governments should abide to the rule of law through established strong courts responsible for enforcement of contracts and protection of property rights. Furthermore, control of corruption is important to ensure that public powers are not exercised for private gains. On top of that, governments have to maintain political stability, peace and security so that economic activities can be carried out peacefully. Decision makers have to ensure that policies in place work towards maintaining democracy, minimizing corruption and ensuring rule of law. This can lead to efficient and good institutions for sustainable economic development.

References

Acemoglu, D., Johnson, S., & Robinson, J.A. (2001). The colonial origins of comparative development: An empirical investigation. *American Economic Review,* 91(5), 1369-1401. doi. 10.1257/aer.91.5.1369

Acemoglu, D., & Robinson, J.A. (2012) *Why Nations Fail: The Origins of Power, Prosperity and Poverty*, London: Profile Books.

Acemoglu, D., & Robinson, J.A. (2010) The role of institutions in growth and development. *Review of Economics and Institutions*, 1(2), 1-33. doi. 10.5202/rei.v1i2.14.

Acemoglu, D., Johnson, S., & Robinson, J.A. (2002). Reversal of fortune: geography and institutions in the making of the modern world income distribution. *Quarterly Journal of Economics,* 117(4), 1231-1294. doi. 10.1162/003355302320935025

Beck, T., & Laeven, L. (2005). Institution building and growth in transition economies, *Journal of Economic Growth*, 11(2), 157-186. doi. 10.1007/s10887-006-9000-0

Benyishay, A., & Betancourt, R. (2010) Civil liberties and economic Development, *Journal of Institutional Economics*, 6(3), 281-304. doi. 10.1017/S1744137410000081

Bernard, A., & Jones, C. (1996) Productivity and convergence across U.S. states and industries. *Empirical Economics*, 21(1), 113-135. doi. 10.1007/BF01205496

Dollar, D., & Kraay, A. (2003). Institutions, trade, and growth, *Journal of Monetary Economics*, 50(1), 133-162. doi. 10.1016/S0304-3932(02)00206-4

Grogan, L., & Moers, L. (2001).Growth empirics with institutional measures for transition countries, *Economic Systems*, 25(4), 323-344. doi. 10.1016/S0939-3625(01)00030-9

Hall, R.E. & Jones, C.I. (1999). Why do some countries produce so much more output per worker than others?, *Quarterly Journal of Economics*, 114(1), 83-116. doi. 10.1162/003355399555954

Heckelman, C., & Powell, B. (2010). Corruption and the institutional environment for growth. *Comparative Economic Studies*, 52(3), 351-378. doi. 10.1057/ces.2010.14

Hodgson, G.M. (1998). The approach of institutional economics, *Journal of Economic Literature,* 36(1), 166-192.

Lee, K., & Kim, B. (2009). Both institutions and policies matter but differently for different income groups of countries: determinants of long-run economic growth revisited. *World Development,* 37(3), 533-549. doi. 10.1016/j.worlddev.2008.07.004

Lucas, R. (1988). On the mechanism of economic development, *Journal of Monetary Economics*, 22(1), 3-42. doi. 10.1016/0304-3932(88)90168-7

Kaufmann, D., Kraay A., & Mastruzzi M., (2005). Governance matters IV: Governance indicators for 1996 - 2004. *World Bank Policy Research Working Paper*, No.3630.Washington, D.C. doi. 10.1596/1813-9450-3630

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2010). The worldwide governance indicators: Methodology and analytical issues. *World Bank Policy Research Working* Paper No.5430. doi. 10.1017/S1876404511200046

Knack, S., & Keefer, P. (1995). Institutions and economic performance: Cross-country tests using alternative institutional measures, *Economics and Politics*, 7(3), 207-227. doi. 10.1111/j.1468-0343.1995.tb00111.x

Kormendi, R.C., & Meguire, P.G. (1985). Macroeconomic determinants of growth: cross-country evidence, *Journal of Monetary Economics*, 16(2), 141-163. doi. 10.1016/0304-3932(85)90027-3

Mankiw, N.G., Romer, D., & Weil, D.N. (1992). A contribution to the empirics of economic growth, *Quarterly Journal of Economics*, 107(2), 408-437. doi. 10.2307/2118477

Mauro, P. (1995). Corruption and growth. *Quarterly Journal of Economics,* 110(3), 681-712. doi. 10.2307/2946696

North, D.C. (1990). *Institutions, Institutional Change and Economic Performance*, Cambridge, MA: Cambridge University Press.

North, D.C. (1991). Institutions, *Journal of Economic Perspectives*, 5(1), 97-112.

North, D.C. (1992) *Institutionen, institutionellerWandel und Wirtschaftsleistung*, Tübingen: Mohr Siebeck.

Pande, R., & Udry, C. (2005). Institutions and development: A view from below. Yale University Economic Growth Center, *Discussion Paper*, No.928. [Retrieved from].

Rodrik, D. (1999). Where did all the growth go? External shocks, social conflict and growth collapses. *Journal of Economic Growth,* 4(4), 385-412. doi. 10.1023/A:1009863208706

Rodrik, D., Subramanian, A., & Trebbi, F. (2002). Institutions rule: the primacy of institutions over integration and geography in economic development. *Journal of Economic Growth*, 9(2), 131-165. doi. 10.1023/B:JOEG.0000031425.72248.85

Romer, P.M. (1986). Increasing returns and long run growth, *Journal of Political Economy*, 94(5), 1002-1037. doi. 10.1086/261420

Romer, P.M. (1990). Endogenous technological change. *Journal of Political Economy*, 98(5), 71-102. doi. 10.1086/261725

Siddiqui, D.A., & Ahmed, Q.M. (2009). Does institution effect growth in Pakistan? An empirical investigation. *MPRA Paper*, No.19744. [Retrieved from].

Solow, R. (1956). A contribution to the theory of economic growth. *Quarterly Journal of Economics*, 70(1), 65-94. doi. 10.2307/1884513

Swan, T. (1956). Economic growth and capital accumulation. *Economic Record*, 32(63), 334-361. doi. 10.1111/j.1475-4932.1956.tb00434.x

Voigt, S. (2002). *Institutionenökonomik*, Paderborn: Fink.

Williamson, O.E. (2000). The new institutional economics: Taking stock, looking ahead, *Journal of Economic Literature,* 38(3), 595-613. doi. 10.1257/jel.38.3.595

Zhuang, J., De Dios, E., & Martin, A.L. (2010). Governance and institutional quality and the links with economic growth and income inequality: With special reference to Developing Asia. Asian Development Bank Economics, *Working Paper Series*, No.193. [Retrieved from].