Journal of Economics and Sustainable Development
ISSN 2222-1700 (Paper) ISSN 2222-2855 (Online)
Vol.8, No.6, 2017


# Do Good Institutions Matter for Private Investment? Evidence from East Africa

Joseph Ndungu Peter W Muriu*
School of Economics, University of Nairobi, PO Box 30197 Nairobi, Kenya

**Abstract**
This study sought to investigate the link between private investment decisions and various governance institutions. This link is empirically tested for a panel of 4 East Africa countries by estimating a random effect model for the period 1996-2015. While the literature has placed special emphasis on the role of corruption on private investments, we explore a wider range of institutional aspects. Estimations results show that government effectiveness, regulatory quality, control of corruption, and rule of law influence the level of private investments.
**Keywords:** Institutions; Investments; East Africa; Random Effect
*JEL Classification:* E02, E6, C33

## 1. Introduction

Private investment enhances the production capacity of an economy, which leads to transfer of new technology as well as government revenue. The level of private investment determines the rate of economic growth. It is positively related to expansion of GDP therefore, key to long term growth of a country (King'wara, 2014; Mlambo and Oshikoya, 2001). It may also boost public investment as demand for public services that support private sector investment increases.

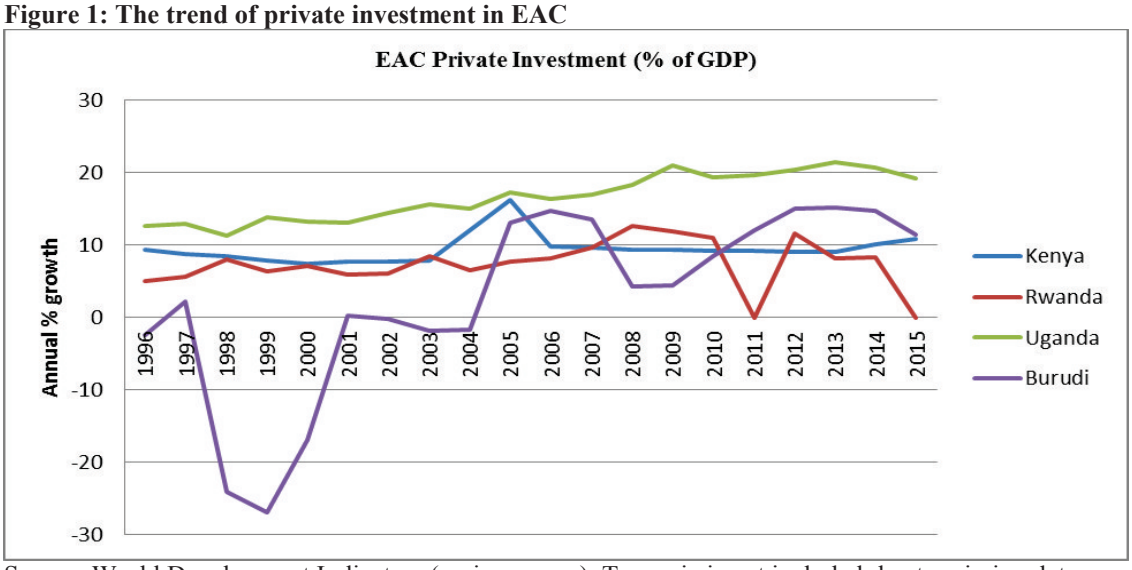
The main objective of this study is to investigate the role of institutions on private investment. The East Africa Community (EAC) Treaty has identifies improvement of investment climate as key area of co-operation with the aim of achieving balanced and sustainable economic development within its members states. Thus, private investments have been prioritized as key area that requires much attention if the East African economies were to achieve the much needed economic development. This culminated in the adoption of industrialization policy in the Heads of State summit held on 2011. The policy aimed at promoting value addition and diversification of product based on comparative advantages of the EAC region.

EAC countries have also undertaken various economic reforms (see Ronge & Kimuyu, 1997; Were et al., 2006) since the introduction of structural adjustment programs (SAPs) in early 1980s and liberalization of economies 1990s. These include institution, legal, and regulatory reforms that has enabled private participation in service and good delivery, for example, Privatization and Public Investment Act 1996 in Rwanda, and Public Enterprise Reform and Divestiture Statute Act 1993 in Uganda. Several statutory authorities have also been established as vehicles to promote and protect the interest of private investors. These include Kenya Private Sector Alliance (KEPSA), the Private Sector Foundation of Uganda (PSFU) and Tanzania Private Sector Foundation (TPSF).

That notwithstanding, private investments to GDP ratio has remained not only low but also volatile (see Figure 1). In Kenya, the lowest percentage recorded being 7.5% (2000) and the highest 16.2% (2005), while in Rwanda 5.1% (1996) and 12.6% (2008), in Uganda 11.3% (1998) and 21.4% (2013) in Burundi -27% (1999) and 15.1% (2013). Since the year 2005 Uganda has demonstrated a consistent upward trajectory on the level of private investments while Kenya has performed dismally. This study therefore sought to address the following research question. Could there be other factors besides the traditional determinants of private investments such as quality of institutions that explained the observed disparity?

**Figure 1: The trend of private investment in EAC**




Source: World Development Indicators (various years). Tanzania is not included due to missing data

Good institutions reduce uncertainty, and cost of doing business. It creates conducive environment for business prosperity through improved government performance as well as policy predictability which are key ingredients for productive ventures (World Bank, 2004). According to World Economic Forum[1] (2015), legal and institutions framework within which economic agents interact; determine the competitiveness, influences decisions whether to or not to invest and how benefits/costs associated with development strategies and policies are distributed in an economy. These emphasize the need to prioritize institutions reforms given its vital role in an economy. In fact, weak institutions remain one of the major challenges affecting not only East Africa countries but also Sub-Saharan Africa as a whole (World Economic Forum, 2015).

Several studies have investigated determinants of private investments. Kalu, Tendai and Sheshangai (2010) investigated how the legal environment and finance affect manufacturing firms' decision to invest in East Africa. A firm investment decision making function was estimated with confidence in judicially, unofficial payment, loan, growth in firms' revenue as well as country dummy as explanatory variable. The study found that right to property ownership is the key channel through which quality legal system translates to more investment. This is consistent with Knack and Kneefer (1995) who found that contract enforceability and risk of expropriation play a great role in determining investment more than any other governance institutions. These studies however, concentrated only on the two governance institutions namely corruption and rule of law.

In a cross country analysis, Asiedu and Freeman (2009) examined the effect of corruption on growth of firm's investment levels by employing ordinary least squares (OLS) and iteratively reweighted least squares (IRLS) procedures on investment data collected from 10,032 firms in 81 countries for the period 1995-1998. The study found that corruption affect firm's investments growth differently across regions. For example, corruption is statistically significant with a negative sign on growth of investment for firms in the Transition economies but not statistically significant for firms in Sub-Saharan Africa (SSA) and Latin America.

The study by Pastor and Sung (1995) is among the few to show a link between the various institutions of democracy and private investment levels in the developing countries. Their study employed ordinary least squares (OLS) estimation method and time series cross-sectional data from a sample of fifteen (15) countries between 1973 and 1986 to estimate the impact of the various democratic institutions on fixed capital formation. The study found that improved democratic institutions such political participation, recruitment process, openness in government operation, political continuity, attitude toward foreign investor's leads to higher levels of private investment.

Le (2004) examined economic and political determinant of private investment by employing Feasible Generalized Least Squares (FGLS) procedure for a sample of 25 developing economies for the period 1975 to 1995. The study found that constitutional government changes and nonviolent protest enhances private investment while unconstitutional government changes, violent protest and frequency changes of policy makers hampers private investment. This study too failed to capture the role of an array of governance institutions.

Several studies have investigated the determinants of private investments on specific African economies. They include King'ori (2015) and King'wara (2014) on Kenya, Ulrich (2010) on Benin, Asante (2000) on Ghana and Kazeem et al. (2012) on Nigeria. These studies however fail to control for the quality of institutions.

[1] https://www.weforum.org/

At the global level, available literature on the role of institutions on private investment has mainly focused on the security of property rights (see North, 1990; Easterly & Lavine, 2003; Kalu et al, 2010) while a few have addressed political instability, corruption, and government effectiveness (see Keefer 2002; Rodrik, 1991; Alesina & Perolti, 1996).

Interestingly, neither of these studies attempted to categorize which institutions were least or most likely to influence firm's decisions to invest. These initial findings suggest that rule of law and in particular, the security of property rights, political instabilities, control of corruption and government effectiveness, democratic institutions such political participation, recruitment process, openness in government operation, political continuity, attitude toward foreign investor's etc. would result to higher levels of private investment. Unconstitutional government changes, violent protest and frequency changes of policy makers' hamper private investment as well.

This study makes at least three main contributions to existing literature on institutions economics. First, it is timely, in view of the current emphasis on the role of private sector in economic growth, which remains a top priority in the reform agendas of African countries. Second, this study broadens the dimension beyond the traditional institutional indicators. There exists only a rudimentary understanding to what degree institutions actually matter particularly in EAC. Rigorous analysis for EAC is often impeded by the lack of appropriate data. Third, at the policy level, examining institutional factors that influence private investment will help the policymakers gain better insights in order to prioritize economic reforms surrounding the various institutions of governance in their effort to address the problem of low investment in the region.

This paper is structured as follows. Section 2 describes theoretical framework, empirical specifications, econometric approach, data and the measurements of our variables of interest. In section 3 we present the empirical results and discussions. Conclusions and policy suggestions are offered in the final section by pointing out some unresolved issues.

## 2. Methodology

### 2.1 Theoretical framework

Given the long term nature of investment, private investors need an assurance that rule of law will prevail and the right to property ownership will be protected and respected by the government in power. They also require that dispute be resolved expeditiously, fairly and amicably. Slow dispute resolution leads to high litigation cost which in turn impact negatively to the transaction cost of the firm. These costs are later transferred to consumers through higher prices. High prices may lead to a reduction in sales causing firms to shut down their operations and preventing new investments in an economy.

This study employed the neoclassical flexible accelerator model which is widely used in the literature. The model assumes firms invest today to earn higher profits in the future (Jorgenson 1967). Flexible accelerator is therefore a firm's profit maximization problem. It posits that net investment is step by step change in the actual capital stock to its desired level. Investment in this model is determined by expected aggregate demand or the accelerator, the wage rate, the user cost of capital and the initial capital stock. The task therefore for this study is to derive a standard accelerator investment function and then thereafter includes other variables that capture institutional characteristics in the EAC context.

In the accelerator theory, investment is a function of output growth. It is therefore a difference between capital stock in two different time period. The desired capital stock a function of output $K_t = f(Y_t)$ is assumed to be proportional to output at any given time. Thus;

$K_t = \alpha Y_t$ ..... (1)

Where, $K_t$ is the desired capital stock at time t, $\alpha$ is the adjustment coefficient and $Y_t$ is the level of output at time t.

Differentiating equation (1) with respect to time t, it becomes,

$\Delta K_t = \alpha \Delta Y_t$ ..... (2)

Where $\Delta K_t$ and $\Delta Y_t$ represent change in capital stock and output levels at time t respectively.

To derive a relationship between capital stock and the levels of investment, a capital accumulation identity function is specified as;

$K_t = (1 - \delta)K_{t-1} + I_t$ ..... (3)

Where $\delta$ represent depreciation coefficient, $K_{t-1}$ is capital stock at time t-1 and $I_t$ gross investment at time t

From equation (3),

$K_t - K_{t-1} = -\delta K_t + I_t$ ..... (4)

Rearranging equation (4) and assuming zero depreciation ($\delta = 0$), an investment identity function is derived as follows;

$I_t = \Delta K_t$ ..... (5)

Substituting equation (5) into equation (2), we obtain a basic investment function specified as

$I_t = \alpha Y_t$ ..... (6)
Investment therefore depends on the growth of output. The final gross investment model therefore becomes;
$I_t = \gamma + \beta \Delta Y_t + X_t + \varepsilon_t$ ..... (8)
Where $X_t$ captures the effect of variables such as structural reform, governance institutions, macroeconomic and policy related factors that are unique to developing countries.

**2.2 Model specification**
From the theoretical considerations, equation (8) can take the following form,
$PI = f(RGDP, INST, INT, OPEN, INFL, DCREDT)$ ..... (9)
The net investment in the neoclassical flexible model is determined by the expected aggregate demand or accelerator and the user cost of capital. The private investment equation is therefore augmented to include previous year GDP growth rate, institutions (INST) and interest rate (INT) to control for the accelerator effect and that of user cost of capital respectively. For the purpose of estimation, a general linear model is specified as;

$$PI_{ct} = \alpha + \sum_{n=1}^{N} \beta_n X_{ct}^{n} + \sum_{m=1}^{M} \beta_m X_{ct}^{m} + \delta D_{c-1} + \varepsilon_{ct} \quad (10)$$

Where $PI_{ct}$ is the private investment to GDP ratio in country *c*, at time *t*, with t=1, . . ., T; α is the regression constant, $X_{ct}^{n}$ is a vector of institutions quality indicators (*n*) (namely control of corruption (COR), government effectiveness (GE), rule of law (RL), regulatory quality (REG), voice and public accountability (VA), political stability and absence of violence (PS)) in country *c* during the period *t*; $X_{ct}^{m}$ is a vector of country-specific control variables (*m*) in country *c* (namely real interest rate (INT), trade openness (OPEN), domestic credit as percentage of GDP (DCREDT) and previous year real gross domestic product (GDP)) during the period *t*; D denotes the country-specific dummy variables and $\varepsilon_{tc} = \gamma_t + \upsilon_i + \mu_{tc}$ is the disturbance, with $\upsilon_i$ the unobserved effect, $\mu_{tc}$ is the idiosyncratic error and $\gamma_t$ is the unobservable time effects. $\beta, \delta$ are the coefficients to be estimated.

**2.3 Definition and measurement of variables**
Private investment is the dependent variable measured as the ratio of private investment to GDP. This ratio has been fluctuating in EAC despite various government efforts, such enactment of Public Private Partnership Act, Privatization Act, creation of Investment Authorities amongst other bodies and policies, aimed at promoting and/or creating a conduce environment for private sector investments.

Voice and accountability (VA) captures the extent to which citizens get involved in activities of their government, right of individual/organization, political process, right to associate, and the freedom of the media so as to hold politicians accountable for their action. Transparency in government operations reduces level of corruption (COR) in a country. It also ensures politicians are accountable to their action reducing chances of making unilateral decision which could be harmful to investment. More so, participation of economic agent in country decision making improves service delivery as well as the quality of government policies. Voice and accountability was therefore predicted to have a positive relationship with private investment.

Political stability and absence of violence (PS) captures investment risk triggered by the authority in power. Illegal changes in governments affect the continuity of policies, as well as undermining the right of citizens to freely select and replace those in power. Political instabilities therefore increase policy uncertainties thereby discouraging fixed capital investment. Investors may avoid long term investments in regions where there is a possibility of conflict or ethnic tension for fear of property damage. We therefore predict a positive relationship between political stability (PS) and private investments.

Government effectiveness (GE) captures the quality of the bureaucracy, the competence and independence of the civil service from political pressures, and government's commitment to its policies. A country with competent and strong bureaucracy operates with minimal or no drastic changes in policy or interruptions in the provision of government services. The bureaucracy tends to be somewhat independent of political pressure and has an established clear mechanism for hiring and training. The effectiveness of government improves the quality of regulations. We therefore predict a positive relationship between effectiveness of government and private investment

Regulatory quality (REG) measures absence of market-unfriendly policies such as inadequate bank supervision or price controls in an economy. Overregulation creates unnecessary burden to new entrants in a market. New firms have to seek the services of local experienced brokers to take them through the registration process and this raises the cost of entry in a market. Small firms are forced to operate informally making it difficult for them to access credit facilities which is necessary for growth. We therefore predict a positive

relationship between regulatory quality (REG) and private investment.

Rule of law (RL) is a proxy for the degree in which citizens have confidence in and abide by the rules of their country. Its impact on private investment vest on ability of judiciary to make fair and timely decision as well as the government respect for property rights. Firms with secure property rights easily attract external finance thereby enhancing their decisions to invest in a country (Kalu et al, 2010). We therefore predict a positive relationship between enforcement of the rule of law and private investment.

Corruption (COR) is the exercise/use of public office for private gain. The corrupter make extra payments to a public official to get things done. Public official demand to be paid to offer government services and/ or influence tendering process in supply of public good or services. High levels of corruption increases political instability which in turn reduces the level of human capital formation and discouraging private investment in an economy (Mo, 2001). It may also lead to rising levels of income inequality (Gupta et al, 2002) which may in turn lead to violent protest. Corruption lead to high cost of doing business as well as operation cost as firms have to pay bribes to get government approvals. It can lead to distortion of policy and weaken the credibility of government. We therefore predict that effective fight against corruption would have a positive influence on private investment.

Control variables

*GDP*

Real GDP was included as independent variable to control for the effect of aggregate demand (accelerator) in the neoclassical flexible accelerator model. The model affirms that real GDP growth rate affect investment positively. Kazeem et al. (2012) also found that real GDP determines private investment in both the short run and long run period. Real GDP therefore was anticipated to have a positive effect on investment.

*Interest rate*

Rising interest rates increases the cost of borrowing which in turn discourages investment. King'wara (2014) found that real interest rate had negative relationship with private investments. We therefore predict a negative impact on private investment.

*Domestic credit*

Domestic credit measured as ratio of private sector credit to GDP is the financial resources such as loans extended to the private investors by bank and other depository institutions which establish a claim for repayment. Access to private credit enhances private investment. Ferreira et al, (2013) found that reduction in the credits volume hinders private investment. Thus availability of domestic credit should have a positive effect on investment

*Trade openness*

The openness of economy is the sum of exports and imports as ratio of GDP (Frankel and Romer, 1999). Trade openness exposes local industries from external competition which sometimes Infant local industries may not withstand. This implies trade openness has negative relationship with private investment (King'ori, 2015). On the other hand, trade openness expands the market and availability of cheap raw materials for manufacturing firms. In this case, trade openness is expected to have a positive relationship with private investment (Adel, 2015). The expected effect is therefore ambiguous.

*Inflation*

High cost of inputs as well as prices translates to low saving by citizen since a large proportion of their income goes to consumption. Less saving implies low investment. We therefore predict inflation would have negative effect on private investment.

**Table 1: Summary of variables and measurements**

| Variable | Measure | Expected effect | Data Source |
|---|---|---|---|
| Private Investment (PI) | Gross fixed capital formation, private sector as ratio of GDP | | WDI |
| Voice and Public Accountability(VA) | Measures the degree of Political Rights and Civil Liberties | Positive | WGI-World Bank |
| Political Stability (PS) | The likelihood of conflict and/or illegal changes in government | Positive | |
| Government Effectiveness (GE) | Measures the quality of government structures and the competence of civil service | Positive | |
| Regulatory Quality (REG) | measures occurrence of market-unfriendly policies such as inadequate bank supervision or price controls in an economy | Positive | |
| Control of Corruption (COR) | Measures the incidence of use of public offices for personal gain. | Positive | |
| Rule of Law (RL) | Measures the incidences of crime, non-compliance with courts directives and enforcement of property rights | Positive | |
| Real Gross Domestic Product (RGDP) | Annual growth on Gross Domestic Product | Positive | World Development Indicators |
| Real Interest Rate (RIR) | The lending rate exclusive of inflation. | Negative | |
| Domestic Credit (DCREDIT) | Total amount of credit borrowed by the private sector as ratio of GDP | Positive | |
| Inflation Rate (INFL) | Measured by annual growth rate of the GDP implicit deflator. | Negative | |
| Trade Openness (OPEN) | Sum of exports and imports as ratio of GDP | Indeterminate | |

**2.4 Econometric approach**

To examine the impact of institutions on private investment, and for the purpose of estimation and testing we proceeded as follows. First, we test for non-stationarity using the Fisher test. Based on the *p*-values of individual unit root tests, Fisher's test assumes that all series are non-stationary under the null hypothesis against the alternative that at least one series in the panel is stationary. Depending on the outcome of the panel unit root test, we estimate the model excluding the non-stationary variables, especially if the excluded variables do not affect the model's performance

The second issue we have to address is the choice between a Fixed Effect (FE) and a Random Effect model (RE). For the purpose of estimation, we apply the least squares methods of FE and RE models. Under a FE model the $v_i$'s are considered fixed parameters to be estimated. FE model transforms the estimating equation so as to get rid of the fixed effects (Baltagi, 2013). Under a RE model the $v_i$'s are assumed to be random and the estimation method is generalized least squares (GLS). We perform the traditional Hausman test where we first estimate the fixed effects model, save the coefficients and compare them with the results of the random affects model. In the event that we obtain Hausman test value which is larger than the critical chi-square, then the FE estimator is the appropriate choice.

The regressions were performed by utilizing an unbalanced panel data. The Breusch–Pagan test was undertaken to test the presence of heteroskedasticity in the residual variance before regressing equation (10). A Langrage multiplier statistic was calculated and compared with the critical chi-square value $X^2$. Further the Eicker-Huber-White standard error was used to control heteroskedasticity in order to obtain homoskedastic estimates.

**2.5 Sources of data**

This study used panel data covering the period 1996-2015 for four EAC economies. Data on private investment

(endogenous variable) and trade openness, inflation rate, real GDP, real interest rates, as well as domestic credit were obtained from World Development Indicators (WDI).

Data on the various institutions indicators were accessed at www.govindicators.org and as defined by Kaufmann et al., (2003). The dataset contains a summary of opinion on the quality of the six institutions of governance gathered from different stakeholders such locals, business community and various *experts across different economies. The unit used to measure these governance institutions* was obtained by aggregating several indicators collected from 30 different sources.

## 3. Empirical results and discussions

### 3.1 Descriptive Statistics

A descriptive statistics test was conducted before subjecting the data to a regression analysis. The mean values as indicated by Table 2 shows that East Africa countries performed well in terms of regulatory quality (35.43%) compared with political stability and absence of violence index which had the least improvement (14.96%). The data for regulatory quality and government effectiveness is negatively skewed. This means that the four East African countries performance was above average in relations to the two institution variables over the study period.

**Table 2: Summary statistics**

| Variable | Notation | Obs | Mean | Median | Std.dev | Max | Min | Skewness |
|---|---|---|---|---|---|---|---|---|
| Private investment | PI | 78 | 0.0927 | 0.0950 | 0.0837 | 0.2141 | -0.2701 | -2.1417 |
| Real Interest Rate | INT | 77 | 0.0900 | 0.0945 | 0.0844 | 0.2866 | -0.1668 | -0.3408 |
| Domestic Credit | DCREDT | 70 | 0.1647 | 0.1488 | 0.0767 | 0.3489 | 0.0483 | 0.5531 |
| Trade Openness | OPEN | 80 | 0.4246 | 0.4355 | 0.1052 | 0.6449 | 0.2096 | -0.2022 |
| Real GDP | RGDP | 80 | 0.0526 | 0.0514 | 0.0363 | 0.1385 | -0.0800 | -0.5175 |
| Inflation Rate | INFL | 80 | 0.0945 | 0.0806 | 0.0881 | 0.4199 | -0.0919 | 1.3711 |
| Voice and Accountability | VA | 68 | 0.2397 | 0.2279 | 0.1144 | 0.4375 | 0.0385 | 0.0492 |
| Regulatory Quality | REG | 68 | 0.3543 | 0.4320 | 0.1695 | 0.6154 | 0.0441 | -0.4340 |
| Political Stability and Absence of Violence | PS | 68 | 0.1496 | 0.1280 | 0.1071 | 0.4429 | 0.0048 | 1.2042 |
| Rule of Law | RL | 68 | 0.2582 | 0.2201 | 0.1498 | 0.6106 | 0.0239 | 0.3546 |
| Government Effectiveness | GE | 68 | 0.3034 | 0.3390 | 0.1515 | 0.5735 | 0.0293 | -0.2358 |
| Control of Corruption | COR | 68 | 0.2464 | 0.1855 | 0.1941 | 0.7692 | 0.0142 | 1.5868 |

### 3.2 Correlation analysis

Table 3 indicates that the correlation between domestic credit and voice and accountability is strong and significant implying that increased transparency and openness improve firm access to investment credit through increased access to information on availability of credit facilities. There also exist significant negative correlation between interest rate and inflation therefore the two variables may not be included in the same model to avoid spurious result.

Our institution variables also show positive correlations with levels of private investment. This is consistent with the existing literature on quality of institutions. World Bank (2005) considered respect for property rights as central to economic growth. Good institutions reduce uncertainty, and cost of doing business. It enhances the government performance as well as policy predictability which are key ingredients for productive capacity (World Bank, 2004).

**Table 3: Correlation matrix**

| | PI COR | INT | DCREDT | OPEN | RGDP | INFL | VA | REG | PS | RL | GE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PI | 1.0000 | | | | | | | | | | |
| INT | 0.3359 | 1.0000 | | | | | | | | | |
| DCREDT | | -0.2057 | -0.1343 | 1.0000 | | | | | | | |
| OPEN | 0.4239 | -0.0564 | 0.6066 | 1.0000 | | | | | | | |
| RGDP | 0.2837 | 0.3264 | -0.3161 | -0.0644 | 1.0000 | | | | | | |
| INFL | -0.2654 | -0.8933 | 0.0258 | 0.0160 | -0.3223 | 1.0000 | | | | | |
| VA | -0.0926 | -0.2251 | 0.7571 | 0.5963 | -0.0685 | 0.0036 | 1.0000 | | | | |
| REG | 0.5393 | 0.2666 | 0.1155 | 0.4137 | 0.1659 | -0.1682 | 0.0296 | 1.0000 | | | |
| PS | 0.5746 | 0.0697 | 0.0576 | 0.5674 | 0.0596 | 0.0919 | 0.1298 | 0.5156 | 1.0000 | | |
| RL | 0.7386 | 0.3151 | -0.1423 | 0.2839 | 0.2914 | -0.1600 | -0.2180 | 0.7200 | 0.6057 | 1.0000 | |
| GE | 0.4889 | 0.2436 | 0.1716 | 0.4184 | 0.2367 | -0.1018 | 0.1533 | 0.8739 | 0.5769 | 0.7053 | 1.0000 |
| COR | -0.0123 | 0.1808 | -0.4088 | -0.3143 | 0.5202 | -0.1578 | -0.0907 | 0.1296 | 0.0483 | 0.1707 | 0.2498 | 1.0000 |

Correlation between rule of law and regulatory quality is strong and significant. This perhaps indicates that clear business process, government policies as well as an ambiguous legal framework contributes effectively to the general observance of laws and facilitates fair judgments. We also observe high correlation between government effectiveness and regulatory quality which implies that the effectiveness of government improves the quality of regulations as demonstrated in section 2.3. The result also shows that government effectiveness is significantly correlated with both the regulatory quality and rule of law. This indicates that competent public officers which are free from political interference enhance the quality and predictability of government policies which would in turn facilitate speedy and fair disputes resolution.

Our regression analysis enables us to analyze how the various types of institutions are related with private investment in East Africa while controlling for other determinants of private investments. Due to the high correlation amongst our institutions variables, and some control variables, we therefore estimated four different sets of equations.

### 3.3 Stationarity test

The unit root test was conducted using the Augmented Dickey Fuller test and the results presented in Table 4. Unit root testing is used to test for stationarity of time series data and p-values observed. Our test show that all the p values are significant at 5% significance level hence we reject the null hypothesis that all the panels contain unit root.

**Table 4: Panel unit root test**

| | | Statistics | p-value |
|---|---|---|---|
| Inverse chi-squared (8) | P | 25.1778 | 0.0015 |
| Inverse normal | Z | -3.3537 | 0.0004 |
| Inverse logit t(24) | L* | -3.4740 | 0.0010 |
| Modified inv. chi-squared | Pm | 4.2945 | 0.0000 |
| P statistics requires number of panels to be finite.<br>Other statistics are suitable for finite or infinite number of panels. | | | |

### 3.4 Hausman test

The Hausman test was undertaken to determine the most appropriate model to use between the random (RE)and fixed effects (FE) model. Table 5 shows that there is no significant difference between the resultant coefficient of the two models. For, p values less than 0.05 the null hypothesis is rejected and therefore random effect model was adopted.

**Table 5: Hausman test results**

| Variable | Fixed (b) | Random (B) | Difference (b-B) | sqrt(diag(V_b-V_B)) S.E |
|---|---|---|---|---|
| INT | 0.1693 | 0.1603 | 0.090 | - |
| DCREDT | -0.3492 | -0.6472 | 0.2979 | 0.1801 |
| OPEN | 0.3481 | 0.2675 | 0.0806 | 0.0348 |
| RGDP | 0.0244 | 0.0373 | -0.0129 | 0.0285 |
| VA | 0.1973 | 0.2212 | -0.0239 | 0.0532 |
| REG | 0.1655 | 0.0156 | 0.1498 | 0.0681 |
| PS | -0.0324 | -0.0340 | 0.0014 | 0.0450 |
| RL | 0.1921 | 0.3042 | -0.1121 | 0.1017 |
| GE | 0.0736 | -0.0129 | 0.0864 | 0.0468 |
| COR | -0.2822 | -0.2671 | -0.0150 | 0.0576 |

Test: Ho: difference in coefficients not systematic
chi2(10) = (b-B)'[(V_b-V_B)^(-1)](b-B)= 5.35
Prob>chi2 = 0.8663

### 3.5 Empirical results

Table 6 reports the results from equation (10). The estimated model fits the panel data reasonably well, having fairly stable coefficients among the alternative models, while the Wald-test indicates fine goodness of fit since the overall test statistic shows rejection of the hypothesis that all coefficients are equal to zero. The overall explanatory power (measured by adjusted $R^2$) for all models is relatively high, and is not associated with high correlation among some of the trended variables (e.g. INF and INT). Our results show that institutional factors are robust to the inclusion of additional control variables, which adds little to the explanatory power of the regression. Interesting results appear in both significant and non-significant findings. Based on the outcome of the correlation matrix, four regressions were estimated using random effect model. We comment on all regressions together.

**Table 6: Estimation Results Using Random Effects-within**

| Variant model specifications with robust standard errors | | | | | |
|---|---|---|---|---|---|
| Variable | Notation | 1 | 2 | 3 | 4 |
| Real Interest Rate | INT | 0.1594** (0.0689) | 0.0853 (0.0695) | 0.1675*** (0.0682) | 0.1265** (0.0604) |
| Domestic Credit | DCREDT | -0.5104*** (0.1027) | | -0.5630*** (0.1056) | -0.4382*** (0.0908) |
| Trade openness | OPEN | 0.3424*** (0.0955) | 0.1463 (0.0977) | 0.3669*** (0.0942) | 0.3577*** (0.0823) |
| Real GDP | RGDP | 0.2811 (0.2163) | 0.5055*** (0.1937) | 0.2349 (0.2173) | 0.1419 (0.1915) |
| Political Stability and Absence of Violence | PS | 0.2018) (0.1440) | 0.1632 (0.1303) | 0.1434 (0.1524) | -0.0021 (0.1366) |
| Regulatory Quality | REG | 0.1033*** (.0407) | | | |
| Control of Corruption | COR | 0.2113** (0.0938) | -0.2024*** (0.0720) | -0.2465*** (0.0969) | 0.1715** (0.0810) |
| Voice and Accountability | VA | | -0.0689 (0.0723) | | |
| Government Effectiveness | GE | | | 0.1523*** (0.0601) | |
| Rule of Law | RL | | 0.2425*** (0.0623) | | 0.2456*** (0.0509) |
| constant | CONS | -0.0049 (0.0333) | -0.0120 (0.0329) | -0.0120 (0.0329) | -0.0186 (0.0290) |
| Observation | Obs | 56 | 64 | 56 | 56 |
| Wald chi2 | | 106.65 | 94.62 | 106.63 | 154.39 |
| R squared | | within = 0.4792 | within = 0.4153 | within = 0.4814 | within = 0.6002 |
| | | between = 0.9797 | between = 0.9421 | between = 0.9812 | between = 0.9931 |
| | | overall = 0.6896 | overall = 0.6282 | overall = 0.6896 | overall = 0.7628 |

Table 6 represents regression results of the impact of institution on private investment in East Africa. Four regressions were run based on correlation analysis result using random effect model. The t-statistics are in parentheses while *, **, *** represents the significant levels at 10%, 5% and 1% respectively.

Estimation results shows that rule of law has a positive and significant effect on private investments. This implies that prompts resolutions of disputes, fairly and amicably may in turn reduce litigation cost. Kalu et al (2010) also found that property rights, external and internal finance are the key channels through which quality legal system translate to more investment. Our finding is also consistent with Knack and Kneefer (1995) who found that contract enforceability and risk of expropriation play a great role in determining investment and economic growth more than any other governance institutions.

We also established a positive and significant effect of corruption control on private investment. As pointed out by World Bank (2005), corruption is major challenge to firm intending to invest in developing countries. Indeed the African Development Bank (2003) shows that corruption, is one of the key challenges that hinder private investment in Kenya. Corruption increases the overall costs of public agencies hence negatively

impacting on growth of private sector through provision of not only insufficient infrastructure but also of low quality. Hence, the ability of the government to control the levels of corruption in country is crucial for private sector development. Our finding is consistent with Mo (2001). On the contrary, Asiedu and Freeman (2009) found corruption not statistically significant for firms in Sub-Saharan Africa (SSA) and Latin America.

Our findings show a positive and strong relationship between regulatory quality and levels of private investment in EAC. Improvement in quality of regulations reduces the complexity and cost of regulatory processes paving way for new entrant in a market (World Bank, 2015). Generally, overregulation forces new firms to seek the services of local experienced brokers to take them through the registration process. This raises the cost of entry in a market. Small firm are therefore forced to operate informally making it difficult for them to access credit facilities which is necessary for growth.

This study finds a positive relationship between government effectiveness and levels of private investments. This implies that a competitive process for recruiting public officers and an independent bureaucratic free from political interference enhances private investment growth. The finding supports Evans and Rauch (2000) who established that the states departments that recruit competitively and has a clear career progression are associated with higher levels of economic growth rate. Our finding is also consistent with the work of Pastor and Sung (1995) that found a positive relationship between improved democratic institutions such political participation, recruitment process, openness in government operation, with levels of private investment.

Contrary to Ari and Francisco (2010) as well as Le (2004), we find no significant relationship between our political stability and absence of violence and private investment. We also do not find significant influence of voice and accountability

The estimation result indicates that control variables (namely real GDP, real interest rate, trade openness as well as domestic credit) are significant and supports the existing literature. Trade openness is positive and significant which is consistent with Adel (2015) who found that trade openness stimulates growth of private investment in an economy. GDP has positive and significant impact on private investment as expected. Increasing output growth rate boosts investment which supports Ronge and Kimuyu (1997) as well as King'wara (2014).

Domestic credit to private sector shows a negative and significant impact on private investment contrary to our theoretical expectations and Ferreira et al. (2013). This indicates that funds borrowed by the private sector do not necessary translate to new or expanding business but rather may be diverted to private consumption.

## 4. Conclusion

The main objective of this study was to analyze the effects of institutions on private investment in East Africa. The study employed panel data covering the period 1996-2015 for four EAC economies. Data on private investment (endogenous variable) and trade openness, inflation rate, real GDP, real interest rates, as well as domestic credit were obtained from World Development Indicators (WDI). The study finds that government effectiveness, regulatory quality, control of corruption, and rule of law influence the level of private investments in East Africa. We can therefore conclude that the quality of institution play critical role in determining the growth of private investment. However, political stability and voice and accountability have no significant effect on private investment. These findings have therefore responded to the primary aims and objective of our study and made a contribution to the existing literature.

This findings have numeruous policy implications. Prompt resolutions of disputes may in turn reduce litigation cost. Moreover, the ability of governments to control the levels of corruption is crucial for private sector development. Improvement in the quality of regulations reduces the complexity and cost of regulatory processes paving way for new entrant in a market. Government effectiveness in ensuring an independent bureaucracy free from political interference enhances private investment growth as well. Future research may be carried at the country level in order to draw country-specific policy prescriptions.

## REFERENCES

Adel S. M. (2015), "Effects of trade openness and economic growth on the private sector investment in Syria", *Journal of Applied Management and Investments*, 4:168-176

African Development Bank (2013): The State of Kenya's Private Sector, accessed on 20/7/2016 at (http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/The_State_of_Kenya_s_Private_Sector_-_Recommendations_for_Government-Development_Partners_and_the_Private_Sector.pdf)

Alesina, Alberto and Roberto Perotti (1996), "Income Distribution, Political Instability, and Investment", *European Economic Review*, 40: 1203–28.

Baltagi, H (2013). "*Econometric analysis of panel data"*, 5th Ed, New York. Wiley.

Easterly, William, and Ross Levine (2003), "Tropics, Germs, and Crops: How Endowments Affect Economic

Development." *Journal of Monetary Economics*, 50 (January): 3-39.
Evans, Peter and James Rauch (2000), "Bureaucratic Structure and Bureaucratic Performance in the Less Developed Countries", Journal of Public Economics, 75 (1): 49-71.
Ferreira, H. and Tasso, J. (2013): "The Determinants of the Long Term Private Investment in Brazil: An Empirical Analysis using Cross-Section and a Monte Carlo Simulation", Journal of Economics, Finance and Administrative Science, 18(9).
Gnansounou, S. U. (2010). "The Determinants of Private Investment in Benin: A Panel Data Analysis", African Economic Research Consortium (AERC) Research Paper 100
Gupta, Sandeev, Hamid Davooli and Rosa Alonso-Terme (2002), "Does Corruption Affect Income Inequality and Poverty", Economics of Governance, 3(1): 23-45.
Innocent M. Michael and Jehovaness Aikaeli (2014), "Determinants of Private Investment in Tanzania", African Journal of Economic Review, Volume 1I, Issue 2, July 2014
Frankel, J.A. and D. Romer (1999), "Does Trade Cause Growth," *The American Economic Review*, Vol. 89, No 3
Jorgenson, D.W., (1967). "Econometric Studies of Investment Behaviour." In Robert Ferber (Ed.), Determinants of Investment Behavior. National Bureau of Economic Research, Cambridge: Mass.
K. Mlambo and T. W. Oshikoya (2001), "Macroeconomic Factors and Investment in Africa", Journal of African Economics issues,10 ( 2):12-47
Kalu Ojah , Tendai Gwatidzo &SheshangaiKaniki (2010), "Legal Environment, Finance Channels and Investment: The East African Example", The Journal of Development Studies, 46:4, 724-744
Kaufmann, Dani, AartKraay, and Maximo Mastruzzi (2003), "Governance Matters III, Governance Indicators for 1996–2002", World Bank, Washington, D.C. Processed.
Kazeem, A. &Olukemi, L. (2012). "Modelling the Long Run Determinants of Domestic Private Investment in Nigeria". Canadian Center of Science and Education, 8 (13).
Keefer, Philip (2002), "The Political Economy of Corruption in Indonesia", World Bank, Washington D.C., Processed.
King'wara, R. (2014). "Impact of Domestic Public Debt on Private Investment in Kenya". Journal of Economics, Vol. 4 No.22.
Kingori, M.B. (2015): "An analysis of the Determinants of Private Investment in Kenya: Using the Autoregressive Distributed Lag (ARDL) Approach", Unpublished MSc. Thesis, Economics Department, University of Namibia, Windhoek, Namibia.
Knack, Stephen, and Philip Keefer (1995), "Institutions and Economic Performance: Cross Country Tests Using Alternative Institutional Measures", Economics and Politics7(3): 207–27.
Le, Quan V. (2004); "Political and Economic Determinants of Private Investment", Journal of International Development, 16:289-604.
Mo, Park Hung (2001), "Corruption and Economic Growth" Journal of Comparative Economics, 29(1): 66-79.
North, Douglas C. (1990), "Institutions, Institutional Change, and Economic Performance" Cambridge, U.K.: Cambridge University Press.
Pastor, Manuel and Jae Ho Sung (1995), "Private Investment and Democracy in the Developing World", Journal of Economic Issues, 29(1):223-21
Rodrick, Dani (1991), "Policy Uncertainty and Private Investment in Developing Countries," Journal of Development Economics 36:229-242, North Holland (October).
Ronge, E. E. &Kimuyu, P. K. (1997). "Private investment in Kenya: Trends, composition and Determinants", Discussion Paper No. DP/009/97, Institute of Policy Analysis and Research, Nairobi, Kenya.
Were, M., Ngugi, R & Makau, P. (2006). "Understanding the reform process in Kenya. In World Bank, (1995). Trends in developing countries", Washington D.C: IMF.
World Bank (2004), "Better Governance for Development in the Middle East and North Africa: Enhancing Inclusiveness and Accountability, MENA Development Report", The World Bank, Washington, D.C.
World Bank (2005), "World development report: A better investment climate for everyone" The World Bank, Washington, D.C.
World Bank (2015), "Doing Business 2015: Going beyond efficiency", The World Bank, Washington, D.C.
Yaw, A. (2000). "Determinants of private investment behaviour in Ghana", AERC Research Paper 100 African Economic Research Consortium, Nairobi