EFFECT OF PUBLIC INVESTMENT ON PRIVATE CAPITAL FORMATION IN KENYA

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ABSTRACT

The government of Kenya has continuously made efforts to promote private investment environment through public investment in varied forms of infrastructure as well as in implementing policies on expenditure management so as to attract private investment. Studies have shown that private investment has more impact on economic growth than public investment. Despite this, public investment in Kenya has been growing at a faster rate than private investment while economic growth has been low, stagnant or declining over the years. This paper investigated the effect of public investment on private capital formation in Kenya using rigorous dynamic time series analysis. It also investigated the moderating effect of interest rate, openness to trade, exchange rate, and credit to private sector on the relationship between private and public investment. A causal research design was employed and the non-probability purposive sampling technique was used to select the sample of 36 years' time series data for the period 1979-2015. Diagnostic tests were performed on normality, lag order selection, residual autocorrelation, collinearity, and heteroskedasticity. Using the error correction methodology, the findings indicated that public investment is complementary to private investment in Kenya and thus consistent with the crowding in hypothesis both in the short run and long run. Gross domestic product, credit availability and exchange rate had positive and significant effects on private investment while openness to trade, and real lending interest rate had a negative and significant effect on private investment.

Keywords: Private capital formation, public investment, economic growth

1.0 INTRODUCTION

Among the key determinants of economic growth in developing countries is investment and countries that invest a bigger fraction of its Gross Domestic Product (GDP) grow more rapidly.

According to Mustefa (2014), investment in an economy is composed of both private and public investment. Public investment refers to investment by government sector while private investment is done by private businesses for the purpose of generating profits.

Private investment has a positive impact on a country's economic, social and political development (Njuru, Ombuki, Wawire & Okeri, 2014). It acts as a good source of employment creation through capital accumulation and it is able to stimulate economic activity and long term economic growth by expanding a country's capacity for production of goods and services (Ahuja, 2007). A country needs to maintain private investment at a sizeable proportion of its GDP. According to Gillis, Perkins, Roemer and Sodgrass (1987), this proportion should not be less than 15% at any time and a country should sustain private investment at least 25% of GDP.

If a country has both private and public investments in its macroeconomic framework, it enjoys a capacity for a higher level of output since investment contributes to accumulation of physical capital which increases output (Sen & Kaya, 2013). While empirical evidence shows that economies led by the private sector achieve better economic performance than those led by the state, public investment is argued to play a complementary role by providing the private investment with infrastructural support, which helps raise the productivity of capital thus expanding the overall resource availability by increasing output. This infrastructural support is in terms of social infrastructure such as roads, telecommunication and power generation (Mustefa, 2014). However, displacement or the crowding out of private investment may occur.

Crowding out of private investment may occur when public borrowing from the domestic capital markets raises the domestic interest rates thus reducing the private investment demand (Sen & Kaya, 2013: Saeed, Hyder & Ali, 2006). In addition, if the public investment is financed through higher taxes or higher public debt, the tax burden is spread out over time and the distortionary impact of the taxes on the economy reduces the net return of that investment. This distortionary impact on growth manifests itself through net reduction in total investment due to the higher taxes as well as lower productivity as a result of investors shifting to less socially profitable economic activities in order to evade the increasing government taxes. Crowding out of private investment may also occur when the public sector produces investment goods that directly compete with private goods thus depressing the private investors (Saeed et al, 2006).

According to Badawi (2003) if public capital would substitute private capital, it would reduce overall productivity since public investments are made with little regard to appropriate procurement procedures than the private sector therefore there is less concern for efficiency and profitability. Furthermore, public investments are often directed to some sectors or regions based mainly on a certain political payoff. This might lead to lower returns and also since the capital is not properly operated and maintained, the rates of return diminish even further than would

happen if the venture is done by a private investor whose primary concern is profit (Sen & Kaya, 2013: Saeed et al, 2006).

Both public and private investments are important for ensuring that a country achieves robust economic growth. However, the effect of public investment on private investment has been controversial with classical economists arguing that public investment crowds out private investment while Keynesian economics argued that it crowds in private investment through the multiplier effect (Saeed, et. al., 2006). In Kenya, public investment has experienced restructuring and contrary to the intention of rejuvenating the economy, growth has not been appealing for several decades. The restructuring of public expenditure has involved budgetary reallocation to favor development expenditure, enhancing prudent public expenditure management and containing growth of less productive expenditure in order to create an enabling environment for private investment thereby making the economy more efficient (Njuru, Ombuki, Wawire & Okeri, 2014). Despite these measures, evidence points to a declining performance of the private investment which has been below 15% of the GDP, averaging at 12.7 percent since independence (Njuru, et al., 2014). The percentage is below the level of at least 15% of the GDP required to spur economic growth needed for creation of employment and reduction of poverty (Oyieke, 2011). Kenya aims at achieving economic growth of 10%, targeting private investment as a percentage of GDP at least above 24% by the year 2030 as stipulated in Kenya's Vision 2030 (Republic of Kenya, 2007).

Public investment which ought to crowd-in private investment has been growing undeterred. According to KIPPRA (2012), the share of public investment in gross investment has increased. In 2004, public investment share in gross investment was 13.6 per cent, while private investment share was 86.4 per cent. However, by 2012, the relative shares for public and private investment were 23.4 per cent and 76.6 per cent, respectively. This shows that public investment has grown relatively faster than private sector investment. Low and declining private investment has been experienced at the time when there has been immense efforts to formulate appropriate policies to promote private investment environment. Among these policies is the reform in government expenditure. Despite such reforms, private investment growth has not been remarkable. In addition, the growth of the economy has not been significantly large; rather, it has been low, stagnant or declining over the years. The role of government investment on private investment performance in Kenya has not received much attention. Therefore, it is not clear what effects the public investment have had on private capital accumulation and their effect on economic growth. This is an impediment to policy formulators in achieving high levels of private investment through public expenditure management. This formed the motivation to this study.

2.0 LITERATURE REVIEW

2.1 OVERVIEW OF GROSS INVESTMENT

Generally, investment refers to all economic activity that involves the use of resources to produce goods and services. Gross investment refers to capital formation by both the public and private sectors (Mustefa, 2014). Public investment is done by the government while private investment is made by the private sector. Gross investment is measured using gross fixed capital formation for both public and private sectors as the variables. This is often measured as a percentage of GDP.

According to Warner (2014), public investment though important in achieving high levels of economic growth especially in developing countries, it is often financed by borrowing and does not have a very big impact on growth. Nevertheless, for less developed countries (LDC's), public investment in infrastructure is of prime importance since infrastructure makes it possible for producers to use modern technology and by introducing modern technology to producers, increased productivity is achieved. Infrastructure expansion also directly stimulates productive activities. Investment in education and training produces skilled and more productive labor. According to Anwer and Sampath (2005), investment in agricultural research and extension services improves and facilitates dissemination of scientific results from research and increases production.

According to Bassanini and Scarpetta (2001) state that human capital is measured by estimates of the average number of years of formal education among the working-age population. If investment in human capital goes hand-in-hand with more intensive research and development, then such investment has more permanent impact on economic growth. Investment in research and development is considered as investment in knowledge that translates into new technologies as well as more efficient ways of production. The government takes part in such investment both through direct provision and funding and also indirectly through tax incentives and protection of intellectual property rights so as to encourage private-sector research and development. Private investment which includes foreign direct investment (FDI) and other fixed investments is very important in promoting economic growth (Ener, Kilic, & Arica, 2013). Foreign direct capital facilitates access to export markets, enhances skills and management techniques as well as modern development systems. In addition it may increase competition in the host economy, enabling firms to become more productive. It also leads to improved access to foreign markets which helps promote integration of host economy with the global economy (Ajayi, 2006).

On the contrary, some argue that there is no consensus on the advantages of foreign private capital inflows in the context of globalization. Their argument is based on the premise that

multinational corporations investing in the developing countries such as Kenya pay low wages (Ocharo, Wawire, Ng'ang'a, & Kosimbei, 2014). They also tend to constrain policy makers to make policies that favor the needs of the big businesses rather than the policies that address the needs of their economies. Moreover, the big multinational corporations often enjoy incentives such as tax holidays, stamp duty exemptions and value added tax exemptions on company inputs. This may have a negative impact on the economy and may retard its growth (Ocharo, et al., 2014).

2.2 EMPIRICAL REVIEW

Numerous studies have tried to analyze the crowding effect of public investment on private investment but the results have lacked harmony. This is because while some have found that public investment crowds out private investment, others have concluded that it crowds in private investment. Others found that specific components of public investment have a crowding in effect while others have a crowding out effect.

The authors Basar, Polat and Oltulular (2015), Sen and Kaya (2014) and Kustepeli (2005) carried out similar studies in Turkey but for different periods and found results that differed in various aspects. The study by Basar et al. (2015) on the crowding effect of government spending on private investment in Turkey used the Johansen-Juselius cointegration analysis for the period 1987-2007 using quarterly data. The results showed that the total government spending and transfer payments had positive effects on private investment (crowding in). However, government capital spending (investment) crowded out private investment. Other results of the study showed that GDP had a positive effect while interest rate had negative effect on private investment.

The findings by Basar et al. (2015) completely differ from those of Sen and Kaya (2014) who sought to analyze empirically the effects of government spending on private investment, evaluating the existence of crowding-out/-in effects, in Turkey for the period 1975-2011. They used a modified version of Aschauer's (1989) model. The findings of the study indicated that government current transfer spending, government current spending, and government interest spending crowd out private investment, whereas government capital spending crowds-in private investment in Turkey.

Kustepeli (2005) studied the effectiveness of fiscal spending in the context of crowding in/out for Turkey guided by the neoclassical, Keynesian and Ricardian Equivalence schools of thought. Using the Augmented Dickey Fuller unit root test and the Johansen Cointegration technique, the researcher developed two models; one using government spending and the other using government deficit in addition to interest rate and income The results of the study verify both the

Keynesian and neoclassical views whereby increase in government spending was found to crowd in private investment while government deficits were found to crowd it out.

While making comparison of the situation in developed and developing countries, Mahmoudzadeh, Sadeghi, and Sadeghi (2013) and Erden and Holcombe (2005) carried out similar studies but obtained different results. Mahmoudzadeh et al. evaluated the effect of disaggregated fiscal spending on consumption, capital formation and budget deficit on private investment in both developed and developing countries using a panel data over the period of 2000-09. The results indicated that the elasticity of private investment with respect to government capital formation expenditure was positive in both groups (crowding in effect), but the complementary effect was greater than in the developed countries. Likewise, the elasticity of private investment with respect to government consumption spending was significantly negative in both groups (crowding out effect), but the substitution effect was larger in developed countries. Moreover, the effect of budget deficit on private investment in developed countries was negative (crowding out effect), while this effect was positive in developing countries (crowding in effect)

Similarly, Erden and Holcombe (2005) carried out a study to determine the effects of public investment on private investment in developing economies. They applied several pooled specifications of a standard investment model to a panel of developing economies for the period 1980-1997. They found out that public investment compliments private investment where on average, when public investment increases by 10%, private investment will increase by 2%. In addition, private investment in developing economies is constrained by availability of bank credit. In contrast to developing countries, the study found that public investment crowds out private investment in developed economies. This difference is due to the structural differences of the developed and developing economies therefore, the factors that will influence private investment in developed economies will be different from those that will affect private investment in the developing countries.

Regarding infrastructure investment by government, Boopen and Khadaroo (2009), Wang (2003) and Laopodis (2001) analyzed among other factors infrastructure spending by government and found varied results. Boopen and colleague analyzed the dynamic relationship between public infrastructure (particularly transportation) and private investment for the case of Mauritius over the period 1950-2000 using dynamic time series techniques. The employed a neoclassical investment model in an error correction framework. The authors concluded that transport capital is complementary to private investment and hence consistent with the crowding in hypothesis in both short and long run.

Similarly, Laopodis (2001) used the error correction model and co-integration to examine effects of government expenditure categorized as military and non-military on gross private investment. Among the non-military public expenditures were expenditures on infrastructure, consumption and other general spending by the government. Empirical study of Greece, Portugal, Ireland and Spain shows that government capital spending stimulates investment in some cases. As per this study, military spending was seen to have no influence on private investment. However, the study by Wang (2003) for Canada during the period 1961-2000 which sought to establish long-run effects of government spending on gross private investment found differing results from those of Boopen and Khadroo (2009) and Laopodis (2001) on the effect of infrastructure investment on private investment. Wang (2003) analysed government spending on education, health, capital, infrastructure, and on charges on debt. Using ECM and Co-integration, he found that government spending on education and health had crowding-in effects whereas government spending on capital, infrastructure and on debt charges had crowding-out effects on private investment. Other expenditures on consumption, social services and protection of persons and property had no statistically significant long-run effect on private investment.

Using disaggregated analysis, Saeed, Ali and Hyder (2006) and Pereira and Roca-Sagales (2001) studied the impact of public investment on private investment using a disaggregated analysis. The results were slightly different in that Saeed et al. estimated an unrestricted structural VAR model using the specification of a modified neoclassical production function with separate arguments for private and public capital stocks. Crowding in phenomenon existed in the agricultural sector while the negative relationship between public and private investment in the manufacturing sector showed crowding out.

In a similar study, Pereira and Roca-Sagales (2001) examined the impact of public investment on private sector performance in Spain. The authors examined the aggregated as well as the disaggregated sector levels and found that in overall public investment crowds in private capital accumulation and stimulate private sector production. The conclusion for the disaggregated level was that public investment promoted private capital accumulation. The benefits were distributed such that service sector benefitted in terms of private capital formation while manufacturing and construction benefitted in terms of employment and output. The observation from the study was that public investment made manufacturing more labor-intensive while service sector became more capital-intensive.

Narayan (2004) and Badawi (2003) also carried out similar studies but found different results. Narayan investigated whether government investment crowds out or crowds in private investment in Fiji over the period 1950-2001 using the error correction model. The author divided the sample into two where he found cointegration between government and private

expenditure over the period 1950-1975 but there was no cointegration in the period 1976-2001. In the former period, the findings indicated that government investment crowded in private investment while in the latter period, a statistically weak relationship existed between public and private investment.

Similarly, Badawi (2003) studied private and public capital formation in Sudan. The researcher tested the substitutability and complementarity of state capital to private investment in a neoclassical growth framework. The study employed the cointegrated vector autoregressive model to account for any endogeneity and non stationarity problems. The results of the study revealed that both private and public capital formation stimulated economic growth in Sudan over the period 1970-1998. Private investment was seen to have a greater impact on real economic growth than public investment. The public investment crowded out private sector investment. Such crowding out effect results to weakening of the favourable positive effect of public investment on growth by jeopardizing private capital undertakings.

In summary, the effect of public investment on private investment is controversial since the empirical studies are inconclusive. This prompted the researcher to find out the situation in Kenya so that she may confirm or refute some of the findings.

2.3 THEORETICAL REVIEW

Various perspectives can be used to analyse the interaction between private and public investment. First, increase in public investment which is a component of aggregate demand will increase GDP growth. In addition, the improvement in infrastructure due to an increase in spending by government will increase the return on private capital thus encourage private investments. Secondly, increase in public investment which is often heavily subsidized and inefficient may reduce possibilities for private investment and may also affect the economy's long run growth. The impact of public investment on private capital formation can be analyzed by use of a modified neoclassical production function with separate arguments for public and private investment as follows;

$$Q = q(N, K_P, K_g) + \varepsilon$$

Where Q is the level of real output, L is the employment level, Kp and Kg denote the stock of private and public capital respectively, ε accounts for irregularities in the production process. The neoclassical production function provides an indirect means of examining the substitutability or complementarity of public and private capital stocks. If both are substitutes to each other then increase in public investment would crowd out private investment which is in line with Keynesian's crowding out hypothesis. If, however, they complement each other then

increased public investment will enhance the increase in private investment through increase in its productivity. This increase in marginal productivity will increase output.

3.0 METHODOLOGY

The study employed a causal research design where the researcher intended to identify whether a cause-effect relationship existed between private and public investment. Cooper and Schindler (2006) stated that the causal design helps in explaining how the independent variables would result into a change in the dependent variable. Thus the design was found to be appropriate for the study whose aim was to examine the long-term and causal dynamic relationships between the variables under study.

The study involved non probability purposive sampling technique where a sample of 36 years' time series data for the period 1979-2015 was obtained. The purposive sampling method involves deliberate selection of particular units of the population to constitute the sample. The sampling units are believed to have the most information on the characteristic of interest (Guarte & Barrios, 2006). The use of purposive sampling to arrive at the sample for the study was due to the constraint in finding data for public investment which was only available from the year 1979. The choice of the sample was also guided by the developments that the Kenyan economy has made over the years.

The data analysis was done with the use of EViews, STATA and PC-Give Ox metrics statistical software. Estimation of the parameters and hypothesis testing using time series data required an investigation of the data which helped the researcher to avoid spurious results. It involved the use of the error correction model and estimation of the regression using Ordinary Least Square (OLS) technique. The error correction model was best suited for estimation of the short and long-run relationship of the variables when they are non-stationary and co-integrated. It involved carrying out stationarity/unit root, cointegration, granger causality tests and finally the estimation of the model (Otieno, 2013). Statistical inferences were made by analyzing the signs of the coefficients of the variables and also comparing the p-values of the coefficients to the critical values to check if they were statistically significant. Hypotheses were also constructed whereby the p-values were compared to the critical values. If the p-values were greater than the critical values, then the null hypothesis was accepted. The signs of the regression coefficients were checked and if found positive, then a direct and positive relationship existed between the dependent and the independent variables. The converse was true if a negative coefficient was found. Vector autoregressive analysis (VAR) diagnostics were performed to estimate the lag length for the two models, check for serial autocorrelation, and to test for normality. Post-estimation diagnostics were carried out on the regression to establish whether the OLS

assumptions had been met for the results to be trustworthy. The tests included collinearity, autocorrelation and heteroskedasticity.

3.1 MODEL SPECIFICATION

The model was simplistically represented as follows;

GFC_P=f (GDP, GFC_G, FD, EXCHANGE, TRADE, RINT)

In stochastic terms the model can be expressed as;

$$\Delta\text{Log } (GFC_P)_t = \alpha_0 + \alpha_1\Delta\text{Log } (GDP)_{t-i} + \alpha_2\Delta\text{Log } (GFC_G)_{t-i} + \alpha_3\Delta\text{Log } (FD)_{t-i} + \alpha_4\Delta\text{Log } (EXCHANGE)_{t-i} + \alpha_5\Delta\text{Log}(TRADE)_{t-i} + \alpha_6\Delta\text{Log}(RINT)_{t-i} + \alpha_6 D_j + e_t \dots\dots\dots\dots (5)$$

Where;

Log GDP- Logarithm of GDP

Log GFC_P - Logarithm of gross fixed capital for private sector

Log GFC_G- Logarithm of gross fixed capital for public sector

Log FD –Logarithm of financial development/ credit available to the private sector

Log EXCHANGE- Logarithm of exchange rate

Log TRADE- Logarithm of openness to trade/trade liberalization

Log RINT- Logarithm of real interest rate

α_0 - This is the coefficient representing other factors that affect private investment other than GDP, public investment, financial development, exchange rate, openness to trade and interest rate.

$(\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5, \alpha_6, \alpha_7) > 0$ - These represent the elasticity parameters of the independent variables

D_j is a dummy representing structural breaks

t represents time in years

i is the lag

e_t is the error term

4.0 PRESENTATION AND DISCUSSION OF RESULTS

Stationarity of the time series data used in the study was tested using ADF and PP test statistics and differencing was done to make the data stationary. All variables were found to be stationary after taking the second difference. This is because the ADF and PP statistics were less than the MacKinnon critical value at 5% leading to the rejection of the null hypothesis of a unit root. Lag order selection was then done where the Akaike and Schwartz Bayesian information criteria were used. In the private investment model, the AIC had lag 2 as the one with the least value while SBIC had lag 0 as the lowest. However, since the AIC is more superior, the researcher selected lag 2 as the best lag.

Cointegration was tested with the help of the Engle Granger 2-step approach where a static model was estimated using OLS after which residuals were generated. The stationarity of the residuals was then tested using PP and ADF test statistics where the statistics were compared to the critical values at 5%. Both the ADF and PP statistics were found to be less than the critical value leading to the conclusion that the residuals were stationary and this indicates that there was cointegration.

The Vector Autoregressive model was also run so that the VAR diagnostics could be performed. The L-M test was performed and the chi-square statistics were found to be greater than 5% in both lag 1 and 2 and this led to the acceptance of the null hypothesis of no serial autocorrelation between the error terms. The researcher tested for normality using Jarque Bera, Skewness and Kurtosis tests. The p-values were found to be greater than 5% and this indicated that the error terms were normally distributed.

Post-estimation diagnostics for multicollinearity, autocorrelation and heteroskedasticity were also performed. Multicollinearity was tested by the use of R^2 and t-ratios. All the t-ratios were found to be significant and the model had a high explanatory power hence indicating that multicollinearity was absent. The Durbin Watson test statistic for the model was 2.02 hence indicating the absence of both positive and negative autocorrelation. The Breusch-Pagan Godfrey test was employed to test for heteroskedasticity. A null hypothesis of a constant variance was tested against the alternative hypothesis of heteroskedasticity. The p-values were found to be greater than 0.05 hence leading to the acceptance of the null hypothesis of a constant variance

4.1 VECTOR ERROR CORRECTION MODEL

The effect of public investment on private investment was investigated as well as the moderating effect of GDP, financial development, exchange rate, openness to trade, and real lending interest rate on that relationship. The error correction model for the private investment equation was estimated and the results are as shown in Table 1.

Table 1: Vector Error Correction Model Results

	Coefficient	Std. Error	t-value	p-value
Constant	-0.0974	0.3862	-0.252	0.0013
DlnGDP_2	0.0863	0.1888	0.457	0.0071
DDlnGFCG_2	0.5891	1.0581	0.557	0.0008
DlnFD_2	0.1751	3.0921	0.057	0.0257
DlnEXCHANGE_2	1.3153	2.6162	0.503	0.0342
DlnTRADE_2	-1.4852	3.4550	-0.430	0.0490
DlnINT_2	-0.1841	0.3450	-0.534	0.0022
D07_2	-0.1147	1.5934	-0.072	0.0446
D92_2	-0.4748	3.2121	-0.148	0.0089
residuals_2	-0.2329	0.4949	-0.471	0.6625
R-Squared: 0.874499				
F (29, 4) = 0.9611 [0.0497]				
DW: 2.02				

Table 1 represents the results of the regression showing the existence of a long run relationship between private investment and public investment, GDP, financial development, real interest rate, exchange rate, and openness to trade.

The model can be restated as follows;

$$GFCP = -0.0974 + 0.0863 GDP + 0.5891 GFCG + 0.1751 FD + 1.3153 EXCHANGE - 1.4852 TRADE - 0.1841 INT - 0.1147 D_{07} - 0.4748 D_{92}$$

The constant of the model was -0.0974 which shows the level of private investment without all the factors. All coefficients were found to be positive except for openness to trade, real interest rate and the dummy variables. The overall model has an F-statistic of 0.9611 with probability equal to 0.0497<0.05. Since the probability was less than 5%, the model was found to be significant. The R^2 is 0.874499 which implies that the model explains 87.45% of the variations in private investment as brought about by the independent variables. Only 12.55% of variations in private investment were as a result of other factors other than public investment. All coefficients of the variables including the dummy variables for 1992 and 2007 tribal clashes were found to be statistically significant at 5% level of significance.

Public investment exhibits a positive and significant effect on private investment with a coefficient of 0.5891 (p-value=0.008<0.05). This shows that an increase in public investment by

1% leads to an increase in private investment by 58.91% holding other factors constant. This implies that public investment crowds in private investment in Kenya. The results confirm efforts by the government to increase investment in infrastructure and this has been seen to boost private investment by creating an enabling environment for private investors. These findings agree with those of Basar et al. (2015), Kustepeli (2005), Mahmoudzadeh et al. (2013), and Erden and Holcombe (2005). However, they differ from findings of Sen and Kaya (2014) and Badawi (2003) who found that public investment crowds out private investment in their countries.

From the results in Table 1, the effect of moderating variables on the relationship between public and private investment was assessed. The growth in GDP was included in the model to try to capture the accelerator effects of faster economic growth which is expected to accelerate the rate of investments in a country. The coefficient of GDP was 0.0863 (p-value=0.0071<0.05). When GDP changes by 1%, private investment increases by 8.63% in the long run other factors held constant. The coefficient of GDP is positive and significant suggesting that an increase in GDP will boost private investment in the long run. Financial development or credit to private sector is significant and positively related to private investment with a coefficient of 0.1751 (p-value=0.0257<0.05). This implies that an increase in credit by 1% leads to an increase in private investment by 17.5% other factors held constant. This indicates that funds to the private sector help in financing new investments. The findings are in agreement with those of Boopen and Khadroo (2009), Erden and Holcombe (2005), Kustepeli (2005) and Badawi (2003).

Exchange rate exhibited a positive and significant effect on private investment with a coefficient of 1.3153 (p-value=0.0343<0.05). This indicates that a depreciation in the exchange rate leads to 131.53% increase in private investment holding other factors constant. This implies that when the shilling is devalued, private investors would be encouraged to produce more and export due to the increased demand of our goods compared to foreign goods due to the fall in prices. These findings differ from those of Boopen and Khadroo (2009) who found a negative relationship between exchange rate and investment.

Openness to trade exhibited negative relationship to private investment with a coefficient of -1.4852 (p-value=0.0490<0.05). This implies that an increase in the openness to trade by 1% leads to a decline in private investment by 148.52% holding other factors constant. This could be due to exposure to external competition which makes some sectors less attractive to invest in. These findings agree with those of Boopen and Khadroo (2009). However, Zainah (2009) found a positive relationship. The real lending interest rate has a negative and significant effect on private investment with a coefficient of -0.1841 (p-value=0.0022<0.05). This indicates that an increase in the lending interest rate by 1% would result in a decline in the private investment by 18.41% holding other factors constant. This is in support of the neoclassical theory that interest

rates are negatively related to investment. Increase in the interest rate means that the cost of capital has increased and this will be deterrence to private investors. The findings are also in tandem with those of Boopen and Khadroo (2009), and Badawi (2003). However, Erden and Holcombe (2005) found that interest rate had no significant effect on private investment in developing economies.

The changes in political regimes in 1992 and 2007 which resulted in tribal clashes as represented by dummy variables had a negative and significant effect on private investment. This could be due to economic uncertainties that faced private investors in the two periods.

5.0 RECOMMENDATIONS AND CONCLUSIONS

Public investment was found to crowd in private investment thereby confirming that efforts by the government to invest in various sectors including banking, the textile industry, transport, communication, education and housing have been fruitful in promoting private investment which has also led to economic growth. Public investment in Kenya has been seen to play a complementary role to the private investment by providing the infrastructural support that has raised the productivity of the private sector.

Based on the study findings, the researcher recommends that there is need to improve the productivity of public sector investments by identifying the much more productive types of public investment that have net positive returns and that are more likely to complement the private sector. More specifically, the government should work on increasing infrastructural projects especially to open up the less developed parts of the country like the North Eastern since this will also motivate private investors to invest in the areas and this will promote economic growth. This is informed by the finding that public investment crowds in private investment in Kenya.

The government should also protect the local investors from external competition since openness to trade which was used as a proxy for liberalization exhibited a negative effect on private investment. It should also develop policies that aim to promote the local industries so that they can compete effectively with the external industries in the long run.

Policy makers should also undertake policies that stimulate private investment such as structural reforms in the financial sector which facilitate the mobilization of savings and help allocate funds to productive private sector investment since financial development was found to have a positive effect on private investment.

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REFERENCES

Ahuja, H.L. (2007). Macroeconomics theory and policy: Advanced analysis. New Delhi: S.Chand & Co Publishers

Ajayi, S.I. (2006). Foreign Direct Investment and Economic Growth in Africa, Paper presented at ADB/AERC International Conference on Accelerating Africa's Development Five Years into the Twenty-First Century, 22-24, Tunis, Tunisia.

Anwer S.M & Sampath R.K (2005). Investment and Economic Growth. Department of Agricultural and Resource Economics, Colorado State University.

Badawi, A. (2003). Private Capital Formation and Public Investment in Sudan: Testing the Substitutability and Complementarity Hypotheses in a Growth Framework. Institute for Development Policy and Management (IDPM). University of Manchester

Bassanini, A. & Scarpetta, S. (2001). The driving forces of economic growth: Panel data evidence for the OECD countries. OECD Economic Studies, 33

Basar S., Polat O., & Oltulular S.,(2015). Crowding out effect of government spending on private investment in Turkey: A cointegration analysis. Journal of the Institute of Social Sciences, 8, 11-20. Retrieved 22nd May 2016 from http://www.kafkas.edu.tr/dosyalar/sobedergi/file/008/2_0.pdf

Boopen, S. & Khadaroo A J (2009). Transportation Capital and Private Capital Formation in Mauritius: Testing the Substitutability and Complementarity Hypotheses. University of Mauritius. Retrieved 22nd May 2016 from http://www.csae.ox.ac.uk/conferences/2009-EDiA/papers/367-Seetanah.pdf

Cooper D. R. & Schindler P. S. (2006). Business Research Methods. Mc Graw Hill International Edition, Statistics and Probability Series. 11th Edition. ISBN 0071181091

Erden L & Holcombe R G (2005). The effects of Public Investment on Private Investment in Developing Countries. Public Finance Review 33(5), 575-602. Sage Publications

Ener M.,, Kilic C.,, & Arica F., (2013). The Effects of Public and Private Capital Investments on Sectoral Output: A Panel Approach for the Case of Turkey. International Journal of Business and Social Sciences. 4(9), Center for Promoting Ideas, USA.

Gillis, M., Perkins, D.W., Roemer, M. & Sodgrass, D.R. (1987). Economics of Development (2nd ed.). Norton: New York.

Guarte J. M., & Barrios E. B., (2006). Estimation under Purposive Sampling. Communications in Statistics - Simulation and Computation. 35(2), 277-284

Kustepeli Y (2005). Effectiveness of Fiscal Spending: Crowding out and/or Crowding in?. Yonetim Ve Ekonomi

Laopodis N.T, (2001). Effects of Public spending on Private Investment. Applied Economics, 33, 1563 – 1577

Mahmoudzadeh, M Sadeghi S & Sadeghi S (2013). Fiscal Spending and Crowding out Effect: A Comparison between Developed and Developing Countries. Institutions and Economies 5(1), 31-40

Mustefa S. (2014). Private Investment and Economic Growth: Evidence from Ethiopia. Mekelle University. Mekelle, Ethiopia.

Narayan, P. K, (2004) Do Public Investment Crowds Out Private Investment? Fresh evidence from Fiji. Journal of Policy Modeling: 2(6), 747–753.

Njuru, S. G, Ombuki, C., Wawire N., & Okeri, S. (2014). Impact of Government Expenditure on Private Investment in Kenya. Researchjournali's Journal of Economics 2(8) ISSN 2347-8233.

Ocharo, K.N, Wawire N W, Ng'ang'a T. K, & Kosimbei G (2014). Private capital inflows and economic growth in Kenya. International Journal of Development and Sustainability. 3(4), 810-837. ISSN: 2168-8662 – www.isdsnet.com/ijds

Otieno, B. A (2013). Factors Influencing Exchange rate and Export Sector Performance in Kenya. International Journal of Sciences: Basic and Applied Research. Vol. 1, 2307-4531 .

Oyieke S. O., (2011). Government Capital Spending and Financing and its Impact on Private Investment in Kenya: 1964-2006. African Research Consortium, Nairobi Kenya.

Pereira, Alfred M. & Oriol Roca-Sagales (2001) "Infrastructure and Private Sector Performance in Spain" Journal of Policy Modeling, 23 (4), 371–84.

Republic of Kenya, (2007). Kenya Vision 2030: A globally competitive and prosperous Kenya. Nairobi: Government Printer

Saeed N, Ali A, & Hyder K (2006). The Impact of Public Investment on Private Investment: A Disaggregated Analysis. The Pakistan Development Review. 45(4), 639-663. Pakistan Institute of Development Economics, Islamabad.

Sen, H & Kaya, A. (2014). Crowding Out or Crowding In? Analyzing the Effects of Government Spending on Private Investment in Turkey. Panoeconomicus Vol 6 631-651. Turkey

Warner A. M., (2014). Public investment as an engine of growth. International Monetary Fund working paper. WP/14/148.

Zainah, P. (2009). The Role of Public Investment in Promoting Economic Growth: A case study of Mauritius. Trade & Industrial Policy Strategies, Services Sector development and Impact on Poverty Working Group final project.