MACROECONOMIC DETERMINANTS OF DOMESTIC PRIVATE INVESTMENT BEHAVIOUR

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ABSTRACT: *The level of private investment in Kenya, Rwanda and Burundi (KRB), as a percentage of real Gross Domestic Product, has been fluctuating over time since independence. Several studies have been carried out on regard to the macroeconomic determinants of private investment at country level, but the findings are inconclusive. Conversely, from the empirical literature review, these studies have failed to capture the impact of availability of credit on private investment in the three states. It is against this limitation that this exploration was conducted in three states using Modified Flexible Accelerator hypothesis so as to show the relationship between private investment and explanatory variables. The results for this study revealed that credit availability exerts a positive and statistically significant impact on private investment growth in KRB hence confirming the key role of domestic credit. From policy perspective the policy makers need to formulate domestic financial sector reform policies to ensure a well-functioning financial institution that promotes domestic credit especially to prolific sectors of the individual economy. This will consequently promote economic growth and help in realizing the domestic macroeconomic targets as well as Sustainable Development Goals.*

KEYWORDS: Kenya, Rwanda, Burundi, Private Investment, Panel data, Domestic Credit

INTRODUCTION

Background to the Study

Private investment is one of the major contributors to economic growth in both industrialized and developing nations. This is because through increased domestic investment, new technology can be adopted, employment opportunities can be created, incomes can grow and living conditions of the population can improve and eventually leading to eradication of poverty (Matwanga, 2000). In the recent years, emphasis has been put on the development of the private sector in developing countries to help boost economic expansion and reduce poverty. This is because private investment is a crucial pre-requisite for economic development because it allows entrepreneurs to set economic activity in motion by bringing resources together to produce goods and services (Mose & Jepchumba, 2017).

The major concern for private investment for most Sub-Saharan Africa (SSA) region is that the level is so low compared to developed nations. This is attributable to a variety of reasons and the one critical factor is the relatively small size of the formal private sector, especially in modernization and industrialization, and the difficulty in gaining access to funds for local investment (Mose & Ouru, 2017). Another factor is that many SSA countries can be

characterized by high levels of economic and political instability, which discourages both private domestic and foreign investments (Matwanga, 2000; Morrissey, 2009).

Generally private investment levels had been on a fluctuation trend in years between 1990 and 2000; this may be attributed to the trade barriers macroeconomic challenges among East African countries. The level of Gross Domestic Product (GDP) growth (% annual) in Kenya in the year 2014 was 5.4% while the level of private investment as a percentage of GDP was 9.6%. For Rwanda, economic growth was documented to be 6.8 while the level of private investment as a percentage of GDP is 10.47% (World Economic Outlook, 2014). Since 1986, Burundi has adopted a program aimed at opening a new era in prosperity and development. The current GDP growth in the country is US $ 4.4 (% annual) while the level of private investment as a percentage of GDP is 11.31%. In all three nations different efforts have been put in place in reforming the public sector so as to create a better macroeconomic environment for private investments (World Economic Outlook, 2014; Mose & Jepchumba, 2017).

THEORETICAL LITERATURE

The theories of public and private investment date back to Keynes (1936), who first called attention to the existence of an independent investment function in the economy. A central feature of the Keynesian analysis is the observation that although savings and investment must be identical ex-post, savings and investment decisions are, in general, taken by different decision makers and there is no reason why ex-ante savings should equal ex-ante investment. The next phase in the evolution of investment theory gave rise to the accelerator theory, which makes investment a linear proportion of changes in output. In the accelerator model, expectations, profitability and capital costs play no role. Keynesians have traditionally favoured the accelerator theory of investment while disregarding the role of factor costs (Asante, 2000).

According to Kahn (2010), in the context of the credit transmission channel, monetary policy affects the supply or relative pricing of loans by banks. As tighter monetary policy causes banks to lose the use of some funds which cannot be replaced with other sources of funds, then the relative cost of funds will increase, decreasing the supply of loans to bank-dependent borrowers who are squeezed out, due to an increase in the external finance premium. In developed financial markets generally, firms have access to other sources of financing, unlike in SSA where financial markets are not as well developed and only large corporate can borrow from external markets while the smaller firms have recourse only to internally generated funding and bank borrowing. In such a market the internal rate of return has a greater impact in the investment decision making then the rate of interest. On the basis of the three theories, the Keynesian view is considered to hold more general applicability for this study, although the credit channel theory seems to be valid for developing countries in SSA (Keynes, 1936). The classical theory assumptions are difficult to apply to developing economies thereby limiting the use of the theory. The challenge is that an emerging economy like Kenya does not easily fit into the strict mould of credit rationing exhibiting elements of advanced financial system where a capital market has existed even prior to independence, government securities with the exception of 91 day Treasury bills are traded in secondary markets violating some of the crucial assumptions of the model. In practice, private sector investment is a dynamic process that responds to the opportunities inherent in the economy in its interaction with monetary policy.

More recent literature has introduced an element of uncertainty into investment theory due to irreversible investment (Pindyck, 1991). The argument is that since capital goods are often firm-specific and have a low resale value, disinvestment is more costly than positive investment. Pindyck (1991) argues that the net present value rule—invest when the value of a unit of capital is at least as large as its cost—must be modified when there is an irreversible investment because when an investment is made, the firm cannot disinvest should market conditions change adversely. This lost option value is an opportunity cost that must be included as part of the cost (Pindyck, 1991).

EMPIRICAL LITERATURE

Mose and Jepchumba (2017) examined the relationship between availability of budget deficit and the private investment growth in East African Community during the period between 1981-2015 using co integration and error correction model test. The empirical result revealed that fiscal deficit had a negative effect on private investment in the region. Debt reduction and government expenditure scaling down strategies should also be adopted in the region so as to improve the fiscal deficit hence boosting private investment and faster GDP growth.

Okorie (2013) conducted a study to investigate the impact of private sector credit on private domestic investment in Nigeria using the error correction model technique. The study found out that an increase in private sector credit though not statistically significant leads to increase in private domestic investment in Nigeria.

Kazeem *et al* (2012) in the study which covered the period 1970 to 2010 used advanced econometric technique of ARDL bounds testing approach in modeling long-run determinants of domestic private investment. Interest rate, real GDP, exchange rate, terms of trade, external debts, public investments, credit to the private investment and reforms dummy were the key long run determinants of domestic private investment while real GDP, public investment and terms of trade are statistically significant in the short run.

Lesotlho (2006) carried out a study on the determinants of private investment in Botswana. The study used a methodology that combined the static OLS with the co-integration and error correction model procedures to establish both the short-term and long-term effects simultaneously. The results of the study showed that macroeconomic factors affected private investment both in the short-term and in the long-term. The short-run variables were public investment, bank credit to the private sector and the real interest rate while the long-run variables were GDP growth and real exchange rates.

Asante (2000) analysed the determinants of private investment in Ghana using a time series analysis and complementing it with a cross-sectional one. While some of the individual effects of the components of macroeconomic instability were found to be negligible, the overall measure of macroeconomic instability has been a major hindrance to private investment. The growth of real credit to the private sector had a positive and statistically significant effect on private investment. Private investment and public investment were found to be complementary. The econometric results suggest that the political instability may have created a climate hostile to private investment.

RESEARCH METHODOLOGY

The study used quantitative research design as it seeks to establish the impact of domestic credit on private investment in KRB over the period 2009-2018. This research design was chosen because it enables the researcher to capture the trend and impact in private investment among the KRB countries. The data employed in this study was collected from secondary sources such as World Development Indicators (WDI) database and specific countries statistical abstract.

The panel unit root test was carried out to establish the stationarity of a data series. This test is necessary because failure to do this may lead to generation of spurious results. A panel unit root test for panel data developed by Levin, Lin and Chu (2002) was employed in the study since it requires that the ratio of the number of panels to time periods tend to zero asymptotically and it is suitable for data sets with small number of panels like in this study.

The Hausman (1978) test was applied to underpin the application of the balanced panel fixed effects model in this analysis. This statistical test was generally used for deciding between applying a fixed or random effects model (Mose & Ouru, 2017). The Hausman test (H) was estimated by the following equation:

$$H = (\beta_{FE} - \beta_{RE}) * INVERSE[V_{FE} - V_{RE}] * (\beta_{FE} - \beta_{RE}) \tag{3.1}$$

The neoclassical flexible accelerator model has been the most widely accepted general theory of investment behavior, and empirical tests of the model from developed countries have been quite successful, for example, the studies by Jorgenson (1967), Clark (1979) and Mose and Jepchumba (2017). However, it has generally been difficult to test this model in developing countries, because the key assumptions such as perfect capital markets and enormous role of government in capital formation in these countries makes the model inappropriate. In addition, data for certain variables such as capital stock and real wages are unavailable. Therefore, following the review of large body of literature in this study, a modified private investment model was derived from the flexible accelerator model to include domestic credit to private sector as a factor that influences private investment growth in KRB.

Following Mose *et al.* (2019) a more general form of the private investment model modified specifically for this study is:

$$PI_{i,t} = \propto_i + \beta_i X_{i,t} + v_i + \varepsilon_{i,t} \tag{3.2}$$

where;

PI- is the Private investment

v_i - are the unobserved country characteristics that are constant over time and influences private investment

ε_i -is the stochastic error term with constant variance and zero mean

Subscripts i and t - denote country and time respectively

$\propto_i$ and β_i - are parameters that were estimated

X_i - stands for a vector of explanatory variables that influence private investment which include domestic credit to private sector, public investment and real GDP per capita growth.

$$X_i = f(CR, PBI, GDP) \qquad (3.3)$$

Post-estimation panel diagnostic tests were carried out in this study before estimating the models in equation (3.2). These tests include: cross sectional dependence (Breusch- Pagan Lagrange multiplier approach test), autocorrelation (Wooldridge test) and heteroscedasticity (Modified Wald test) (Wooldridge, 2006; Gujarati & Sangeetha, 2007; Mose *et al.*, 2019).

ANALYSIS AND DISCUSSION OF FINDINGS

Therefore, the study employed LCC (2002) method since it is suitable for data sets with small number of panels as is the case for this study. The unit root test results are shown in Table 1.

Table 1: Unit Root Test Results using Levin-Lin-Chu

Variables	P-value at Level	P-value at first difference	Order of integration
Ln PI	0.14	0.0000	I(1)
Ln GDP	0.11	0.0000	I(1)
Ln CR	0.09	0.0000	I(0)
Ln PBI	0.22	0.0000	I(1)

*Notes: *** denotes significant at 1 percent, ** significant at 5 percent*

The results from Table 1 show that all the variables in the study except the domestic credit to private sector were non-stationary at level. The variables were then differenced once and they became stationary, meaning that the variables are integrated of order one I(1).

From the Hausman test results, the p-value 0.3 which is greater than 0.05 and therefore we accept the null hypothesis and conclude that the country specific effects are uncorrelated with the regressors and hence selecting Random Effect model. The regression and post estimation findings are presented in Table 2.

Table 2: Random Effect Regression Panel Results

Variable	Coefficient	Std .Error	Z Statistic	P Value
Ln CR	0.3***	0.02	11.8	0.000
Ln PBI	-0.4***	0.08	-4.00	0.000
Ln GDP	0.2***	0.03	8.3	0.000
Const	0.1***	0.04	3.1	0.002
Adjusted R^2 =0.69				
Breusch Pagan LM			p-value= 0.42	
Modified Wald test			p-value= 0.56	
Wooldridge test			p-value= 0.78	

*Notes: *** denotes significant at 1 percent, ** significant at 5 percent*

From the regression results in Table 2, the sign of the coefficient of domestic credit to private sector is positive and significant at 5 percent level and this conforms to a priori expectations. An increase in domestic credit to private sector by 1 percent leads to 0.3 per cent increase in private investment in the 3 countries. This therefore implies that the monetary policies which have been put in place by the 3 countries facilitate credit to private sector have encouraged the growth of the private sector activities. These results are consistent with those of Asante (2000) and Mohan (2008) who found a positive correlation between credit policy and investment. An example of India was given which had low growth initially but due to increase in gross domestic savings, the loanable funds were made available leading to increased private investment. According to the bank lending channel, it is assumed that monetary contraction decreases bank reserves and deposits and hence lowers the quality of bank loans available for investment. In addition, According to Onodugo *et al.* (2013), most developing countries have limited access to credit facilities which may have been contributed by the inconsistent and inefficient government policies regarding the administration of credit to the private sector. Therefore, KRB being in the category of LDCs means that the private sectors in the region do not have access to adequate funds to finance its investments (Mose *et al*., 2019).

The regression results, Table 2, show a negative significant relationship between public investment and private investment with the coefficient being (-0.4). This implies that 1 percent increase in public investment leads to 0.4 percent decline in private investment. The empirical literature gives inconsistent results concerning the effect of public investment on private investment. However, the results are consistent with the findings of Wai and Wong (1982), Erenburg (1995), Asante (2000), Gwartney& Samida (2000), and Mose and Jepchumba (2017). According to Gwartney and Samida (2000), the negative impact of public investment on private investment is due to the effect of larger public sector size which tends to lower the productivity of private sector. This may also be explained by the increase in government consumption expenditure in the KRB given that infrastructural development by the government complements private investment.

The undesirable impact of public investment on private investment may have been contributed by the budget constraint in the KRB which makes the cost of inputs to increase hence decline in the growth of output in the private sector since they compete for investment resources. The crowding out may be more significant if public investments are made in state corporations that produce output complementary with the goods and services provided by private sector. The Keynesian school of thought argues that the provision of public goods whereby no competition is expected from the private sector can lead to faster economic growth (Keynes, 1936). On the contrary, the government expenditure on public goods may crowd out private sector investment hence may result in low levels of economic growth in the region (Mose *et al*., 2019).

The real GDP per capita shows a positive effect on private investment and it is statistically significant at 5 percent. It has a coefficient of (0.2) which implies that an improvement in the real GDP per capita by 1 percent may lead to an increase in private investment by 0.2 percent. The results obtained in this study are similar to those of Green and Villanueva (1991) and Sakr (1993) as well as those of Mose and Jepchumba (2017) who found a positive relationship between GDP per capita growth and private investment in East African Community. Thus, the investment climate constitutes a good indicator for current investment decisions.

The estimated coefficient of determination $\left(R^2\right)$ shows that it is statistically significant at 1 % as shown by F test. This implies that all the regressors are statistically significant and different from zero. The result indicates that regressors jointly explain 69 percent of the variation of the dependent variable which is a relatively good fit since it explains the largest variation of the dependent variable. The results reveal that the model passes all the diagnostic tests.

CONCLUSION AND RECOMMENDATIONS

Conclusion

From the regression results, the domestic credit availability to private sector has a positive and significant effect on private investment. This implies that the availability of credit for private sector investment leads to an increase in the level of private investment in the KRB region. Given that public investment crowds-out private investment in the KRB, then for the region to attain high levels of private investment there is need for respective KRB member governments to invest in public infrastructure and this may increase the productivity of private sector capital. Therefore, the KRB region countries should encourage both private and public investment such that the investments undertaken by the public sector are those that have positive externalities such as infrastructural development. This can be done through harmonization of regulatory framework so as to come up with a common investment platform that promotes both public and private investment.

Recommendations

For private investment to remain as engine of growth in the region, it is necessary that the amount of domestic credit to private sector be increased in the KRB since the regression results show that it has a positive effect on private investment. The credit to private sector is a constraining factor to the growth of private investment in KRB and this may be because of less developed financial institutions and stringent financial regulations. Therefore, the KRB states should put in place measures that ensure an increase in the domestic credit to the private sector, for example the provision of incentives to financial institutions by the respective governments. This will enable them to channel more credit to the private sector at affordable rates and this may improve the private investment levels and hence contribute to overall economic growth of the KRB. Given the low levels of savings in the region, the citizens should be encouraged to save more in the local banks through increasing the interest rate on savings hence making available the credit for investment purposes.

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