DETERMINANTS OF PRIVATE INVESTMENT IN LESOTHO

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Abstract

The study empirically examines the determinants of private investment in Lesotho over the period 1982 – 2013. The results indicate that private investment is positively influenced by the level of economic growth and public investment while it is negatively affected by increase in the price level. The highly significant and positive coefficient of economic growth confirms the accelerator principle in Lesotho while that of public investment outlines the significant role of government in laying down infrastructure to crowd in private investment. The negative coefficient of the general price level symbolizes the importance of price stability in stimulating private investment. In addition, the study confirms that macroeconomic instability negatively affects private investment in Lesotho. The Granger-Causality test reveals that there is unidirectional causality running from private investment to per capita GDP, and bidirectional causality between public and private investment. The policy recommendation following the findings is that government should engage in investment of infrastructural projects in the short-run to better aid smooth private investment in the long-run.

Keywords: Private Investment, ARDL, Unit Root, Growth, Lesotho

1. INTRODUCTION

Blomstrom *et al* (1993) explained that investment refers to all economic activity that involves the use of resources to produce goods and services.

There exists an undeniably strong relationship between investment and the rate of economic growth. Economic growth is an increase in a country's percentage of gross domestic product (GDP) in a particular year. It is a key performance indicator of a country's economic development in that a buoyant economic growth contributes to stability; alleviates underdevelopment and eliminates poverty to raise the overall quality of life of the citizen. Great emphasis is placed on the importance of capital accumulation as the engine of economic growth. Capital is used to increase the production of capital-intensive goods and the subsequent consumption of such goods generally increases the growth of income. In less developed countries (LDCs), infrastructural investment is essential for development, more especially as it enables producers to utilise the latest technology in production activities. The use of modern technology promotes greater efficiency along the production chain.

In addition, Barro (1991) postulated that for poorer countries to catch up to their rich counterparts, they have to invest not only in physical capital (that is accumulated and utilized in production) but also in human capital (that enhances the productivity of both labour and physical capital). This is predicated off the notion akin to Joseph Schumpeter's growth theory; that the return to a person's skill and ability in production is higher if other people are also more able and skilled. Countries with higher levels of initial human capital stock are able to readily absorb and innovate upon new technology (products and ideas) discovered elsewhere and thereby grow faster as this facilitates a wider spread of new ideas (Dinopoulos and Sener, 2007).

According to Seruvatu and Jayraman (2001), during the 1990s, Asia reported the highest average growth rates in contrast to the rest of the world and the ratio of gross domestic investment (GDI) to GDP was about 27 per cent, of which 16.5 per cent was private investment. Conversely, sub-Saharan African countries experienced the worst rates of growth in the 1990s with the ratio of GDI to GDP recording only 17 per cent, of which less than 10 per cent was private investment. Investment in capital goods, which is usually undertaken by the private sector, is essential for economic growth. Private investment has a greater and more favourable effect on overall economic growth than public investment since it is traditionally more efficient (Seruvatu and Jayraman, 2001).

Given the above, it is not surprising that a plethora of economic literature espouses the need for developing countries to develop the private sector to

help drive economic growth and reduce poverty, (Ouattara, 2004). The position of the Lesotho government is to intervene in ways that crowd-in private investment to encourage growth that exploits the full potential of the productive capacity as outlined in the National Strategic Development Plan[145] (NSDP). Amongst the components of aggregate demand, private investment is considered the main factor to achieve economic development. It consists of land, residential and non-residential construction, private equipment, private machinery and changes in inventories. It is against this backdrop that this paper investigates the main determinents of private investment in Lesotho. There are studies such as Greene and Villanueva (1991), Rodrik. (1991), Khan and Reinhart (1990), Blejer and Khan (1984), Ndikumana (2000) as well as Khan and Kumar (1997) that provide the empirical investigation of determinants of private investment in developing countries, including Lesotho but they are not immune from the methodological problems related to cross-country analysis such as the role of outliers and heterodoxity of sample countries under study. As a result, this study contributes to empirical literature on determinants of private investment by employing time series data covering the period 1981-2013 from Lesotho, which is a small and open economy under a fixed exchange rate regime with Republic of South Africa (RSA).

The findings of this study could in addition assist in policy decisions to better understand some of the fundamental developments afffecting the private investment as a vehicle for economic growth in Lesotho especially during the implimation phase of NSDP. The remaining parts of the paper are organised as follows: Section 2 provides private investment trends in Lesotho, Section 3 reviews the relevant literature on private investment, Section 4 presents material and methods, Section 5 outlines the empirical results and lastly Section 6 concludes the study.

## 2. SNAPSHOT OF PRIVATE INVESTMENT TRENDS IN LESOTHO

The NSDP is developed as strategic guidance towards, amongst others, a competitive investment climate that results in increased economic activity. Lesotho's data on gross fixed capital formation is divided into public

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[145] NSDP is a growth and development strategic framework for Lesotho geared towards an accelerated, sustainable, economic and social transformation for the period 2012/13 to 2016/17 in order to achieve Millennium Development Goals and Vision 2020.

investment (includes investment by government and public enterprises) and private investment. For the period 1982 to 2012 private investment has generally been on an upward trajectory and moving in the same direction as public investment as well as GDP. The main drivers of private investment have been the emergence of the textile industries in the 1990s followed by the commencement of the mining industries early 2000s. Interestingly, Figure 1 shows that private investment has been higher than public investment over time as the government role has been to create a favourable investment climate. This adds credence to the notion that public investment and output are key determinants of private investment. During the 1980 to 1990 and 1990 to 1999 periods, GDP grew at an average rate of 3.9 per cent and 4.2 per cent per annum respectively, due to construction of phase 1 of the Lesotho Highlands Water Project (LHWP) and the rapid expansion of the manufacturing sector, respectively while mining industry took over as the main driver from 2000.

**Figure 1:** Real Public and Private Investment in Millions Maloti
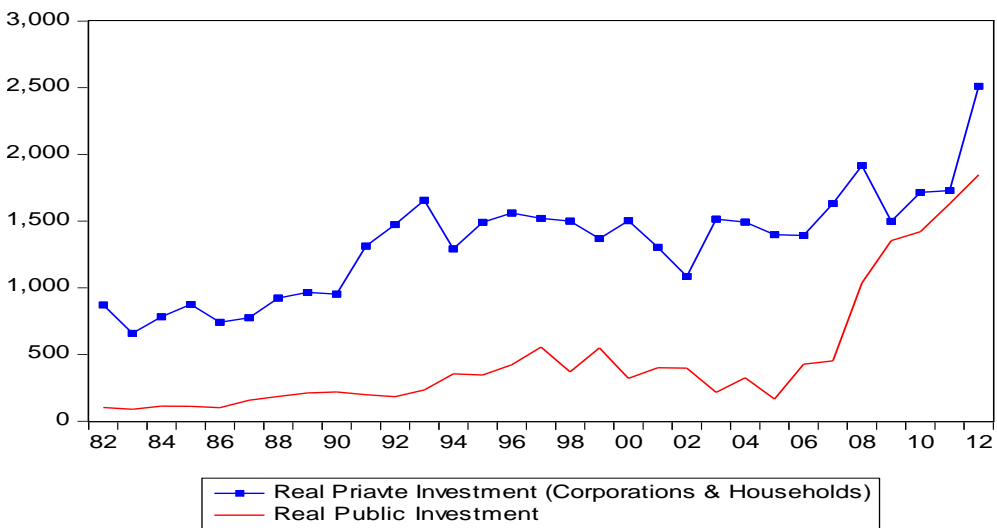
The private investment agenda in Lesotho is a key discussion area as outlined in the NSDP. Business (2015) points out that Lesotho ranks 128 out of 189 countries in terms of the ease of doing business, far below its regional competitors. Moreover, on the distance to frontier score[146], Lesotho scores

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[146] **Note:** The distance to frontier score benchmarks economies with respect to regulatory practice, showing the absolute distance to the best performance in each Doing Business

worse than its Southern African Customs Union (SACU) compatriots do. As a result, questions arise regarding what drives private investment in Lesotho. First, what is the role of different variables, both domestic and foreign, in determining private investment in Lesotho? Second, where is the country's level of commitment with regard to boosting private investment?

Figure 2: How Lesotho and Comparator Economies Rank on the Ease of Doing Business
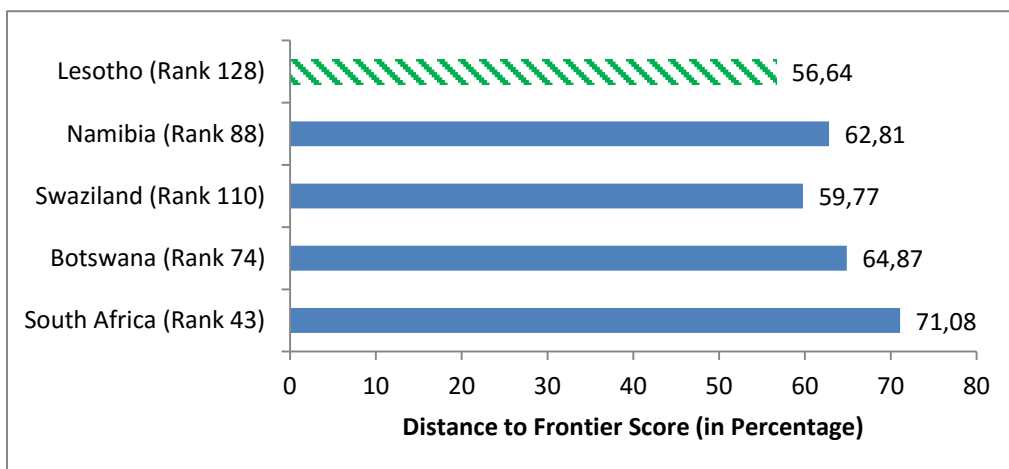
3. LITERATURE REVIEW
3.1 Traditional Investment Theories

According to Clark (1917), Jorgenson (1967), Eisner and Nadiri (1968), Sakr (1993) as well as Seruvatu and Jayraman (2001), investigations into the underlying determinants of investment begin with an appreciation of four models[147]; the accelerator, profit, neo-classical and Tobin's q models. The accelerator model postulates that a firm's investment decision is determined by the demand for the firm's finished product (whether or not the sales of the finished product are growing and or are expected to grow), such that if the level of demand is expected to increase, then capital stock levels have to be increased to meet the anticipated demand. Under the profit model of investment, investment decisions are based on profits as these play a pivotal

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indicator. An economy's distance to frontier score is indicated on a scale from 0 to 100, where 0 represents the worst performance and 100 the frontier. (Business, 2015)

[147] The four models are not necessarily mutually exclusive. They can be used together when constructing investment models of developed countries, and intergrated into what are known as neoclassical-flexible accelerator models. (Sakr, 1993).

role in the facilitation of internal and external investment financing. Neo-classical models of investment assert that investment decisions should be based on both anticipated earnings and the cost of capital while Tobin's q model puts forward that investment decisions are undertaken only when the replacement costs of physical assets are lower than the increase in the value of firm shares.

3.2 Determinants of Private Investment

Sakr (1993) as well as Ribeiro and Teixeira (2001) put forth that the major determinants of private investment levels across counties are essentially; domestic output, the real interest rate, public investment, credit available for investment, the size of the external debt, the exchange rate and macroeconomic stability. The discussion that follows provides a brief review of the major factors affecting investment in various countries and presents research findings on the relationship between such factors and private investment.

Sakr (1993) empirically investigates the determinants of private investment in Pakistan with emphasis on the impact of government investment. The study makes use of an investment function and annualized data for the period 1973/74 to 1991/92. The findings reveal that private investment is positively correlated to GDP growth, to credit extended to the private sector, and to government investment in infrastructural projects. Asante (2000) utilizes time series analysis coupled with cross-sectional analysis to investigate the determinants of private investment in Ghana. The study reveals that the growth of real credit to the private sector has a positive and statistically significant effect on private investment. Moreover, much like in Pakistan, public investment in infrastructural projects has a positive effect on private investment. Fimpong and Marbuah (2010) also look into factors that have either stimulated or damped private investment in Ghana. With the use of unit root tests, cointegration and error correction techniques within an Autoregressive Distributed Lag (ARDL) framework the results of the study indicate that private investment in the short-run is positively related to public investment, inflation, real interest rate, openness, real exchange rate and a regime of constitutional rule. Private investment in the long run is positively related to real output, inflation, real interest rate, openness and real exchange rate; while negatively affected by external debt. Ouattara (2004) explores the determinants of private investment in Senegal through a long

run private investment equation derived using the Johansen cointegration techniques and the bounds test approach. After testing variables in the equations for unit root using the Dickey-Fuller generalized least square de-trending test and the Ng-Perron test, the results indicate that public investment, real income and foreign aid flows positively affect private investment, while the impact of credit to private sector and terms of trade negatively affect the private investment.

In addition, Cruz and Teixeira (1999) analyze the impact of public investment on private investment in Brazil from the period 1947 to 1990 through the estimation of an investment function based on the theory of irreversible investment in conditions of uncertainty. The conclusion is that in the short term, private investment is crowded out by public investment while in the long term the two variables complement each other as indicated by cointegration vector coefficients. Jongwanich and Kohpaiboon (2008) examine the patterns and determinants of private investment in Thailand during the period 1960 to 2005 by estimating a private investment equation whose functional form is based on the extended version of neoclassical investment theory in which output growth, cost of capital, availability of capital funds, economic uncertainty, real exchange rate and public investment are incorporated. The study discovers that in the short run private investment in Thailand is positively related to output growth, real private credit and the existence of spare capacity. In the long run private investment is positively affected by business opportunity and real exchange rate which reflects the nature of export-led growth in Thailand.

Le (2004) also estimates a private investment equation for a panel of 25 developing countries over 21 years with a focus on the political and economic determinants of private investment. The study discovers that socio-political instability characterized by nonviolent protest promotes investment while violent uprisings hinder private investment. Furthermore, constitutional government change promotes private investment while unconstitutional government change hinders it. Moreover, policy uncertainty characterized by variability of contract enforcement rights promotes investment while variability of government political capacity hinders private investment. Servén (1998) uses a large panel data set on developing countries to provide an assessment of the impact of macroeconomic uncertainty on private investment. The paper allows for simultaneity, country-specific effects and parameter heterogeneity across countries and

constructs alternative measures of uncertainty based on five key macroeconomic variables; growth, inflation, relative price of investment goods, terms of trade and the real exchange rate. The study reveals a significantly negative association between the constructed macroeconomic uncertainty measures and private investments. Brunetti and Weder (1998) investigate the relationship between private investment and institutional uncertainty by presenting a comparative analysis of 24 uncertainty variables tested on a set of 60 countries. To permit comparisons of the results across countries, the study tests measures of institutional uncertainty in investment using the same specifications, country samples and time periods (1974 to 1989). The study discovers that lack of rule of law, high corruption and volatility in real exchange rate distortions are the most detrimental for investment.

Finally, Acosta and Loza (2005) reveal that private investment decisions are determined, in the short-run, by shocks in returns (exchange rate, trade liberalization) and in aggregate demand. Furthermore, capital accumulation by the private sector is positively determined by well-developed financial and credit markets as well as on perspectives of fiscal sustainability.

4. MATERIALS AND METHODS
4.1 Materials
This study uses annual data from the World Banks's Development Indicators for the period 1981 to 2013 for Lesotho in real terms. *PI*, is private investment as a percentage of GDP, *GDED* gross domestic expenditure deflator and is a proxy for the general price index in Lesotho, *GI* is public investment as a percentage of GDP, and *Y* is per capita GDP. The general model is subject to bounds testing approach as in the equation 1 as a conditional ARDL Error Correction Model (ECM).

5. Model specification
When using the ARDL appraoch, the order of integration of the series does not matter. It can accommodate both I(1) and I(0) series or series that are mutually integrated. The lag order of the ARDL is determined using a recursive method called "from general to specific". To test long-run relationship between private investment and its determinants in Lesotho using bounds testing, a joint significance test for H_0: $\beta_1 = \beta_2 = \beta_3 = \beta_4 =$

0 against the alternative hypothesis of H_1: $\beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq 0$ is performed. The test is based on Wald-test (F-statistics); the asymptotic critical values for the test were supplied by Pesaran *et al* (2001). To confirm that cointegration exists, the F-statistics from joint test of significance should be greater than asymptotic critical values from Pesaran for upper bounds and lower bounds, otherwise there is no cointegration. The bounds test approach enables examination of both short-run and long run dynamics following ARDL model estimated in equation 1.

$$\Delta ln\text{PI}_t = \alpha_0 + \beta_1 ln\text{PI}_{t-1} + \beta_2 \text{GDED}_{t-1} + \beta_3 ln\text{Y}_{t-1} + \beta_4 ln\text{GI}_{t-1} +$$

$$\sum_{i=1}^{p} \pi_1 \Delta ln\text{PI}_{t-i} + \sum_{i=1}^{p} \pi_2 \Delta \text{GDED}_{t-i} + \sum_{i=1}^{p} \pi_3 \Delta ln\text{Y}_{t-i} +$$

$$\sum_{i=1}^{p} \pi_4 \Delta ln\text{GI}_{t-i} + \theta W + \varepsilon_t \qquad (1)$$

The above specification is done under the assumption that the series are not stationary as is the case with many time series where, Δ is the first difference operator and PI_t, GI_t, $GDED_t$, Y_t denote logarithms of real private investment as a percentage of GDP, public investment as a percentage of GDP, gross domestic expenditure deflator and per capita GDP. t is the time period, βs are long-run parameters to be estimated, ε is the white noise error term and W is any exogenous variable affecting the demand for private investment and its determinants in Lesotho. π's are short run parameters to be estimated.

Sakr (1993), Seruvatu and Jayraman (2001) and Ribeiro and Teixeira (2001) espouse that on a priori grounds, public investment can have either a positive (crowding in) or negative (crowding out) impact on private investment. The crowding in effect happens when the public investment has strong links with the rest of the economy, geared towards necessary infrastructure and the provision of public goods such as roads that reduce the transaction costs for the private sector. This results in an increase of expected firm profitability and spurs on private investment. The crowding out can arise both directly and indirectly. Direct crowding out exists when public investment competes with private investment on scarce financial and physical resources and may even produce tradable goods that compete with those of the private sector. Indirect crowding out prevails when excessive public expenditure leads to rising interest rates and increased inflationary pressures. It is for these reasons that the study expects either a positive or a

negative relationship to exist between private investment and public investment.

Economic literature around the impact of inlflation on private investment are not consistent. Asante (2000) describes that an increase in the level of inflation erodes private savings and thus puts a damper on private investment demand. Haroon and Nasr (2011) investigate the role of private investment in the economic development of Pakistan and discover that the impact of inflation on private sector investment is positive. This study proxies inflation using GDED and expects that the coefficients of GDED in Lesotho in the short run, to be ambigious.

Ribeiro and Teixeira (2001) pointed out that value of the capital stock desired by a competitive enterprise is a positive function of its output level, which may be treated as a proxy for the level of demand. If this is extended to more aggregated levels, then, a country's GDP per capita level or economic growth can be considered as a measure of demand in the private sector as a whole. The study makes use of the per capita GDP to proxy economic growth and expects a positive relationshiip between private investment and per capita GDP which will affirm the accelerator principle in Lesotho.

Following the cointergration test using the bounds testing appraoch the last step is to estimate the long-run and short-run error correction models. The models are specified as follows:

$$ln\text{PI}_t = \alpha_0 + \sum_{i=1}^{p} \beta_1 ln\text{PI}_{t-i} + \sum_{i=1}^{p} \beta_2 \text{GDED}_{t-i} + \sum_{i=1}^{p} \beta_3 ln\text{Y}_{t-i} +$$

$$\sum_{i=1}^{p} \beta_4 ln\text{GI}_{t-i} + \theta W + \mu_i \quad (2)$$

$$\Delta ln\text{PI}_t = \alpha_0 + \sum_{i=1}^{p} \pi_1 \Delta ln\text{PI}_{t-i} + \sum_{i=1}^{p} \pi_2 \Delta \text{GDED}_{t-i} + \sum_{i=1}^{p} \pi_3 \Delta ln\text{Y}_{t-i} +$$

$$\sum_{i=1}^{p} \pi_4 \Delta ln\text{GI}_{t-i} + \Omega \text{ECT}_{t-i} + \theta W + \mu_i (3)$$

In equation 2 and 3 all the variables are as previously defined, μ_i is the error term and Ω is the coefficient of the error correction term (ECT_{t-i}). The ECT captures the speed of adjustment to restore equilibrium in the dynamic model. The ECT coeffieienct should be statisitically significant with a negative sign.

5.1 Unit Root Tests

To asertain the order of intergration of the variables, the study uses Augmented Dickey and Fuller (1979, 1981) (ADF) and Phillips-Perron (1988) test. The Phillips-Perron test complements the ADF in that it is non-parametric and corrects for any serial correlation and heteroskedasticiy in the errors. The two tests are utelized to establish whether the series are either I(0) or I(1) since the use of bounds testing is only applicable for series that are either I(0) or I(1) and would be inapplicable if they are I(2).

6. THE EMPIRICAL RESULTS
6.1 Unit Root Procedure

Table 1 reports the results of the unit root test conducted prior to the application of cointergration test using the ADF unit root test and Philips-Perron test. Granger (1986) outlined that the unit root test is a pretest to avoid spurious regression. The ADF unit root test can be used in a situation of serially correclated error terms while Phillips-Perron unit root test takes care of correlation between the error terms and uses non-parametric statistical techniques. When the null hypothesis that the variables are non-stationery in levels is considered, the p-values associated with each variable under both the ADF and Phillips-Perron tests suggest that the null hypothesis fails to be rejected. However, when the null hyphothesis is that variables are non-stationary at first difference, the p-values imply that the null hyphothesis can be rejected under both the ADF and Phillips-Peron tests. The results exhibit that private investment, economic growth, inflation and public investmnet are integrated of order one. Therefore, a long-run relationship might exist between private investment and its determinants and this makes it suitable for the ARDL bounds technique to be used to estimate the model.

Table 1: ADF and PP Unit Root Test Results

Variable	H_0:non-stationary in levels		H_0:non-stationary in first differences	
	ADF Statistic	**PP Statistic**	**ADF Statistic**	**PP Statistic**
PI	-1.868 (0.342)	-1.724 (0.410)	-4.706 (0.000)	-4.664 (0.0001)
GDED	2.812 (1.000)	3.224 (1.000)	-4.341 (0.002)	-4.309 (0.002)
Y	2.193 (0.999)	2.193 (0.999)	-6.254 (0.000)	-6.207 (0.000)
GI	-1.245 (0.643)	-1.436 (0.553)	-4.813 (0.001)	-4.886 (0.000)

Note: Values in parentheses are p-values

6.2 Cointegration Test Results

Having confirmed that all the variables are I(1), the paper employs the use of bound testing approach to estimate the cointegration regression. To implement the bound testing approach, the lag order of the ARDL is first determined based on the general to specific method. The lag order was found to be 1. Table 2 presents results from the bounds test for cointegration between private investment and its determinants. The results show the rejection of the null hypothesis of no cointegration evident from the fact that the calculated F-statistic from the Wald-test exceeds the upper bound critical values at either 1, 5 and 10 per cent significance levels. The asymptotic critical values for the test supplied by Pesaran *et al* (2001) were found to be inappropriate for this study because the sample size is small. As a result, the critical values were taken from Narayan (2005).

Table 2: Cointegration Test Results

Bound test for cointergration					
Critical value bounds of the F statistic: intercept and no trend					
90 per cent level		95 per cent level		99 per cent level	
I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
2.676	3.586	3.272	4.306	4.614	5.966
F-Statistics: 7.381514					
Sample size: 32					
K is the number of regressors: 3					

6.3 Results to the Long Run ARDL Model of Private Investment in Lesotho

Table 3 presents the results of the estimated long-run private investment model and corresponding diagnostic tests. The R^2 indicates that 86 per cent of the variation in private investment is explained within the model. The Durbin Watson (DW) statistic shows that no autocorrelation exists between the variables. The Jarque Bera (JB) test for normality fails to reject the null hyphothesis that the errors are normally distributed which confirms that the errors are white noise. In addition, the Wald test and Breusch-Pagan-Godfrey (BPG) heteroskedasticity test indicate that the null hypothesis of the coeffieicnts not being statisically different from zero and the presence of heteroscedasticity is rejected, respectively.

Table 3: Estimated Long-Run Private Investment Model

Variable	Coefficient	t-statistic	p-value
C	-27.22099	-2.981495	0.0059
GDED(-1)	-0.016454	-2.404613	0.0230
LY(-1)	3.500143	2.807745	0.0090
LGI(-1)	0.787234	3.749459	0.0008
D2	-0.608820	-5.346293	0.0000
Diagnostics Tests			
R^2 = 0.863379 Adj R^2 = 0.843862 Durbin-Watson = 2.471487 Jarque-Bera = [0.922528] (0.630486) Wald Test =[44.23664] (0.0000) Breusch-Godfrey Serial Correlation LM Test = [2.810863] (0.0785) Heteroskedasticity Test: Breusch-Pagan-Godfrey = [1.182296] (0.3401)			

Note: Values in brackets are F-statistics while values in parentheses are p-values

All of the long-run estimated coefficients are not only statistically significant, but they are also in line with the theory as they bare expected signs. Specifically, GDED is negatively related to private sector invesment while Y and GI are both positively related to private investment in the long-run. From the results, the coeffieicnt of GDED indicates that if the level of inflation increases by 1 per cent, real priavte investment will decline by 0.02 per cent signifying the importance of price stability for private investment stimulation. This results conform to studies presented in the literature, specifically Asante (2000). Per capita GDP has a positive and strongly statisitically significant coeficient confirming that private investment is a positive function of economic growth. These results are similar to those found by Ribeiro and Teixeira (2001) and Sakr (1993) who discovered that economic growth is one of the main drivers of private investment. Furthermore, government investment in the long-run is found to have a positive and significant coefficient, meaning that it has a crowding-in effect on private investment. Finally, the dummy variable (D2) measuring macroeconomic instabliity (the military coup of 1986) has a negative and significant coefficient. This reinforces the theoretical assertion that macroeconomic instability negatively affects private investment, see Le (2004).

6.4 Results of the Error Correction Model on Private Investment in Lesotho

The estimated ECM for private investment and its associative diagnositic tests are presented in Table 4. The model fits the data well since about 64 per cent of the variation in private investment is explained by the regressors. The DW statisitic and JB test both fail to reject the null hyphothesis, indicating that the residuals are white noise. The Wald test rejects the null hyphothesis that the coefficients are not statistically different from zero while the Breusch-Pagan-Godfrey (BPG) Heteroskedasticity test rejects the null hypothesis that there is heteroscedasticity.

Table 4: Error Correction Model for Private Investment

Variable	Coefficient	t-statistic	p-value
C	0.073792	1.123191	0.2716
D(GDED(-1))	-0.007485	-0.893228	0.3799
D(Y(-1))	0.122677	0.077432	0.9389
D(GI(-1))	0.808170	3.220573	0.0034
ECT(-1)	-1.213829	-5.665612	0.0000
D2	-0.293679	-2.896020	0.0076
Diagnostics Tests			
R^2 = 0.641024 Adj R^2 = 0.571990 Durbin-Watson =1.634531 Jarque-Bera = [2.277619] (0.320200) Wald Test =[8.331232] (0.0002) Breusch-Godfrey Serial Correlation LM Test = [0.822207] (0.4515) Heteroskedasticity Test: Breusch-Pagan-Godfrey = [2.998901] (0.0288)			

Note: Values in brackets are F-statistics while values in parentheses are p-values

Similar to the results under the estimated long-run model, the coefficient of GDED has a theorized negative impact on private investment in the short-run. However, the coefficient is statistically not significant at any of the levels of significance. Meaning that private investment in the short-run is not affected by the level of inflation. In addition, the coefficient of per capita GDP in the short-run has a positive sign, confirming economic theory that economic growth positively affects private investment. The coefficient is also not statistically significant at all levels of significance implying that private investment in Lesotho is not affected by per capita GDP in the short-run. This result is similar to what was found by Akpalu (2002) who discovered that in the short-run firms might be operating below full capacity and would not have a need to expand capital stock.

The crowding-in of government investment in the short-run is confirmed by the positive and statistically significant coefficient of government investment. This suggests that government initiatives to provide infrastructure such as roads and telecommunications complements private investment in Lesotho in short run. It is noteworthy that the value of the coefficient of government investment is bigger in the short-run (0.81) than it is in the long-run (0.79) meaning that expeditious government investment in infrastructure in the short-run is critical for smooth private investment in the long-run.

As discussed earlier, the coefficient of the ECT should be negative and statistically significant. Table 4 shows that the coefficient of the ECT has the expected negative sign and is highly statistically significant. This shows the existence of a cointegration relationship among the variables. Finally, the coefficient of the dummy variable measuring macroeconomic instability has a negative sign and is statistically significant. This emphasizes theoretical assertions that macroeconomic instability negatively affects private investment in the short-run in Lesotho.

6.5 Granger-Causality Test Results

The study employs the use of the Granger-Causality test to investigate the direction of causality between private investment and its determinants. The results of the Granger-Causality test presented in Table 5 indicate that there exists unidirectional causality running from private investment to per capita GDP, per capita GDP to gross domestic expenditure deflator and government investment to per capita GDP. This means that economic growth is a positive function of private investment and government investment while the level of inflation is positively affected by economic growth in Lesotho. Furthermore, there is bidirectional causality running from government investment to private investment and from private investment to government investment at 10 per cent significance level implying that in Lesotho, government investment in capital infrastructure projects stimulates private investment. Likewise, private investment encourages government investment.

Table 5: Granger-Causality Test Results

Null Hypothesis	F-Statistic	P-Value
GDED does not Granger Cause LPI	0.50449	0.6094
LPI does not Granger Cause GDED	0.48207	0.6227
LGDPPC does not Granger Cause LPI	0.84825	0.4393
LPI does not Granger Cause LGDPPC	5.17143	0.0125
LGI does not Granger Cause LPI	3.21942	0.0557
LPI does not Granger Cause LGI	3.10519	0.0611
LGDPPC does not Granger Cause GDED	2.96995	0.0683
GDED does not Granger Cause LGDPPC	0.23385	0.7931
LGI does not Granger Cause GDED	0.23666	0.7909
GDED does not Granger Cause LGI	0.67336	0.5183
LGI does not Granger Cause LGDPPC	2.54277	0.0973
LGDPPC does not Granger Cause LGI	0.16163	0.8516

7. CONCLUSION

The study empirically examines the determinants of private investment in Lesotho over the period 1982 – 2013. The results indicate that private investment is positively influenced by the level of economic growth and public investment while it is negatively affected by increases in the price level. The highly significant and positive coefficient of economic growth confirms the accelerator principle in Lesotho while that of government investment outlines the significant role of government in laying down infrastructure to crowd in private investment. The negative coefficient of the general price level symbolizes the importance of price stability in stimulating private investment. In addition, the study confirms that macroeconomic instability negatively impacts private investment in Lesotho.

The Granger-Causality test indicates that there is unidirectional causality running from private investment to per capita GDP, per capita GDP to gross domestic expenditure deflator and government investment to per capita GDP and bidirectional causality running from government investment to private investment and from private investment to government investment. The direction of causality between economic growth and private investment means that economic growth is stimulated by private investment. The bidirectional causality between private investment and government investment indicates that government investment in capital infrastructure projects stimulates private investment and likewise, private investment encourages government investment. The policy recommendation following the findings is that government should engage in investment of infrastructural projects in the short-run to better aid smooth private investment in the long-run.

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