



MENTOR | The Journal of Business Studies

Faculty of Commerce and Management, Eastern University, Sri Lanka

JBS

The Determinants of Private Investment in Sri Lanka: An Empirical Investigation

Kalaipriya Jesukumar^a

^a Faculty of Graduate Studies, University of Jaffna

ABSTRACT

Private Sector Investment plays a substantial role in the economic growth of developed and developing countries. Empirical studies suggest that there are number of factors influencing the private investment. The research problem of the study is to find out the determinants of private investment in Sri Lanka. The research is aimed at tracing the determinants of private investment by analyzing economic variables such as gross domestic product, public investment, trade openness, exchange rate, interest rate and credit to private sector by using the time series annual data ranging from 1978 to 2016 in Sri Lanka. The log-log model is selected based on Quantitative approaches which were used to estimate the impact of the selected economic variables on private investment. Estimation method was Ordinary Least Squares. Eviews 9 econometrics software was used for data analysis. The results are presented in parametric and non-parametric ways. The empirical evidence shows that there is a positive impact of selected economic variables on private investment except exchange rate. There is crowding-in effect of public investment on private investment and the government should take adequate initiatives to invest in public projects such as human capital development and infrastructure which boost the private investment in Sri Lanka.

Keywords: Private Investment, Openness, Economic Growth, Exchange Rate, Interest Rate

* Corresponding Author: rathikajesu2012@yahoo.com

© Faculty of Commerce and Management, Eastern University Sri Lanka. All rights reserved.

Introduction

Private investment is considered to be an essential ingredient for sustainable economic growth and a powerful development tool especially in developing countries. According to Blomstrom *et al* (1993), private investment is defined as all activities that involve the use of resources to produce goods and services. Agu (2015) defines the private investment as the outlay of money for future use. Kumo (2006) says that the term private investment refers to investment by the private businesses for the purpose of profit generation. Private investment creates entrepreneurship through which jobs are created and new technologies are introduced. Successful deployment of private investment is increasingly important for creating employment, hovering economic growth and eradicating poverty.

Sri Lanka is a South Asian country blessed with abundance natural resources with waterfalls, national parks, botanical gardens, beautiful golden beaches, seashells, orchids, rivers and lakes, mountains and peaks, and flora and fauna. Natural resource endowments give Sri Lanka a natural competitive advantage over many developing nations around the world. The economy of Sri Lanka is riddled with political instability, outflow of foreign investment, continuous depreciation of rupee against major currencies, high interest rates caused by the downgrade of the sovereign credit rating, depletion of foreign reserve, debt burden, and symptoms of economic stagnation are experienced in recent years.

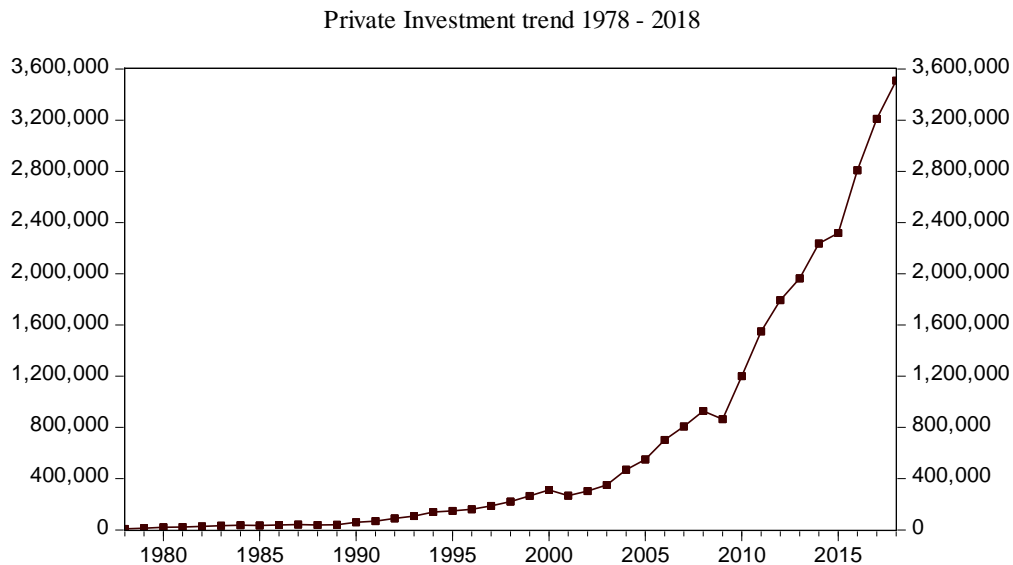


Figure 1: Trend of private investment in Sri Lanka

Figure 1 shows the trend of private investment in Sri Lanka for the last four decades from 1978. Sri Lanka is the first country to introduce trade liberalization in South Asian region in 1977. Since then the private investment has been rapidly increased and after the end of the ethnic turmoil, it has been increased at an accelerated rate. According to the figure above, the private investment has been increased from Rs. 4,875 Mn in 1977, Rs. 58,790 in 1990, Rs. 311,460 in 2000 to Rs. 2,808,535 Mn in 2016 and Rs. 3,509,058 Mn in 2018.

Further, investigating deeper into the determinants of domestic private investment behaviour in Sri Lanka is crucial for our understanding of how private investment is driven in the country, giving empirical guide for policy formulation.

The main objective of the study is to find the determinants of private investment in Sri Lanka. The objectives are to find out the impact of gross domestic product, government investment, and credit to private sector, interest rate, trade openness and exchange rate on private investment by using parametric and non-parametric tests. And also recommending policy initiatives and invaluable feedback for the design and implementation of stabilization policies to induce private investment in Sri Lanka.

Literature Review

The empirical literature on private investment behaviour is vast. For instance Ribeiro (2001) employs the Johansen (1988) multivariate co-integration technique and Engle-Granger Two Step approach to model private-sector investment in Brazil during the period 1956-1996. The findings – both the longterm equations and short-term models- reveal a positive impact of the output, public investment and financial variables and the negative effect of exchange rate.

Kodithuwakku et al (2016) studied about the factors affecting the private investment in Sri Lanka by using multiple regression model based on the secondary data covering from the period of 1975 to 2015. The study has revealed that real GDP growth, real exchange rate, inflation rate, budget deficit, foreign trade, foreign direct investment and liberalization factor were positively influenced the private investment.

Vergara (2004) empirically modelled the link between corporate tax reform and private investment performance of Chile in 1975-2003. The result confirmed that private investment is negatively affected by higher corporate tax rates. Furthermore, crowding-in effect of public investment was established while the investment climate, proxied by the lagged private investment was found to boost private sector investment in Chile.

In the case of Africa, Badawi (2004) investigated the impact of macroeconomic policies on private investment in Sudan employing annual data over the period 1969-1998. The focus was on public investment, credit, devaluation, and interest rate policies while blending co-integration, vector autoregressive (VAR) and error correction techniques to estimate the long and short run coefficients. The results suggested significant crowding-out effect of public investment on private investment in Sudan. Devaluation policies also contributed to discouraging private sector capital expansion. Monetary policy in the form of restricting domestic credit appeared to have had a significant impact on private investment. This was indicated by the positive impact of banking sector credit on private investment. Increasing real interest rates has been impacting negatively on private investment in Sudan.

Ronge and Kimuyu (1997) surveyed the determinants of private sector investment for Kenya using data over the period 1964-1996 and a double-log form of the investment equation was estimated using Ordinary Least Square. The results indicated that both the availability of credit and foreign exchange wields significantly

positive effects on private investment confirming the results in most empirical studies. Private investment however, was adversely affected by the stock of debt.

In the case of India, Athukorala (1998) demonstrates that through an empirical inquiry into interest rate, saving, and investment relationship covering the research period of 1955 to 1995 found out that higher real interest rates seemed to promote both the financial and total savings while stimulating private investment.

As far as real exchange rate is concerned, it has a favourable effect through FDI in China, Indonesia, Malaysia, Philippines, South Korea and Thailand (Dhakal and et al, 2010).

Suhendra and Anwar (2014) carried out a research study to find out the determinants of private investment and the effect of economic growth in Indonesia and the results show that the availability of investment financing in the form of investment loans has a positive and significant effect on private investment. They further said that the increase of banks' role in financing investment through bank loans to business or real sector investment would increase the level of investment and conclude that there was a positive relationship between the availability of debt finance for investment purposes and the growth of private investment.

Bader and Ibrahim (2010) using co-integration analysis tried to find out the impact of the interest rate on investment in Jordan and concluded that the impact of the real interest rate on investment is negative.

Seruvatu and Jayaraman (2001) in their survey on determinants of private investment in Fiji demonstrated that the significant factors hindering investment are largely policy-related issues. The foremost obstacles to promote the investment were government policy uncertainty, bureaucratic red tape, government regulations, finding skilled labor, volatile political situations, land issues, law and order instability, a lack of infrastructure, and high utility costs like water and electricity. The study on the determinants of private investment in Tanzania was done by Mushumbusi (2012) and revealed that credit to private sector, degree of openness of the economy, GDP growth and private investment lagged in one period are significant in explaining private investment at 5 percent level of significance, while lending rate and human capital both lagged in two periods are insignificant.

Akpalu (2002) used annual time series data from 1970 – 1994 to research variables on Private Investment, Public Investment, Real GDP, Consumer Price Index, Lending Rate, Credit to the private sector and GDP per capita to model the determinants of private investment employing the Engle-Granger Two Step procedure and the Johansen multivariate test. He found out that in relative terms private investment in the short-run responds more to the real per capita income growth, credit availability and public investment. Public investment was found to crowd-out private investment. There was also a significant negative relationship between cost of capital and private investment in both the short and long run. Further, a significant positive relationship between real GDP and private investment was found in both the short and long run models but was not significant in the short- run.

Asante (2000) employed the OLS approach to model private investment behaviour in Ghana using time series data over the period 1970 to 1992. He found out that there was positive public-private investment relationship which was significant at the 1% significance level suggesting a "crowding-in" effect of public investment on private investment thus confirming the theoretical hypothesis between the two variables. The

growth rate of real credit to the private sector also has a significant positive sign in all the trials. Further, the measure of macroeconomic instability has a negative in the trials and significant at the 1% level particularly inflation rate. Ibrahim (2000) utilised a vector error correction model within a restricted Vector Autoregressive (VAR) framework to model the long-run determinants of private investment using a dynamic optimisation approach. A significant positive relationship was found between mark-up, inventory of finished goods and real GDP whilst a significant negative relationship was found between the general price level, real cost of investment and private investment in Ghana in the long-run.

Thus the empirical studies explained various factors determining the private investment and this particular study is focused on relating the empirical evidence to the Sri Lankan experience.

Data and Methodology

Data – Sources and Description

The study employs secondary sources of data limited to the period 1978-2018 where six determinants of private investment are used to estimate the private investment models. The duration of the time series data is selected on the availability of most of the research variables and 1978 is the starting point after the liberalization of Sri Lankan economy. The data is drawn from the World Bank’s World Development Indicators and various annual reports of the Central Bank of Sri Lanka.

Model Specification

Based on the theoretical review and empirical considerations, the following basic eclectic functional model incorporating accelerator, neoclassical and uncertainty (macroeconomic and political) variables is posited for the study:

$$RPI = f(RGDP, RGI, RCRPS, RIR, ROPENNESS, RER).....(1)$$

- where RPI = Real Private Investment;
- RGDP = Real Gross Domestic Product
- RGI = Real Public (government) investment;
- RCRPS = Real Credit to Private Sector
- RIR = Real Interest Rate
- ROPENNESS = Real Trade Liberalization
- RER = Real Exchange Rate;

The explicit estimable econometric model is formulated as follows:

$$\ln RPI = \beta_0 + \beta_1 \ln RGDP_t + \beta_2 \ln RGI_t + \beta_3 \ln RCRPS_t + \beta_4 \ln RIR_t + \beta_5 \ln ROPENNESS_t + \beta_6 \ln RER + \varepsilon.....(2)$$

where all variables are as previously defined except μ_t , which represents the usual error term, t , is time and \ln denotes natural logarithm. Log transformation can reduce the problem of heteroskedasticity because it compresses the scale in which the variables are measured, thereby reducing a tenfold difference between

two values to a twofold difference (Gujarati, 1995). It is important to note that the model is a multiplicative one where all parameter coefficients represent constant elasticities.

Model Selection

Adjusted R^2 , the estimated F value, Durbin-Watson (DW) statistics and Variance inflating factor (VIF) for the model are presented in following Table.

Table 1: Model selection

Model	P	F	DW	VIF	Rsq. Adj
$RPI = \beta_0 + \beta_1 RGDP_t + \beta_2 RGI_t + \beta_3 RCRPS_t + \beta_4 RIR_t + \beta_5 ROOPENNESS_t + \beta_6 RER + \varepsilon$	0.0000	847.17	1.3224	5.63 – 8.89	99.22%
$RPI = \beta_0 + \beta_1 \ln RGDP_t + \beta_2 \ln RGI_t + \beta_3 \ln RCRPS_t + \beta_4 \ln RIR_t + \beta_5 \ln ROOPENNESS_t + \beta_6 \ln RER + \varepsilon$	0.0000	270.24	1.0473	5.52- 9.98	97.58%
$\ln RPI = \beta_0 + \beta_1 \ln RGDP_t + \beta_2 \ln RGI_t + \beta_3 \ln RCRPS_t + \beta_4 \ln RIR_t + \beta_5 \ln ROOPENNESS_t + \beta_6 \ln RER + \varepsilon$	0.0000	391.88	0.9254	4.36-7.63	98.32%
$\ln RPI = \beta_0 + \beta_1 \ln RGDP_t + \beta_2 \ln RGI_t + \beta_3 \ln RCRPS_t + \beta_4 \ln RIR_t + \beta_5 \ln ROOPENNESS_t + \beta_6 \ln RER + AR(1) + \varepsilon$	0.0000	391.38	1.7885	3.19– 5.91	98.73%
$\ln RPI = \beta_0 + \beta_1 RGDP_t + \beta_2 RGI_t + \beta_3 RCRPS_t + \beta_4 RIR_t + \beta_5 ROOPENNESS_t + \beta_6 RER + \varepsilon$	0.0000	197.06	0.8594	5.63 – 8.89	96.71%

According to the above table, VIF is less than 10 in four models. Further, the adjusted R^2 is also very high in all models. The probability for the estimated 'P' value are also significant in all models. However, according to the results of Durbin – Watson 'd' statistics, autocorrelation problem does not exist in real Log-Log model. Therefore, real Log-Log model is selected to find out the determinants of private investment in Sri Lanka.

Theoretical and Hypotheses Developments

Gross Domestic Product: Oshikoya (1994) showed that the changes in Gross Domestic Product are the most important determinant of private investment. According to the Neoclassical investment theory, the growth rate of real output is positively related to investment as the changes in aggregate demand for output that investors seek to meet (Chirinko, 1993; Ndikumana, 2000). Aggregate demand conditions in an economy are measured through real GDP and the GDP is expected to have a positive effect on private investment.

Public investment: public investment is considered as a crucial factor in determine the private investment. There are debates on the nexus between the private and public investments. Public investment may have positive impact on private investment (crowding-in) or negative (crowding-out). Public investment in infrastructure development provides an incentive for further investment by the private sector. An increase in

the public capital expenditure is expected to raise the level of private sector output of goods and services directly in some cases, public capital and private factors of production may be complementary inputs. When the stock of capital increases, the productivity of private factors of production it would generate increased demand for labour and private capital and investment goods. Aschauer (1989) shows that the public investment in physical infrastructure plays an important role in stimulating private investment.

Private Sector Credit: Olowofeso *et al* (2015) showed that the private sector credit refers to the financial resources provided to the private sector by means of loans and advances, purchases of non-equity securities, trade credits and other accounts receivables, which establish a claim for repayment. There is a positive relationship between the volume of credit to the private sector and the investment activity among developing countries (Oshikoya, 1994; Ndikumana, 2000).

Interest rate: according to Kwak (2002), the interest rate is the price that relates to present claims on resources to future claims on resources; the price a borrower pays in order to consume resources now. When the capital investment decision is taken, the firms used to compare the expected rate of return with the interest rate. Therefore, the volume of investment and rate of interest tend to have an effect in investment decisions. The impact of interest on private investment is ambiguous where it can have positive or negative impact on private investment. Agrawal (2001) says that the McKinnon-Shaw hypothesis states that interest rates affect private investment positively. But according to the Ndikumana (2000), the real rate of interests are expected to have negative effect on private investment as the higher interest rates cause the increase of cost of capital thus reduce the private investment.

Trade Openness: trade liberalization provide opportunities for exporters by reducing trade barriers and thus improves the investment receipts and trade account balance. At the same time for importers, openness makes the availability of quality inputs with enhanced Further, with import opportunities, the available quality and supply of inputs to production increases with increased attractiveness and production efficiency. Naa-Idar *et al* (2012) found that the trade openness has positive impact on the investment in Ghana. On the contrary in Ghana, Frimpong and Marbuah (2010) found that the trade openness has negative impact on private investment since the trade liberalization leads to rise in the international completion of domestic private investor.

Real Exchange Rate: the impact of real exchange rate in private investment is debatable as it can have positive or negative impact. It affects the cost of imports. During the period of currency devaluation, the cost of purchasing the imported capital goods increases and thereby it reduces the profit available to the private sector. Currency devaluation reduces the exports proceeds and reduces the productive capacity and business activity levels. The currency devaluation can have positive impact on the sectors producing internationally traded goods via increasing volume and competitiveness. Exchange rate depreciation

increases profitability in export oriented firms and thus promotes private investment. At the same time, exchange rate depreciation increases the cost of imports and cost of production and thus investment on sectors which depend on imported goods decreases.

Therefore, the study tested the following hypotheses in order to analyse the determinants of private investment.

H 1: Gross Domestic Product has a positive impact on private investment.

H 2: Public investment positively influence private investment.

H 3: Interest rate has a negative impact on Private investment.

H 4: Credit to Private Sector savings have a positive impact on private investment.

H 5: Trade Openness relate positively to private investment;

H 6: Exchange rate has positive impact on private investment;

Empirical Results and Discussions

Non-parametric tests

Figure 2 and 3 are the plot of the cumulative sum (CUSUM) and the cumulative sum of squares (CUSUMSQ) from baseline specification against the critical bound of the 5 per cent level of significance show that the model specification is acceptable.

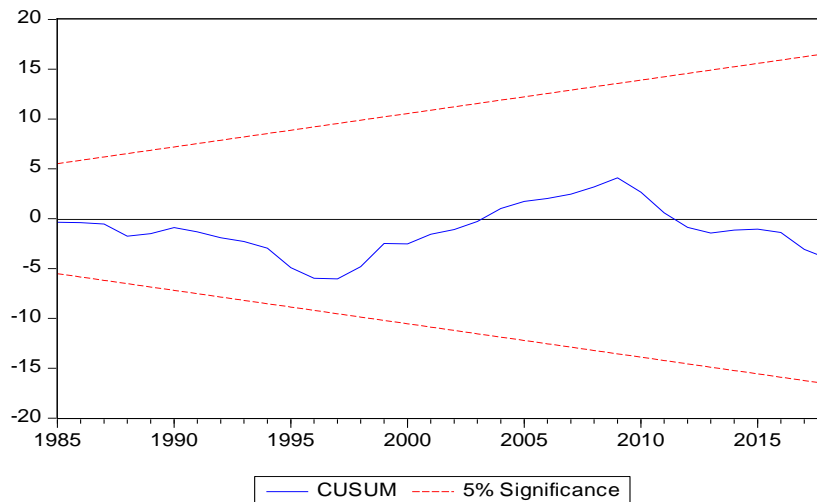


Figure 2: CUSUM test

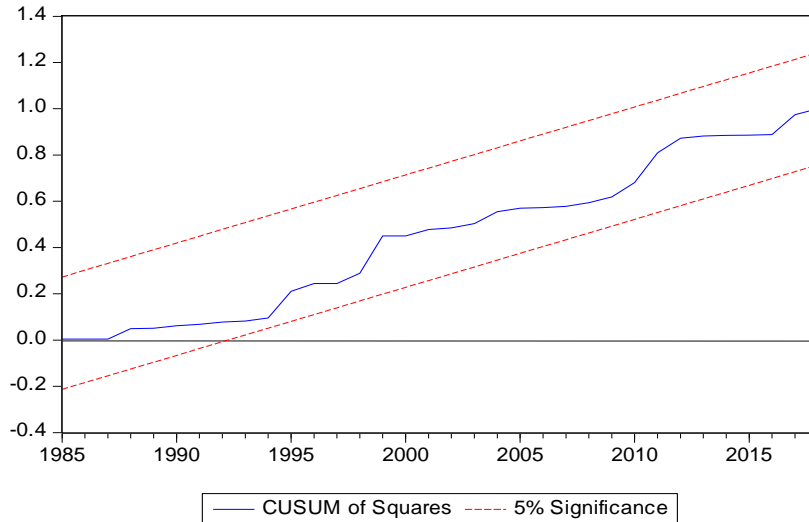


Figure 3: Cumulative Sum of Squares (CUSUMSQ)

Trend of research variable over the research period with Kernel Fit and Confidence Ellipse.

The figures 4 to 9 are the graphically presentation of data which are very useful to identify the trend and underlying relationship of dependent and independent variables of the study. The confidence ellipse with Kernel fit show movement of research variables with private investment.

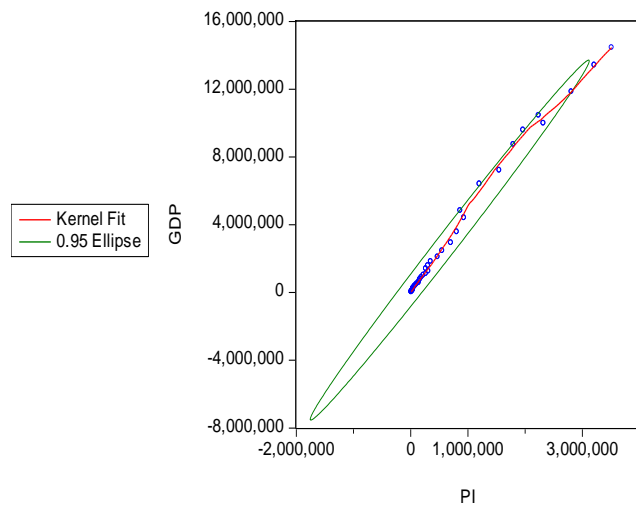


Figure 4: Private Investment and GDP

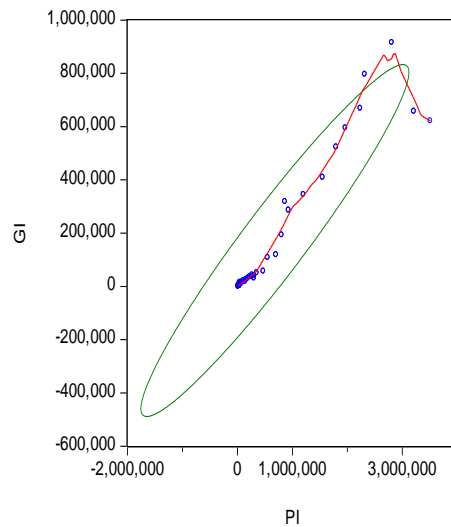


Figure 5: PI and Gov. Investment

The above figure graphical presentation of data is very useful to identify the trend and underlying relationship between the Private investment with gross domestic product (GDP) and Government investment. The confidence ellipse with Kernel fit show that there is positive relationship of Private investment with GDP and Government investment.

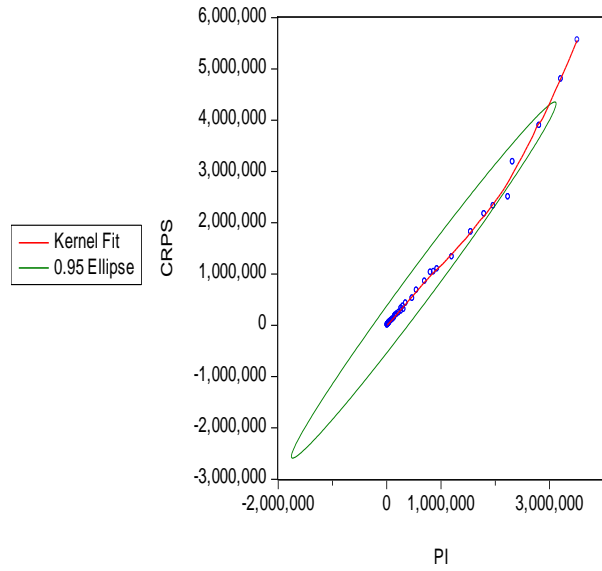


Figure 6: PI and Credit to private sector

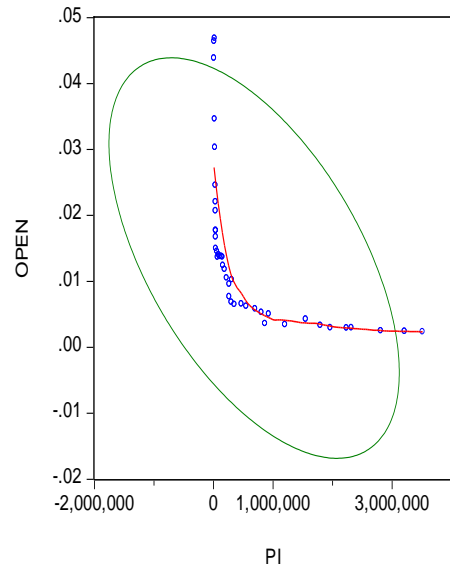


Figure 7: PI and Trade Openness

The confidence ellipse with Kernel fit in figures 6 and 7 show that there is positive relationship of Private investment with credit to private sector (CRPS) and trade openness (OPEN).

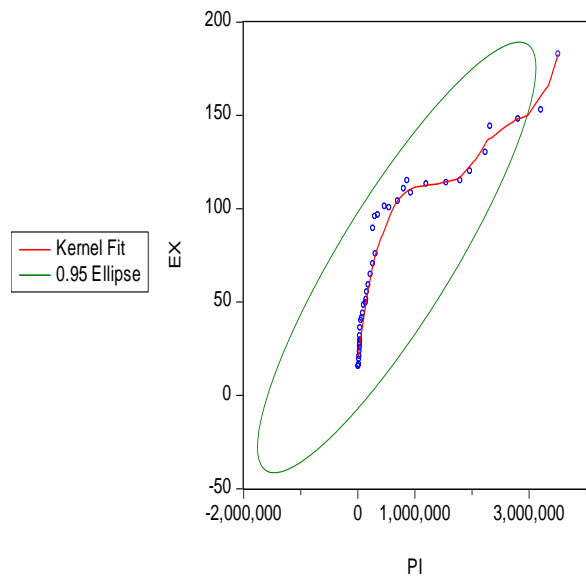


Figure 8: PI and Exchange Rate

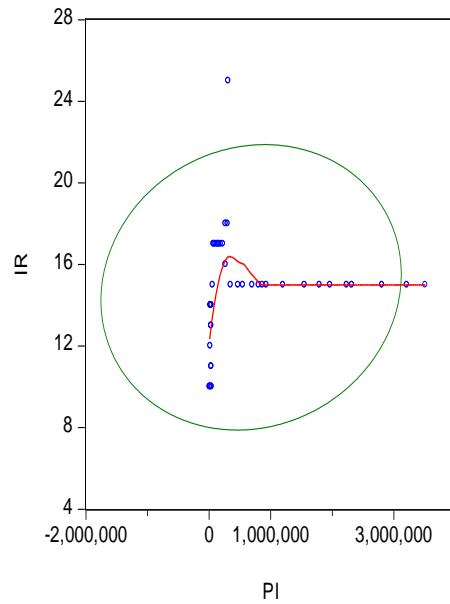


Figure 9: PI and Interest Rate

The confidence ellipse with Kernel fit figure 8 shows that there is negative correlation between the private investment and exchange rate (EX) while interest (IR) has positive but is not strategically significant.

Stationary Test Results

The table below reports the unit root tests.

Table 2: Results of the Unit Root Tests

Variables		ADF		
		Test Statistic		
		Constant	Constant + Trend	Order of integration
lnRPI	Level	-0.5491	-2.5861	
	1 st Difference	-6.061***	-6.0168***	I (1)
lnRGDP	Level	0.2726	-1.7844	
	1 st Difference	-7.2296***	-7.1866***	I (1)
lnRGI	Level	-1.5480	-2.8310	
	1 st Difference	-7.1722***	-7.1866***	I (1)
lnRDC	Level	0.9365	-1.3275	
	1 st Difference	-5.4289***	-5.5098***	I (1)
lnROPEN	Level	-1.7088	-2.5203	
	1 st Difference	-4.9665***	-5.6474***	I (1)
lnREX	Level	-1.7959	-3.8363*	
	1 st Difference	-4.6564***	-4.6817***	I (1)
lnRIR	Level	-0.5215	-2.8867	
	1 st Difference	-8.4570***	-8.3529***	I (1)

Notes: The null hypothesis is that the series is non-stationary, or contains a unit root. ***, **, * denotes the rejection of null hypothesis of unit root at the 1%, 5% and 10% significance levels respectively. Test statistics for ADF with simulated critical values from MacKinnon (1996). The lag length in the ADF test is based on the Schwarz Info Criterion (SIC). All results are obtained from Eviews 9 econometric package.

Co-integration Results

Results of the bounds test procedure for co-integration analysis between real private investment and its determinants are presented in the table below.

Table 3: Bounds Test for Cointegration Relationship

Null Hypothesis: RESID01 has a unit root		
Exogenous: Constant		
Lag Length: 1 (Automatic - based on SIC, maxlag=9)		
	Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.643983	0.0092***

Test critical vlues:	% level	-3.610453
	5% level	-2.938987
	10% level	2.607932

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RESID01)

Method: Least Squares

Date: 08/15/19 Time: 21:14

Sample (adjusted): 1980 2018

Included observations: 39 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID01(-1)	-0.560911	0.153928	-3.643983	0.0008
D(RESID01(-1))	0.251465	.153190	1.641524	.1094
C	.88E-06	0.010344	.000472	.9996
R-squared	0.269796	Mean dependent var		-0.002612
Adjusted R-squared	0.229229	S.D. dependent var		.073399
S.E. of regression	0.064440	Akaike info criterion		-2.57236
Sum squared resid	0.149489	Schwarz criterion		-2.44440
Log likelihood	3.16118	Hannan-Quinn criter.		-2.526455
F-statistic	6.650652	Durbin-Watson stat		2.066506
Prob(F-statistic)	0.003483			

Note: ***denotes statistical significance at the 1% level. k is the number of regressors.

From Table 3 above, the F-statistic that the joint null hypothesis of lagged level variables of the coefficients are zero is rejected at the 1% significance level. This result indicates that there is a unique cointegration relationship among the research variables in Sri Lanka's private sector investment model when real private investment is normalized, and that all the determinants of real private investment can be treated as the "long-run forcing" variables for the explanation of real private investment in Sri Lanka.

Results of Private Investment model in Sri Lanka

Since real private investment and its determinants are co-integrated, the results presented in the table below. The long-run ARDL model was estimated based on the Akaike Information Criterion (AIC) using a lag of one given the annual nature and relatively short sample properties of the data.

Table 4: Estimated Long-Run Coefficients using the ARDL Approach

Variable	Coefficient	t Value	Probability (p)
β_0 (Intercept)	-3.399171	-9.88939	0.0000
Gross Domestic Product (GDP)	0.880793	3.039848	0.0046***
Government Investment(GI)	0.132008	-2.406690	0.0219**
Credit to Private Sector (CRPS)	0.662998	4.528055	0.0001***
Trade Openness	0.224229	2.863939	0.0072***
Exchange Rate(EX)	-0.640124	-2.910925	0.0064***
Interest Rate (IR)	0.138741	1.207375	0.2359

R-Sq(adj) = 98.77%, F Statistic 461.4257, Prob (F-statistic) 0.00000***

Note: *** (**) denotes significance at 1% (5%) levels respectively.

Based on the above table, the estimated Long-Run coefficients using the ARDL can be written as follows:

$$PI_t = -3.399171 + .880793GDP + .132008GI + .662998CRPS + .224229OPEN - .640124EX + .138741IR + \mu_t$$

In the case of Sri Lanka, the results confirm that there is a significant accelerator theory effect on private investment during the period of 1978-2018 at the aggregate level. It means that the long-run increase in the aggregate demand conditions have the potential to stimulate the private investment in Sri Lanka. Results shows that the coefficient of real GDP is statistically significant at the 1 percent level which indicates that if the country were to increase her GDP by 1 percent, real private investment will increase by 0.88 percent. Finding confirms the empirical studies by Akpalu (2002), Ibrahim (2000), Asante (2000), Kodithuwakku *et al* (2016), Outtarra (2005), among other studies.

As per the results, the impact of public investment ratio has a positive coefficient confirming a possible crowding-in effect of government investment. That is, 1% increase in public investment will increase by 0.132%. Public investment is strategically significant variable in determining the impact of private investment in Sri Lanka. Public investment is significant at 5% confidence level. Therefore, public investment has positively correlate and causes crowding – in impact on private investment.

Credit to the private sector is positive as predicted and is strategically significant at 1%. Coefficient of credit to the private sector has 0.663 which means that 1% increase in the credit to the private sector would increase the private investment by 0.663%. The findings confirm the literature (Oshikoya, 1994; Ndikumana, 2000).

Though the interest has positive coefficient on private investment but it is not strategically significant. It confirms the literature (Agrawal, 2001) where the interest rate has positive impact on private investment. The reasonable level of savings increases the savings and thus leads to rise in investment.

Trade openness is a significant variable which has favorable effect on private investment in Sri Lanka. The openness has coefficient of 0.224 on private investment and 1% increase in openness will lead to an increase of 0.224%. Openness is strategically significant at 1%. Exchange rate is a significant variable since it is significant at 1%. But it has a negative correlation coefficient with private investment in Sri Lanka. Continuous depreciation of rupee has curbed private investment of the exporters who were heavily depend on imported raw materials.

Conclusions

The purpose of this research was to identify the determinants of private investment in Sri Lanka and this research identify research variables such as gross domestic product, public investment, trade openness, interest rate, exchange rate and credit to the private sector. The empirical results shows that gross domestic product, public investment, trade openness, interest rate and credit to the private sector have positive impact while exchange rate has negative impact. However, the interest rate variable is not strategically significant. The results shows that public investment crowding-in private investment at insignificant level. But the government should take initiatives to regulate institutional framework through effective policy stands to create investment friendly environment in the economy. And it is essential for the government to allocate and prioritize public projects via investing in infrastructure and human capital to boost private sector investment performances in Sri Lanka.

References

- Agrawal P. (2001), "Interest Rates and Investment in Asia: an Empirical Evaluation of Various Financial Liberalization Hypotheses", *Journal of political economy*, vol 3, May pg 1-31
- Agu, O.C. 2015. "Determinants of private investment in Nigeria—An econometric analysis", *International Journal of Economics, Commerce and Management*, III(4), 2-14
- Akpalu, W., (2002): "Modelling Private Investment in Ghana: An Empirical Time Series Econometrics Investigation (1970-1994)," *The Oguua Journal of Social Sciences*, Vol. 4, Faculty of Social Sciences, University of Cape Coast.
- Asante, Y., (2000): "Determinants of Private Investment Behaviour," AERC Research Paper No. 100, Nairobi: AERC.
- Aschauer, D.A. (1989). "Does pubic capital crowed out private capital?", *Journal of Monetary Economics*, 24, 171-88.
- Athukorala, P. C. (1998). "Interest Rates, Saving, and Investment: Evidence from India", *Oxford Development Studies*, 26(2), pp. 153-169.
- Badawi, A., (2004): "Private Capital Formation and Macroeconomic Policies in Sudan: Application of a Simple Cointegrated Vector Autoregressive Model", Department of Economics, University of Khartoum.

- Bader, M. & Ibrahim, M.A. 2010. "The impact of interest rate on investment in Jordan: a cointegration analysis", *Journal of King Abdul Aziz University: Economics and Administration*. 24(1), 199-209
- Blomstrom M., Lipsey R.E, and Zejan M. (1992), "What Explains Developing Country Growth?", *National Bureau of Economic Research Working Paper*, vol 9, February, pg 4132
- Chirinko, R.S. 1993. "Business fixed investment spending: Modelling strategies, empirical results, and policy implications", *Journal of Econometric Literature*, 31, 1875-1911
- Dhakal, D., Nag, R., Pradhan, G., & Upadhyaya, K. P. (2010). "Exchange rate volatility and foreign direct investment: Evidence from East Asian countries", *The International Business & Economics Research Journal*, 9(7), 121
- Frimpong, J.M. & Marbuah, G. 2010. "The determinants of private sector investment in Ghana: An ARDL approach", *European Journal of Social Science*, 15(2), 250-261.
- Ibrahim, S.B., (2000): "Modelling the Determinants of Private Investment in Ghana", *The African Finance Journal*, 2(2). pp. 15-39.
- Indra Suhendra and Cep Jandi Anwar 2014, "Determinants of Private Investment and the Effects on Economic Growth in Indonesia", *GSTF International Journal on Business Review (GBR)*, 3(3), June 2014.
- Johansen, S., (1988): "Statistical Analysis of Co-integration Vectors", *Journal of Economic Dynamics and Control*, 12, pp. 23 1-254.
- Kodithuwakku.D.S, Jayawardana.Y.W, Jayawardhana.M.N, Muhandiramage. K.M.R.R, & Dulani. K.P.K, (2016), "Study on the Factors Affecting Private Investment in Sri Lanka", *Journal of Social Statistics*. Pp 22-33
- Kumo, W.L (2006). "Macroeconomic uncertainty and aggregate private investment in South Africa", *South African Journal of Economics*, 74(2): 190-204.
- Naa-Idar, F., Ayentimi, D.T. & Frimpong, J.M. 2012. "Time series analysis of determinants of private investment in Ghana (1960-2010)", *Journal of Economics and Sustainable Development*, 3(13).
- Ndikumana, L. 2000. "Financial determinants of domestic investment in Sub- Saharan Africa: Evidence from Panel Data", *World Development*, 28(2), 38140.
- Olowofeso, E.O., Adeleke, A.O., and Udoji, A.O (2015). "Impact of private sector credit on macroeconomic growth in Nigeria", *CBN Journal of Applied Statistics*, 6 (2): 81-101
- Oshikoya, T.W. 1994. "Macroeconomic determinants of domestic private investment in Africa: An empirical analysis", *Journal of Economic Development and Cultural Change*, 42(3), 573-596.
- Ouattara, B., (2005): "Modelling the Long Run Determinants of Private Investment in Senegal", *CREDIT Research Paper*, Centre for Research in Economic Development and International Trade, University of Nottingham, No. 04.
- Ribeiro, M.B., (2001): "An Econometric Analysis of Private-Sector Investment in Brazil," *CEPAL Review* 74, 153-166.

- Ronge, E. E., and P.K. Kimuyu, (1997): "Private Investment in Kenya: Trends, Composition and Determinants", IPAR. Mimeograph.
- Seruvatu, E. & Jayaraman, T.K. 2001. "Determinants of private investment in Fiji", Suva: Reserve Bank of Fiji
- Vergara, R., (2004): "Taxation and Private Investment Evidence for Chile", First draft, Economics Department, Universidad Catolica de Chile.