Empirical analysis of non economic determinants of private investment in Pakistan (1969-2016)

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Abstract. Private and public investment has own contribution to the growth process of an economy. Private investment is very crucial for economic growth and poverty reduction. Whereas, public investment contributes positively to economic growth through enhancing the productivity of private investment (Ang, 2009). Various empirical studies in developing countries showed that economies led by the private sector achieved better economic performance than the one led by the state. Pakistan has a very sluggish growth in private sector which is a major cause of slow economic growth in the country. So, it is very important to explore the factors which can stimulate the private sector investment in Pakistan. Therefore, this research is designed to find out major non economic determinants which can stimulate or hinder the private investment in Pakistan. Studies on non economic determinants are not sufficient in Pakistan so this study will fill the Gap. In this study for estimation, ARDL approach was applied on time series secondary data (i.e. from 1969 to 2016). The empirical evidence confirms that there exists a long run relationship exist between dependent and independent variables in the model. Furthermore, in the long run, corruption, political instability and violence have significantly negative impact on private investment. Results also suggested that in the short run, the disequilibrium is rapidly adjusted. Based on study results, it is recommended that policy makers develop more effective policies of good governance to improve the private investment.

Keywords. Private investment, Corruption, Political instability, Violence, Time series data, Pakistan.

JEL. D72, D73, E20, E22.

1. Introduction

Investment is the amount spent by businesses to add to the stock of capital over a given period of time. According to Vaish (1976) "net investment involves addition to the economy's total capital stock". There are two main kinds of investment, which are public investment and private investment and both have their marginal productivity. Private investment is investment by businesses and financial institutions rather than by a government (Abel & Bernanke, 1967). Private investment is very crucial for economic growth and poverty reduction in a country. Private sector investment can play an important role to boost the weak and unstable economy of a country. Private investment provides more employment opportunities, enhance per capita income and suppose to be a good source of

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revenue therefore, it is very important for an economy to increase the investment in the private sector. A country like Pakistan, with retarded economic growth and stunted development, direly needs sufficient Private investment. Pakistan is also rich in natural resource and can be attractive place for investors. According to BOI (2010) "Pakistan is a land abundant in business opportunities for investors awaiting eager exploration of markets as well as identifying and mitigating inherent business risks" [Retrieved from]. However, private sector investment is inadequate in many developing countries like Pakistan.
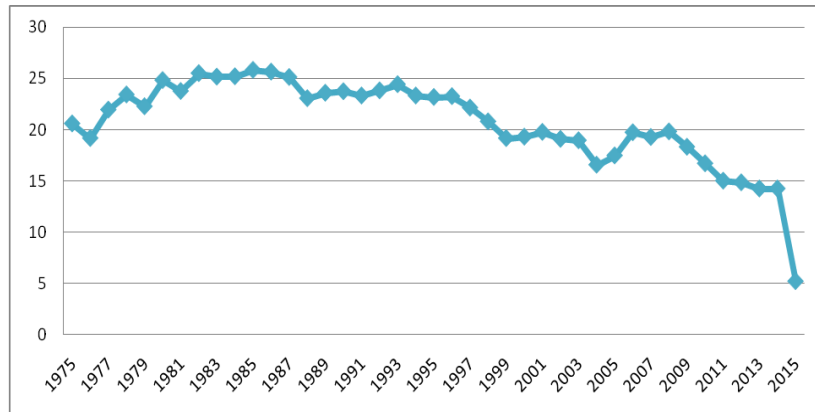
Figure 1. *Trends of Private Investment in Pakistan*
Data Source: World Bank Official Website 2016. [Retrieved from].

Figure 1 shows unsustainable trend of private investment in Pakistan during the mentioned years (i.e. from 1975 to 2015). In 1970s, due to Nationalization Policy, civil war and high oil prices, private investment in Pakistan remained low and unsustainable. During 1993 to 1999, private investment trend further decreases, which is mainly caused by political instability, distorted price signals, traditional production technologies in agricultural sector and brain drain of manpower. Figure 1 also indicates that during 2000s private investment in Pakistan did not significantly increase. The key factors of that slump are bomb blasts in the country, global violence, judicial entanglement, assassination of Benazir Bhutto, uncertainty in international oil and food prices, slow down of capital flows, rise in current account and fiscal deficit, extra ordinary price increase and weaker rupee /dollar, withdraw of subsidies to major sector of economy, low level of growth rate of GDP etc. Whereas, during the mentioned period of time, private investment in Pakistan slightly increased in some years, which is mainly due to denationalization policy, Economic Reforms, Privatization Act 2000, establishment of the Board of Investment, the Insurance Act 2001 and monetary expansion.

On the one hand, private investment can play a significant role in the economic growth & development of the state. On other hand, sustainable economic development can play an important role in enhancing private investment. However, in Pakistan p*rivate* investment trend decreased due to many non economic factors. In developing countries, the analysis of private investment is difficult. Public investment is determined by the state whereas, private investment is not directly controlled by government and it is hard to discover its determinants. In this connection, the present study is designed to explore the non economic determinants of private investment in Pakistan. This study is based on time series data and findings of this study can help to formulate polices for enhancing private investment in Pakistan.

The above facts and reasons of increasing and declining of private investment in Pakistan are taken from various studies including Naqvi (2003), Hyder & Massod (2009), ADP Report (2008), Economic Survey of Pakistan (1993-94), Economic Survey of Pakistan (2007-2008), Economic Survey of Pakistan (2011-2010), Investment In Pakistan KJMP (2010), Aijaz & Ellahi (2012).

2. Literature review

Both economic and non economic factors are important for understanding the economic activity of any country. Non- economic factors are as much important in development as economic factors, These factors have directly or indirectly effects on the economy of country, there are many studies about the economic determinants of private investment where as there are limited studies which focus on non economic determinants of private investment. Existing literature on non economic factors are given below.

Research conducted by Gharagoz (2013) is also a major contribution in literature. Researcher defined the many types of corruption in Pakistan, for example family based relationship, using the power in cabinet for friends or family, illegal payment (bribe) to facilitate the works, payment to obtain permission for import and export. Researcher also explored that these all corruption effects negatively on domestic private investment. Political instability is the main determinants of investment because it is directly or indirectly related to the surroundings of investment decision; one of researcher named Carmignani (1999) conducted the empirical research on the fiscal policy and growth rate with relationship of breakup of politics. Results indicates the political breakup significantly impact on growth and fiscal policies of country in China.

The study conducted by Bengoa, & Sanchez-Robles (2003) indicated that violence has negative impact on FDI inflows. Important empirical study conducted by Wei (1997) on East Asia indicates that different corruption regime have different effects on investment, while in Asia corruption is not only one factor to volatile the investment but other factors also effect investment. Another working paper by Dearden (2000) on the impact of corruption on the private investment in developing countries suggested that corruption is the cause of low quality of public investment which also reduces the private investment.

Another study on the political instability and private investment investigated by Busari *et al.,* (2007) indicates that political instability have no significant impact on private investment in Nigeria. Shabir (2012) indicates that corruption is negatively correlated with indicators of economic freedom. Study conducted by Hussan (2013) contributed in literature that political stability can be cause of corruption in country due to barriers in press freedom, freedom of religion also. And he also mentioned that competition is not only for business but it is also important for politics. Javed *et al.,* (2000) conducted research on the FDI and its relationship with violence in 2015, studies results indicated that due to political violence and bad law and order situation, investors are indecisive to invest in country because they are not sure about the positive return of their capital assets.

3. Methodology and data sources

The primary objective of this study is to determine the impact of non economic factor on private investment in Pakistan. This study has taken time series annual data of 20 years from 1996 to 2016. Data collected from World Bank Official Website, 2016. Eviews 9 and MS-Excel were used to analyze the data and to present the findings.The time series properties of data were examined by using Augmented Dickey Fuller (ADF) unit root test, and the order of integration of all the variables was determined. ARDL method was introduced by Pearson *et al.,* (2001). The ARDL bound test does not require variables to be integrated of the same order, that is, they can be either I(0) or I(1) and in same estimation both long run and short run co integration analysis can be done (Gujarati, & Porter, 2009). Therefore, this approach can be used to test for both long run and short run dynamics of private investment. Before estimating ARDL model, it is necessary to check the long run relationship between the variables by applying bound testing procedure. If calculated value of F-statistics becomes greater than upper bound values, it confirms that variables have a long run co-integration and ARDL can be applied for estimation.

To check the validity and specification of the model, different diagnostic tests are applied, which are Lagrange Multiplier (LM) test for serial co relation, White (1980) test to check the hetroskedasticity, Jaruqe Bera for normal distribution of residuals and Cumulative Sum (CUSUM) test for specification of model[1].

4. Empirical findings

Results of unit root test presented in table 1, indicate that the variable, voice and accountability become stationary at Level 1(0) while, private investment, political instability, corruption and rule of law becomes stationary at first difference 1(1).

Table 1. *Augmented Dicky Fuller (ADF) test Results*

Variables	At Level		At First Difference	
	Constant	Constant & Trend	Constant	Constant & Trend
Private investment	-2.553522 (0.1187)	-2.531041 (0.3114)	-4.615101 (0.0020)	-4.502960 (0.0106)
Corruption	-3.270725 (0.0313)	-3.147892 (0.1241)	-4.222398 (0.0044)	-4.184760 (0.0194)
Political instability	-1.233298 (0.6386)	-1.039391 (0.9147)	-3.764815 (0.0115)	-3.887870 (0.0338)
RL(Violence)	-3.877074 (0.0091)	-4.161925 (0.0203)	-	-
V/A	-2.335320 (0.1719)	-2.859117 (0.1957)	-3.358406 (0.0263)	-3.658117 (0.0514)

Data Source: World Bank Official Website 2016. [Retrieved from].
Note: Values in parentheses ( ) Indicates probabilities and * indicates probability is < 5%. Lag lengths are determined by the Akakike Information Criterion with maximum number of 2 lags.

Bound test is used to ensure the existence of long run relationship between variables. Table 2 shows the result of bound test and LB specifies the lower bound and UB upper bound critical values respectively. Model is estimated with four explanatory variables. The result shows that the F-statistics value is higher than the upper bound value of Pesaran table. Hence, according to (Pearson *et al.,* 2001) if F-stat>UB, it means that a long run relationship exists between the variables. So now we can analyze the short run and long run relationship using ARDL model.

Table 2. *Bound Testing Results*

F-Statistics	Significant level	Bound Critical Values	
		Lower Bound	Upper Bound
4.211625			
	5%	2.86	4.01
	2.5%	3.25	4.49
	1%	3.74	5.06

Data Source: World Bank Official Website 2016. [Retrieved fom].

Table 3 shows results of long run analysis. The value of R-squared (i.e. 0.81797) implies that about 98 percent of the variations in private investment is explained by the selected independent variables. Furthermore, Value of R^2 also indicates that the model is a good fit. Whereas, significant value of F-Statistics indicates that the equation as whole is statistically significant.

Table 3. *Summary of ARDL Long Run Model*

Statistical Measures	Results
R-Square	0.817972
Adjusted R^2	0.590437
F-Statistics	3.594927 (0.041255)

Data Source: World Bank Official Website 2016. [Retrieved fom].

The long run co-integration result presented in table 4 reveals that, all variables have insignificant impact on private investment in long run in Pakistan.

Table 4. *Long Run Results*

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PS	0.585697	0.835420	0.701081	0.5031
COR	-0.540397	1.393508	-0.387796	0.7083
VA	-1.841117	1.111769	-1.656025	0.1363
RL	-3.439695	1.685630	-2.040599	0.0756
C	139.190850	60.570017	2.298016	0.0506

"The negative and significant value of co-integration equation confirms the existence of co integration and also reports the speed of adjustment from short run equilibrium to long run equilibrium" (Hall, 2007). Negative and significant value of co-integration equation i.e. -0.633785 presented in table 5 confirms the existence of co-integration and indicates that the adjustment process is very fast. Corruption and voice and accountability effect significantly and positive impact on private investment in short run.

Table 5. *Short Run Results*

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(PS)	0.371206	0.549313	0.675765	0.5182
D(CC)	1.298070	0.528335	2.456908	0.0395
D(CC(-1))	1.549888	0.554596	2.794624	0.0234
D(RL)	-0.887326	0.773478	-1.147189	0.2845
D(VA)	-0.094662	0.684158	-0.138362	0.8934
D(VA(-1))	1.718930	0.548957	3.131267	0.0140
CointEq(-1)	-0.633785	0.201383	-3.147156	0.0137

Table 6 indicates the results of diagnostic tests. The insignificant values of White test and LM test prove the absence of heteroskadasticity and autocorrelation respectively, in this analysis. Furthermore, insignificant value of Jarque Bera test proved that residuals are normally distributed and Model is specified. Statistical value of Durbin-Watson (i.e. 1.98) indicates that model fulfills the requirements of good model without any numerical error.

Table 6. *Diagnostic Tests Results*

Diagnostic Tests	Results
Breusch-Godfrey Serial Correlation LM Test	0.944434 (0.4400)
Breusch-Pagan-Godfrey Heteroskedasticity Test	0.165461(0.9948)
White Heteroskedasticity Test:	0.237211(0.9813)
Jarque Bera	2.299
DW –Statistics	2.293785

To test for model misspecification and for the stability of the ARDL model, cumulative sum (CUSUM) is used. If the plotted CUSUM line graph remains inside the 5 percent significance level then it is concluded that the model is correctly specified. Otherwise, the model is misspecified. Figure 2 and 3 clearly shows the evidence that the critical lies under the 5 percent level of significance. This indicates that the model is stable.
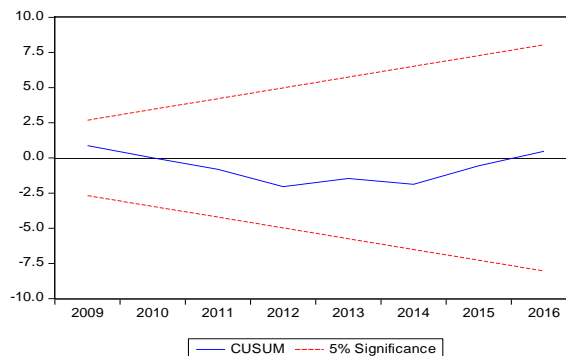
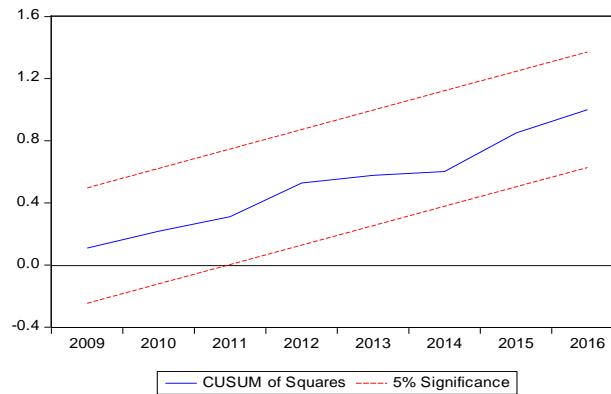**Figure 2.** *Cumulative Sum of Recursive Residuals (CUSUM)*

Figure 3. *CUSUM of Squares Stability Test*

5. Conclusions and recommendations

Private investment is not significantly increasing in Pakistan. The causes of slow growth in private investment are its determinants which have negative impact on private investment. Co-integration results of the study reveal that there is a long run relationship between dependent and independent variables. Results show the insignificant impact of all variables on private investment in the long run This indicative that in long run political instability, violence and rule of law and voice and accountability have no significant impact but private investment is effecting by other economic factors such as GDP, exchange rate, inflation etc. however in short run corruption and voice/accountability have positive significant impact shows that due to inefficient bureaucracies and organizations, peoples get help from corruption for example through bribes firms get faster and better service, which can improve the private investment in short run, but corruption in all means have negative impact on economic growth which destroy country in shape of poverty, slow economic growth, less developed sectors. ECM outcomes confirm quick speed of convergence towards equilibrium if disequilibrium shock come outs.

It is suggested, therefore, that it is necessary for policy makers to have proper macroeconomic stability in the economy. This will undoubtedly improve private investment in Pakistan. For sufficient economic growth and sustainability of Pakistan's economy, study suggests that the government should transform the local industries and provide basic infrastructure for production of goods and services. Rate of interest and inflation should be kept at stable level because macro economic uncertainties hurt private investment in Pakistan. More effective initiatives should be adopted to motivate society towards investment. Non development expenditure in Pakistan is more than the development expenditure which is also a major cause of slow economic growth in Pakistan. Therefore, it is recommended that Government of Pakistan should adopt the policy to increase the development expenditures. Current issues on corruption, war and rule of law capture more attention in Pakistan but instead of these factors policy makers should have focus on macroeconomic stability in country. This research significantly contributes in literature; further this research will help policy makers while making policy for private investment that in long run non economic factors have no large impact on private investment in Pakistan, so macroeconomic stability is important for country. On the other side it is also very important that government should improve and transparent all organizations system to cracking the legal works of firms or individual for their business.

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