

The Significant Determinants of Private Investment: A Case Study of Pakistan (1972-2013)

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Abstract: This study has made an attempt to investigate the significant determinants of private investment in Pakistan during the time span of 43 years, from 1973 to 2013. We have use ARDL technique for the estimation of results. It has been observed in this study that real gross domestic product, real exchange rate, public investment and credit to private sector are the significant determinants of private investment and the enhancements in these variables has increased private investment in Pakistan. It has also been observed that financial development, real exchange rate and external debt have negative relation with private investment in Pakistan. We have also suggested in this study that government may consider these significant determinants to enhance private investment in Pakistan.

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Key words: Private Investment • Real Gross Domestic Product • Augmented Dickey Fuller

INTRODUCTION

All the policy makers throughout the world are very much concern about the tendency and the time duration of a business cycle particularly in recession and generally in normal state of economy. Investment has a crucial role in growth of economy; especially investment has a significant role in both short and long run performance of economies. As it is one of the components of the aggregate demand, it is also considered as an important source for the long run growth of economy. The existing literature reveals that the investment in capital goods is one of most important and significant in determinants of growth (see Levine and Renelt (1992), Durlauf and Quah (1999). As per the theories by neoclassical economists the growth mainly depend upon the investment in physical and human capital (see Solow (1956), Lucas (1988) and Romer (1990).

North and Weingast (1989) stressed upon the importance of investment creating environment that would further lead to some infrastructural measures like protection of the property rights, enforcement of contracts and determination of price by market forces of demand and supply. They have also suggested in their

study that along with the institutional factor the political stability and stable good government can significantly stimulate the private investment in country [1-13].

It is obvious from the literature that the investment in the private sector is very crucial for the growth of economy, so this fact further encourages the economists to analyze the determinants of investment and to analyze the factors which further stimulate the investment in country. The literature also reveals that the phenomenon of investment has been divided into two categories; crowding in and crowding out effects (see Aschauer (1989); Erenberg (1993); Pereria (2001).

Various researches had been conducted on the phenomenon of investment with an objective to analyze different factor behind investment in country (see Saker (1993); Looney (1997, 1999); Khan (1997); Haque, et al. (1991); Hassan, et al. (1996); Hassan (1997); Naqvi (2002)].

Investment had played a very important role in economics growth of Pakistan as it had somehow increased the productive capacity of an economy, along with the increase in the employment in country and also enhanced the technical efficiency. As per literature investment could enhance the productive capacity of country.

Private investment has also considered as a significant mean for innovations, progress in growth and elimination of country in country. With an increase in private investment the growth increases, new jobs could be created, it would lead in generation of revenues and enhancement of income which further lead to development of economy. The consensus is there that total investment is very crucial for the economy and it is also a fact that the level of private investment in developing economies is very low. The importance of investment and low level of investment has encouraged us to analyze the determinants of private investment in Pakistan during 1972 to 2013.

Pakistan's economy has faced many ups and down during the period of combined and present Pakistan as well. The external factors, aid and debt, has played a significant role in the growth of economy of Pakistan. Soon after the independence the Korean War has boosted the economy as Pakistan's government had decided to use Pakistani rupee as national currency instead of using British currency. The aid in 1960s had also boosted the economy of Pakistan. While the fall of Dhaka, civil war, nationalization policy of Bhutto regime, Oil shock and removal of democratic government had negative impacts on the growth of economy by decreasing the level of private investment in country. The policy of nationalization had levied drastic impacts on private investment during 1970s. During 1980, the shift in the policy by the government to denationalize the private sector had again encouraged the private investment in Pakistan. External problems had always remained an issue for Pakistan economy during 1980s the Afghan war where supported our economy through Aid, had also became a source of deterioration for the economy as political instability and law and orders problems started to become menace for country and still Pakistan is facing the same problem due to that Afghan war. The decade of 1990s had proven worst for the economy and for private investment due to political instability and the sanction on the biggest defence achievement of Pakistan, the nuclear test, had affected the private investment and economy very badly. The decade of 2000 had also a bad decade for the country due to a lot of terrorist attacks on common citizens of Pakistan, more than 60000 Pakistanis have lost their lives and economy has faced a damage of more than 100 billion dollar worth.

The objective of our study is to investigate the core determinants of private investment in Pakistan from

1972 to 2013. We have taken a large set of variable which is also very close factor which could possibly increase or decrease the private investment in Pakistan. The set of variable and a 42 year long time period make our study different from other studies[14-30].

Literature Review: Lakhan and Zafar (2013) had conducted a study to analyze the impact of interest rate on interest rate in Pakistan. The main objective of their study was to analyze that how the interest rate had affected the investment in Pakistan during the time span from 1964 to 2012. They had tested the long run relationship between income, interest rate and investment. They have used Johansen Cointegration technique to test the long run hypothesis. Their study suggested that the as per the literature investment has significant negative relation with interest rate in case of Pakistan.

Waverick (2012) had investigated the determinants of private investment in Thailand with an objective to investigate the determinants of private investment in Thailand after financial crises. They have used time series data, the results of their regression had shown that during and after the financial crises the real lending rate, real exchange rate volatility and the dummy of financial crises had affected the private investment negatively while the GDP, capacity utilization rate and the real exchange rate had affected the private investment positively.

Khan and Khan (2007) had conducted and study to analyze the detrminants of private investment in Pakistan during a time span from 1972 to 2005. They have used ARDL model for the estimation of their results. Their study had revealed that the traditional factor had a little or no contribution and impact on private investment in Pakistan. They had shown by their study that the governance, managerial skill and other non-traditional factors had enhanced the level of private investment. They had also found a little support for the acceleration principle and crowding out hypothesis in case of Pakistan, while they have also written that the Mckinnon-Shaw hypothesis has not been verified in case of Pakistan.

Majeed and Khan (2008) had conducted a study to analyze and investigate the factors which can determine the private and public investment in country by using annual date during a time span of 1970 to 2000. They had found that capital inflow, total sources of funds, past capital stock and changes in volume of bank credit

are significant determinants of private investment in Pakistan. They have also depicted that private and public investment had a negative relationship as crowding out effect of physical and financial capital in public investment might decrease the private investment in country.

Asante (2000) had conducted a study to analyze the determinants of private investment in Ghana by using time series and cross sectional data. Almost all perspectives of time series and cross sectional data for investment are same except the macroeconomic instability. They have also found that the macroeconomic instability was a major obstacle in smooth path of private investment. They had also proven that both private and public investment are complementary and suggested the Government to develop infrastructural based economy to boost private sector.

Gnansounou (2010) had investigated the determinants of private investment by using a panel data during a time span of 1997 to 2003 by taking 123 firms in Benin. The findings of their study had shown that the demand uncertainty and the fluctuations in the import manufactured goods from Nigeria had affected the investment negatively in private firms in Benin. The investment behavior of these firms had decreased the cost of capital utilization.

Khaled (1993) had investigated the determinants of private investment in Pakistan with an special emphasis on the impacts of public investment by using annual data during the time span of 1973 to 1992. Their study had shown that GDP growth, credit to private sector and public investment had a positive relation with private investment in Pakistan.

Naqvi (2002) had examined a relationship between economic growth, public and private investment in Pakistan by using annual data of time span of 37 years. They had used Cointegration and Var models and result of their study had shown that the previous period's public investment had positive effect on private investment. The acceleration theory stated that growth in economy generated the investment of both types in Pakistan. They have also investigated that uncertainty had significant negative impact on private investment [30-42].

Joshua and Daleno (1990) had conducted study on determinants of private investment, they had used a panel data of less developing countries by choosing 23 countries during a time span of 10 years from 1975 to

1985. The results of their study had shown that the real interest rate was inversely related to investment in Pakistan.

Blejer and Khan (1984) had analyzed the determinants of private investment by an special emphasis on infrastructure and non-infrastructural measures. They have used pooled data during a time span of 9 years from 1971 to 1979 of developing countries. The expected and unexpected government spending had affected private investment positively and negatively respectively. They have concluded that their results were due to offsetting impacts of crowding out and crowding in impacts.

MATERIALS AND METHODS

As per the existing literature and theories Serven and Solimano (1992) had suggested that in developing countries the private investment could mainly depend upon the real domestic output, real interest rate, public investment and some other economic factors. The neoclassical theories mainly focused upon the capital stock by a competitive enterprise to raise the level. The accelerator theory suggested that the private investment depends upon the increase in demand or size of economy. Meanwhile McKinnon (1973) and Shaw (1973) had also suggested that there could be a positive relationship between investment and real interest rate, because the higher rate of interest rate could lead to an increase in saving which would lead to an increase the volume of domestic credit which may enhance investment.

We have studied the methodologies of Riberio and Joanilio (2003), Khan and Arshad (2007), Majeed and Khan (2008), Asante (2000), Gnansounou (2010) and Saker (1993). We will mainly focus on the methodology of Riberio and Joanilio (2003), Khan and Arshad (2007) with some relevant changes in variable with an objective to truly investigate the true and significant factors or determinants of private investment in Pakistan.

Econometric Model: We have adopted the methodology of Riberio and Joanilio (2003) and Khan and Arshad (2007) with some relevant changes in it. Following is the econometric model for our study;

$$PI_t = \beta_0 + \beta_1 FD_t + \beta_2 RGDP_p + \beta_3 RER_t + \beta_4 RIR_t + \beta_5 PubI + \beta_6 CPS_t + \beta_7 ED_t + \mu_t$$

(i)

Table 1:

Variables	T Statistics	Level/ 1 st Difference
PI	-2.145118	1 st Difference
FD	-3.798805	Level
RGDP	-4.296503	1 st Difference
RER	-4.827942	1 st Difference
RIR	-3.596128	Level
PUBI	-3.691141	Level
CPS	-5.029228	1 st Difference
ED	-7.077067	Level

Table 2:

Variables	Coefficients	T Stats
FD	-1.81*	2.089
RGDP	0.37502*	2.147
RER	0.0048**	1.736
RIR	-0.0096**	-1.704
PUBI	-0.0525	-0.429
CPS	0.715*	2.006
ED	-0.636*	-2.916
ECM(-1)	-0.1312*	-2.011
DW Statistics: 2.24		R Squared: 0.560

5% significance level is shown by *

Table 3:

Variables	Coefficients	T Stats
FD	-13.790	1.560
RGDP	2.856*	2.194
RER	0.0367*	3.479
RIR	-0.147*	-2.631
PUBI	3.047*	2.865
CPS	5.448*	2.463
ED	-4.851**	1.84

5% significance level is shown by *

In equation (i) PI is the private investment, FD is financial Development, RGDP is real gross domestic product, RER is real exchange rate, RIR is real interest rate, PubI is public investment, CPS is credit to private sector, REM is remittances and ED is external debt. We will use a proxy for Financial Development by using a ration of Money Supply (M2) to Gross Domestic Product. The data has been collected from World Development Indicators, Handbook of Statistics on Pakistan Economy and International Financial Statistics. The time span of our study is from 1972 to 2013.

RESULTS

We have started our estimation with Augmented Dickey Fuller unit root test to check the stationarity in out model. The results of ADF unit root test results has shown that the order of integration among our model is I(0) and I(1). The results of ADF unit test are as follows;

As it is obvious from the results that all the variables are stationary at different order of integration, we have decided to use the ARDL model for short run and long run coefficients. Before apply ARDL technique we have applied the Wald test to check both cointegration and long run relation amongst variables exists or not. As per the value of F statistics calculate by Wald test we came to a conclusion that we are in inconclusive stage, as the value of F statistics which is 3.61 with a probability of 0.02, in such condition we continue our estimation with ARDL technique. We can apply ARDL technique if the value of F statistics is greater than the upper bound, if the value of F statistics is greater than lower and less than upper bound means we are in inconclusive stage and still ARDL is applicable. As the value of F statistics is in between the lower and upper bound we have continued our study and applied error correction technique and it has been confirmed that the long run relationship exists as the value of ECM coefficients is significant, less than 1 and statistically significant. The short run results of our study as follows[31-42].

The short run results of our study have shown that financial development has negative significant relationship with private investment in Pakistan. As the coefficient shows that with a one percent enhancement in financial development the private investment in Pakistan has decreased by 1.81. While in the long run we have seen that the impact of financial development on private investment is still negative but it is statistically insignificant. So in long run we cannot concurrently declare financial has decreased the private investment in long run particularly in case of Pakistan. While it is obvious from studies that financial development can significantly enhance savings in country and this impact can decrease the private investment. The real gross domestic product and real exchange rate have significantly enhanced the private investment. In our study the coefficients have shown that one percent change in real GDP has increased the private investment by 0.37 percent in short run and by 2.85 percent in long run. It is now obvious by our results and existing theories that as the economy grows the new opportunities increases in country and the ability of people to save and invest also increases in such situation. Same theory applies in Pakistan as with an increase in real gross domestic product the private investment also increases. In Pakistan we have seen an increase in private investment due to stability of real exchange rate as we

have seen significant coefficients both in long run and in short run. We have seen that one percent increase in real exchange rate have increased the private investment in Pakistan by 0.004% and 0.03% respectively. As the currency gets some stability the private investment has increased in Pakistan. As per earlier theories the real interest rate have shown the negative relation with private investment in Pakistan as interest rate increases the private investment falls in Pakistan. In short run the public investment has decreased the private investment 0.05 percent but in long run the public investment also increased the private investment by 3.04 percent. We can also hypothesize that in short run the public investment has crowded out the investment by public sector but in long run people got benefits, they adopted new technologies and private investors has invested more. Credit to private sector has also raised the private investment because due to credit to private sector the problem of shortage of capital for individuals to invest decreases and they invest more resulting in an increase of 0.71 percent and 5.4 percent in private investment in short and long run respectively. While external debt have shown significant negative relation with private investment as due to debt burden the growth become stagnant, the capacity of people to save or to invest falls and our study is also in line with such theories. The results of our study follow the traditional theories of economics and are also in line with various empirical studies.

CONCLUSION

As per the results of our study we came to a conclusion that in Pakistan to enhance the level of private investment the real GDP, real exchange rate, credit to private sector and public investment is mandatory. On the basis of our study we can now conclude that in Pakistan the significant determinants which stimulate and enhance the private investment are the growth of economy measured by real gross domestic product, the real exchange rate, the investment by the government in domestic economy which is also known as public investment and the credit to private sector. On the basis of my study I also suggest that government must consider these significant determinants to stimulate private saving and the measure taken by considering these significant determinants will also be beneficial for every sector of economy.

REFERENCE

1. Acemoglu, Daron, Simon Johnson and James A. Robinson, 2001. The Colonial Origins of Comparative Development: An Empirical Investigation, *American Economic Review*, 91(5): 1369-1401.
2. Agosin, M.R., 1994. Saving and Investment in Latin America. Geneva, United Nations Conference on Trade and Development (UNCTAD), (Discussion Papers No. 90).
3. Alesina, Alberto, Sule, Ozier, NourirRoubin and Philip Swagel, 1992. Political Instability and Growth. NBER Working Paper.
4. Asante, 2000. Determinants of Private Investment behavior in Ghana, African Economic Research Consortium, 100.
5. Aschauer, D., 1989. Does Public Capital Crowd-out Private Capital? *Journal of Monetary Economics*, 24.
6. Baro, Robert J., 1991. Economic Growth in Cross-section of Countries, *Quarterly Journal of Economics*, 106:2.
7. Barro, Robert J., 1996. Democracy and Growth, *Journal of Economic Growth*, 1(1): 1-27.
8. Blomstrom, M., Robert E. Lipsey and Mario Zejan, 1996. Is Fixed Investment the Key to Economic Growth? *Quarterly Journal of Economics*, 51:1.
9. Davis, L. and D. C. North, 1971. *Institutional Change and American Economic Growth*, New York: Cambridge.
10. Durlauf, S. N. and D. T. Quah, 1999. *The New Empirics of Economic Growth*.
11. In John B. Taylor and Michael Woodford, *Handbook of Macroeconomics*, North-Holland Elsevier Science, 4: 231-304.
12. Easterly, W. and R. Levine, 2001. It's not Factor Accumulation: Stylised Facts and Growth Models, *World Bank Economic Review*.
13. Erenberg, S.J., 1993. The Real Effects of Public Investment on Private Investment, *Applied Economics*, 23.
14. Ghani, Ejaz and Muslehud Din, 2006. The Impact of Public Investment on Growth in Pakistan, *Pakistan Development Review*, 45:1.
15. Gnansounou, 2010. Determinants of Private Investment in Benin: A Panel Data Analysis, AERC Nairobi, 209.
16. Greene, J. and D. Villanueva, 1995. Private Investment in Developing Countries: An Empirical Analysis. *Staff Papers* 38:1, Washington, D.C., International Monetary Fund (IMF).

17. Hall, Robert E. and Charles I. Jones, 1999. Why Do Some Countries Produce So Much More Output per Worker than Others? *Quarterly Journal of Economics*, 114(1): 83-116.
18. Haque, N., A. Husain and P. Montiel, 1991. An Empirical Dependent Economy Model for Pakistan. IMF Working Papers.
19. Hassan, M.A., 1996. Financial Sector Reform and its Impact on Investment and Economic Growth: An Economic Approach, *The Pakistan Development Review*, 35: 4.
20. Hassan, P., 1997. Learning from the Past: A Fifty Years Perspective of Pakistan's Development. *The Pakistan Development Review*, 36:4.
21. Johnson, Simon, John McMillan and Christopher Woodruff, 2002. Property Rights and Finance, *American Economic Review*, 92(5): 1335-1356.
22. Jorgenson, D.W., 1963. Capital Theory and Investment Behaviour, *The American Economic Review*, Nashville, Tennessee, American Economic Association, 53:2.
23. Khan, Ashfaq, H., 1997. Foreign Direct Investment in Pakistan: Policies and Trends, *The Pakistan Development Review*, 36:4.
24. Khan, Arshad, 2007. What Determine Private Investment? The Case of Pakistan, PIDE working paper, 36.
25. King, R.G. and R. Levine, 1994. Capital Fundamentalism, Economic Development and Economic Growth, *Carnegie-Rochester Conference Series on Public Policy*, 40.
26. Knack, Stephen, 1996. Institutions and the Convergence Hypothesis: The Cross-National Evidence. *Public Choice*, 87(3-4): 207-228.
27. Knack, Stephen, 2003. Groups, Growth and Trust: Cross-country Evidence on the Olson and Putnam Hypotheses, *Public Choice*, 117(3-4): 341-355.
28. Knack, Stephen and Phillip Keefer, 1995. Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures. *Economics and Politics*, 7: 207-227.
29. Landes, David S., 1998. *The Wealth and Poverty of Nations: Why Some Are So Rich and Some So Poor*, New York: W. W. Norton.
30. Levine, Ross and David Renelt, 1992. A Sensitivity Analysis of Cross-Country Growth Regressions, *American Economic Review*, 82(4): 942-963.
31. Looney, R.E., 1997. Government Investment in Manufacturing: Stimulus or Hindrance to Pakistan's Private Sector, *International Journal of Social Economics*, 26: 4.
32. Looney, R.E., 1999. Infrastructure and Private Sector Investment in Pakistan *Journal of Asian Economics*, 8:3.
33. Lucas, Robert E., Jr., 1988. On the Mechanics of Economic Development. *Journal of Monetary Economics*, 22: 3-42.
34. Lucas, Robert E., Jr. and E.C. Prescott, 1971. Investment under Uncertainty. *Econometrica*, 39:5.
35. Majeed, Muhammad Tariq and Khan, Sania, The determinants of private investment and the relationship between private and public investment in Pakistan, MPRA Paper no. 49301.
36. Mauro, Paolo, 1993. Political Instability, Growth and Investment. Harvard University.
37. Mavrotas, G., 1997. Uncertainty and Private Investment in Developing Countries. School of Economic Studies, University of Manchester (Discussion Paper No. 9707.).
38. McKinnon, R.I., 1973. *Money and Capital in Economic Development*. Washington, D. C.: The Brookings Institution.
39. Naqvi, N.H., 2002. Crowding-in or Crowding-out? Modeling the Relationship Between Public and Private Fixed Capital Formation Using Co-integration Analysis: The Case of Pakistan 1964-2000. *The Pakistan Development*.
40. Saker, 1993. Determinants of Private Investment in Pakistan, IMF Working Papers, WP/93/30.
41. Sulaiman, Lakhani, 2013. Rate of Interest and Its Impacts on Investment to the Extent in Pakistan.
42. Warwerick, 2012. Determinants of Private Investment in Thailand, EC902: *Econometrics A*.