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What Determines Private Investment?
The Case of Pakistan

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ABSTRACT

This study is an attempt to analyse the determinants of private investment in Pakistan over the period 1972-2005. The ARDL co-integration approach is employed to check the existence of a long-run relationship as well as short-run dynamics of investment. The results show that most traditional factors have little or no impact on private investment. These results may support the idea that non-traditional factors such as quality of institutions, governance, entrepreneurial skill, etc., are prerequisites for private investment to flourish. We find partial support for the accelerator principle and the crowding-out hypothesis in the case of Pakistan. However, the hypothesis that the volume of the funds is as important as the cost of the funds used in financing private investment and the McKinnon-Shaw hypothesis are not verified in the case of Pakistan.

1. INTRODUCTION

The policy-makers, world over, are concern about the gravity as well as the duration of business cycles specially the recession. Investment in capital goods plays a crucial role in both the cyclical and long run performance of any economy. Being the main components of the aggregate demand, it is leading sources of economic growth in the long-run. That is why the capital accumulation has traditionally been given a prime place in the literature on economic growth. The literature on growth empirics confirms that investment in capital goods is one of the most robust determinants of cross-country growth [Levine and Renelt (1992), Durlauf and Quah (1999)]. This type of stand is based on neoclassical theory of economic growth [Solow (1956), Lucas (1988) and Romer (1990)] that emphasises on investment in physical and human capital into the production process. The question arises why did some societies manage to accumulate and innovate more rapidly than others? The search for an answer to this question has caused a shift in focus from exclusive attention on narrowly defined economic factors to the significance of various social structures and culture in providing an 'enabling environment'. The literature on new growth theory based on North and Weingast (1989) stresses the importance of creating an institutional environment that is generally supportive of markets e.g., protection of property rights, enforcement of contracts, and voluntary exchange at market-determined prices.[1] So good quality institutions are crucial for investment, as investors will be reluctant to risk their capital when property rights are weak and poorly protected. Johnson, *et al.* (2002) and Soto de (2000) emphasised the importance of financial institutions to investment. North and Weingast (1989) proposed that political institutions with check and balance on government can have beneficial effects on private investment.

The decade of 1980s, witnessed a decline in investment in developing countries. This provides source of inspiration for empirical research into what determines the private-sector investment. Beside this the institutional and structural characteristics of capital formation in developing economies (repressed credit market), strong government hold, foreign currency dependency and instability (both economic and political) induces the interest in this area of research. The investment and specially the private investment as a primary

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[1]See North (1990), Barro (1996), Landes (1998), Knack (1996, 2003), Hall and Jones (1999), and Acemoglu, *et al.* (2001).

instrument to enhance economic growth, becomes more important in the vent of liberalisation and deregulation. That is why as the engine of economic growth and development has been accorded the focal place in developing countries.

Given the paramount importance of private sector investment, it is essential to probe into factors affecting investment decision. Huge literature focusing theoretically as well as empirically on investment process is available. The literature is divided into; crowding-in vs. crowding-out effects of public investment on private investment [Aschauer (1989); Erenberg (1993); Pereria (2001)]; bi-causal relationship between investment and output growth [King and Levine (1994); Blomstrom, *et al.* (1996); Podrecca Carmeci (2001); Easterly and Levine (2001)]; and impact of macroeconomic uncertainty on investment activity [Solimano (1989); Rodrik (1991); Pindyck and Dixit (1994); Mavrotas (1997) and Severn (1998)].

There are several studies considering different aspects of investment in Pakistan [Saker (1993); Looney (1997, 1999); Khan (1997); Haque, *et al.* (1991); Hassan, *et al.* (1996); Hassan (1997); Naqvi (2002)]. This study attempts to estimate private investment demand function, using co-integration techniques and taking into consideration the larger set of variables, over the period 1972–2005. The econometric model used in this study is based on Ribeiro and Joanilio (2003), that takes account of the influence of external constraints on private investment beside more common variables. The objective is to estimate a well specified private investment function that must be consistent with economic theory. The co-integration analyses allow the short-term and long-term effects of the explanatory variables that can be distinguished from one another [Ribeiro and Joanilio (2003)]. This study consists of six sections. In section two some facts and figures regarding saving, investment and economic growth are presented. The third contains some considerations regarding the factors affecting the investment. The forth section briefly describes the empirical methodology. Empirical results are analysed in section five, while some concluding remarks are given in the last section.

2.   SOME FACTS AND FIGURES ABOUT PAKISTAN'S ECONOMIC PERFORMANCE

Pakistan economy has witnessed different ups and downs in its short history. The external environment played vital role in economic growth of Pakistan. In 1950s the Korean War boosted the economic growth, while in 1960s huge foreign aid and assistance by international organisations helped maintaining high and rapid growth. However, the civil War, nationalisation policy of government and oil shock rendered the economic growth in 1970s. The nationalisation policy squeezed the private investment and two third of total investment was made by public sector. Total investment was on average 15.4 percent of GDP during this decade. In 1980s, the denationalisation policy encouraged the private sector investment. Besides, huge foreign aid due to

Afghan War also pushed the economy toward revival. There was an increase in total investment as well as in share of private investment during 1980s. The decade of 1990s was worst in economic history of Pakistan. Political instability, floods and economic sanctions after nuclear test badly affected the economic performance. The growth fell from 6.2 percent in 1980s to 4.9 percent in 1990s, though there was a slight increase in total investment. Decade wise description of public and private investment is given in Table 1.

Table 1

Decade-wise GDP Growth, Public and Private Investment 1972-98

Period Average	GDP Growth (%)	Public Investment as Percentage of GDP	Private Investment as Percentage of GDP	Total Investment as Percentage of GDP
1972-80	5.83	9.59	5.84	15.43
1981-90	6.20	9.17	7.79	16.96
1991-98	4.90	7.85	9.38	17.23

Source: Pakistan Economic Survey (Various Issues).

Saving and investment as percentage of real GDP in Pakistan has been low as compared to other neighbouring countries (see Table 2 to 4). The gross domestic saving and investment in Pakistan was on average 17 percent of GDP during 2003-05. The gross domestic saving in India was on average 29 percent of GDP, 16 percent in Sri Lanka, 19 percent in Bangladesh, and 35 percent in Bhutan during the same period. While gross domestic investment in India was on average 30 percent of GDP, 24 percent in Sri Lanka, 24 percent in Bangladesh, and 59 percent in Bhutan. The gross domestic saving in Eastern and North-eastern countries was highest (34 percent) of GDP; in China it was 44 percent. It was 20 percent in the least developing countries and 24 percent in developed countries. The gross domestic investment in Eastern and North-eastern countries was also highest especially in China (44 percent). It was 30 percent in the least developing countries and 24 percent in developed countries. Despite low saving and investment, the GDP growth in Pakistan has been satisfactory and it growth was highest after China and India. However this is not surprising, because it was favourable global environment that helps Pakistan in achieving high economic growth during this period. Besides, Pakistan received reasonable foreign assistance for being front line state in War against terrorism.

3. DETERMINANTS OF INVESTMENT

There is no denial that investment is most important resource in economic growth, therefore, understanding the pros and cones of investment process are crucial. However, it is a complex process, as it depends on decisions taken in past, present environment, and future expectations [Lucas and Prescott (1971)]. Factors those affect investment are divided into two broad categories; economic factors and non-economic factors.

Table 2(a)

Economic Growth

Years	East and North-East Asia					South Asia				South-East Asia				
	China	Hong Kong	Korea	Taiwan	Average	India	Pakistan	Sri Lanka	Average	Indonesia	Malaysia	Singapore	Thailand	Average
2003	10	3.2	3.1	3.3	4.9	8.5	5.1	6	6.5	4.9	5.4	1.4	6.9	4.7
2004	10.1	8.1	4.6	5.7	7.1	7.5	6.4	5.4	6.4	5.1	7.1	8.4	6.1	6.7
2005	9.6	7.5	3.8	3.8	6.2	8.1	8.4	5.5	7.3	5.6	5.2	6.4	4.5	5.4
2006	8.4	5.4	4.9	4.1	5.7	7.9	7	6	6.9	6.2	5.9	6	5.7	5.9

Table 2(b)

Economic Growth

Years	Least Developing Countries					Developed Countries			
	Bangladesh	Bhutan	Cambodia	Nepal	Average	Australia	Japan	New Zealand	Average
2003	5.3	6.8	7.1	3.1	5.6	3.3	1.8	3.8	1.9
2004	6.3	8.7	7.7	3.7	6.6	3.3	2.3	4.4	2.4
2005	5.4	8.8	6.3	2.6	5.8	2.5	2.5	2.2	2.5
2006	6	8	6.1	4.5	6.2	3.2	2	2	2.1

Table 3(a)

Gross Domestic Saving as Percentage of GDP

Years	East and North-East Asia					South Asia				South-East Asia				
	China	Hong Kong	Korea	Taiwan	Average	India	Pakistan	Sri Lanka	Average	Indonesia	Malaysia	Singapore	Thailand	Average
2003	42.5	31.6	33	23.3	32.6	28.9	17.4	15.9	20.7	22.3	42.3	46.8	33.3	36.2
2004	44.7	31.6	35	23.5	33.7	29.1	17.6	15.9	20.9	22.1	43.8	48	33.4	36.8
2005	47.9	33.1	34.9	25.5	35.35	29	13.2	16.4	19.5	24	44.5	49.1	30.8	37.1

Table 3(b)

Gross Domestic Saving as Percentage of GDP

Years	Least Developing Countries					Developed Countries			
	Bangladesh	Bhutan	Cambodia	Nepal	Average	Australia	Japan	New Zealand	Average
2003	18.6	40.2	11.1	11.9	20.5	21.8	27.7	22.4	23.9
2004	19.5	28.5	12.2	12.5	18.2	22.5	26.4	24.4	24.4
2005	20.2	39	11.7	13.2	21	22.3	25.2	22.6	23.4

Table 4(a)

Gross Domestic Investment as Percentage of GDP

Years	East and North-East Asia					South Asia				South-East Asia				
	China	Hong Kong	Korea	Taiwan	Average	India	Pakistan	Sri Lanka	Average	Indonesia	Malaysia	Singapore	Thailand	Average
2003	43.8	22.8	30	16.6	28.3	27.2	16.7	22.1	22	18.9	21.4	14.8	25	20
2004	45.3	23	30.2	20.7	29.8	30.1	17.3	25	24.1	21	22.5	18.3	27.1	22.2
2005	42.3	20.6	31.2	20.8	28.7	30.3	16.8	26.6	24.6	21.7	21.5	18.3	30.9	23.1

Table 4(b)

Gross Domestic Investment as Percentage of GDP

Years	Least Developing Countries					Developed Countries			
	Bangladesh	Bhutan	Cambodia	Nepal	Average	Australia	Japan	New Zealand	Average
2003	23.4	64.9	25.2	26	34.9	25.1	23.9	22.1	23.7
2004	24	49.7	25.8	27.3	31.7	25.4	23.8	23.5	24.2
2005	24.4	63.1	26.3	26.1	34.9	25.7	24.4	24.3	24.8

Source: Economic and Social Survey of Asia and the Pacific 2006.

3.1. Economic Factors

On the basis of theoretical and empirical considerations, Servén and Solimano (1992) suggest that in developing countries, private investment is determined mainly by level of domestic output, the real interest rate, public investment, credit available for investment, size of the external debt, the exchange rate, and macroeconomic stability. The neoclassical theory of investment, based on the work of Jorgenson (1963), treats the value of the capital stock desired by a competitive enterprise as a positive function of its output level. Accelerator theory also suggests that as demand or income increases in an economy, so does the investment made by firms. Furthermore, when demand levels result in an excess in demand, firms increase investment to match demand. The real interest rate is also considered an important variable in determining the level of investment by neoclassical theory. A negative relationship is expected theoretically because of increases in the interest payable being disincentive to investment. However McKinnon (1973) and Shaw (1973) suggest that there could positive relationship between investment and real rate of interest rate, because higher real rate of interest would increase savings, volume of domestic credit will increase as a result, and equilibrium investment be higher. This hypothesis, known as McKinnon and Shaw hypothesis, is based on assumption that quantity of financial resources is main constraint on investment rather than cost financial resources. In the developing countries, the public sector generally plays a large part in economic activity through public sector investment. The public sector investment may have "crowding out" or "crowding in" effects on private-sector investment. The other important factor that affects the private sector investment is credit constraint due to underdeveloped capital markets and financial intermediation in developing economies. Because of the absence of long-term financing and the futures market, bank loans and external borrowing may be the only sources of credit available for private sector investment financing. Another factor that exemplifies the influence of external credit constraints on the financing of production activities is the size of the external debt. High debt levels divert the resources previously used to finance local companies toward service payments and charges being transferred abroad. Exchange rate also plays a crucial role in investment decisions by private entrepreneur; especially in this globalised world it becomes more important. A change in currency value changes the real costs of purchasing imported capital goods, the profitability of the private sector is affected and possibly causing investment to change. Furthermore, this may result into change in real income of the economy as a whole, thus altering the production capacity. The change in exchange rate also affects the investment through sectors producing internationally traded goods, due to its impacts on competitiveness and export volumes. The other thing that is important in investment decision-making is irreversible nature of investment in capital goods [Pindyck (1988)]. As many capital goods are company specific and cannot be sold at the same prices they were purchased. It means an

irrecoverable cost is attached with resale of such goods. This irreversibility may results into uncertainties which in turn have a large influence on investment decision. That is why investors are reluctant to carry out major investments, even in the prosperous environment. The adjustment cost attached depends on degree of economic stability and the credibility of public policies. This is very reason that recent studies on private-sector investment in developing countries [Greene and Villanueva (1995); Servén and Solimano (1993) and Agosin (1994)] have included the variables representing uncertainties in the investment decision-making process. Some studies [Barro (1991); Alesina, *et al.* (1992) and Mauro (1993)] investigate the relationship between political instability and investment. However it is hard to define political instability. Many approaches have been used in this regard. Two of them are worth mention here. In the first approach, political instability is defined as executive instability i.e. propensity to observe government changes which is associated with policy uncertainty for example threat to property rights. Second approach is based on socio-political unrest that is measured by some index of variables related to such unrest. Both the measures, however, are difficult to construct. We also include foreign direct investment (FDI) because it can affect the private domestic investment in different ways.

3.2. Non-economic Factors

In addition to economics factors stated above, there are some other factors that are important for the rapid private sector investment growth. These include the good governance, quality of institutions and entrepreneurial skills for the private sector to make big investment decisions based on a rational assessment of risks and potential pay-offs. These factors play complementary role with the traditional economic factors. It has been suggested that the types of entrepreneurship that can be identified and the enterprise strategies adopted, are heavily influenced by the external environment [Peng and Heath (1996); Peng (2000)] in general, and the institutional context in particular [Welter (2002)]. In this regard, institutionalist theory offers a suitable interpretative frame of reference, since it emphasises the role of external political, economic and societal influences on individual behaviour [North (1990)]. The institutional framework, which is adequate for entrepreneurship consists of the "set of fundamental political, social, and legal ground rules that establishes the basis for production, exchange, and distribution" [Davis and North (1971)]. Examples of relevant formal institutions include the legal framework and the financial system. Fundamental rules such as private property rights are a major influence on the nature and extent of any entrepreneurial activity, whilst day-to-day economic and political decisions, as well as unwritten rules, determine the actual scope for the behaviour of entrepreneurs and their actions.

4. MODEL AND METHODOLOGY

The following Ribeiro and Joanilio (2003) we used the model as given in Equation (1)

$$inv_t = \beta_0 + \beta_1 y_t + \beta_2 r_t + \beta_3 inv_{pt} + \beta_4 er_t + \beta_5 cred_t + \beta_6 exd_t + \beta_7 inf_t + \beta_8 fdi_t + \varepsilon_t \quad (1)$$

Where y_t is real GDP r_t is the real interest rate, inv_{pt} is public sector investment, *ex* is real exchange rate, *cred* is ratio of private sector credit to GDP, *exd* is external debt, *inf* is change in inflation rate, and *fdi* is foreign direct investment. Where $\beta_1 > 0$, $\beta_2 < 0$, $\beta_3 < 0$ or $\beta_3 > 0$, $\beta_4 < 0$ or $\beta_4 > 0$, $\beta_5 > 0$, $\beta_6 < 0$, $\beta_7 < 0$, $\beta_8 < 0$ or $\beta_8 > 0$.

We employ auto-regressive Distributed Lags (ARDL) approach due to Pesaran and Shin (1999) for estimation of the long run investment function. One important advantage of ARDL is that they take care of endogeneity of the explanatory variables. Since the ARDL approach to estimation of long run relationship does not require any unit root pre testing.

The short-run dynamic can be incorporated into Equation (1), as econometrics literature suggests. Equation (1) can be specified in an error-correction modelling format as:

$$\Delta inv_t = \beta_0 + \sum \beta_i \Delta inv_{t-i} + \delta \sum \Delta z_{t-j} + \gamma_0 inv_{t-1} + \gamma z_{t-1} + \varepsilon_t \quad \ldots \quad (2)$$

i=0, 1, 2….. and j=1, 2, 3…..
Here $z = [\ y,\ rir,\ i_{pbp},\ er,\ cred,\ exd,\ inf,\ fdi]'$, δ and γ are vector of coefficients. The Equation (2) can be estimate in two steps. In the first step, the null hypothesis of 'non-existence of the long-run relationship' among the variables i.e. H0: $\gamma_k = 0$, is tested against the alternative of H1: not all γ_k are zero. where k=1,2,……,7, 8

The relevant statistic to test the null is the familiar F-statistic with new critical values tabulated by Pesaran, *et al.* (1996). Once the long run relationship i.e. the co-integration among the variables is confirmed, the following Error Correction Model (ECM) can be estimated at second step:

$$\Delta inv_t = \beta_0 + \sum \beta_i \Delta inv_{t-i} + \delta \sum \Delta z_{t-j} + \lambda EC_{t-1} + v_t \quad \ldots \quad \ldots \quad (3)$$

Where λ represents the speed of adjustment parameter and *EC* is residual obtained at the first step.

5. EMPIRICAL RESULTS

Before estimation, we test for time series properties of our data. We apply Augmented Dickey Fuller (ADF) test to see whether the variables included in this study are stationary or not. The results of unit root test are given below in Table 5.

Table 5

The Unit Root Results

Variables	τ-statistics
Y	−2.2
ipry	−3.8*
ipby	−4.8*
credy	−2.8
exdy	−2.8
fdiy	−0.5
rir	−3.4*
er	−2.1
inf	−4.5*

Note: *Indicates significance at 5 percent.

The results show that ratio of private investment to GDP(ipry), ratio of public investment to GDP (ipby), real interest rate(rir), and inflation rate(inf) are level stationary, while remaining variables i.e. GDP, credit to GDP ratio (credy), external debt to GDP ratio (exdy), foreign direct investment (fdiy), and exchange rate (er) are non-stationary in their level. Therefore the most appropriate estimation technique is (ARDL).

As first step, we estimate different specification of the Equation (3) and the most parsimonious estimation results are reported in Table 6.[2]

Table 6

Results of ARDL Approach

Variable	Dependent Variable: D(IPRY)	
	Coefficient	t-statistic
D(IPRY(-1))	0.51	2.9
D(Y(-1))	0.07	2.3
D(EXDY)	−0.11	−4.1
D(EXDY(-1))	0.13	4.0
D(FDIY)	−29.92	−2.0
D(RIR)	−0.001	−2.1
D(INF)	−0.002	−2.6
IPRY(-1)	−1.07	−4.9
LYP(-1)	0.05	4.9
IPBY(-1)	0.15	1.2
EXDY(-1)	−0.12	−3.3
FDIY(-1)	−0.35	−1.7
RIR(-1)	−0.002	−2.2
INF(-1)	−0.0003	−0.5
C	−0.41	−4.7

[2]The lags are selected on the basis of AIC criterion.

The model estimated (Table 6) passed different diagnostic tests. The F-statistic for serial correlation is 1.2, which is indicates the absence of serial correlation. Jack Bara test statistic is 0.08 which confirms the normality. The ARCH test for heteroscedasticity is also clear (here F-statistics is 0.47). The CUSUM and CUSUM of Square tests of stability also confirm that the estimated model is stable as shown in Figures 1 and 2 below.
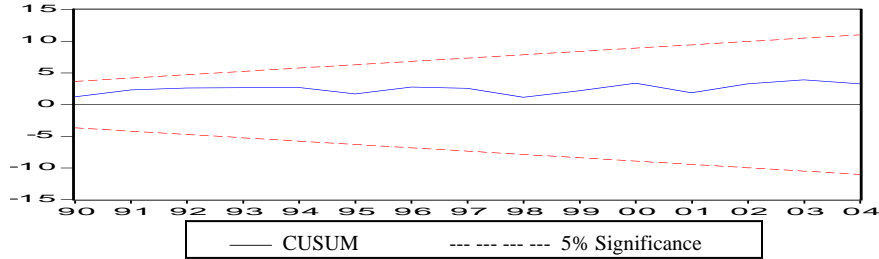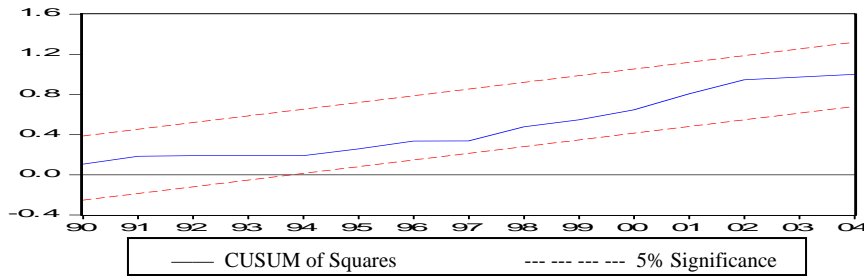
Fig. 1. CUSUM Test for Stability

Fig. 2. CUSUMSQ For Stability

Finally we apply the Wald test to see whether long run relationship exists between the variables. The value of F-statistics, which is 4.5, confirms the co-integration among the variables. Then we normalise the coefficients of lagged level variable by dividing on the coefficient of *ipry* (assuming all the other coefficients are zero) and hence obtained the long run elasticities. The normalised equation is given below.

$$ipry = 0.05 y^* + 0.14ipby - 0.11exdebty^* - 0.33fdiy^* - .001rir^* - 0.0002\,inf \ (4)$$

The results show that real GDP is positively related to private investment. The impact is significant in long run. The impact of public investment on private investment is insignificant though positive. The impacts of external debt, foreign direct investment, real interest rate and inflation rate on private investment are negative and also significant except inflation.

Now we estimate the error correction model as given in Equation (2). The results are presented in Table 7.

Table 7

Short Run Dynamics (ECM) of Private Investment

Variable	Dependent Variable is D(ipry)	
	Coefficient	t-statistic
C	−0.002	−1.1
D(Y)	0.03	1.2
D(IPBY)	−0.21	−1.7
D(EXDY)	−0.10	−4.6
D(FDIY)	−16.4	−1.5
D(RIR)	−0.0005	−0.7
D(INF)	−0.001	−1.5
$E_t(-1)$	−0.45	−3.1

Note: $E_t = ipry - (0.05\ y + 0.14\ ipby - 0.11\ exdy - fdiy - .001\ rir - 0.0002\ inf\ )$.

The results show that error correction term has negative sign and significant which confirms the existence of long run relationship at first step. Real GDP has positive but insignificant impact on private investment in the short run. While public investment exerted negative and significant (at 10 percent) impact on private investment. This result is in line with Ghani and Din (2006) that public investment crowd out the private investment in case of Pakistan. The impact of external debt on the private investment is negative and significant. Negligible and insignificant impact of real interest rate on private investment shows the non-responsiveness of private investment to interest rate. The other two variables i.e. FDI and inflation rate have negative and insignificant impact on private investment. Surprisingly, when we include credit in model, it shows insignificant impact on the private investment. It was because of "putting good money after bad money" i.e. credit was given to sick units to enable them to repay loans due to banks [Tanner (2001)]. But these were not used for productive purposes (as in 1990 loans restructuring exercise was undertaken under the auspices government).

The results show that most of the traditional factors have very weak or producing no impact on private investment in case of Pakistan. These may support the view that" it is the poor quality institutions that are responsible low investment in Pakistan". The crowding out effect of public investment also indicates the inefficiency in utilising public sector funds or corruption element on the part government official. The large budget deficit with no check and balance on government expenditure is other example of institutional weakness. The debt accumulation due to huge budget deficit has negative impact on private investment, as the deficit was result of non-developmental expenditures especially on defense and debt servicing. However, these are the crude conclusion. For accurate effects of institutional quality on investment requires solid proof. Many difficulties involved in this regard. First is the accurate definition of good quality institutions and

measurability of quality. Second, even though some comparative indices on quality of institutions on world level are available, but the time series of such indices are impossible as institutions take a longer time to change.

6. CONCLUSIONS

This study attempts to estimate private investment demand function in case of Pakistan over the period 1973–2005. The ARDL co-integration technique is used for estimation. We find partial support for the accelerator principle and crowding out hypothesis in case of Pakistan. However, the hypothesis that volume of funds is as important as cost of fund used in financing private investment and McKinnon-Shaw hypothesis are not verified in case of Pakistan. The external debt affects the private investment negatively both in long and short run. Negligible impact in long run as well as in short run of real interest rate on private investment shows the non-responsiveness of private investment to interest rate. These results show that most of the traditional factors have very weak or no effects on private investment in case of Pakistan. These results are supportive to view that poor quality institutions are responsible for low investment in Pakistan. The crowding out effect of public investment also indicates the inefficiency in utilising resources or corruption element on the part of government official. However, these are crude conclusion. For accurate effects of institutional quality on investment one need solid proof. Many difficulties involved in this regard. First is the accurate definition of good quality institutions and measurability of quality. The second is that, even there are some comparative indices on quality of institutions on world level, the time series of such indices are impossible as institutions take a longer time to change.

In conditions that pertain in countries such as Pakistan, policy needs to focus on the overall institutional framework of entrepreneurial activities in order to facilitate the development of productive entrepreneurship and minimise unproductive forms of entrepreneurial behaviour. Improving the quality of laws and regulations are key elements in establishing the framework conditions that are necessary for economic development. Additionally, strengthening the legislative environment can be a highly cost-effective strategy for stimulating and promoting entrepreneurship, particularly when government resources are limited as in case of Pakistan. Regulations that are overly burdensome, complex or impractical may reduce business competitiveness by contributing to higher administrative and compliance costs, as well as to a diminution of the rule of law when non-compliance becomes rife. Moreover, the negative effects of an inadequate and poorly implemented legal and regulatory framework can impair the development of legitimate private sector activity at the expense of a burgeoning informal economy. However, developing effective institutional arrangements for the governance and support of businesses in the economy is no less than a challenge in countries like Pakistan, because of powerful lobbies of vested interest groups.

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REFERENCES

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.

Agosin, M. R. (1994) Saving and Investment in Latin America. Geneva, United Nations Conference on Trade and Development (UNCTAD). (Discussion Papers No. 90.)

Alesina, Alberto, Sule, Ozier, Nourir Roubin, and Philip Swagel (1992) Political Instability and Growth. NBER Working Paper.

Aschauer, D. (1989) Does Public Capital Crowd-out Private Capital? *Journal of Monetary Economics* 24.

Baro, Robert J. (1991) Economic Growth in Cross-section of Countries. *Quarterly Journal of Economics* 106:2.

Barro, Robert J. (1996) Democracy and Growth. *Journal of Economic Growth* 1:1, 1–27.

Blomstrom, M., Robert E. Lipsey, and Mario Zejan (1996) Is Fixed Investment the Key to Economic Growth? *Quarterly Journal of Economics* 51:1.

Davis, L., and D. C. North (1971) *Institutional Change and American Economic Growth.* New York: Cambridge.

Durlauf, S. N., and D. T. Quah (1999) The New Empirics of Economic Growth. In John B. Taylor, and Michael Woodford (eds.) *Handbook of Macroeconomics*. North-Holland Elsevier Science, Ch. 4, 231–304.

Easterly, W., and R. Levine (2001) It's not Factor Accumulation: Stylised Facts and Growth Models. *World Bank Economic Review*.

Erenberg, S. J. (1993) The Real Effects of Public Investment on Private Investment. *Applied Economics* 23.

Ghani, Ejaz, and Muslehud Din (2006) The Impact of Public Investment on Growth in Pakistan. *Pakistan Development Review* 45:1.

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).

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.

Haque, N., A. Husain, and P. Montiel (1991) An Empirical Dependent Economy Model for Pakistan. IMF Working Papers.

Hassan, M. A., *et al.* (1996) Financial Sector Reform and it's Impact on Investment and Economic Growth: An Economic Approach. *The Pakistan Development Review* 35:4.

Hassan, P. (1997) Learning from the Past: A Fifty Years Perspective of Pakistan's Development. *The Pakistan Development Review* 36:4.

Johnson, Simon, John McMillan, and Christopher Woodruff (2002) Property Rights and Finance. *American Economic Review* 92:5, 1335–1356.

Jorgenson, D. W. (1963) Capital Theory and Investment Behaviour. *The American Economic Review* 53:2, Nashville, Tennessee, American Economic Association, May.

Khan, Ashfaq, H. (1997) Foreign Direct Investment in Pakistan: Policies and Trends. *The Pakistan Development Review* 36:4.

King, R. G., and R. Levine (1994) Capital Fundamentalism, Economic Development and Economic Growth. Carnegie-Rocjester Conference Series on Public Policy 40.

Knack, Stephen (1996) Institutions and the Convergence Hypothesis: The Cross-National Evidence. *Public Choice* 87:3-4, 207–228.

Knack, Stephen (2003) Groups, Growth, and Trust: Cross-country Evidence on the Olson and Putnam Hypotheses. *Public Choice* 117:3-4, 341–355.

Knack, Stephen, and Phillip Keefer (1995) Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures. *Economics and Politics* 7, 207–227.

Landes, David S. (1998) *The Wealth and Poverty of Nations: Why Some Are So Rich, and Some So Poor.* New York: W. W. Norton.

Levine, Ross, and David Renelt (1992) A Sensitivity Analysis of Cross-Country Growth Regressions. *American Economic Review* 82:4, 942–963.

Looney, R. E. (1997) Government Investment in Manufacturing: Stimulus or Hindrance to Pakistan's Private Sector. *International Journal of Social Economics* 26:4.

Looney, R. E. (1999) Infrastructure and Private Sector Investment in Pakistan. *Journal of Asian Economics* 8:3.

Lucas, Robert E., Jr. (1988) On the Mechanics of Economic Development. *Journal of Monetary Economics* 22, 3–42.

Lucas, Robert E., Jr., and E. C. Prescott (1971) Investment under Uncertainty. *Econometrica* 39:5.

Mauro, Paolo (1993) *Political Instability, Growth and Investment.* Harvard University.

Mavrotas, G. (1997) Uncertainty and Private Investment in Developing Countries. School of Economic Studies, University of Manchester (Discussion Paper No. 9707.)

McKinnon, R. I. (1973) *Money and Capital in Economic Development.* Washington, D. C.: The Brookings Institution.

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 Review* 41:3.

North, D., and B. Wiengast (1989) Constitutions and Commitment: the Evolution of Institutions Governing Public Choice in Seventeenth Century England. *Journal of Economics History* 49.

North, Douglass C. (1990) *Institutions, Institutional Change, and Economic Performance.* Cambridge: Cambridge University Press.

Peng, M. (2000) *Business Strategies in Transition Economies, Thousand Oaks, London.* New Delhi: Sage.

Peng, M., and P. S. Heath (1996) The Growth of the Firm in Planned Economies in Transition: Institutions, Organisations, and Strategic Choice. *Academy of Management Review* 21:2, 492–528.

Pereria, A. M. (2001) On the Effects Public Investment on Private Investment: What Crowd in What? *Public Finance Review* 29.

Pesaran, M. H., and Y. Shin (1995) Long Run Structural Modeling, Cambridge Department of Applied Economics University of Cambridge. (DAE Working Paper No. 9419.)

Pesaran, M. H., and Y. Shin (1999) An Autoregressive Distributed Lag Modelling Approach to Cointegration Analysis. Chapter 11 in S. Strom (ed.) *Econometrics and Economic Theory in 20th Century: The Ragnar Frisch Centennial Symposium.* Cambridge University Press.

Pesaran, M. H., Y. Shin, and Richard J. Smith (2001) Bound Testing Approaches to Analysis of Long Run Relationship. *Journal of Applied Econometrics* 16.

Pindyck, R. (1988) Irreversible Investment, Capacity Choice, and the Value of the Firm. *The American Economic Review* 78:5, Nashville, Tennessee, American Economic Association.

Pindyck, R. (1993) Economic Adjustment and Investment Performance in Developing Countries: The Experience of the 1980s. In L. Servén and A. Solimano (eds.) *Striving for Growth after Adjustment.* Washington, DC: World Bank.

Pindyck, R., and A. Dixit (1994) *Investment Under Uncertainty.* Princeton, NJ: Princeton University Press.

Podrecca, E., and G. Carmeci (2001) Fixed Investment and Economic Growth: New Results on Causality. *Applied Economics* 33.

Ribeiro, M. Bruno, and R. Teixeira Joanilio (2001) An Econometric Analysis of Private-sector Investment in Brazil. *CEPAL Review* 7:4.

Rodrich, R. (1991) Policy Uncertainty and Private Investment in Developing Countries. *Journal of Development Economics* 36.

Rodrik, R. (1991) Policy Uncertainty and Private Investment in Developing Countries. *Journal of Development Economics* 36.

Romer, Paul M. (1990) Endogenous Technological Change. *Journal of Political Economy* 98, S71–S102.

Sakr, Khalid (1993) Determinants of Private Investment in Pakistan. IMF Working Paper/93/30. Washington, DC.

Servén, L., and A. Solimano (1992) Private Investment and Macroeconomic Adjustment: A Survey. *The World Bank Research Observer* 7:1, Washington, D. C., World Bank.

Severn, L. (1998) Macroeconomic Uncertainty and Private Investment in LDC's: An Empirical Investigation. World Bank (Working Paper Series 2035.)

Shaw, E. S. (1973) *Financial Deepening in Economic Development*. New York: Oxford University Press.

Solimano, A. (1989) How Private Investment Reacts to Changing Macroeconomic Conditions: The Case of Chile in 1980 World Bank Policy Planning and Research Working Papers WPS 339.

Solow, Robert M. (1956) A Contribution to the Theory of Economic Growth. *Quarterly Journal of Economics* 70:1, 65–94.

Soto, Hernando de (2000) *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else*. New York: Basic Books.

Tanner, J. E. (2001) Exchange Market Pressure and Monetary Policy: Asia and Latin America in the 1990s. *IMF Staff Papers* 47:3.

Welter, F., and D. Smallbone (2003) Entrepreneurship and Enterprise Strategies in Transition Economies: An Institutional Perspective. In Kirby D. and Watson (eds.) *Small Firms and Economic Development in Developed and Transition Economies*: *A Reader'*. Ashgate Publishing, 95–114.