

Saving – Investment Behaviour in Pakistan: An Empirical Investigation

by

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I. Introduction

Saving and investment are two key macro variables with micro foundations which can play a significant role in economic growth, inflation stability and promotion of employment especially if seen in the context of a developing country. For self reliance and growth objectives, mobilization of domestic resources and their efficient utilization are the two major policy oriented focuses today (Khan 1993). National savings are critically important to help maintain a higher level of investment which is a key determinant for economic uplift. Thereby, necessitating the analysis of saving-investment behaviour and its determinants for policy implications; this is a demanding area because of continuing debate on the potential role of their determinants.

The econometric modeling do not appear to be adequately developed to fully account for the non-measurable determinants of saving, as they interact with the observable and quantifiable factors (Kazmi 2001). Moreover, data reliability for a developing country like Pakistan is still a question and data on many potential determinants is not available. Where as, earlier studies on saving behaviour and its determinants have provided several model specifications, investment studies have not dealt sufficiently in the estimation of plausible determinants of investment and their potential impacts. Most of the studies on investment observed the behavior of foreign investment and the favorable atmosphere for investment only but could not provide a comprehensive model for the determinants of total investment (Khan 1984, Nuannar 1991 and Guisinger 1997). This paper is an attempt to generate a model on the basis of fundamental theories of savings and investment and to identify some key policy variables which by intervention can increase savings formation and increase level of investment in the country.

A number of studies have analyzed the behaviour of saving and its determinants in Pakistan based on the time series analysis of macro variables or the cross-sectional studies of micro data sets. Here, we will mainly focus on the time series studies, which are more relevant to current study. Khan, Hussain and Malik (1994) examined the determinants of saving rate in Pakistan in terms of a variety of factors that includes income, real interest rate, dependency ratios, foreign capital inflows, foreign aid, changes in terms of trade and openness of economy. The study found a strong and positive effect of per capita GNP on national saving. The study showed that real interest rate, change in terms of trade and openness of the economy positively influence national saving. Both debt to GNP ratio and dependency ratio were found to have adverse impact on national saving. A more focused study of Hussain (1996) investigated the importance of financial development and deepening for saving in Pakistan by using cointegration technique and found quite favourable effects of these variables on Savings.

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Rehanna (1993) emphasized on economic and demographic factors effecting savings behavior through use of micro level data. She found that average propensity to save declined from 1969 to 1988 (27.35-14.42), thus marginal propensity to save also declined from 0.455 to 0.234. While estimating savings function based on transitory income and permanent income (Calculated as an average of current and past two years measured income), Qureshi (1981) found Marginal propensity to save (MPS) out of transitory income was much higher as compared that of Permanent income. Further his results showed significant positive impact on savings, of call money rate, yield on long-term government bonds and average interest rate on scheduled banks' savings deposits. Khan et al (1992) could not find evidence of Harberger-Laursen-Metzler effect, further they concluded that significant positive impact of rate of interest on Savings show a state of financial repression in the country. Mahmood and Qasim (1992) followed Baghwati (1978) approach to estimate the relationship between trade regimes and savings. He found that during import substitution regimes marginal propensity to save (MPS) was high (0.15), but with flexible exchange rate it did not help to increase MPS any more. Further he illustrated that foreign capital inflow in Pakistan has adversely affected the savings efforts under all trade regimes.

In other studies, Masson (1998) has examined a very comprehensive model for different countries with time series analysis. Significant effects of budget deficit, government's current expenditures, public investment, GDP growth rate, inflation rate and dependency ratio have been observed in the study. Harberger (1950) and Laurson (1950) state in their papers that an unfavorable terms of trade scenario (i.e. reduction in export earnings) would lead o a fall in savings as current income falls, on the other hand Obstfeld (1982) argued that deterioration in TOT would also mean that import spending would reduce as people want to maintain a target level of real wealth. Thus, making it an empirical question. Cultural factors in Saving-Consumption decisions of different communities do matter. Friend (1986) observed that differences in saving-income ratios across countries are represented by cultural differences or differences in tastes. Hence private savings can be increased more effectively through non-economic means in addition to economic policies. Kazmi (1993) quantified the factors causing the differential in savings rate of India and Pakistan. He concluded that the difference of National savings rate between the two (7.9) for the period of 1960-88 are due to the differences in Real GNP growth rates, Population growth, Government expenditure on education, Government expenditure on defense, level of Exports and Imports, Gross external Aid, Taxes, Inflation and Interest rates.

This paper assesses the long-run behavior of saving and investment in Pakistan using appropriate econometric and statistical techniques. The data used in the study has been checked for the time series properties and accordingly the specification of the variables used in models have been changed. There is a draw back on this account in earlier studies on Pakistan. Current paper stressed for a revisited evaluation of saving-investment behaviour. The results show significant effect of GDP growth and government's current expenditure on saving along with insensitivity of individual to interest rates. Investment is considerably responsive to domestic saving, yield and uncertainty in the country.

The remainder of the paper is organized as follows. Section II discusses the saving-investment situation in Pakistan and relative to East Asian countries in the statistics framework for the last two-three decades. Section III reviews the potential

determinants of saving and investment. Section IV contains the methodology, data issues and modeling and Section V provides the results. The final Section VI summarizes the policy discussion and conclusion.

II. Saving and Investment Behavior in Pakistan

Before moving to the analysis of determinants of saving and investment, this section describes the common trends of the two in Pakistan, followed by its comparison with other Asian countries. The government of Pakistan has been launching many schemes to increase the overall rate of saving in the country but due to low incomes,

Table 1

<i>Growth Rates (percent)</i>			
Year	GDP	National Saving	Total Investment
1980-81	6.4	31.2	9.83
1981-82	7.56	9.9	19.62
1982-83	6.79	33.9	9.63
1983-84	3.97	2.1	12.04
1984-85	8.71	-3.4	12.81
1985-86	6.36	25.5	11.58
1986-87	5.81	26.9	13.46
1987-88	6.44	-5.3	11.07
1988-89	4.81	17.7	19.65
1989-90	4.58	12.1	11.34
Standard Deviation for 1980s	1.42	14.27	3.64
Average	6.14	15.06	13.10
Maxima	8.71	33.93	19.65
Minima	3.97	-5.28	9.63
Coefficient of Variation	4.31	1.06	3.46
1990-91	5.57	18.81	19.35
1991-92	7.71	41.91	26.16
1992-93	2.27	-11.51	13.8
1993-94	4.51	35.19	10.01
1994-95	5.26	8.87	13.42
1995-96	6.76	-7.83	16.42
1996-97	1.93	14.53	8.09
1997-98	3.5	35.93	9
1998-99	4.2	-10.22	-3.6
1999-00	3.9	44.64	10.2
Standard Deviation for 1990s	1.83	21.91	7.84
Average	4.56	17.03	12.29
Maxima	7.71	44.64	26.16
Minima	1.93	-11.51	-3.6
Coefficient of Variation	2.49	0.78	1.57
2000-01	1.8	28.22	8.6
2001-02	3.1	16.36	3.2
2002-03	5.1	16.46	9.3
2003-04	6.4	0.35	22.3

Source: Economic Survey of Pakistan (various issues)

spendthrift nature of the people and improper implementation of the policies it could not achieve the desired goals.

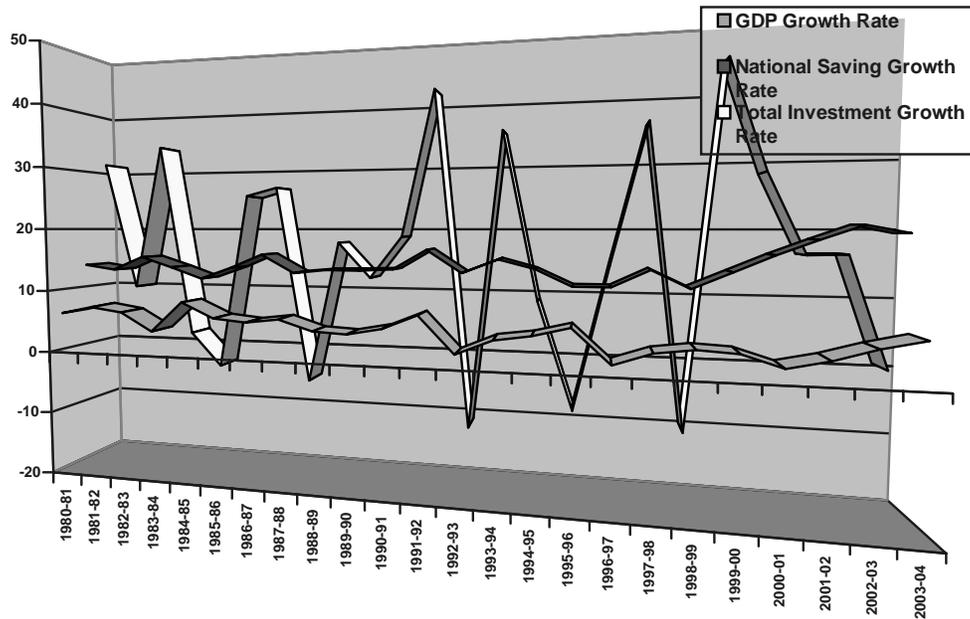
If we see the graph below and table 1 above, it could be seen easily that the three are positively correlated. The slopes where the GDP growth has fallen are those periods when the saving and investment have gone down as well. For example in 1981-82, with GDP growth rate of 7.56% the simultaneous growth rates of savings were 9.9% and that of investment were 19.62% (7.71% growth of GDP in 1991-92, combined with a growth rate of 41.91% for Savings growth and 26.16% for national investment). This correlation is stronger between GDP growth and investment and less strong for national savings growth rate where more lagged relation is present (GDP growth rate to Savings)¹.

This is evident when increased GDP growth rates have led to increase in savings rate for next years (i.e. growth rate of 7.56% for GDP in 1981-82 led to a growth of 33.9% in the next year and 8.71% growth of GDP in 1984-85 was followed by 25.5% and 26.9% growth rates of national Savings growth in 1985-86 and 1986-87). Similarly a negative growth rate of -3.4% for national saving was preceded by a decline in growth of GDP from 6.79% to 3.97% in 1983-84. Where as GDP growth is higher when investment rate is high, e.g. in 1995-96 when GDP grew at a growth rate of 6.6% was matched with a growth of 16.42% of investments, in 2003-04 GDP growth of 6.4 is matched with a growth of 22.3 in Investments and when GDP growth fell to 1.93% in 1996-97 mainly it was because investments growth fell to 8.09% in that year. The causality between the income and the saving/investment can be further empirically tested, but for our purpose the graph shows that there are strong relationships in either way.

The growth rates (for the period of 1980-81 to 2003-04) remained in the following range: 1.93 % (1996-97) to 8.71 % (1984-85) for GDP, -11.51% (1992-93) to 44.64% (1999-00) for saving and for investment it was between -3.6% (1999-00) to 26.16% (1991-92). In 1990s the growth rates have shown a highly volatile trend, and the situation is worse as compared to 1980's (lowest growth rates of the three were in 1990s). Interestingly high volatility and low average of GDP growth rates in 1990's are paralleled with high volatility and low average growth rates of savings and investment respectively. This strongly indicates the significance of the causal relationship between them. Thus suggesting a sustained high average growth of saving and investment over time would lead to a sustained growth of GDP, which simultaneously (or if generated at lead) would again create enough space in the long-run to generate a sustained level of savings and investment. Thus this would trigger a cycle in which high growth rates in previous period will automatically generate higher levels of savings and investment and so on. The GDP growth went down to 4.56% in 1990s as compared to 6.14% in 1980s on average. Although savings rate improved on average from 15.06% to 17.03% (with increased volatility), where as investment rate fell from 13.10% to 12.29% in that period on average. But generally minimum possible rates for the three declined in 1990's. Investment dropped the most, from 9.63% to -3.6% (for Savings -5.28 to -11.51, for GDP 3.97 to 1.93). Overall GDP growth had been the most consistent, then investment and savings is more volatile as compared to the two (see the Coefficients of Variations).

¹ The effect on Savings of GDP growth, called Mckkinon (1973) effect, is tested empirically in the later estimation chapters as well and found to be significant.

Figure: 1



Total investment outlay in 2003-04 is estimated at Rs 253.4 billion against Rs 171.8 billion during the last year, which shows an increase of 47.5 percent in nominal term. This high rise is due to the earlier decline in 2000-01 and 2001-02 and mainly driven by the investment in the textile sector. Domestic savings are estimated to finance almost all the requirements of the total investment. National saving rate as percent of GDP has gone down from 20.6% to 19.5% and foreign saving as percentage of GDP which is negative for the last three years, has relatively increased from -3.8% to -1.7% in 2003-04, suggesting that the reliance on foreign savings in financing total investment has gone up in the current fiscal year. This negative foreign saving is well represented by the surpluses in country's current account history in the last four years.

Table 2
Cross-country Comparison

	1960	1965	1970	1975	1980	1985	1990	1995	2000	2001
Gross fixed capital formation* (% of GDP)										
Japan	29.1	29.9	35.6	32.6	31.7	27.7	32.2	27.8	26.3	25.8
Korea, Rep.	11.4	15.4	25.5	26.8	32.4	28.8	37.3	36.7	28.4	27.1
Singapore	..	21.1	32.5	35.9	40.7	42.2	32.5	33.9	29.4	29.2
Hong Kong,	..	34.3	19.7	21.6	32.4	21.1	26.4	30.6	26.3	25.8
Thailand	13.9	18.8	23.7	22.9	27.8	27.2	40.4	41.1	22.1	23.3
Malaysia	11.9	16.4	18.2	25.6	29.9	28.7	33.0	43.6	25.6	24.9
Indonesia	..	..	..	..	21.6	22.4	28.3	28.4	21.0	20.9
Pakistan	11.4	21.3	14.3	14.4	17.6	16.5	17.3	17.1	14.4	14.3

Gross domestic savings (% of GDP)

Japan	33.4	33.4	40.4	32.9	31.5	31.7	33.7	29.6	27.4	26.1
Korea, Rep.	2.0	8.1	15.3	20.2	24.1	30.8	36.5	35.7	31.3	29.0
Singapore	8.8	9.9	18.4	29.4	38.1	40.6	43.6	50.7	49.5	46.0
Hong Kong, China	18.0	31.5	28.2	28.6	34.1	31.1	35.8	30.5	32.3	31.1
Thailand	14.1	18.6	21.2	22.1	22.9	25.5	33.8	35.4	31.4	30.1
Malaysia	25.9	22.0	24.3	23.3	29.8	29.9	34.5	39.7	46.9	47.2
Indonesia	12.4	7.9	14.3	26.6	38.0	30.3	32.3	30.6	25.2	25.5
Pakistan	..	..	8.9	4.7	6.9	5.9	11.1	15.9	14.4	14.6

Source: World Development Indicators 2003

* Gross fixed capital formation is taken as a proxy of Total Investment

Table 2 shows the standing of Pakistan among East Asian countries in terms of the saving and Investment situation. By glancing at the figures above it could easily be stated that the saving and investment are the stimulus which is lacking in Pakistan for its desired economic growth. As indicated by the table above, Saving and investment rates have experienced a vast divergence within the developing world: these rates have risen steadily in the East Asia and stagnant in most part of South Asia. In case of Pakistan, low saving and investment rates along with high consumption spending over the past three decades have characterized the economy. These East Asian countries show a high rate of domestic saving and investment not only in absolute terms but relative to Pakistan as well.

In case of the domestic investment, Pakistan is facing the similar situation as of saving (as in most part of Pakistan history there were not much funds to invest due to low saving in the country). In 60's Pakistan's Domestic investment (proxy by Gross fixed Capital Formation here) was almost the same as that of Korea, Malaysia and Thailand. Only Japan had 29.1% of GFC as a percentage of GDP, then in 1965 still Pakistan was ahead of them, but afterwards it dropped. In 1995 Pakistan's closest country was almost spending twice as much as Pakistan for her investment expenditure (Indonesia with 28.4% of GDP vs. Pakistan's 17.1% of GDP). Thus indicating that countries which were at par with us in terms of Investment in 1960's have increase their investment spending much more that Pakistan both in absolute and relative terms. Pakistan was having domestic investment at 14% as a percentage of its GDP in 1970, and it was moving around the same figure till 2000. If we see the other countries sited above, Singapore had an investment rate of 42% of its GDP in 1980. All of other countries are having their investment rates in the range of 22% to 46% in the above mentioned years.

Similarly on the Gross Domestic Savings (GDS) front it is even worse. Again in 1960's Pakistan was much ahead of Korea and Singapore, but these countries witnessed a good deal of increase in domestic savings level. Where Korea went up to 36.5% of GDP for Domestic Savings in 1990 and Singapore had almost half value of GDP as Domestic Savings in 1995. Japan and Hong Kong, China witnessed most stable rates of GDS. Japan has more than four times the domestic saving rate as compared to Pakistan in 1970, then in the year 2000 it was still almost twice of the Pakistan's rate. The closest was Indonesia with a rate of 14% of GDP as Domestic Saving in 1970 as compared to 9.0 % of Pakistan's, but the differential grew to 25% and 14% in 2000. After 1965 no country had a single digit GDS, but Pakistan witnessed it in 1970's and 80's. Even Thailand went from 14.1% to 35.4% in 1995.

Where as Malaysia showed a continuous increase from 25.9% in 1960 to 47.2% in 2001.

These figures could be taken as an indication as to how these economically developed countries been formed by a sustained high growth rates of Savings Investment and how they achieved the high economic growth rates. These countries have high saving and investment on sustained basis which is a pre-request for sustainable economic growth. Pakistan despite its pronounced efforts could not gear up to achieve the targets of high saving and Investment and resultantly could not thrive economically as much.

III. Determinants of Saving and Investment:

1. Determinants of Saving

The economic literature on saving provides a long list of factors affecting the saving rates. Economic and demographic factors are important determinants of saving behavior (Rehanna 1993). Saving can be promoted by ensuring the security of banking system and improving excess by small savers (World Bank, 1993). By having independence of central bank, increase in financial deepening, increasing the range of financial products and banking reforms would also lead to greater savings (Khan 1993). The impact of govt. deficit on private saving, a full offset (Ricardian Equivalence) is rejected by the data. Public investment, if viewed as productive, is not expected to require further taxes and should not generate a private saving response (Mason 1998). Burney and Khan (1992) found while estimating the savings function for micro data that average income and savings of an urban household are more than those of Rural. But on the other hand propensity to save for rural area is more than those of urban.

Empirical studies suggest that increase in real interest rate provides an incentive to private household to save more, induce corporate sector to generate its own savings due to high cost of borrowing, thus overall saving would increase (Iqbal 1993). But the effect of interest rates on consumption is ambiguous theoretically, being subject to potentially offsetting negative substitution and positive income effect, thus the net result depend on their relative strength which becomes an empirical question (Qureshi 1981) . Khan et al (1992) showed a significant positive impact of interest rate on savings rate. There are number of studies which suggested for significantly positive to significantly negative coefficients for this variable. However, consumers may not plan their lifetime consumption but instead respond primarily to current income and may save more (Mason 1998). Iqbal (1993) also found a positive relationship between domestic real interest rate and savings.

Modigliani argues that a higher growth rate raises aggregate income of those working relative to those not earning labor income. This view is based on the life-cycle hypothesis. In fact, saving seems to be positively correlated with income growth in developing countries. A rise in per capita income above subsistence level may lead to higher savings in developing countries. Khan et al (1992) found that per capita income has a strong effect on savings rate. Further a higher rate of economic growth may also stimulate savings through what Mckinnon (1973) has termed as the 'Portfolio-Effect' of growth. A rapid growth of income leads to a rapid growth of

savings as people tend to save more out of transitory income thus confirming Harberger-Lawrson-Meltzer effect (Qureshi 1981). Khan et al (1992) found that growth rate of real income had little effect on savings (correct sign but insignificant results). Khan (1993) and Eric (1993) used remittances and real rate of interest as explanatory variables but latter dropped them due to their insignificance. By nature of remittances and the Household characteristics of recipient it is observed by Gilani (1981) and Amjad (1986) that almost 35 to 40 percent of remittances are saved and invested in the case of Pakistan. Iqbal (1993) confirmed their results at macro level with his result of a positive impact of remittance on savings.

Age structure of a country also effect saving rates. If a high proportion of the population is of working age then the economy should have a high rate of private saving (life-cycle hypothesis). Higher proportions of the young and elderly in relation to persons of working age-dependency ratio are associated with lower saving rates (Rehana 1993). Khan et al (1992) found that there is a negative relationship of dependency ratio and savings rate. If there is a transitory improvement in terms of trade, because it causes only a transitory change in income, it should lead to higher saving rather than higher consumption, again confirming the direction of the Harberger-Lawrson-Meltzer effect (Obstfeld 1982). Permanent shocks to the terms of trade would have ambiguous effects that should be small in magnitude. Iqbal (1993) for Pakistan's case found that changes in TOT have a negative impact on our corporate savings and a positive effect on public savings. On the other hand, Khan et al (1992) found that TOT has a significant positive impact.

Higher inflation can lead to lower savings by increasing uncertainty and in order to maintain the real levels of consumption, higher spending takes place resulting in low levels of saving (household savings). Inflation can also increase savings through real balances effect, where holders of money balances and other financial assets try to restore the real value of their holdings after an increase in prices (both for household and corporate entities). Further higher investment, financed through monetary expansion at full capacity will generate its own savings as ensuing inflation directs resources from relatively low savers in the economy to relatively high savers for corporate entities (Keynesian approach to inflation finance). Thus making it an empirical question (Qureshi 1981). Iqbal (1993) observed in his study that expected inflation has a negative relationship with savings, thereby stating that incase of expected inflation people would prefer to consume today.

2. Determinants of Investment:

Provision of good infrastructure, creation of a favorable investment climate by adopting stable macroeconomic policies and by providing stability, secure property rights and good industrial relations have been important factors for raising rate of investment (World Bank 1993). Law and order situation, feasible and favorable investment opportunities and the economic credibility among the world economies leads to a positive impact on the total investment in a county. The role played by financial repression, keeping interest rates below market clearing levels, is, however, controversial. The potential problem is that the need to ration credit, raises the potential for misallocation of capital.

The theory of investment also gives the introduction of some determinants that are feasible to test quantitatively as in case of time series analysis. In this respect, Christy

and Clendinning (1976) concluded saving rate and interest as important determinants. Moreton and Driver (1991) has suggested standard deviation of inflation as best estimate for uncertainty in effecting investment decisions. Mankiw (1994) has emphasized on the profit or yield on the investment.

IV. Methodology, Models and Results:

We used the Ordinary Least Square method to regress saving and investment on their theoretical and potential determinants. Our model of saving determinants is primarily based on Masson (1998) and is specific to Pakistan. The data consists of observations collected for the 33 years i.e. from 1971-2003. To remove the trend problems in the series and to make the variables consistent with the time series properties required in the econometric analysis, we used some variables as percentage of GDP and some as their growth rates. We also checked stationarity of the variables (see table 3) and accordingly change the specifications of the variables and the models to get the reliable results. This way the analysis has taken care of the issues ignored in the earlier studies on Pakistan and the results are quite reliable in terms of statistical interpretation. We also applied, where appropriate, the Chocrane Orcutt method by using the autoregressive process AR (I) to remove autocorrelation from the series.

Table 3

Variable	Stationary			Difference Stationary		
	Intercept	Intercept and Trend	None	Intercept	Intercept and Trend	None
BDG	√ *	-	-	-	-	-
DSG	-	√ *	-	-	-	-
FSG	-	-	-	√ *	-	√ *
GCEG	√ **	-	√ **	-	-	-
GDPG	-	√ *	-	-	-	-
GIG	-	√ **	-	-	-	-
LIR	-	-	-	√ *	-	-
LWP	-	√ *	-	-	-	-
RIR	-	-	-	-	√ *	-
NSG	-	-	-	-	√ *	-
PLG	-	-	√ *	-	-	-
RMTR	-	-	√ *	-	-	-
TIG	√ **	-	-	-	-	-
TOT	-	√ *	-	-	-	-
YR	-	-	-	-	√ *	-

* shows 5% level of Significance

** shows 10% level of Significance

The models used in the analysis are explained below:

Saving Model

The Saving equation, which we have tested for potential determinants, is as follows:

$$NSG = a + b BDG + c GCEG + d GIG + c GDPG + f RIR + g TOT + h RMTG + \epsilon_i$$

where the

NSG is the National Saving growth rate

BDG is the Budget Deficit as % of GDP

GDPG is the growth rate of Gross Domestic

a is the intercept term

GIG is the Government

Investment as % of GDP

Product
TOT is the Terms of Trade index
GCEG is the Govt. Current Expenditure
as % of GDP

RIR is the Real Interest rate
RMTG is the Remittances growth
 ϵ_i is the error term

Investment Model

The model tested is as follows:

$$TIG = a + b LIR + c YR + d LWPID + e FSG + f PLG + g DSG + \epsilon_i$$

where the

TIG is the National Investment growth rate
YR is the yield on bonds of maturity of one
year but less than two years, taken as the proxy
of return on investment
FSG is the Foreign Saving growth rate
PLG is the Public Loans growth rate
 ϵ_i is the error term

LIR is the lag of Interest Rate at
which loans are forwarded
LWPID is the lag difference of
Whole Sale Price Index, taken for
the uncertainty and expectations
DSG is the Domestic Savings
growth rate

Data Issues

The data collected from the Economic Survey shows discontinuity in the data before 1981 and definitions of some of the variables have been adjusted. To make the data consistent some values have also been obtained from other data sources like State Bank's Annual Reports. The indices were also corrected for the differences in their base years. In all this exercise, due attention was given for consistency and accuracy of the data.

Econometric Results

The results obtained from the empirical set of analysis are described below in this section separately for saving and investment.

1. Saving function

The results for the saving function have been reported in table 4. Initially, the model was estimated without taking into account the persistent autocorrelation. Due to the presence of autocorrelation, the model was corrected for autocorrelation and the Durbin Watson test statistics was improved to 1.9687. The saving function as whole showed a good fit as the goodness of fit stood at 76.6%. The results reported in second column are based on serial correlation correction. The coefficients generally have signs that accord with economic theory except for budget deficit, which has negligible effect with t-value being insignificant and therefore, rejecting the possibility of Ricardian Equivalence. People are either naïve or they consider government deficit spending productive enough that in future they will not be taxed further to cover the gap. This result is consistent with that of Mason (1981). Increase in govt. current expenditure raises savings and its effect is highly significant, which means that govt. current expenditures are mainly contributive towards the income of people and thereby increases savings. The coefficient of govt. investment is negative (but insignificant) which shows that these spending are not providing the extra returns for individuals/corporate sector to save more.

Table 4**Results for Saving Function**

Variables	Corrected for Serial Correlation
Constants	-3.51 (-.61)
Budget Deficit/GDP	-0.0087 (-.069)
Govt. Current Expenditure/GDP	0.74 (4.868)*
Govt. Investment/GDP	-0.2667 (-1.011)
GDP Growth Rate	0.415 (2.44)*
Real Interest Rate	0.087 (0.112)
Terms of Trade	0.022 (0.99)
Remittances Growth Rate	0.032 (3.46)*
R-Square	0.766
Standard Error of Regression	1.33
Durbin Watson Statistics	1.969

Note: The figures in parenthesis are t-values.

'*' represents 1% level of significance and '**' represents 5% level of significance and '***' represents 10% level of significance.

Our estimation results predict the increase in GDP growth rate positively and significantly affects savings rate thereby confirming the Mckinnon's 'portfolio-effect'. This result is in line with economic theory and previous studies (see Khan et al 1992, Khan et al 1994 and others). One unit growth rate increase in GDP would lead to almost half unit increase in savings rate, suggesting that people tend to save more out of transitory income which is consistent with results of Qureshi (1981). Remittances showed similar results of positively effecting savings rate. These are in line with results of Gilani (1981) and Amjad (1986) which were based on micro data set. But are significantly different from those of Iqbal (1993) and are on the lower side.

While testing for effects of increase in real interest rate, it was estimated that it would lead to increase in savings rate, thereby suggesting the possibility of strong substitution effect and/or financial repression as observed by Khan et al (1992, 1994).

But no strong conclusion could be drawn as the results are insignificant, which yield a possibility that in Pakistan savings are mainly for precautionary purposes rather than for an income generation activity. Harberger-Lawrson-Meltzer effect could not be found as terms of trade variable was not significant, although positively affecting the savings rate. This is in line with Khan et al (1992, 1994) results. The constant term is insignificant thereby suggesting that most of the variation is explained by the above explained variables.

2. Investment function:

The Results for the investment function have been reported in table 5. The Durbin-Watson for this estimation turned out as 1.94, which is considerably good from a no-autocorrelation point of view. The coefficients in the table generally have signs that accord with intuition except the lag of interest rate, which have positive sign with insignificant t-value showing a considerable difference from a normal micro level investor perspective. We used lag of loan-able funds rate because current investment decision would be made in one period before thereby applying lag interest rate. Insignificance of interest rate could due to multiple reasons. First as for most part of the data due to financial repression true interest rates were not available. Secondly as business is made after cost and benefit analysis, it might be the case that increasing interest rates are matched with parallel increase in returns therefore making it insignificant. Thirdly it could suggest some estimation methodology problems as well. Largely investment is insignificant to interest rate for the case of Pakistan. Return on yield to bonds of more than one year but less then two years was taken as a proxy for the return to investment in short run, it showed highly significant positive coefficient of .649, which confirms the second argument of the above explanation. This result is in line with those of Mankiw (1994). We used lagged index of whole sale prices as a measure of uncertainty in business. Its result is highly significant and consistent with theory. It showed a negative coefficient; thereby stating that with increase in uncertainty investor confidence reduces thus a dropping investment level. These results are in line with those of Moreton and Driver (1991). Increase in the domestic saving and foreign saving both lead to a positive significant and positive non significant effect respectively. Increase in domestic saving of one unit leads to .36 units change in investment. On the other hand, insignificance of foreign savings in affecting national investment suggests that in case of Pakistan domestic resource mobilization is more appropriate policy option to increase investment. Public loans show a positive but insignificant coefficient. It is because public loans are taken to finance those development projects which by being the nature of a public good leads to an increase in private return, thus increasing anticipated returns to investor and hence positively effecting the investment.

Table 5
Results for investment Function

Variables	OLS Estimates
Constants	2.569 (1.56)***
Lag of Interest rate	0.615 (0.158)
Yield on Bonds	0.649 (4.273)*

Index of lag of difference	-0.0016
of whole sale prices	(-4.55)*
Foreign saving	0.083
	(1.2)
Public Loans/GDP	0.072
	(1.21)
Domestic saving/GDP	0.36
	(3.99)*
<hr/>	
R-Square	0.856
Standard Error of Regression	0.847
Durbin Watson Statistics	1.94

Note: The figures in parenthesis are t-values.

*' represents 1% level of significance and '**' represents 5% level of significance and '***' represents 10% level of significance.

In the investment model, the goodness of fit is around 85.6%. There is a large part of the regression going to the constant term that shows that there exists a large autonomous investment portion in the total investment, which is also almost significant. It shows that there exists an investment, which is primarily done as the “wear and tear cost” of the capital.

V. Conclusion:

The investment and saving rates in Pakistan could not achieve significant growth in the past two to three decades and resulted in slow economic growth. Moreover, comparison with the East Asian economies reveals clearly that Pakistan has long way to go. To be at the same level of growth with these fast growing economies, Pakistan needs to finance the desired investment through increased domestic saving without undue reliance on the foreign resources as these introduce an element of unsustainability. So, it is essential to get the saving rate up to 20-25 percent, if we want to follow the model of these countries. There is need to boost up the saving and investment in the country through effective policies giving due consideration to the effectiveness of the potential determinants. In view of the results obtained in this paper, we can make the following conclusions:

- Budget Deficit and Government Investment are not significant in determining the savings in Pakistan, i.e. there is no Ricardian Equivalence and the saving rate is not related to the return on Government Investment as well.
- By the increase in the Government’s Current expenditures more resources are transferred towards the people in the form of increased wages, and clearing of more liability on the part of Government and other related heads thus increasing their savings as well.
- High income leads to high saving, thereby confirming Mckinnon effect. Suggesting that if there is an arbitrary big push in GDP growth for some period it would lead to higher savings, which would positively effect investments, and increase in investments, would increase GDP, which would again increase Savings. Thus by initiating that push a cycle of development can be started.

- Saving behavior is insensitive to the interest rate. Most people save to cover the future expenditures, i.e. Education, Marriages etc. So there is a need of restructuring of the financial market to lure more saving.
- Remittances effect the saving positive and significantly. More effective policies for transfers of Remittances and further job creation in the abroad should be explored.
- No Harberger-Lawrson-Meltzer effect could be found for Pakistan's National Savings, i.e. improved TOT are not affecting savings significantly, possibly because of heavy debt retirement in the past (canceling out the any positive impact of TOT improvement).
- Public and Foreign Investment are canceling out the negative effect of interest rate on private investment. There should be a check of Causality for the Interest rate and Investment.
- Return on investment is an important determinant of investment. Its role in investment decisions making carries such weight that it outweighs negative impact of increased rate of borrowing on savings.
- Expectations do play a major role in Investment decisions in the case of Pakistan. Any type of uncertainty reflected through increased prices (e.g. raw material, energy costs etc) would lead to a fall in investments.
- Domestic saving is a major source of the Investment, on the other hand foreign saving is not effective for Investment in Pakistan.
- Government should make policies supportive of increase in domestic saving rather than foreign reliance.

This was a brief over view of the behavior and determinants of the saving and Investment in Pakistan, but there is a need to look further into the micro foundations of the subject. Further in some variables the causality has to be confirmed before making any rationale decision.

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