Role of Private Investment in Economic Development of Pakistan

Muhammad Haroon* and Mohamed Nasr**

Investment plays a very important and positive role for the progress and prosperity of any country. Many countries rely on investment to solve their economic problems such as poverty, unemployment etc. Pakistan as a developing country aims at achieving socio-economic development. The Pakistani government is working very hard to attract investors for investment in different sectors of the economy. For this, the government has taken many steps to encourage private investment and to increase the pace of economic development in the country. Reasons that Pakistan is good destination for private investment include: Its wide range of sectors open for investment, the Pakistani expanding infrastructure, cheap labor, and stability and Predictability of its economy. This study is expected to contribute to an important aspect of the economy of Pakistan known as Private investment and its determinants during the financial period from 1986-87 to 2007-08, and the factors which determine it. The study will analyze those different determinants including interest rates, GDP, inflation rate, public investment in infrastructure, domestic savings, subsidies, taxes and ratio of yearly pay-back debt to the GDP. Also, it will test significance of these determinants. The study will discuss the local environmental conditions and what should be done so that local products may have improved quality not only for local consumption but also for exports, especially for the Agriculture Sector in order to improve the agro-industrial products providing raw material to the other sector of Industry. This study intends also to investigate the impact of these different factors on the private investment of Pakistan through a model where private investment would be used as a dependant variable and such explanatory variables as interest rate, governmental development expenditures, inflation rate etc. The study expects to prove that Indirect taxes have a negative impact on private investment. The study is expected also to prove that the interest rate has a negative impact on private investment. GDP, Domestic savings and Government development expenditures (PSDP) are expected to have positive relationships with private investment. The study expects also to prove that there is a negative relation between debt servicing and private investment. This study will be useful for the finance decision makers in Pakistan. It is expected to recommend more incentives by Pakistani government for private investment. Due to time limitations, the study will not consider an important part of private investments that is foreign direct investment (FDI). Still, it will be recommended that special efforts should be made to attract FDI of Pakistanis living, and working abroad by improving the legal and socio economic environment for their investment under a stable political government.

Field of Research: Finance

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1. Introduction

Investment plays a very important and positive role for the progress and prosperity of any country. Many countries rely on investment to solve their economic problems such as poverty, unemployment etc. Developing countries like Pakistan try to learn from each other how to attract private investors because proper investment in proper economic sectors can change their economic conditions quickly.

Pakistan as a developing country aims at achieving socio-economic development. For this, Pakistani government is working a lot to attract investors for investment in different sectors of the economy. For this, the government took many steps to encourage private investment and to increase the pace of economic development in the country.

Some of the advantages of private Investment are

1. It increases the level of employment in the country.
2. It increases the individual income. As a result their standard of living would improve.
3. It helps to reduce the poverty in the country.
4. It helps to increase the per capita income in the country.
5. It pushes up the growth rate of GDP and GNP.
6. It also helps to attract foreign investors to invest in the country, specially Pakistani living and working abroad.
7. Positively growing private investment has a positive impact on the economic development.

Pakistan is a developing country trying to pass the stages of development from many years. But Pakistani investment policies changes with the change in governments. These policies plays very important role for the smooth growth of the country and for attracting investors.

1.1 History of Investment Policies in Pakistan

During 1950s role of the public sector was restricted to only four industries (arms and ammunition, generation of hydroelectric power and manufacturing of railway wagons, telephones, telegraph lines, and wireless apparatus) out of 27 basic industries. In 60s the economy was mainly dominated by the private sector in major areas like insurance, banking, in certain basic industries, and international trade in major commodities.

During 1970s, the government nationalized major industries and financial institutions. So, because of this governmental policy, for many years investors were hesitant to invest in Pakistan.

During 1980s, after nationalization government decided to start with a pattern of a mixed economy, with the private and public sectors reinforcing each other.
Despite various incentives, the government of Pakistan had been unable to attract many investors.

During the 1990s a very important success of this time was the start of privatization and deregulation of public industries, which actually helped a lot to restore the confidence of the investors.

During 2000s, although a number of incentives have been given but overall climate of the country was not yet investment friendly because every day there were blasts in many parts of the country and also globally there was a slump in the economy. But it is still hoped that in the near future all the problems would disappear and we would be among the leading nations of this world. Insha Allah

On basis of the above mentioned policies private investment changes from time to time; this change in private investment is explained by the graph 1.1 shown below

Maximum reduction is found in the year 1998-99 which is the time of nuclear blasts by the Pakistan and it was also last time of Nawaz government. Again it goes down in 2007-08 might because of the global economic slump.

2. Literature Review

Many researchers have studied private investment from different perspectives, and discussed focused variables and their relationship differently. Most relevant and useful studies for this study are included.

Sajawal and Arshad (2007) divided the factors influencing private investment into Economic factors and Non-Economic factors. After testing the hypothesis, results showed that most traditional factors had little or no impact on private investment. Finally they concluded that in Pakistan the policy needed to improve the entrepreneurial skills so that people might utilize the funds for productive purposes which could help to reduce the budget deficit of the country.
Abdul Rashid (2006) investigated the linkage between public and private investment in Pakistan. He found that public investment crowded in private investment and proved that both were complements to each other depending on the type of public investment. Findings suggested that private investment could be enhanced by increasing public investment in only infrastructure.

Looney and Fredriken (1997) studied the possibility whether public investment induced or crowded out private investment. From the analysis of data it is seen that private investment showed a rapid positive trend. Focus of government investment shifted from large scale manufacturing to energy sector which helped a lot to attract private investment in the country.

Khan.M and Rinluhart, C (1990) studied private investment in the developing countries and discussed how those countries has many economic problems such as low growth rate, inflation and foreign debt, deficit in trade balance and low standard of living. They concluded that private and public investment could complement each other rather than compete with each other. They found out that private investment had larger impact than public investment on economic growth.

Abbas Valadkhani (2004) studied the determinants of private investment in Iran. He found a negative relationship between inflation and private investment and that a 1 percent increase in inflation in the long run would result in 1 percent decline in investment in the short run.

Temitope W.Oshikoyo (1994) analyzed the determinants of domestic private investment in eight African countries during 1970-1988. Results found that infrastructure investment had a positive impact while non-infrastructure had negative impact on private investment. Also the estimated impact of domestic inflation rate on private investment behaviour in middle income countries is positive and insignificant.

Patrick, L (2006) studied determinants of private investment in Botswana and found a positive and significant impact of GDP growth on private investment. Public investment had a negative relationship with private investment depending on the situation that there was public non-infrastructure investment in the country. In his study, Patrick found an insignificant impact of inflation rate on private investment in both short and long run.

Bazoumana (2004) analyzed the determinants of private investment in Senegal. He found a significant relationship between private investment and its explanatory variables. Public infrastructural investment was found positively related with private investment, GDP. Credit to private sector and terms of trade has a significant negative impact on private investment.

Khaled Sakr (1993) investigated the determinants of private investment in Pakistan with special emphasis on public investment. After testing the model he
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found that private investment got a positive relation with GDP growth, with credit extended to the private sector and with government investment.

3. Framework and Methodology

The purpose of this research is to contribute very important aspect of the economy known as Private Investment and its determination in Pakistan. In this paper it is analyzed that different variables which are supported by literature primarily helpful in determining private investment in Pakistan. For the analysis purpose we took data from different sources of 22 financial years from 1986-87 to 2007-08.

3.1 Method of Research

Data set
The data used in this study is mainly acquired from Federal Bureau of Statistics and State Bank of Pakistan (SBP) sites and from their libraries. Then some data is acquired from the Board of Investment (BOI), this collected data of all the variables formed the basis of our calculations, the study covers 22 financial years time period from 1986-87 to 2007-08.

Sample
Sample of the study is based on different economic determinants indicated by the different former studies. There are two types of factors linked with our economy known as Economic and Non-economic factors, Economic factors are used in this study because they are the most influential variables of the private investment.

Variables
This study undertakes the issue of identifying key variables that are strongly influencing private investment in Pakistan. The choice of variables is helped by previous studies on this topic in different years. All those economic factors are used in the study which strongly helps in determining private investment in the country.

3.2 Dependent Variable

1. Private investment

3.3 Independent Variables

1. Inflation rate in the country.
2. Indirect taxes imposed by the government.
3. Subsidies given by the government.
4. Discount rate as offered by the SBP.
5. GDP at market price
6. Domestic savings in million rupees.
In this section different hypothesis of interest in the study are discussed with intend to test whether a relationship that is supported by the literature holds true in our research or not.

3.4 Test Hypotheses: Hypothesis 1

\( H_{11} \) : Inflation rate have a negative impact on Private investment.

The study assumes that Inflation rate have a negative relationship with private investment. That means higher the rate of Inflation in the country then lower would be the interest of investor in investment.

**Hypothesis 2**

\( H_{21} \) : Indirect taxes have a negative impact on private investment.

It is assumed that taxes have a negative relationship with private investment. Only indirect taxes are used in this study because former studies have included them into their analysis and also it supports our study.

**Hypothesis 3**

\( H_{31} \) : Subsidies have a positive impact on private investment.

It is also assumed that subsidies have a positive impact on private investment on both sides means to producers and consumers.

**Hypothesis 4**

\( H_{41} \) : Interest rate have a negative impact on Private investment.

The study assumes that there may be a possible negative relationship between Interest rate and private investment. In place of Interest rate a proxy discount rate is used because it represents study hypothesis truly.

**Hypothesis 5**

\( H_{51} \) : GDP has a positive impact on private investment.

The study also assumes that GDP has a positive impact.
Hypothesis 6

\( H_{61} \): Domestic savings will have a positive impact on private investment.

The study also assumes that Domestic savings have a positive impact on private investment. Higher the people would save higher would be the investment in private sector. Because savings are utilize into investment.

Hypothesis 7

\( H_{71} \): Public development expenditures will have a positive impact on private investment.

Public expenditures are divided into development expenditures and non-development expenditures. This study includes only development expenditures and assumes that they have a positive relation with private investment.

Hypothesis 8

\( H_{81} \): Debt servicing having a negative impact on Private investment.

Study assumes that there is possible negative relationship between amount paid for debt servicing and private investment.

Hypothesis 9

\( H_{91} \): Past Private investment have a positive impact on present Private investment.

It is expected that private investment of previous time has also a strong positive impact on present private investment.

3.5 Financial Model

To test the relationship between private investment and its different determinants the following model is used:

\[ IP = f (CPI, IT, SUB, RI, GDP, D.sav, GDE, D.serv, \epsilon) \]

- IP : Private Investment
- CPI : Consumer Price Index in percentage.
- IT : Indirect Taxes.
- SUB : Subsidies given by the government.
- RI : Rate of Interest (Discount rate).
- GDP : Gross Domestic Product.
- D.sav : Domestic savings.
- GDE : Governmental Development expenditures (PSDP).
Private investment (IP) is the dependant variable in the model. The remaining variables are considered as independent or determinants of private investment.

3.6 Model Specifications

\[ IP = \beta_0 + \beta_1 (CPI) + \beta_2 (IT) + \beta_3 (SUB) + \beta_4 (RI) + \beta_5 (GDP) + \beta_6 (D.sav) + \beta_7 (GDE) + \beta_8 (D.serv) + \epsilon \]

Where:
- IP : Private Investment.
- CPI : Consumer Price Index in percentage.
- IT : Indirect Taxes
- SUB : Subsidies given by the government.
- RI : Interest Rate (discount rate).
- GDP : Gross Domestic Product.
- D.sav : Domestic Savings
- GDE : Governmental Development Expenditures.
- D.serv : Debt Servicing.
- \( \epsilon \) : The Error term.

3.7 Analysis

This study Initially Descriptive analysis is used then quantitative analysis through different techniques like Multiple regression, Linear regression, Correlation. SPSS software is used in this study to analyze the data through regression and correlation.

3.8 Data Analysis and Discussions

This section includes descriptive as well as quantitative analysis and results of these two types of analysis are discussed in this section.

<table>
<thead>
<tr>
<th>Table 3.1 Descriptive Analysis</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Financial Years</th>
<th>Private Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986-87</td>
<td>200000</td>
</tr>
<tr>
<td>1987-88</td>
<td>400000</td>
</tr>
<tr>
<td>1988-89</td>
<td>600000</td>
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<tr>
<td>1989-90</td>
<td>800000</td>
</tr>
<tr>
<td>1990-91</td>
<td>1000000</td>
</tr>
<tr>
<td>1991-92</td>
<td>1200000</td>
</tr>
<tr>
<td>1992-93</td>
<td>1400000</td>
</tr>
<tr>
<td>1993-94</td>
<td>1600000</td>
</tr>
<tr>
<td>1994-95</td>
<td>1800000</td>
</tr>
<tr>
<td>1995-96</td>
<td>2000000</td>
</tr>
<tr>
<td>1996-97</td>
<td>2200000</td>
</tr>
<tr>
<td>1997-98</td>
<td>2400000</td>
</tr>
<tr>
<td>1998-99</td>
<td>2600000</td>
</tr>
<tr>
<td>2000-01</td>
<td>2800000</td>
</tr>
<tr>
<td>2001-02</td>
<td>3000000</td>
</tr>
<tr>
<td>2002-03</td>
<td>3200000</td>
</tr>
<tr>
<td>2003-04</td>
<td>3400000</td>
</tr>
<tr>
<td>2004-05</td>
<td>3600000</td>
</tr>
<tr>
<td>2005-06</td>
<td>3800000</td>
</tr>
<tr>
<td>2006-07</td>
<td>4000000</td>
</tr>
<tr>
<td>2007-08</td>
<td>4200000</td>
</tr>
</tbody>
</table>
3.9 Quantitative Analysis

For analysis of data two methods are used in this study: correlation and regression. Initially regression is used to check the impact of different independent variables on the dependent variable and also to test significance of this impact. In regression analysis, further variables are tested in two parts:

- **a-** Multiple regression
- **b-** Simple Linear regression

The correlation analysis is also used here in this study to find the relationship between all the variables and the degree of relationship between them.

3.10 Multiple Regression

\[
IP = \beta_0 + \beta_1 \text{(CPI)} + \beta_2 \text{(IT)} + \beta_3 \text{(SUB)} + \beta_4 \text{(RI)} + \beta_5 \text{(GDP)} + \beta_6 \text{(D.sav)} + \beta_7 \text{(GDE)} + \beta_8 \text{(D.serv)} + \varepsilon
\]

**Analysis:**
Tables 3.2 below include all the independent variables along with dependent variable.

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
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<tr>
<td>1</td>
<td>.999(a)</td>
<td>.998</td>
<td>.997</td>
<td>23999.56029</td>
</tr>
</tbody>
</table>

In the above table \( R^2 \) test and adjusted \( R^2 \) very good and supported results. Which shows 99% variation in Private investment is explained by the changes in independent variables.

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
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<tr>
<td>1</td>
<td>Regression</td>
<td>8</td>
<td>546971650</td>
<td>949.638</td>
<td>.000(a)</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>13</td>
<td>575978894</td>
<td>.229</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>21</td>
<td>7364.356</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Significant at \( \alpha = 1 \% \)
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Table shows significant result of F-statistics. This significant result indicates a highly significant relationship.

**Table 3.4 Coefficients (a)**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
<th>*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant) - 40843.215</td>
<td>34487.309</td>
<td>-1.184</td>
<td>.257</td>
</tr>
<tr>
<td></td>
<td>Inflation rate 46.967</td>
<td>2748.166</td>
<td>.017</td>
<td>.987</td>
</tr>
<tr>
<td></td>
<td>Indirect taxes -.670</td>
<td>.425</td>
<td>-1.577</td>
<td>.139</td>
</tr>
<tr>
<td></td>
<td>Subsidies .371</td>
<td>1.036</td>
<td>.358</td>
<td>.726</td>
</tr>
<tr>
<td></td>
<td>Discount rate 925.066</td>
<td>3274.753</td>
<td>-.282</td>
<td>.782</td>
</tr>
<tr>
<td></td>
<td>GDP .094</td>
<td>.031</td>
<td>3.081</td>
<td>.009*</td>
</tr>
<tr>
<td></td>
<td>Domestic savings .251</td>
<td>.115</td>
<td>2.190</td>
<td>.047*</td>
</tr>
<tr>
<td></td>
<td>PSDP 1.717</td>
<td>.259</td>
<td>6.630</td>
<td>.000*</td>
</tr>
<tr>
<td></td>
<td>Debt servicing -.202</td>
<td>.182</td>
<td>-1.109</td>
<td>.287</td>
</tr>
</tbody>
</table>

Significant at α = 1 %

From the above table we can easily analyze that all the other variables are giving expected study results excluding inflation rate which was highly insignificant and was showing a wrong relationship with private investment. Several transformation methods have been tried on the analyzed data such as log of (inflation rate) and Inflation rate at base year but results are not improved same insignificant results are found in case of inflation rate.
<table>
<thead>
<tr>
<th></th>
<th>Private investment</th>
<th>Inflation rate</th>
<th>Indirect taxes</th>
<th>Subsidies</th>
<th>Discount rate</th>
<th>GDP</th>
<th>Domestic savings</th>
<th>PSDP</th>
<th>Debt servicing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Private investment</strong></td>
<td>Pearson Correlation</td>
<td>.752</td>
<td>.071</td>
<td>1</td>
<td>.556</td>
<td>.972</td>
<td>.974</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Inflation rate</strong></td>
<td>Pearson Correlation</td>
<td></td>
<td>-.091</td>
<td>.956(**)</td>
<td>-.426(*)</td>
<td>-.370</td>
<td>-.482(*)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.000</td>
<td>.687</td>
<td>.090</td>
<td>.023</td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Indirect taxes</strong></td>
<td>Pearson Correlation</td>
<td></td>
<td></td>
<td>.983(**)</td>
<td>-.133</td>
<td>-.370</td>
<td>-.482(*)</td>
<td>1</td>
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<td>Sig. (2-tailed)</td>
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<td>.000</td>
<td>.687</td>
<td>.000</td>
<td>.023</td>
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<tr>
<td><strong>Subsidies</strong></td>
<td>Pearson Correlation</td>
<td></td>
<td></td>
<td>.983(**)</td>
<td>-.153</td>
<td>.959(**)</td>
<td>-.363</td>
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<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
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<td>.497</td>
<td>.000</td>
<td>.097</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Discount rate</strong></td>
<td>Pearson Correlation</td>
<td></td>
<td></td>
<td>.983(**)</td>
<td>-.277</td>
<td>.922(**)</td>
<td>-.411</td>
<td>.972(*)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.000</td>
<td>.497</td>
<td>.000</td>
<td>.097</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>GDP</strong></td>
<td>Pearson Correlation</td>
<td></td>
<td></td>
<td>.936(**)</td>
<td>-.277</td>
<td>.975(**)</td>
<td>-.411</td>
<td>.972(*)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.000</td>
<td>.212</td>
<td>.000</td>
<td>.058</td>
<td></td>
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<tr>
<td><strong>Domestic savings</strong></td>
<td>Pearson Correlation</td>
<td></td>
<td></td>
<td>.979(**)</td>
<td>.065</td>
<td>.960(**)</td>
<td>-.303</td>
<td>.933(*)</td>
<td>.852(**)</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.000</td>
<td>.773</td>
<td>.000</td>
<td>.170</td>
<td></td>
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<tr>
<td><strong>PSDP</strong></td>
<td>Pearson Correlation</td>
<td></td>
<td></td>
<td>.752(**)</td>
<td>-.336</td>
<td>.826(**)</td>
<td>-.069</td>
<td>.836(*)</td>
<td>.874(**)</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.000</td>
<td>.126</td>
<td>.000</td>
<td>.001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Debt servicing</strong></td>
<td>Pearson Correlation</td>
<td></td>
<td></td>
<td>.752(**)</td>
<td>-.336</td>
<td>.826(**)</td>
<td>-.069</td>
<td>.836(*)</td>
<td>.874(**)</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.000</td>
<td>.126</td>
<td>.000</td>
<td>.001</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).
From the above table study analyze the degree of correlation/degree of association between private investment and its determinants. Correlation results between that private investment and inflation rate indicates that there is negative correlation coefficient -.071 as expected. The result is still insignificant.

The Correlation between Private investment and indirect taxes indicates a positive relationship between them at 0.977 indicates which is quite high. The result is also significant at α = 1 %.

The Correlation results show also a strong positive relationship between private investment and subsidies with a value of coefficient .983 showing. It is also highly significant at α = 1 %.

The table of Pearson’s correlation also explains that there is lower degree of negative relationship between private investment and discount rate with a correlation coefficient of -.376 but it is not significance at any level except for α = 10 %.

Table also shows a strong positive correlation between private investment and its two important determinants GDP (mp) and domestic savings with correlation coefficient of .983 and .936. Both determinants are having highly significant results at α = 1 %.

Correlation analysis also proves a higher degree of positive correlation between private investment and PSDP with correlation coefficient of .979. It is also highly significant at α = 1 %. The determinant of private investment debt servicing shows a highly positive correlation at .752. But, this result is against the study hypothesis since a negative relationship between private investment and debt servicing is expected. But the result is significant at α = 1 %.

From the above correlation matrix it is also found that there is very high degree of association between the study independent variables. For example there is a significant relationship between inflation rate and discount rate at α = 5%, and between indirect taxes and subsidies, GDP, domestic savings, PSDP, Debt servicing at α = 1%. There is also a high degree of relationship between subsidies and GDP, domestic savings, PSDP, debt servicing at α = 1%.

The study also finds a high degree of association and significant relationship between domestic savings and PSDP, Debt servicing and also between PSDP and debt servicing at α = 1%.

From these results we conclude that this higher degree of association between these independent (explanatory) variables is proving the existence of auto-correlation between them.
One of the hypotheses was that a satisfied investor will remain and even attract others. This is a case of simple random walk or auto-regression. The following model is used to study the impact of private investment in time period ‘t-1’ on private investment in time period ‘t’.

\[ IP_t = \beta_0 + \beta_1 (IP)_{t-1} + \epsilon \]

Table 3.6 Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.992(a)</td>
<td>.985</td>
<td>.984</td>
<td>58708.90495</td>
</tr>
</tbody>
</table>

a Predictors: (Constant), Private investment( t-1)

In the above model summary of \( R^2 \) test shows 98 % variation in Private investment in time period ‘t’ is because of the private investment in time period ‘t-1’. Result showed a very high and strong relationship.

Table 3.7 ANOVA (b)

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>1</td>
<td>4163301260</td>
<td>944.386</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>19</td>
<td>6548797487</td>
<td>7.837</td>
<td>1207.897*</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>20</td>
<td>4228789235</td>
<td>822.223</td>
<td>.000(a) *</td>
</tr>
</tbody>
</table>

a Predictors: (Constant), Private investment( t-1)

\* Signiﬁcant at \( \alpha = 1 \% \)

Table shows a significant impact of last period’s private investment at this period’s private investment.

Table 3.8 Coefficients (a)

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>-1570.136</td>
<td>18114.117</td>
</tr>
<tr>
<td></td>
<td>Private investment( t-1)</td>
<td>1.212</td>
<td>.035</td>
</tr>
</tbody>
</table>

a Dependent Variable: Private investment( t )

\* Signiﬁcant at \( \alpha = 1 \% \)
From the above table auto-regression in our model is seen that an auto-regressive component strongly exist in our model, between the private investment in time period ‘ t ’ and in time period ‘ t-1 ’.

In the above table strong positive relationship between both variables is found. After the detection of both auto-correlation and auto-regression impact on the data simple linear regression technique is used to analyze the impact of different determinants one by one. It is also used here to avoid the issue of co integration to the maximum extent.

**3.12 Simple Linear Regression**

The former analysis shows conflicting results due to auto-correlation. To avoid that problem it is decided to perform simple linear regression on the explanatory (independent) variables. It is expected that the results will support the study hypotheses, when analyzed individually and tested for linear regression.

However the above Regression analysis with few conflicting results is still useful for specified determinants that can support model of the study and its hypothesis. The only variable which is strongly against the study hypothesis is inflation rate. Inflation rate does not show the true relationship neither having significant impact in any test being used here. Actually such data needs to be taken on quarterly basis or even for every month of the study period (1986-87 to 2007-08). This possibility will be examined in the near future in another study.

After analyzing all the variables individually a consolidated table is drawn here to show the impact of all the determinants in one table.
The above table shows the complete result of Regression analysis of all the variables in our model. It is found that all the variables are having the same expected relationships with private investment and proving our hypothesis except
two variables “Inflation rate and Debt servicing” both are expected to have a negative relationship with private investment. But our analysis found a positive relation. The results are showing that all the variables have a significant impact on private investment except inflation rate which is not supporting our hypothesis with an insignificant/inconclusive relationship. ANOVA results are significant for almost all the variables except again inflation and discount rates.

The study explanatory variables are tested for their role in explaining dependent variable “private investment”. Again both inflation and discount rates are very weak as they explain less than 10 % of the private investment, while debt servicing has a moderate level result explaining more than 50 % of the variation in private investment. All the other determinants are having higher and stronger results and explaining more than 87 % of the variation in private investment.

4. Conclusion and Recommendations

4.1 Conclusion

Regarding the hypotheses of the study it is concluded that the hypothesis Indirect taxes have a negative impact on private investment may be partially accepted because it shows a negative relation in multiple regressions but impact is significant in linear regression.

In the same way the hypothesis that Subsidies have a positive impact on private investment is accepted. Results of this hypothesis show a strong and positive relationship between subsidies and private investment.

The next hypothesis that the interest rate has a negative impact on private investment is also accepted. Although its relation is negative it is weak. In the same way the other hypotheses about GDP, Domestic savings and Government development expenditures (PSDP) got strong positive and significant results. So, their alternative hypotheses are accepted.

The research hypothesis regarding the negative relation between debt servicing and private investment is also accepted because of its significant result. However it does not reflect the expected negative relationship between the dependent and explanatory variables.

Results of the first hypothesis regarding negative relationship between inflation rate and private investment do no show a significant relationship between these two variables. The results are found negative but insignificant as it was insignificant found by earlier study [Sajawal and Arshad (2007)]. This result might be because of the data was collected annually due to data availability problem. There is also a chance of threshold effect in the country which is studied and indicated by different researchers [Min li (2005), Mallik and Chowdhury (2001)]. It is found in these studies that there is a breakeven point like 12% or 14% till that there is always a insignificant relationship between private investment and
inflation and above that threshold there is significant negative relationship between them. So, we can expect that the insignificant study results of inflation might be a cause of threshold in the country.

From the above mentioned results of different hypotheses we can conclude that:

1. The incentives that are offered by Pakistani government for private investment are not sufficient. They may not give equality to different sectors in Pakistan (for example Agriculture sector has been neglected while the communication sector received most attraction).

2. The low relative private investment in comparison to Pakistani GDP has resulted in a weak relationship between interest rate and private investment. This need to be improved.

3. The results of this study shows that role of private investment in Pakistani development sector in GDP and the impact of Government development expenditures (PSDP) on private investment have been both positive and significant.

4. Some economic variables have participated also to the growth of private investment such as debt servicing and tax holidays. The results of analysis are positive and significant. Still more research is needed in this regard.

5. The study did not consider an important part of private investments that is foreign direct investment (FDI). Special efforts must be made to attract FDI of Pakistani living and working abroad.

4.2 Recommendations

1. It is important to follow a national eco-political policy that increases Pakistani GDP. That policy would attract local private investment which would attract FDI to follow. This can be achieved through following

   (a) Improving the local environmental conditions so that local products may have improved quality not only for local consumption but also for exports, that will result snow-ball effect of improving investment in leading sectors that will result in improving investment in other sectors subordinates to those ones e.g Agriculture sector helps to improve the agro-industrial sector because it provides raw material to industry.

   (b) Encouraging competition among local producers and giving businessmen the technical and financial support to improve the base of production while maintaining high quality.
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(c) Helping local products compete overseas against international products by providing better deals in prices within competitive qualities.

2. It is important that the struggling public sector companies be sold to the private sector in order to improve the efficiency and performance of those companies. The experience of other countries such as Malaysia, Egypt and India in privatization should be studied in this regard.

3. It is important to provide the local producers with incentives and technical know-how on the one hand, and provide the private investors with government guarantee that their investment is in good hands.

4. The government has to reduce the duty on imports of equipment and machinery needed for new businesses. This will reduce the cost of investment in the country.

5. The government of Pakistan has to secure continuous flow of Gas and Electricity to businesses without frequent load shedding.

6. Government investment is required in improving Pakistani infrastructure within the country. It works as compliment to the private sector.

7. The government must also work to remove or at least minimize the corruption at all levels within the country. By doing so the investor would be a lot more relaxed and invest more.

8. There is a need for revision of all the legislations and laws related to private investment through steering committees with members representing the government, private investors as well as the new enterprises, especially those in struggling economic sectors.

9. There is need to provide special incentives for private investment in specific sectors where Pakistan continues to improve such as clothes, electronics and information technology.

10. There is a need to concentrate on specific economic sectors that provide strategic product such as the agricultural sector. Since we were living in time of continually increasing food prices.

11. There is a need to adjust the structure of financing of the economic growth in Pakistan in a way that reduces reliance on foreign loans, especially those conditional-loans from IMF and Western countries.
5. Limitation of the Study

During the study it was very difficult to collect data of different variables for the past few decades. Due to this reason 22 financial years are analyzed. Data has been collected for the period (1986-87 to 2007-08). That is why analysis of the determination of study explanatory variables is not comprehensive enough. Also, there are chances that it would affect the relationship of different variables and their significance level.

During the collection of data all efforts have been made to ensure accuracy of data collection and analysis.

References

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[Links to websites provided]