

# Determinant of Foreign Direct Investment in Pakistan

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## Abstract

This paper analyzes the determinants of Foreign Direct Investment (FDI) in Pakistan. In this paper we want to analyze why Pakistan is unsuccessful in attracting FDI instead of its policy reforms. In this study we used secondary time series data sample from 1970-2010. We use variables GDP, Market size (GNP), Infrastructure, Terrorism, Exchange rate in order to measure the impact of these variables on FDI. We collect data on these variables from state bank of Pakistan and other secondary data sources. We use log log model to find out the determinants. We use ordinary least square method (OLS) in order to test the variable. At the end we find that all the variables have significant impact on FDI. We find that FDI is significantly and positively explained by GDP, Market size (GNP) and Exchange rate but Infrastructure and terrorism has negative impact on FDI.

We have conclude that when there is high level of GDP (GDP is increasing), high level of GNP (increase in GNP), and exchange rate is stable then the level of FDI increases. And when the terrorism in an economy rises then FDI of Pakistan starts to decline. We also use a variable named infrastructure but here we find that there exists a negative relation between FDI and infrastructure which may be wrong due to unavailability of data problem or may be some deviation in data became the cause of this result. We recommended that there is a need of not only good policies but also there is a need of implementation of these policies in order to increase FDI in Pakistan. Policy makers should provide conducive and friendly environment to investors to attract more and more FDI for Pakistan. Foreign investors should be given more incentives for the transfer of technology to host country. This would lubricate the local enterprises. In Pakistan import substitution policy related to FDI have played a great role in increasing FDI in Pakistan.

## 1. INTRODUCTION

Foreign direct investment has become very important part of development in developing country. Due to globalization FDI plays a vital role in capital formation and reducing unemployment in developing countries until share of global distribution still declining (Kumar and Pardhan, 2001). According to Arshad (2008) FDI has a basic point for economic growth of developing country like Pakistan. The basic advantages of FDI are increase in employment level, productivity level, GDP, growth rate, export level, Balance of payments, new latest technology, awareness about new technology, utilization of local raw material in developing country. Foreigner investor invest their capital which is utilized in covering up of account deficit and the specialization of human capital increases through which economy starts to develop. The major point is that the developing countries have no need to pay interest rate or any principal amount like external debt (Bhagwati, 1994). FDI increases the Research and Development in an economy through which economist can easily find out the economic growth factor (Calvo and Robels, 2003)

## DEFINATION:

Foreign Direct Investment can be defined as "The investment made by an individual or organization for the purpose of production or to enhance their business in any targeted country." OR When a country invests its physical resources in parent enterprises of another country as a foreign affiliate and invest 10 % of total ordinary shares of that parent enterprises in order to achieve profit. FDI can be defined as "The investment which is made in any foreign country in form of services, transfer of technology, or any physical asset to earn more and more profit." (Wikipedia, 2009). In another words foreign direct investment refers to reinvesting the profit earned through investment in any business. Or the investment of foreign assets into any domestic structure or in any organization. Stocks market is not included in FDI because it is known as hot money while FDI is very durable.

Actually there are two types of foreign direct investment .One is foreign portfolio investment (FPI) and other is Foreign Direct Investment. FPI is the investment on purchasing the securities of other targeted country. I.e. stocks and bonds. While in FDI investor has right to invest 10 percent or more of his capital equity in any multinational organization or transfer of technology or offer service according to the criteria of that host country.

Investors of FDI have a right of ownership as well as right to control over the management authority including hire the manager or to utilize the financial base decision. While in FPI the investors have no right to control the management i.e. issuing the bond instead he is the owner of that firm of host country. In FPI the relationship between agencies and investors were unhealthy due to which a tremendous decline in FPI have been seen while in FDI the investor has a right to vote or taking decision about financial condition of organization.

Everyone have a past so we should take a review in order to enhance Foreign Direct Investment and in order to make new policies. There are many determinants which effect FDI but terrorism and political stability are very important factors which effect FDI. In Pakistan there is a great need to enhance education level and betterment of infrastructure in order to increase Foreign Direct Investment. Our present empirically determines the basic factors impact on FDI like GDP, Market size, Labor force, Openness of economy, Political stability and High type roads.

There are many objectives behind every work similarly the objectives of my study are as follow:

- ❖ To explain fluctuations in FDI last thirty one years.
- ❖ To analyze the basic factors which affect FDI in Pakistan.
- ❖ To quantify the impact of every determinant on FDI
- ❖ To analyze the strength of relationship between FDI and its determinants.
- ❖ To make policy recommendation.

Foreign Direct Investment plays very vital role in an economy and it is a major source of external finance in Pakistan to stable fiscal, financial and trade policies. The main objective of our study is to quantify the impact of different factors like GDP, Infrastructure, Political Stability, Terrorism, Labor force on FDI. In this study we estimate that Foreign Direct Investment has a hope in boosting the GDP growth leads to foundation of Industrial sector. By adopting the best policies for investment has more effect on economy's growth.

The research questions of our study areas follow:

- What are the significant factors that affect FDI?
- What is the strength of the relationship between FDI and its determinants?
- What is the impact of FDI on economic growth?

The objective of our study is to find out the determinants of FDI and the impact of these factors on FDI and the strength of relationship between FDI and their determinants. Here we use FDI as dependent variable and use GDP, Market size, Terrorism, Exchange rate and High type roads as independent variable. Our first chapter is introduction in which we introduce all variables in details and our second chapter is literature review in which we explain summary of different articles and research paper related to our topic. Third chapter is theoretical framework in which we explain the relationship between FDI and all explanatory variables. Fourth chapter is about methodology in which we apply different technique to quantify the relationship between dependent and independent variables. Fifth chapter is about our finding and discussions and the sixth chapter is conclusion and policy recommendation.

## 2. LITERATURE REVIEW

In literature review we have studied different articles and researches on the topic foreign direct investment in Pakistan. We have summarized the research problems, findings and suggestions of these relevant articles in order to understand author's views. The step of writing literature review is very important in drawing conclusion from previous studies and to find the answer of research question. Here is the review of related studies:

Rabbia (2010) explored the Determinants of Foreign Direct Investment in Pakistan. Her main objectives were to quantify the impact of factors which affecting foreign direct investment in Pakistan.. She used time series data of thirty year from 1975-2007. She used to work on secondary data. She had used two different forms of regression model which are Log linear form and Simple linear form for the process of estimating growth rate and to quantify the impact of different factors affecting FDI respectively. She also used ARIMA model for the forecasting of level of FDI for the next five years by applying 1st order, 2nd order and 3<sup>rd</sup> order auto regressive model. She examined that the level of FDI is positively and significantly influenced by GDP, Labor force, Length of roads, Openness of economy and negatively influenced by Exchange rate and Political Stability .She recommended that Pakistan needs to improve human capital, law and order situation, infrastructure and political stability of Pakistan to increase production capacity.

M.Rashid et al (2013) worked in finding Determinants of Foreign Direct Investment in Pakistan in both short run and long run time periods. The factors which affecting Foreign Direct Investment according to their study are GDP, CPI (as indicator of inflation), Exchange rate, Population and Political instability. They used time series data from 1973-2011 from different secondary sources. They applied Augmented Dickey fuller Test to measure the stationary of variables and concluded that the variables were become stationary at AR (1). They applied Co-integration technique and Error correction model to find the results in short run as well as in long run and the result of ECM shows the convergence of 21.11% from short run to long run in a year. They concluded that FDI was positively and significantly influenced by GDP, CPI, Population and Exchange rate and negatively

affected by Political Instability and recommended that in order to keep higher growth rate in economy government have to promote political stability and stabilize the exchange rate.

M.Hanif (2000) examined the location determinants of FDI in Pakistan. According to him location of investment for foreign investors play very important role in increasing FDI of economy. He determined the impact of GDP, GDP growth, Exchange Rate, Market growth, Market size, Relative interest, imports of consumer goods as percentage of total imports and political instability. He used time series data from 1972-1996 from different secondary sources. He used Multivariate regression analysis. He examined that the economical variables (gdp, gdp growth rate, exchange rate) and financial variables (Relative interest rate, market size and market growth) are more significant than political variables. According to his study political instability variable is insignificant and he concluded that there may be due to unavailability of relevant data or may be the use of dummy variable the political instability appeared to be insignificant. He recommended that exchange rate stability, high rate of return gain from high interest rate, political stability, market development are the major factors which needs to improved and these are the major improvements which would create a healthy environment for transnational corporation in Pakistan.

Dr.Ahmed (2010) explored the Determinants of Foreign Direct Investment: A case study of Pakistan. His basic objective was to measure the impact of GDP, Market Size, Growth Rate, Exchange Rate and Globalization on FDI in Pakistan. He used time series data on these variables from 1980-2009 from different secondary sources. He used four types of unit root test (ADF, P&P, DF-GLS and Ng Peron test) in order to check that all variables are integrated of same order or not. He also applied ARDL technique in order to measure the long run relationship between FDI and GDP. He also applied Granger Causality test of Toda-Yamamoto to measure the casual linkages between variables. His basic objectives were to measure the reason of low FDI in Pakistan and he found that the reason was low level of GDP. By the use of Pearson co integration test he found that co integration exists between GDP & FDI. At the end he concluded that only the market size had a positive and significant impact on FDI other variables except GDP are negatively related with FDI. He recommended that in order to increase FDI government should have to pay special attention towards market size and also towards GDP.

Akeel and Nishat (2004) explored the Determinant of Foreign Direct Investment in Pakistan. Their main objective was to determine the impact of different policies like tariff policies, fiscal policies, and exchange rate policies during reforms period on FDI in Pakistan. They used time series data from 1961-2003. They collected data on these variables: FDI, Tariff rate, exchange rate, tax rate, credit to private sector, general share price index, wage rate, per capita GDP and market size from different secondary sources. They applied unit root test to check the stationarity of data and then find that all the variables are not stationary. So, at order of 1 all the variables appeared to be stationary means all the variables are integrated of order 1. They divide the total time period into two parts and introduced two dummies for time period of before and after reform. They applied co integration technique and ECM (error correction method) to find the significance of explanatory variables on dependent variable FDI. According to their study market size was very important factor through which FDI was greatly influenced. At the end they concluded that all the variables or policies (except wage rate and general price index) had a positive and significant impact specially market size (GDP) and Reforms on FDI. They recommended that much attention should be given on all these policies in order to increase the level of FDI or in order to attract more investors.

Hamayon A.Dar et al (2004) explored the Determinant of Foreign Direct Investment Inflows for Pakistan. Their basic objective was to determine the impact of major macro economic variables like socio political factors and economic growth factors on FDI Inflows in Pakistan over the time period 1970-2002. They examined the long term relationship and causality hypothesis testing between socio political factors (political instability & market size) and economic growth variables (GDP in nominal term, GDP in real term, Exchange rate, Discount rate and Openness to economy). They used time series data over the time period 1970-2002. They collected the data on all variables from different secondary sources. They applied ARDL, Error correction Method, Unit root test of Augmented Dickey fuller. The ADF test result revealed that all variables are integrated of order 1; means all the variable were not stationary. The ARDL approach (the error correction co integration analysis) showed the result that there exists two way (bivariate) causality between every pair of variables and lag length was selected by SC and AIC criterions. Their study concluded that there exist a long term and bivariate relation between FDI, gdp in nominal term, gdp in real term, exchange rate, political instability, discount rate and openness to economy means FDI was greatly influenced by macro economic variables.

Shamasuddin (1994) explored Economic Determinant of FDI in 36 less development countries. The main objective of his study was to explore the factors due to which level of FDI was low in different 36 LDCs including Pakistan for the year 1983. He explored that per capita FDI in host country was influenced by Per capita Gdp, Per capita growth rate of Gdp, wage rate per day, Per capita debt, Per capita Aid from capitalistic economy, energy imports as percentage of export goods and variance of price data computed from CPI data from 1979-1982. He used cross section data of 1983 for all these 36 LDCs. He applied Ordinary Least Square Method

for his single econometric equation. His study concluded that per capita GDP was very significant factor which play an important role in order to increase the level of Foreign Direct Inflows for host country. According to his research the growth rate of GDP was showing insignificant result so he dropped these variables from the model. But due to some problem (Per capita gdp shows past and future function of fdi) he suggested that macro-econometric model should be needed.

Ozturki & Kalyoncu (2007) worked to find out the empirical relationship between FDI and Growth on cross country comparison. Their main objective was to determine the relationship between FDI and Growth rate of Turkey and Pakistan. They used time series data from 1976-2004 for Pakistan and data from 1975-2004 for turkey. In case of both countries, they applied ADF test to check the stationarity of data on both variables (FDI & GDP) and they found that both of these variables were not stationary at their level but became stationary at first difference. Then in order to find out the casual relationship between FDI and Growth rate they applied Granger causality and Co integration test. At the end the result of Engle granger co integration test and Granger causality test result represented that in case of both countries FDI was significantly and positively influenced by GDP and both variables were co integrated & for Pakistan there exists unidirectional causality between FDI and GDP. In case of Turkey there exists bidirectional casualty between GDP and FDI. Then they concluded that long term relationship exist between FDI and GDP in both countries.

Agiomirgianakis et al (2003) explored the Determinants of Foreign Direct Investment: A Panel data study for the OECD countries. The main objective of this study was to find out the basic determinants of FDI in 20 OECD. They used panel data (combination of time series data and cross section data) from 1975-1997 for 20 OECDs. They used human capital, trade regime and the density of infrastructure. They used panel data regression analysis. The result of their study explored that all the factors are significantly and positively related with FDI and significance of agglomeration factor was also observed by them. They suggested that openness to trade; increase in the level of market size and large scale investment in infrastructure should be highly focusing points in order to attract more investors in US, China and Europe etc.

Elizabeth (2002) explored the Determinants of FDI to developing countries: Is Africa different?. The main objective of his study was the comparison of the impact of determinants of FDI in developing countries and Sub Saharan Africa (SSA). He wanted to measure the impact of Human capital, Openness to trade Market growth rate Tariff rate, Labor force, Rate of return, Liberalization in financial sectors impact on FDI in Africa. He applied weighted least square method to test the significance of these factors by collecting time series data on these factors over the period 1980-1994 from different secondary sources. His result represented the positive and significant impact of all these variables on FDI in Africa. (He concluded that high rate of return and better infrastructure had positive impact on FDI to non SSA. He concluded that betterment of infrastructure and high rate of return had positive impact on non SSA but had no effect on SSA countries.

Shah and Ahmed (2003) explored the Determinants of Foreign Direct Investment in Pakistan. Their basic objective was to determine the impact of Cost factor, Demand or market size, Political and Social factor on Foreign Direct Investment in Pakistan. They use different variables like per capita GNP in real terms, per unit cost of foreign capital in develop areas, Tariff barriers, Exchange rate variables, Infrastructure and expenditure on transport , communication and political instability. They used time series data over the period 1960-2000. They applied Ordinary Least Square Method. First they applied unit root type (Philip parron test) to test stationarity level of all variables. After this test it appeared that all variables are integrated of 1<sup>st</sup> difference. Then Johnson and jealous and Error and Correction test are applied in order to find out short term relationship between all variables. They concluded that all variables (Except cost of capital coefficient which represent negative relation) were significant and positively related with FDI. Johnson and Jealous results showed that there exists a long term relationship between all variables and FDI inflows. They recommended that in order to increase FDI inflows we should concentrate on market size development, betterment of infrastructure and political instability.

A.Enisan Akinlo () explored the relationship between FDI and Growth in Nigeria: An empirical investigation. His basic objective was to determine the impact of FDI on economic growth in Nigeria. He used time series data from 1970-2001. First he applied unit root test to test stationarity of all variables and he found that all variables became stationary at first difference then he applied Johnson and jealous co integration test and ECM to measure the long term relationship and the long term adjustment. The result of this study showed that there exists link between FDI and Growth rate after a considerable lag and export, labor, force expansion, human capital had positively and significantly related with growth while private capital had insignificant impact on growth. He suggested that we should expand our education policy and labor force to increase the level of human capital and oil might not growing as manufacturing FDI growing with respect to time.

M.Azam and Lukman (2010) explored Determinants of FDI in India, Pakistan and Indonesia: A Quantative Approach. The basic objective of this study was to determine the factors which affecting the FDI and the factors which encouraging and discouraging FDI in that selected region. They used these variables: FDI, Market size (GDP), Domestic Investment, External Debt, Trade Openness, Infrastructure, and Government Consumption, Indirect taxes, inflation and return on investment (1/GDP per capita). They used time series data

over the period 1971-2005. They collect data on all variables from different secondary sources. They applied Log Linear Regression model and method of least square to determine the impact of each variable on FDI for each country. The study found that major determinants of FDI were Domestic Investment, Openness to economy, Govt Consumption similar for both countries Pakistan and India not for Indonesia. They suggested that higher authority should have to pay special attention towards betterment of Infrastructure, Political Stability, Law and order situation in order to increase the level of FDI in Pakistan, India, Indonesia.

Berkoz and Seykiye (2005) explored Factors influencing the choice of locations in turkey.

In this article their basic objective was to determine the determinants of regional distribution of FDI to find out spatial pattern of FDI and to quantify the impact of different factors on FDI in Turkey because Turkey was assumed to be hub of business and it had been seen at the end of 2003 whereas the FDI firms rise to 6511 which was only 78 in number during 1978-1980. Then to measure the impact of market demand, market size, and urbanization of economy, information cost, infrastructure, population growth, and Location wealth, amount of bank credit and local market growth on FDI a model was developed. They used time series data over the period 1990-2003 from different secondary sources. The great changing in FDI had been seen in 2003 which was due to change in turkey's Policy (the policy of import substitution policy was replaced with export oriented policy). Previous study on Spatial pattern of FDI was divided into two groups: 1) this provide detail in descriptive form. 2) This group provides detail in econometric form. They used factor analysis and binomial logit regression model. They used log linear functional form due to non linear relationship between FDI and regressors and also to reduce outliers and heteroscedasticity impact. They applied Pearson test to measure significance of variables and concluded that all variables was significant as a whole but there severity was different in industrial sector, in industrial sector and in manufacturing sector. They suggested that location factors played a vital role in increasing the level of FDI of a country so higher should paid high attention on these areas.

E. Borensztein et al (1998) explored How Does FDI affect Economic Growth? In that journal the Main objective of that study was measure the impact of foreign direct investment on economic growth in cross country regression framework. They collect data about 69 countries on last two decades. They used these variables: FDI, Human capital and Per capita GDP while the fdi measured as a ratio of GDP. They concluded that human capital had insignificant impact on FDI due to differences in technology and lack of knowledge about technology. Other factors appeared to be significant and positively related with FDI. It means that Level of Fdi influence Economic Growth and then concluded that FDI affect economic growth with a sufficient level of technology.

Bouphayanh et al (2011) explored Factors Affecting Foreign Direct Investment in Savannakhet Province, Lao people's Democratic Republic. Their study's main objective was to determine the factors which affect FDI in Savannakhet and also to understand the problems which work as obstacle in the way of raising FDI. They applied OLI Paradigm JDEM (John Dunning Electric Model. They used primary data and adopted the method of questionnaires. They collect data from 137 management level foreign companies of Savannakhet Province. They applied different techniques of Quota sampling. They found that Govt legal factor, Location Factor, Financial factor, Economic and market level factors were the major factors which greatly influenced FDI of Savannakhet. And they found the problem of shortage of labor supply in that region which cause FDI to decline.

### 3. METHODOLOGY

In this chapter we explain the methods which we use to test our variables. so, in this chapter we use various techniques and want to analyze data.

#### Development of Model:

If we want to develop a model then at first we have to describe a function and then we need to explain dependent and independent variables involve in the model. This present study is conducted to explain the determinants of FDI in Pakistan. Here we first present the functional form of this model.

General functional form is as follow:

$$FDI = f(GDP, M, I, T, EX)$$

FDI: Foreign Direct Investment (in million rupees)

Ex: Exchange Rate (in million rupees)

I: Infrastructure (length of high type roads in km)

T: Terrorism (no of deaths due to violence)

GDP: Gross Domestic Product

M: Market size (as GNP in million rupees)

In order to convert the general function into regression function, we add error term into it as given below:

$$FDI = f(GDP+M+ I+ T+ EX+U)$$

By defining this regression function we use FDI as dependent variable and other variables GDP, M, I, IGDP, T, EX as independent variables.

#### The Model:

After explaining the function now we have to develop a model.

$$\ln FDI = \beta_0 + \beta_1 \ln GDP + \beta_2 \ln M + \beta_3 \ln I + \beta_4 \ln T + \beta_5 \ln EX + U$$

Whereas  $\beta_s$  are the coefficients of variables which explain

**Data Source:**

We collect data on FDI, exchange rate, Infrastructure, Terrorism, GDP, from different secondary sources like Federal beureau of Statistics, State Bank of Pakistan, International Monetary Fund, World Bank, South Asian Bank, Economic Survey of Pakistan, Hand book of Statistics 2005-2006, Center of Economic Research in Pakistan, South Asian Terrorism Portal. We collect the data in US \$ and then we convert this data into Pak rupees. During collecting data unspesific, ambiguous, uncertain and misleading observation was not taken into an account.

**The Model:**

The equation for measuring the impact of GDP, Market size (GNP), Infrastructure, Terrorism, and Exchange rate can be defined as:

FDI: Foreign Direct Investment (in million rupees)

Ex: Exchange Rate (in million rupees)

I: Infrastructure (length of high type roads in km)

T: Terrorism (no of deaths due to violence)

GDP: Gross Domestic Product

M: Market size (as GNP in million rupees)

**Estimation:**

The model is estimated by log log method in order to examine the relationship between FDI and GDP, Market size (GNP), Infrastructure, Terrorism, Exchange rate.

**Sample Size:**

Sample is a small part of whole population which represents the whole data. Here we have taken an observational set of 41 years from different secondary sources which are described in earlier section. We collect the data in US \$ and then we convert this data into Pak rupees. We used time series data from 1970-2010.

**Analysis of Data:**

After collecting data our next step is to analyze the data. We uses log log method to examine the relationship between FDI and GDP, Market size (GNP), Infrastructure, Terrorism and Exchange rate.

**4. FINDINGS AND DISCUSSIONS**

In this study our actual work is to analyze the relationship between FDI and its determinants. We used the log log model to find the relation between FDI and all variables and for this purpose we the function which is as follow

$$FDI = f (GDP+M+ I+ T+ EX+U)$$

**Explanation of Model:**

Here in previous section we use the log log model as

$$\ln FDI = \beta_0 + \beta_1 \ln GDP + \beta_2 \ln M + \beta_3 \ln I + \beta_4 \ln T + \beta_5 \ln EX + U$$

The regression results are shown below. In this study we use OLS method with a sample size of 41 years and dependent variable is FDI and other variable are independent variables.

First of all we explain Model Summary table which is given below:

**Model Summary:**

R-squared	0.967743	Mean dependent var	8.442868
Adjusted R-squared	0.964159	S.D. dependent var	2.685192
S.E. of regression	0.508356	Akaike info criterion	1.598579
Sum squared resid	9.303319	Schwarz criterion	1.807551
Log likelihood	-27.77086	F-statistic	270.0072
Durbin-Watson stat	1.178099	Prob(F-statistic)	0.000000

In this regression model we have used FDI as dependent variables and GDP, Market size (GNP), Infrastructure, Terrorism, Exchange rate as an independent variables. OLS method is used to measure the variables.

In this model R measure of the degree of association between dependent variables and explanatory Variables jointly. In this regression model the value of R is which shows 99.3% degree of association between dependent and independent variables.

### R Square

R square shows the ratio of explained variation to the total variation. It shows the goodness of fit of regression line which lies between 0 and 1. R<sup>2</sup> in our model is 0.967743. It shows 96% variations in dependent variables because of independent variable. Closure is its value to 1, model is said to be “better” fitted model. R<sup>2</sup> is always to be positive.

### Adjusted R Square

The adjusted R<sup>2</sup> means adjusted for the DF associated with the sums of squares. The adjusted square can be negative. In this model, value of adjusted R Square is 0.964159 which shows 96% the adjusted variation in dependent variable because of independent variable.

### Standard Error of Estimate

Standard error is used for the checking reliability of any given data use. It is used for the checking the accuracy of estimates variables. The value in our model is 0.508356.

Now we explained ANOVA obtained through estimation process given below:

#### ANOVA

model	Sum of Squares	df	Mean square	F	Sig
1 Regression	40.611	5	8.442868	270.0072	0.000000
Residual	9.303319	36			
Total	49.75	41			

**Predictors :** ( constant), GDP, Market size (GNP), Infrastructure, Terrorism, Exchange rate

**Dependent variable:** FDI

ANOVA means analyses of variance this has two components

$$TSS=ESS+RSS$$

ESS means explained sum of squares due to the explanatory variable shows the variation in dependent variation in dependent variable about their mean. In this model the value of SEE is 44.611 and df (degree of freedom) means the total numbers of observation in the sample less than the number of independent restrictions which is 5 which show 5 explanatory variables means square which obtained by dividing sum square by their degree of freedom and it is 8.442868 in model and overall models is 0.000% signification on F test which is used to analyses the variance.

F test is a measure of overall significance of the estimated regression. In this model the value is 270.0072 which is highly significant at 0.000 level. RSS means residual sum of squares. in our model, its value is 9.303319. in RSS the degree of freedom is 36. It means that n-1, not independent observation to compute the RSS. It means that total numbers of observation minus number of parameters estimated so the degree of freedom is 36 its means sum of square is 9.303319 which is obtained by dividing RSS over its degree of freedom TSS means total sum of square which is 49.75, means that variation of the dependent variable about their sample means value. TSS is also highly significant at level of 0.000 and n-1 degree of freedom is 40. The overall result is significant at 0.000 levels which show the high level of signification of result. Now we come to regression line and interpretation of regression

$$\ln FDI = 3.227977 + 2.017388 \ln GDP + 0.552676 \ln M - 1.017149 \ln I + 1.144184 \ln EX - 1.880435 \ln T$$

In this regression, we used FDI as a dependent variable and), GDP, Market size (GNP), Infrastructure, Terrorism, Exchange rate use as independent variable and OLS method is used to measure the variables.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.227977	0.447878	-2.318684	0.0195
LNGDP	2.017388	0.390630	5.164452	0.0000
LNGNP	0.552676	0.224408	-2.462823	0.0187
LINFRASTRUCTURE	-1.017149	0.417045	-2.438943	0.0198
LNEXCHANGERATE	1.144184	0.529157	2.162276	0.0373

### Standardized Coefficients

It is obtained if we subtract the mean value of the variable from its individual values and divide the difference by the standard deviation oh that variable. Its means that it's mean is always zero and its standard deviation is always 1. In standard variables there is no intercept term. Value in result table shows the individual significant result.

### Individual coefficients and their significance

Now we present the individual coefficient result of regression analysis. In this table first is constants term which can never be change within the variation in independent variable. First column shows the name of variables and then in second column the coefficients, third column shows the standard errors of regression coefficients, fourth column shows the t value computed from coefficients.

First are the sign of estimated coefficients in accordance with prior expectations?

First the value of constant term is 3.227977 which shows the positive sign and standard error of constant term is 0.44787, T value of constant shows the negative sign with the value of -2.318684 which shows individually highly significant at the 0.0195 level of significance.

$\beta_1$  is the coefficient of gdp which shows the relative change in FDI due to relative change in gdp and its value is 2.017388 which mean that if gdp increases by 1% then FDI increased by 2.017388 % and its standard error is 0.390630 and sign is positive and its T value is 5.164452 . it is highly significant at 0.0000 levels which means is 100% correct. Now we can say on behalf of regression line that there is positive relationship between FDI and gdp.

$\beta_2$  is the coefficient of gnp which we use as a proxy of market size which shows the relative change in FDI due to relative change in gnp and its value is 0.552676 which means that if gnp increased by 1% then the FDI increased by 0.552676 and its standard error is 0.224408 and its T value is -2.462823. it is highly significant at 0.0187 level which means it is 99% correct. Now we can say on behalf of regression line that there exists a positive relationship between FDI and gnp.

$\beta_3$  is the coefficient of infrastructure which shows the relative change in FDI due to relative change in infrastructure and its value is -1.017149 and it means that if infrastructure increased by 1% then decrease in FDI is 1.017149 % and its standard error is 0.417045 and its T value is -2.438943. it is highly significant at 0.0198 level which means it is 99% correct. Now we can say on behalf of regression line that there exists a negative relationship between FDI and infrastructure.

$\beta_4$  is the coefficient of exchange rate which shows the relative change in FDI due to relative change in exchange rate and its value is 1.144184 which means that if exchange rate increased by 1% then FDI increased by 1.144184 % and its standard error is 0.529157 and its T value is 2.162276. it is highly significant at 0.0373 level which means it is 95% correct. Now we can say on behalf of regression line that there exists a positive relationship between InFDI and Inexchangerate

$\beta_5$  is the coefficient of Interrorism which shows the relative change in FDI due to relative change in terrorism and its value is -1.880435 means if the terrorism is increased by 1% then the FDI decreased by 1.880435 % and its standard error is 0.071316 and its T value is 26.36774. it is highly significant at 0.000 level which means it is 100% correct. Now we can say on behalf of regression line that there exists a negative relationship between FDI and terrorism.

### 5. CONCLUSION AND POLICY RECOMMENDATION

In the present study we have attempt to prove the analytical answer to an important economic issue whether Foreign Direct Investment contributed to economic growth in Pakistan. In this study we want to explore the relationship between FDI and GDP, Terrorism, Gnp, Infrastructure, Exchange rate. We have used FDI as dependent variable and GDP, Terrorism, Gnp, Infrastructure, Exchange rate as independent variable. We applied Log log method to examine the relationship between FDI and GDP, Terrorism, Gnp, Infrastructure, Exchange rate. We have conclude that when there is high level of GDP (GDP is increasing), high level of GNP (increase in GNP), and exchange rate is stable then the level of FDI increases. And when the terrorism in an economy rises then FDI of Pakistan starts to decline. We also use a variable named infrastructure but here we find that there exists a negative relation between FDI and infrastructure which may be wrong due to unavailability of data problem or may be some deviation in data became the cause of this result.

The policies are also important in effectiveness of Foreign Direct Investment, as the FDI has a more positive impact on exports of goods and services in any given years so FDI should be increased. So, government should concentrate on monetary fiscal and trade policies in order to enhance FDI in Pakistan. Under poor policies the impact of all these variables will not be seen on FDI. Accordingly there is a need of not only good policies but also there is a need of implementation of these policies in order to increase FDI in Pakistan. Policy makers should provide conducive and friendly environment to investors to attract more and more FDI for Pakistan. Foreign investors should be given more incentives for the transfer of technology to host country. This

would lubricate the local enterprises. In Pakistan import substitution policy related to FDI have played a great role in increasing FDI in Pakistan.

Here we have presented some policy recommendation to increase Foreign Direct Investment.

- Government of Pakistan should be selective in attracting FDI.
- Concentrated efforts are needed at both national and regional level in order to attract significant FDI flows to the country and improve prospects for sustained growth, development and in the same way the export of country also rises.
- Policy makers should provide conducive and friendly environment to foreign investors to attract more FDI in country.
- Create transparent and clear legal system to protect property rights.
- Better governance will be provided.
- Facilitate licensing and documentation and eliminate hidden non tariff barriers.
- Improve Infrastructure (electricity, telecommunication and roads).
- Develop and liberalize financial markets and financial intermediaries.
- Adopt and integrate a well planned investment promotion strategy to attract an increased shear of foreign investment, especially investment that will lead to increase in exports.
- Foreign investors should be given more incentives for transfer of technology to the host country. This would lubricate the local enterprises.
- Import substitution policy should be adopted.

Finally after creating an attractive environment for FDI, it is also important to have clear policies that aim at challenging this FDI towards sectors that increases welfare and faster growth such as manufacturing, information technology, health, media tourism and financial services. Creating cluster is one possible form of driving FDI to desired directions, liberalize the labor market.

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