

## **Determinants of Foreign Direct Investment: Evidence from Pakistan**

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### **Abstract**

*This study has analyzed the determinants of foreign direct investment in Pakistan. The determinants have been examined are GDP per capita, Labor Force, Openness, and Tax on International Trade. The proposed quantitative study is to examine the long run as well as short run relationship between macroeconomic factors and Foreign Direct Investment inflow using Johansen Co-integration approach on the time series data of Pakistan from 1975 to 2005. The findings of the study show that the gross domestic product per capita has positive and insignificant effect on foreign direct investment in short run if other factors remain unchanged. The coefficient of labor force and taxes on international trade is positively associated with FDI and this relation is statistically insignificant in short run analysis. The coefficient of openness shows that it has negative and statistically insignificant impact on FDI in short run analysis. The coefficient gross domestic product per capita has positive and insignificant effect on foreign direct investment in long run and the coefficient of labor force is positively associated with FDI and this relation is statistically insignificant in long run analysis. The coefficient openness has positive and significant effect on foreign direct investment in long run. The coefficient of tax on international trade is negatively associated with FDI and this relation is statistically significant in long run analysis. Therefore, the policy makers should specially focus on developing the better levels of openness and reduction of tax on international trade.*

**Keywords:** Foreign direct investment, Macroeconomic factors, unit roots, Johansen Cointegration.

## **I. Introduction**

As cited by Bashier & Bataineh (2007); Padma (1999) Foreign Direct Investment is financial investment for the control of assets and quality production activities in the host country by multinational business enterprises belongs to foreign countries for the betterment of both the countries. FDI contributes a lot for the development of the country. It not only attracts foreign investment but also attracts latest technologies, innovative job benefits and opportunities. Due to Foreign Direct Investment the country can grow economically and existing resources can be utilized more efficiently (Abadi, Alfazl, & A., 2006). FDI inflows become more when the financial markets become global and the countries become aware of the fact that FDI can give economic growth to the country (Ahmed, 2003). Foreign Direct Investment is the foundation for technology, and also it targets the export markets. Now countries are trying to attract Foreign Direct Investment for their benefit. Therefore the main objective of this study is to determine the factors that attract foreign direct investment in the country like Pakistan and those which deject foreign direct investment in Pakistan. Pakistan has potential to attract Foreign Direct Investment.

Pakistan is situated in central geographical location of South-Asia. Most of the news channels shows that there is nothing in Pakistan like lack of leadership, poverty, illiteracy, lack of skilled people, instability in policies, political instability etc. FDI always does not lead to development and growth. This is the crucial issue that FDI should be come in the sector where it is needed. Over investment in a specific factor also create problems for the host country. Pakistan falls in the category of underdeveloped countries of the world. Import value of Pakistan is greater than export volume. Therefore, balance of trade shows the negative values every year. In this study import and export both variables have been used to find whether more import of goods and services attract foreign direct investment in Pakistan or not. Now this study will find the either the change in inflation affect the inflow of foreign investment in Pakistan or not. Gross Capital Formation is also used as independent variable in this study. Gross Capital Formation shows the local investment in the country. Due to high rate of interest and energy crisis in Pakistan Gross Capital Formation process is very slow in Pakistan. Now this study will find whether Gross Capital Formation attracts foreign investment or not.

The main purpose of the proposed quantitative study is to examine the long run as well as short run relationship between macroeconomic factors like Gross Domestic Product per capita, Openness, Labor Force, Tax on International Trade and Foreign Direct Investment in Pakistan. This study is based on the factors which attract or discourage the FDI inflow and will help to the government for planning more inflow of FDI in Pakistan. Therefore the main objectives of the study are to determine the relation of FDI with Exports, Imports, GDP Growth, GDP per Capita and tax on international trade and also the recommendations on Empirical Findings for improving the investment climate in Pakistan

## **II. Review of Literature**

In 1980 a well-known economist J. H. Dunning developed OLI paradigm which is also known eclectic paradigm. OLI model of Dunning has been widely used by different researchers in their researches in which their motive of research was to identify different determinants of FDI Inflow (Thanyakhan, 2008); (Buch & Toubal, 2003); (Erdal & Tatoglu, 2002); (Azam & Lukman, 2003); (Haile & Assefa, 2006); (Bevan & Estrin,

2004); (Yeo, Yoon, Lee, & Lee, 2008). Dunning model is a standard of analysis of host country in different dimensions. Dunning identified three advantages which force foreign investor to invest in host country: Ownership (O) advantages, Location (L) Advantages, Internationalization (I) Advantages. Ownership advantages include the advantage of trademark and unique production techniques through which foreign investor can get sustainable advantage of existence in host country.

Different studies have identified the Foreign direct investment determinants tested for the different countries as Erdal & Tatoglu (2002) in their study used time series to discover the impact of Market Size, Infrastructure, Internal and External Economic Stability on FDI in Turkey. Buch & Toubal (2003) in their study analysed the trend of Economic Growth and its impact on foreign direct investment in Germany. Ho (2004) in his study used time series to discover the key determinants of FDI in China. The Scholars examined the impact of Low labour cost, innovative markets and large market size on foreign direct investment inflow in China. Majeed & Ahmad (2009) in their study used time series data of seventy two developing countries. GDP, GDP per capita, Workers Remittance, Exchange Rate, BOP, External Debt, Inflation, Military Expenditure and domestic investment were used by them as independent variables in their study. Khrawish & Siam (2010) discover the impact of financial and economic risk factors on foreign direct investment inflows. Aqeel & Nishat (2005) in Pakistan used the same model to test the determinants of FDI in Pakistan. In their study they used GDP per Capita, Wage Rate, Credit to public and Private sector, Exchange Rate, Share price Index in their study to find the impact of these factors on FDI Inflow in Pakistan. In Pakistan there is a gap available where researcher has addressed the impact of Import, Export, CPI, Gross Capital Formation on Foreign Direct Investment. So in this study impact of Gross Domestic Product per capita, Openness, Labor Force, Tax on International Trade on Foreign Direct Investment Inflows will be analyze in Pakistan.

Inflation shows the rise in the price of goods and services more than the value of money in a country. Majeed & Ahmad (2009) in their research analyzed time series analysis of seventy two developing countries to find the relation of different factors of FDI. They found that Inflation and balance of payment deficit have negative impact on FDI. Zhao & Du (2007) argued that GDP growth create capital gap in the country, which demand more foreign and local investment and FDI is the big source of capital in host country. So GDP growth also promotes FDI in the country. Gross Domestic Product shows the annual value of goods and services produced in a country. Gross domestic product shows the market size of the country. Several researchers used GDP as a deputation of market size in their researches and addressed it as a key determinant of attracting FDI in the country.

Hejazi & Pauly (2003) Atique, Hasnain, & Azhar, (2004) found that the size of FDI and percentage of Gross capital formation shows actual measurement of FDI in the country. The flow of FDI in Pakistan before 1991 was not so significant but after 1991 FDI was found gradually increased yearly due to favourable economic environment and helpful trade policies for foreign investors. analyzed data to find the relation of FDI Inflow and Gross Capital Formation within the country. They found that FDI enhances domestic Capital formation in the country. Azam & Lukman (2010) examined the determinant of FDI in Pakistan, Indonesia, and India. Researcher found the result of

Pakistan and India is the same while Indonesia is different. They also identified more domestic investment attract more foreign direct investment flow in these countries.

Import value means the value of Goods and Services receive from rest of the world. There is a positive trend of imports of Pakistan. In 2007-08 graph shows that there is a rise in import values and in these years according to BOI data FDI also came on the peak values of 5.13 billion \$. Many researchers recognized it as one factor of foreign direct investment in the country.

From the above mentioned details we have formulated the following hypotheses that have to be tested so that to check that they have significant effect on the foreign direct investment inflow or not. These are;

- H<sub>1</sub> There is a relation between GDP Per Capita and FDI inflow in Pakistan.
- H<sub>2</sub> There is a relation between Labor Force and FDI inflow in Pakistan.
- H<sub>3</sub> There is a relation between openness and FDI inflow in Pakistan.
- H<sub>4</sub> There is a relation between tax on international trade and FDI inflow in Pakistan.

### **III. Data and Methodology**

#### **A. Conceptual Model /Theoretical Foundations**

##### ***Identification of Dependent and Independent Variables***

The model is formulated to determine the impact of various types of selective government policies and other variables to attract FDI in Pakistan during 1975-2005:

$$FDI = f(GDPPC, LABORF, OPENNESS, TAXIT)$$

Where, FDI = Foreign direct investment % of inflow, GDPPC = Gross domestic product per capita, LABORF = Labor force, OPENNESS = Ratio of export, import with GDP, TAXIT = Tax on international trade

Research study is explanatory and quantitative in nature and based on positivism paradigm because many supportive researches are available in different context. In this study, to examine the relationship between Macroeconomic Factors (GDP Growth, GDP per Capita, labor force, tax on international trade, Imports and Exports of the country) and Foreign Direct investment in Pakistan time series data of the sample of 30 years has been selected for the period of 1975-2005 with annual frequency. According to the availability of data, we have selected possible longest sample size to avoid the small sample bias. To investigate the long run as well as short run relationship between GDP Growth, GDP per Capita, labor force, tax on international trade, Imports and Exports of the country and Foreign Direct Investment Inflow, the data have been collected from WDI (World Development Indicators). It is really difficult to comment on the quality of secondary data. However, the above described definitions of the variables indicate that all factors measure the concepts which we want to measure. Given that data of the variables have been collected according to the above described definitions of the variables, the study have used data, is valid for the purpose of analysis. It is also important to note that the above definitions have been taken from user guide of the WDI (World Development Indicators) which is source of the data employed in this study for data analysis. Data on WDI (World Development Indicators) are drawn from the sources considered a most authoritative.

**Cointegration**

Engle-Granger test is used to find whether long-run co integration between two variables exists. Usually Augmented Dickey-Fuller (ADF) applied on the residuals of the regressed equation of the variables. If the disturbance term is stationary at first difference, it is considered that there exists long run co integration between the variables. But if we want to know the number of co-integrating equations, Johansen's Co-integration Test should be preferred. It gives us the number of co-integrating equations and we can decide further methodology for data analysis in a better way. So, Johansen's Co-integration Test has been applied in this paper.

**Error Correction Method**

Error Correction Method is applied to estimate short run dynamics as well as long run dynamics. Equation of error correction model is the following:

$$\Delta FDI_t = c + b_1 \Delta GDP_t + b_2 \Delta LF_t + b_3 \Delta O_t + b_4 \Delta TIT_t + \lambda FDI_{t-1} + a_1 GDP_{t-1} + a_2 LF_{t-1} + a_3 O_{t-1} + a_4 TIT_{t-1} + U_t$$

Where  $\alpha$ ,  $b$ , and  $\lambda$  are coefficients and  $\Delta$  used for the difference of the variables. It measures the speed of adjustment also. It shows how much the relationship between the variables return to its long run relationship in one lag. I have used Error Correction Model to find the short run and long run relationship between the variables under study.

**B. Variables (Dependent and Independent) Discussion****Foreign Direct Investment Inflow (FDI)**

Foreign Direct Investment is the major source of capital for the host country by source country. Foreign Companies bring capital for the business in the most suitable country for getting maximum return on their capital.

**Labor Force (LF)**

More labor and skilled person are the assets of the country. In Pakistan many institutions are working to produce skilled manpower in the country. TEVTA, NAVTC, PVTC, STEVTA are some examples of these institutions

**GDP per Capita (GDPC)**

GDP per Capita can be calculated; Gross Domestic Product divided by total number of population of the country. GDP per capita shows per head purchasing power of the people.

**Import (M)**

Import value means the value of Goods and Services receive from rest of the world. Fedderke & Romm (2006) used time series analysis for finding the impact of growth factors on FDI in South Africa. This study also found that export has positive and import has negative relation with FDI. Pantelidis & Nikolopoulos (2008) found that import and export have positive relation with FDI but export impact is not statistically significant.

**Export (X)**

Export value means the value of Goods sold and services rendered to rest of the world. Liu (2010) conducted a research on 18 source countries' time series data. Study found that Export has significant impact on FDI inflow.

**Tax on International Trade (TIT)**

Incentives encourage and more taxes discourage FDI inflow in the host country. Many researchers argued that non-supportive and high rate tax system cannot attract foreign capital in the country.

**IV. Empirical Findings**

Table 1 and 2 represents the results of stationary of data. Non stationary of time series data has often been considered as a problem in empirical analysis. Working with non stationary variables leads to spurious regression results, from which further inference is meaningless. Therefore, it is important to test the stationary of all series entering in the model. The ADF test was used to test the stationary of the series. Results of Augmented Dickey Fuller Test have been shown in Table 1. For the variables the test statistic is greater than the critical value at 1% level and the prob. value is also greater than by 1% so the variables are non-stationary at level.

**Table 1: Unit Root Test (at level)**

Variable	Augmented Dickey Fuller		
	Test Stat.	Critical Value (1%)	Prob.
FDI	-0.371860	-3.711457	0.9002
GDPPC	-0.406667	-3.670170	0.8957
LABORF	-0.86547	-3.67932	0.7855
OPENNESS	-0.583388	-3.670170	0.8600
TAXIT	-0.640747	-3.670170	0.8466

**Table 2: Unit Root Test (at first difference)**

Variable	Augmented Dickey Fuller		
	Test Stat.	Critical Value (1%)	Prob.
*FDI	-3.579397	-2.981038	0.0136
GDPPC	-3.709358	-3.679322	0.0093
*LABORF	-3.333470	-2.967767	0.0224
OPENNESS	-5.037665	-3.689194	0.0003
TAXIT	-3.975648	-3.679322	0.0049

Table 2 indicate the variables the test statistic is less than the critical value at 1% level and the prob. value is also less than by 1% so the variables are stationary at 1st difference.

**Table 3: Unrestricted Co-integration Rank Test (Trace)**

Hypothesized No. of CE(s)	Eigen value	Trace Statistic	Critical Value (at 0.01 level)	Prob.**
None *	0.869854	121.3752	85.3365	0.0000
At most 1*	0.530178	62.24124	61.26692	0.0079
At most 2	0.501262	40.33461	41.19504	0.0128

**Table 4: Unrestricted Co-integration Rank Test (Maximum Eigen value)**

Hypothesized No. of CE(s)	Eigen value	Maximum Eigen-Statistic	Critical Value (at 0.05 level)	Prob.**
None *	0.869854	59.13396	40.29526	0.0000
At most 1	0.530178	21.90663	33.73292	0.2807

Note: Trace test indicates two co integrating equation at 0.01 level, \*Denotes rejection of null hypothesis at 0.01 level, \*\*MacKinnon-Haug-Michelis (1999) p-values.

Table 3 shows the results of Unrestricted Co-integration Rank Test (Maximum Eigen value). It also rejects the null hypothesis and indicates one co-integrating equation at 0.01 levels. So, it confirms the same results as shown in table 3. Table 4 shows the results of Unrestricted Co-integration Rank Test (Trace). It rejects the null hypothesis and indicates two co integrating equation at 0.01 level.

**Table 5: Error Correction Model**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5.040754	7.786545	-0.647367	0.5248
DGDPPC	0.000100	0.000123	0.815953	0.4241
DLABORF	0.470377	0.274660	1.712578	0.1023
DOPENNESS	-2.12E-12	9.82E-12	-0.215549	0.8315
DTAXIT	0.011031	0.031209	0.353449	0.7275
FDI(-1)	-0.646069	0.199744	-3.234481	0.0042
GDPPC(-1)	2.45E-05	2.80E-05	0.873768	0.3926
LABORF(-1)	0.039256	0.125658	0.312403	0.7580
OPENNESS(-1)	2.56E-11	1.10E-11	2.338274	0.0299
TAXIT(-1)	-0.058836	0.024937	2.359378	0.0286
R-squared	0.612905	Mean dependent var		0.058333
Adjusted R-squared	0.438713	S.D. dependent var		0.280727
S.E. of regression	0.210318	Akaike info criterion		-0.019191
Sum squared resid	0.884673	Schwarz criterion		0.447874
Log likelihood	10.28787	F-statistic		3.518550
Durbin-Watson stat	1.987170	Prob. (F-statistic)		0.009158

Results of error correction model have been shown in table 5. The coefficient of DGDPPC, DLABORF, DOPENNESS, and DTAXIT are statistically insignificant. Coefficient of FDI (-1) is equal to -0.646069 and it is statistically significant. The value of the coefficient of FDI (-1) indicate that it is partially adjustable in different time period. The short run dynamics of the model is shown in Table 5. Results show that gross domestic product per capita has positive and insignificant effect on foreign direct investment in short run if other factors remain unchanged.

The coefficient of labor force and taxes on international trade is positively associated with FDI and this relation is statistically insignificant in short run analysis. The coefficient of openness shows that it has negative and statistically insignificant impact on FDI in short run analysis. The coefficient gross domestic product per capita has positive and insignificant effect on foreign direct investment in long run and the coefficient of labor force is positively associated with FDI and this relation is statistically insignificant in long run analysis. The coefficient openness has positive and significant effect on foreign direct investment in long run that is if Government device the policy of openness than it will attract more foreign direct investment in the country.

The coefficient of tax on international trade is negatively associated with FDI and this relation is statistically significant in long run analysis that is if Government device the policy of reduction of tax on international trade than it will attract more foreign direct investment in the country. Coefficient of FDI (-1) is equal to -0.646069 and it is statistically significant. The value of the coefficient of FDI (-1) indicate that it is inclined towards equilibrium state and approximately 64% adjustable in the current year. It is very much clear that the value of  $R^2$  is 0.61 and Durbin Watson test show that there is no auto correlation and F statistic is also significant.

#### ***Co-integrating equation of the Model***

$$FDI = 12.47 + 0.000109GDPPC - 0.195846LABORF - 2.12OPENESS - 0.031887TAXIT$$

This equation shows that with the change in GDPCC FDI will have positive impact but Labor, OPENESS and TAXIT have negative impact.

#### **V. Conclusions & Recommendations**

Arslan (2010) reported that in fiscal year 2009-2010 foreign direct investment (FDI) dropped by 44.7% in Pakistan. Economic crisis, suicide attacks, terrorism and energy crises are some major factors and causes of drop of FDI in Pakistan.

This conducted research has been showing that the gross domestic product per capita has positive and insignificant effect on foreign direct investment in short run if other factors remain unchanged. The coefficient of labor force and taxes on international trade is positively associated with FDI and this relation is statistically insignificant in short run analysis. The coefficient of openness shows that it has negative and statistically insignificant impact on FDI in short run analysis. The coefficient gross domestic product per capita has positive and insignificant effect on foreign direct investment in long run and the coefficient of labor force is positively associated with FDI and this relation is statistically insignificant in long run analysis. The coefficient openness has positive and significant effect on foreign direct investment in long run that is if Government device the policy of openness than it will attract more foreign direct investment in the country.



The coefficient of tax on international trade is negatively associated with FDI and this relation is statistically significant in long run analysis that is if Government device the policy of reduction of tax on international trade than it will attract more foreign direct investment in the country.

This conducted research further concludes that the host country choice depends on its evaluation of the location specific determinants that the host country offers. Some of these determinants such as market size, access to certain resources are now assessed from a regional rather than national perspective. All the mentioned determinants are varying from country to country and from region to region. The greater openness that exists within region gives rise to more competition among firms domestic and foreign. Production related FDI determinants related to demand come to play an important role in location decision. Accesses to market enhance efficiency. Business facilitation measures although not the significant category of FDI determinants as they become more significant for host country to compete for FDI. There would not be significant effects on the geographic pattern for FDI inflow as they are largely influenced by the other FDI determinants. Policy maker need to review the policies related to exports and gross national expenses. By working properly on the policies the confidence of the foreign investors can be increased. In the long run the Pakistan economy can become favorable investment country by adopting the favorable policies.

The findings of the study shows that economic growth which measured by GDP per capita is an important factor for attract the inflow of FDI. Thus government should make effective policy which enhance economic growth in the country like: high level of education, well organized infrastructure, employment opportunities, better utilization of natural resources, highly skilled human resource, better living standard, legal system, well organized money and capital markets, supportive culture and well established local markets of goods and services if these macroeconomic indicators more developed than economy grow up.

The findings of the study indicate that imports and exports of goods and services are important factors for FDI flows. It is statistically viewed that export of Pakistan is less than the total value of imported goods and services. Balance of Trade of Pakistan also shows negative value because Pakistan is an underdeveloped country and imports are more than exports. Therefore, export volume does not attract foreign direct investment in Pakistan. But the imports are positively associated with the FDI inflow. As Pakistan is a under developed country and has no sufficient modern technology and other sources so the as the volume of imports of goods and serves increase the economy's growth rate become increase and also leads to attracts more FDI. Thus, to attract FDI government should expand the volume of the imports of goods and serves. Government should realize the sector where foreign investment is crucially needed. Nowadays Pakistan is facing energy crises. Government should motivate foreign investors to invest more amounts in power sector to fill the shortfall of electricity in the country. Government should reduce the cost of electricity and other factor of production through proper implementation of policies. Investor must invest in those countries which are cost efficient, in which labors are available at lower rate of wage and modern technologies are there for cost reduction.

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