

Empirical relationship between Foreign Direct Investment and Economic Variables of Pakistan

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ABSTRACT: Economic growth of developing countries primarily depends upon the various socio-economic factors such as level of output, rate of saving and investment, standard of living of people, per capita income as well as national income and finally on industrial development. Pakistan is the second largest economy in the south Asia in terms of market size and availability of cheap labor force, however, failed to attract the surge of FDI inflow in the economy during last two decades. More specifically, the foreign investment comes in Pakistan generally on the basis of relation i.e. Pak –US relationship whose effect can be observed clearly during interval 2000 to 2007. Later, the financial crisis dumped the world economy resultant the developed countries channelize their investment within country to cope up with the worsening effect of financial crisis rather than concentrating on foreign investment. The prime motto behind this study is to observe the challenging effect of FDI inflow on the economy of Pakistan during most impressive period in Pakistan history in terms of foreign investment. In this study the economic growth of Pakistan is being measured by developing the econometric model over various indicators such as GDP, GDPPC, GNI, TOP during clustering period 2000 to 2012. Empirical results shows that the entrance of FDI, however, uplifted the status of GDP whereas another variables are negatively influenced during first interval i.e. 2000 to 2006. On the other hand, during second interval of study i.e. 2007 to 2012 the entrance of FDI inflow strongly affected the status of GDP Per Capita, whereas other variables are negatively influenced. At last, despite of favorable investment environment and key macroeconomic fundamentals, the Pakistan is still legging continuously in attacking the large FDI inflow caused to poor infrastructure, terrorist activities, energy issues, distortion in law and orders and large security issues.

Key words- Economic growth, financial crisis, GDP, GDPPC, GNI, TOP.

I. EFFECT OF FOREIGN INVESTMENT ON PAKISTAN ECONOMY

In previous two decades, it has been observed that in developing countries the domestic investment generally fails to accomplish the needs of growth and development that could mould the countries scenario to look forward towards alternative source of finance. In general, the developing countries for bridging the gap between demand and supply of funds always welcome the foreign investment. Recently, the FDI has been recognized as a most efficient source of finance for developing countries. It assist the companies not only the availability of funds but also attempts to bridge the technology gap knowledge spillover, human capital and provide competitive business environment (Kalim and Shahbaz, 2009). Pakistan is a young country with an ancient history and with rapidly growing populations. Her economy primarily depends on agriculture, a per capita income is low, and much of the population lives in poverty. In spite of all, Pakistan always fetch the substantial FDI inflow in its economy on behalf of large domestic market and favourable policies environment but terrorist violence, energy and financial crisis create hurdles for investors caused to turbulent trend in foreign investment. Previously, the inconsistent investment policies observed as the major constraints in free flow of FDI until 1991 but the FDI inflow has steadily increased during the early post-liberalization period. More specifically, FDI inflow to Pakistan has increased in many folds during last two decades i.e. US \$485 Million in 2001-02 to US \$5,409.80 Million in 2007 -08 further declined to US \$820.7 Million in 2011-12 (as per UNCTAD 'WIR' report). However, FDI plays a vital role to acceralate the economic growth of developing

countries (Khan, 2007). It is evident with the study of Pakistan economy, the energy sector, telecom sector and financial sector attracted surge of FDI inflow on behalf of large market share, cheap labour force and vast opportunities. The prospect of this economy reflect that these sector failed to keep up the upward trend of FDI inflow for longer period later 2008 these specific sectors mislead the growth path resultant the investors lose their confidence in Pakistan economy. If we closely analyze, the macroeconomic parameters and opportunities in Pakistan, then realized that the share of foreign direct investment (FDI) inflow is negligible as compared to the absorbing capacity and economic fundamentals of the country. Even though, the share of Pakistan is less than one percent compared to world total FDI inflow. That can be due to political instability, security issues, law and order situation, energy crisis, corruption, lack of required infrastructure, lack of enforcement of contracts and high corporate tax rates.

This research paper aim is to analyze the relationship between foreign direct investment (FDI) inflow and economic variables *i.e.* GDP, GDP PC, GNI, Trade openness in Pakistan for the period 2000 to 2012. The rest of the paper framed as: Section 2 provides the trends of FDI investment in Pakistan. Section 3 provides the previous theoretical studies on FDI investment. In section 4 data sources and econometric methodological is being discussed. Section 5 represents the econometric results and discussion. Finally, the section 6 states the conclusions and recommendation regarding further scope and guidelines for board of investment.

II. TRENDS OF FDI INFLOW IN PAKISTAN

In Pakistan, FDI is primarily invested through equity capital, re-invested earning and other capital. The FDI Investment continuously follows the regular pattern in Pakistan’s economy since year 1991 with a view to escalates the economic growth of country. Generally, the foreign investors fetch the funds in many ways in term of FDI investment *i.e.* launching a new project or acquiring the already existing domestic projects with huge profit potentials (Sajid et al. 2012). The discussion over FDI inflow in Pakistan’s economy has been substituted in four specific categories, which were further determined on the basis of velocity of FDI inflow in the economy. Actually, the consensus behind this clustering study is to go in depth and searched the causes of slow as well as rapid movement of FDI inflow at different time interval.

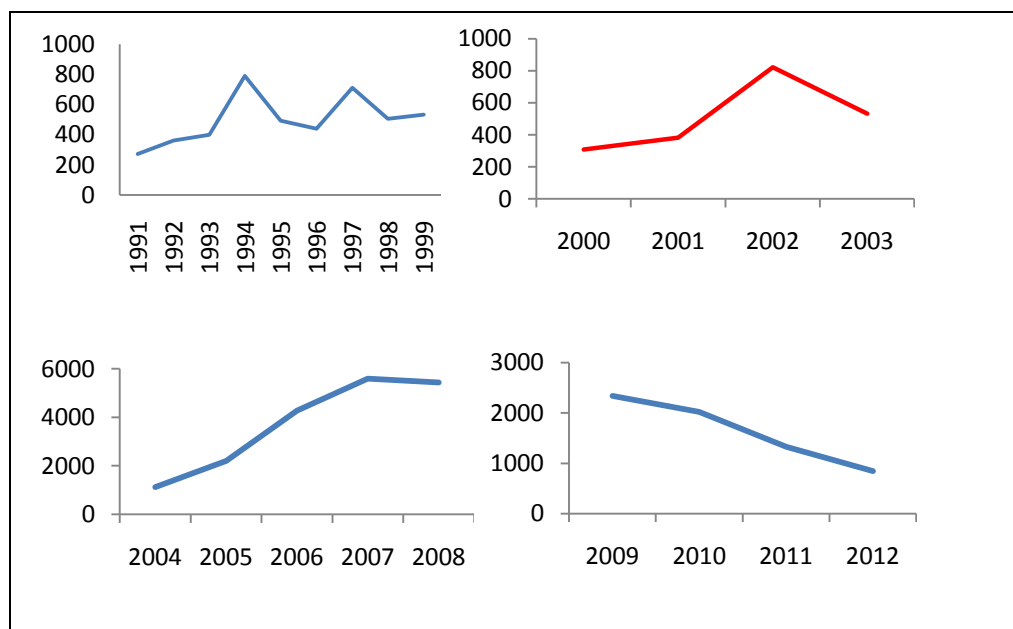


Fig. 1: Categorical FDI inflow in Pakistan (USD Millions)

Source: Author expectation's on the basis of data compiled on FDI inflow

III. REVIEW OF FDI INFLOW IN PAKISTAN: 2000 TO 2012

This study is basically conducted to analyze the impact of FDI inflow on Pakistan economy during last two decade. For this, a vast literature available on FDI has been studied and concluded in nutshell the historical review for accomplishing the objective of the study.

3.1 IMPACT OF FDI: REVIEW OF PAST STUDIES PERIOD; UP TO YEAR 2000

In this period many author have contributed their thoughts regarding 'how much the FDI inflow contribute in the development of host economies' in the presence of available attractive determinants and concluded that there were many political and security issues caused to slow movement in FDI inflow in Pakistan. In this process, Shabir and Mahmood (1992) analyzed the relationship between foreign private investment (FPI) and economic growth in Pakistan. He used the data from 1959-60 to 1987-88 and concluded that net foreign private investment (FPI) and disbursements of grants and external loans had a positive effect on the growth prospect of real GNP. However, they did not treat FDI as a separate variable. Borensztein *et al.* (1998) had conducted a study over 69 developing countries to investigate the effect of FDI on economic growth and he observed basically the requirement of quantum of FDI depend upon the absorbing capacity of host country.

3.2 IMPACT OF FDI: REVIEW OF PAST STUDIES PERIOD; 2000 TO 2003

(Chakrabarti, 2001) conducted an empirical analysis on FDI determinants in developing countries with consideration of some other FDI determinants, he examined that there is strong correlation between FDI and market size which is considered a robust to change the domestic country's economic condition. Adversely, the question arises whether the dominance of market-related factors no longer holds under conditions of proceeding globalization, while less traditional FDI determinants have become more important. Agarwal (2000) conducted an analysis on effect of FDI on economic growth, he found that entrance of enormous FDI in South Asian countries was in association with the exponential investment by local investors, which measured the relationship between FDI and GDP and estimated that the influence of FDI on GDP was negative till the year 1980. In the following years, early 80s, the link was mildly positive and strengthened over the years in the late eighties into the nineties. (Ahmed, et.al, 2003) examined the causal relationship between FDI, exports and output by employing Granger non-causality procedure over the period 1972 to 2001 in Pakistan and found there is significant effect of FDI on domestic output of host country.

3.3 IMPACT OF FDI: REVIEW OF PAST STUDIES PERIOD; 2004 TO 2008

Mubarik (2005) estimates the threshold level of inflation in Pakistan using annual data for the period 1973 to 2000. The empirical results from his study suggest 9 percent threshold level of inflation for the economy of Pakistan, above which inflation is very unfavorable for economic growth. Sahoo, (2006) has conducted a panel co-integration test¹ on major determinants of FDI in South Asia such as market size, labour force growth, infrastructure index, trade openness and found that FDI and its determinants have long run equilibrium relationship in south Asian countries. Yousaf *et al.* (2008) studied the economic impact of foreign direct investment in Pakistan. For this they tested the impact of FDI on exports and imports of Pakistan from 1973–2002. Co-integration and error correction technique was used and concluded that FDI has positive impact on real demand for imports in short and long run. Aurangzeb *et al.* (2012) they attempted to investigate the effect of FDI on economic growth of Pakistan during 1981 to 2010. He used four economic variable *i.e.* FDI, GDP, remittance and external debt with multiple regression test and found statistically that all three variables *i.e.* FDI, are having positive and significant relationship with economic growth.

¹ Panel co-integration test is a tool to analyze the determinants to enumerate the impact of determinants.

IV. ECONOMETRIC METHODOLOGY

The aim of our paper is to analyze the empirical relationship between FDI and economic variables in Pakistan. For this data has been used over the period of thirteen year from 2000 to 2012. More specifically, the four variables used in our model, gross domestic product (GDP), GDP Per Capita (GDP PC), Gross National Income (GNI), Trade openness as a percentage of GDP (TOP). To determine the level of significance among above economic variables the secondary data has been collected from the reliable source such as world development indicators, UNCTAD and state bank of Pakistan.

Model Summary:

To estimate the impact of FDI inflow over various economic variables during the previous decade in Pakistan, the following econometric technique and model has been employed.

4.1 MULTIPLE REGRESSION ANALYSIS

Multiple regression technique is being applied by considering the FDI as an independent variable and GDP, GDP Per Capita, Gross National Income, Trade Openness are dependent variables with the purpose to get the value of t statics, R Square and value of co-efficient. Abdul Ghafoor Awan *et.al* (2014) used the multiple regressions to analyze the impact of FDI inflow on economic variables and found that FDI has positively influence over GNI and export whereas External debt and import negatively affected. We constructed the following model for our study.

$$Y(FDI) = \beta_0 + \beta_1(GDP) + \beta_2(GDPPC) + \beta_3(GNI) + \beta_4(TOP) + \varepsilon$$

- i. β_0 is Constant
- ii. $\beta_1, \beta_2, \beta_3, \beta_4$ are variable according to year.
- iii. ε is Error term.

4.2 CORRELATION MATRIX

In this paper, especially the Pearson correlation matrix has been employed to recognize the strength of relationship between Foreign direct Investment (FDI) and GDP, GDP Per Capita, Gross National Income, Trade Openness with a view to examine the relationship between FDI inflow and abovementioned economic indicators of Pakistan.

V. EMPIRICAL RESULTS AND DISCUSSION

No doubt, FDI inflow always influence the economy of host country either positive or negative. It does all depend upon the profitability, infrastructure, financial sector, Political stability and many more determinants of the host country. For measuring the impact of FDI on GDP, GDP PC, GNI, TOP above mentioned econometric technique attempted to utilize with a view to get the significance of the study.

5.1 PEARSON CORRELATION MATRIX:

This results also being compiled with considering the available economic condition during that different period and presented the following results-

a. Results for the period of 2000-06:

TABLE I. Statistical Correlation Matrix

	<i>FDI</i>	<i>GDP</i>	<i>GDP PC</i>	<i>GNI</i>	<i>TOP</i>
<i>FDI</i>	1				
<i>GDP</i>	0.934	1			
<i>GDP PC</i>	0.933	0.999	1		
<i>GNI</i>	0.923	0.999	0.997	1	
<i>TOP</i>	0.849	0.957	0.950	0.958	1

- Correlation is significant at the 0.05 level.
- FDI is independent variable.
- Other variables are dependent.

From the above correlation table it is clear that relationship between following variables are significant at 0.05 levels

Variables	Value of r
FDI and Real GDP	0.934
FDI and Gross National Income (GNI)	0.923
FDI and GDP PC	0.933
FDI and TOP	0.849

From the above table it is also evident that relationship between the other variables

- Real GDP and Gross National Income has been found to be Positive with strong correlation, value of coefficient $r = 0.999$.
- Real GDP and GDP PC has been found to be Positive with strong correlation, value of correlation coefficient $r = 0.999$.
- Gross National Income and TOP has been found to be Positive with strong correlation, value of correlation coefficient $r = 0.958$.
- Gross National Income and GDP PC has been found to be Positive with strong correlation, value of correlation coefficient $r = 0.997$.

Finally, since the correlation is positive, which indicates that the trend of FDI inflow influenced all above mentioned economic variables of Pakistan during the period of 2000 to 2006? Therefore, Real GDP, GDP Per capita, Gross National Income and Trade openness (Total Trade/GDP) are dependent on FDI inflow in Pakistan.

b. Results for the period of 2007-12

TABLE II. Statistical Correlation Matrix

	<i>FDI</i>	<i>GDP</i>	<i>GDP PC</i>	<i>GNI</i>	<i>TOP</i>
<i>FDI</i>	1				
<i>GDP</i>	-0.861	1			
<i>GDP PC</i>	-0.846	0.999	1		
<i>GNI</i>	0.198	-0.380	-0.368	1	
<i>TOP</i>	0.824	-0.644	-0.641	0.188	1

- Correlation is significant at the 0.05 level.
- FDI is independent variable.
- Other variables are dependent.

From the above correlation table it is clear that relationship between following variables are significant at 0.05 levels

Variables	Value of r
FDI and TOP	0.824
FDI and Real GDP	-0.861
FDI and Gross National Income (GNI)	0.198
FDI and GDP PC	0.846

From the above table it is also evident that relationship between the other variables

- Real GDP and GDP PC has been found to be Positive with strong correlation, value of correlation coefficient $r = 0.999$.
- Real GDP and Gross National Income has been found to be Negative with weak correlation, value of coefficient $r = -0.380$.
- Gross National Income and TOP has been found to be Positive with weak correlation, value of correlation coefficient $r = 0.188$.
- Gross National Income and GDP PC has been found to be Negative with weak correlation, value of correlation coefficient $r = -0.368$.
- GDP PC and TOP has been found to be Negative with average correlation, value of correlation coefficient $r = -0.641$.

Finally, since the correlation is positive for trade openness and negative for GDP and GDP PC which indicates that during the period 2007 to 2012, the trend of FDI inflow in Pakistan positively influenced the TOP while negatively affected the GDP PC and GDP of Pakistan economy, therefore, Real GDP, GDP Per capita, Gross National Income and Trade openness (Total Trade/GDP) are dependent on FDI inflow in Pakistan.

5.2 REGRESSION ANALYSIS

TABLE III. FDI and economic variables

Method: Multiple Regression Analysis

Sample observation: 2000 to 2006

Observation: 6

Economy: Pakistan

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	3.87	3.15	1.23	0.34	-9.70	17.43
GDP	0.99	0.23	4.27	0.05	-0.01	1.98
GDP PC	-70.38	25.75	-2.73	0.11	-181.17	40.40
GNI	-0.47	0.12	-3.87	0.06	-1.00	0.05
TOP	-19.45	7.86	-2.48	0.13	-53.25	14.35

Multiple R: 0.99

R square: 0.99

Adj. R square: 0.97

Std. Error: 0.26

F statistics: 44.427

F significance: 0.022

- In general the results of regression during the period 2000 to 2006 show that FDI inflow positively influence the status of GDP of Pakistan economy but particularly the discussion of each variables depicts the more transparent picture of Pakistan economy in regards of foreign investment *i.e.* for GDP the t- value is 4.27 with positive sign at significant level of .005. As p-value is .05, results are significant that means one unit increase in FDI brings 0.99 units GDP increase in Pakistan. The more reasonable explanation may be that due to rapid growth, attractive economic outlook, de-regulation of telecom and other sectors and many other attractive investment avenues, the investor invested confidently despite of increase in violence in Pakistan.
- GDP Per Capita is highly insignificant at 5 percent level of significance and its relation to the FDI inflow is negative as the theory of FDI stated, which means that one unit increase in FDI which show to -70.38 units decrease in GDP Per Capita of Pakistan.
- Simultaneously, Gross national Income and Trade openness are highly insignificant at significant level of .005. and its relation to the foreign direct investment is negative. As one unit increase in the FDI which shows -0.47 unit decrease in the GNI similarly the case with TOP which shows One unit increase in FDI inflow leads to the -19.45 units decrease in the value of Trade openness in Pakistan economy.

TABLE IV. FDI and economic variables

Method: Multiple Regression Analysis

Sample observation: 2007 to 2012

Observation: 6

Economy: Pakistan

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	-13.83	0.94	-14.66	0.04	-25.81	-1.84
GDP	-0.56	0.02	-23.36	0.03	-0.86	-0.26
GDP PC	108.06	4.96	21.80	0.03	45.09	171.04
GNI	-0.01	0.00	-13.40	0.05	-0.01	0.00
TOP	15.36	0.81	18.95	0.03	5.06	25.67

Multiple R: 1.00

R square: 1.00

Adj. R square: 1.00

Std. Error: 0.07

F statistics: 973.74

F significance: 0.02

- In general the results of regression during the period 2007 to 2012 show that FDI inflow positively influence the status of GDP Per Capita and TOP of Pakistan economy but particularly the discussion of each variables depicts the unique picture for Pakistan economy in terms of foreign investment *i.e.* for GDP Per Capita the t- value is 21.80 with positive sign at significant level of .005. As p-value is 0.03, results are highly significant that means one unit increase in FDI brings 108.06 units of GDP Per Capita increase in Pakistan. The more reasonable explanation may be that due to major reform in foreign investment policies rapid growth, attractive economic look, de-regulation of telecom and other sectors and many other attractive investment avenues, the investor invested more despite the increase in violence in the Pakistan.
- GDP is significant but negatively influenced at 5 percent level of significance *i.e.* 0.03 and its relation to the FDI inflow is negative as the theory of FDI stated, which means that one unit increase in FDI which show to -0.56 units decrease in GDP of Pakistan.

- Gross national Income is negatively influenced at 5 percent level of significance *i.e.* 0.05 and its relation to the FDI inflow is negative as the theory of FDI stated, which means that one unit increase in FDI which show to -0.01 units decrease in GNI of Pakistan.
- Trade openness is positively significant at significant level of .005 and its relation to the foreign direct investment is positive. As one unit increase in the FDI which shows 15.36 unit increase in the Trade openness. GNI similarly the case with TOP which shows One unit increase in FDI inflow leads to the -19.45 units decrease in the value of Trade openness in Pakistan economy.

It is evident from the empirical study that variables GDP alone influenced strongly with the entrance of FDI inflow during the first interval of study *i.e.* 2000 to 2006. However, in the second interval *i.e.* 2007 to 2012, GDP Per Capita and Trade openness emerged as the most positive effective variables due to entrance of massive FDI inflow in Pakistan economy.

VI. CONCLUDING REMARKS

The purpose of this study is to measure the effect of FDI inflow on economic growth of Pakistan. Despite of many factors such as availability of labour force and large market size, the Pakistan failed to generate the substantial amount of foreign investment. However, the study highlighted some serious factors caused to slow movement of FDI such as Political instability, lack of security measure, corruption in economy and faulty deals with foreign investors. In this study, the author conducted an experiment on pre determined economic variables *i.e.* GDP, GDP Per Capita, Gross national income and Trade Openness and found empirically that the entrance of FDI positively influenced the status of GDP in country while other variables are negatively affected which means there were many other reason that may contributed largely in the growth of Pakistan rather than FDI investment only. Adversely, during second interval *i.e.* 2007 to 2012, the entrance of FDI strongly influenced the status of GDP Per Capita and likely effected the trade openness of Pakistan whereas other variables as GDP and GNI are such variables which affected negatively by the FDI inflow in the economy during second interval. At last, the entrance of FDI inflow takes place a significant role in the growth of host country. But in case of Pakistan, FDI significantly improved the status of GDP and GDP Per Capita of Pakistan economy in periodic study. However, the factors such as large market size, availability of low cost labor force macroeconomic policies, financial planning contributes largely in the development of Pakistan economy.

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