Relationship of Foreign Direct Investment and Economic Growth Rate of Pakistan: (From: 1990-91 to 2011-12)

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Abstract

Under Developing Countries are always facing a problem of saving-investment gap. It has been a great hurdle in achieving and maintaining sufficient Growth rate. The Government is looking forward to attract foreign investors in the country to enhance economic growth. This article investigates the relationship among (FDI) and GDP growth rate of Pakistan from 1990-91 to 2011-12.

Introduction

In this manuscript the association between Foreign Direct Investment and GDP growth rate of Pakistan has been investigated for last twenty two years. The relationship of two variables has been examined through regression analysis and coefficient of determination has been used to measure the impact of independent variable (FDI) on dependent variable (GDP). T-Value has been also mentioned to measure the strength between two variables FDI and GDP from 1990-91 to 2011-12 in case of Pakistan. In section II Literature Review has been mentioned. Section-Ill is concerned with data collection. Section-IV reserved for methodology and empirical findings has been mentioned in Section-V, while Section-VI takes conclusion.

Literature Review

Utmost of the under developing nations are entrapped by vicious circle of poverty. These countries are lacking in capital resources and disposable incomes, consequently, low savings are creating the problem of low investment level. Pradeep Kr (2011) [1] said in his study "impact of FDI on GDP: critical evaluation" that the "attractiveness of the host market affects FDI positively and significantly". In numerous ways a problem of under developing countries remains that of boost up its rate of "saving and investment". FDI becomes important in its own right if it makes contribution towards technology progress; productivity spillovers and consolidating export markets. Mr Amir Hussain & Javed Iqbal (2005) [2] are with the conclusion that Investment has optimistic and momentous relationship with GDP growth. "The significance of FDI inflows is well documented in literature for both the developing and developed countries. Over the last decade FDI have grown at least twice as rapidly as trade. As there is shortage of capital in the developing countries, which need capital for their development process, the marginal productivity of capital is higher in these countries. On the other hand investors in the developed world seek high returns their capital. Hence there is a mutual benefit in the international movement of capital", Anjum & M.Nishat (2004) [3]. Mr. Hafeez (2010) [4] said in his article that, in FDI of Pakistan was very squat before fiscal year 2005 and except 1996 it never surpassed US$ 1 billion. An important aspect of FDI inflows in Pakistan is that it is concentrated to a few non-tradable sectors. FDI inflows in non-tradable sectors have worsened the balance of payment problems for Pakistan through its impact on repatriation of profit. Etzaz (2003) [5] in his research comes with conclusion that although FDI plays an important role in the progress of economic growth, it cannot be regarded as more important than domestic private investment.

Furthermore the role of domestic private investment is more unswerving and dependable than the contribution of FDI. "FDI has not contributed much to the economic growth in Pakistan for the time period 1980-2006, as compared to domestic capital and labor. Therefore it is imperative for Government to make a policy for attracting FDI in such a way that it should be more growth enhancing than growth retarding", Nuzhat (2009) [6]. Hanrik and John (2005) [7] stated that there is a positive association between FDI and GDP. FDI appears to be growth enhancing much in the same way as domestic investment.

"FDI inflows are generally defined as the measure of the net inflows of investment needed to acquire a lasting management interest (10% or more of the voting stock) in an enterprise operating in an economy other than that of the investor", Laura Alfaro (2003) [8]. Ilhan & Huseyin (2008) [9] concluded that there is causal relationship between FDI and economic growth in Pakistan over the period of 1975-2004. They found it is GDP that causes FDI in the case of Pakistan. Investment plays a significant role in the economic growth. There must be at hand for the investor's actual benefits and opportunities in order for the FDI to have an impact on the economy.

Without these, any investment ready would be unable to yield the results that were desired, Amna, Imran, Salman (2010) [10]. "Financial openness correlates positively with economic activity in the country and improves economic growth rate. A 10% increase in FDI inflows will improve economic growth by 0.3 percent" Shahbaz, Khalil & A.R Chaudhary (2008) [11]. Kumar (2011) [12] stated that FDI and exports enhance the growth of Asian countries and also that labor and capital help in that process. Further, he stated that studies found that FDI has a negative impact on economic growth and income distribution. Hence, he suggests an export-led growth path, particularly at the initial stage of growth, in the later period, dependence on FDI might be feasible option. "Foreign Direct Investment (FDI) has become an important growth factor in the globalization of the world economy. The countries that experienced faster growth rate of GDP were considered successful and have been attracting larger amount of FDI. In developing countries FDI was helpful to narrow down the Saving-Investment gap. A Multinational company's decision to expand its business to another country was mostly based on high efficiency, low production cost, availability of strategic raw material and emerging market", Mahr (2008) [13]. "Many macroeconomic studies find a positive link between FDI and growth.

Previous macroeconomic studies, however, do not fully control for endogeneity, country-specific effects, and the inclusion of lagged dependent variables in the growth regression. He finds that FDI inflows do not exert an independent influence on economic growth", Maria & Ross (2002) [14]. The research findings of Najia, Maryam and Nabeel have remained consistent with their initial expectations and have indicated that FDI has a negative role to play in this economy. "Not just FDI, but Debt, Trade and Inflation have also been found to negatively influence Pakistan's economic performance. A developing nation like Pakistan that is abundant in many resources may help from capital formation. Domestic investment in this regard would benefit the country's economy, and therefore dependency on foreign investment should remain limited", Najia (2013) [15].

The study of Mohey-u-Din (2007) [16] shows a positive impact of foreign capital inflows on the GDP growth in Pakistan during the period of 1975-2004. The study of Reddy and Bidhu (2007) [17] confirmed that FDI promotes economic growth and further provides an estimate that one dollar of FDI adds about 3.27 dollars to the GDP of each of the countries (China, India, Malaysia & Singapore) included in the investigation. Matiur Rahman (2006) [18] stated that in the case of Pakistan, the estimates of VAR models depict that remittances play a greater role than exports in influencing its real GDP. FDI is found to exert net contraction effects on its real GDP, though not highly significant.

Zeeshan, Mohsin & usman (2004) [21] investigated that FDI has been one of the defining features of the world economy over the past two decades. In the light of above theories we have observed that FDI has positive, negative, significant and insignificant impact on the economy of host country. The Government policies would be effective to attract foreign investors specifically in the right direction. FDI boost the investment in the country and enhance growth rate by producing new products and technological advancement.

FDI stimulate the competitions and domestic industries strive towards innovation. It is also suggested that FDI do not boost economy, negative impact may happen to compete on scarce resources, limited manpower, struggle for self benefit by Multi National Companies. Restrictive business practice by the foreign firms and profit repatriation may put negative impact on growth. Keeping in mind all these factors the relationship between FDI and GDP growth rate of Pakistan has been studied in this paper for last twenty two years, whether it has significant impact on growth or it is insignificant in case of Pakistan for selected time period.

Data Collection

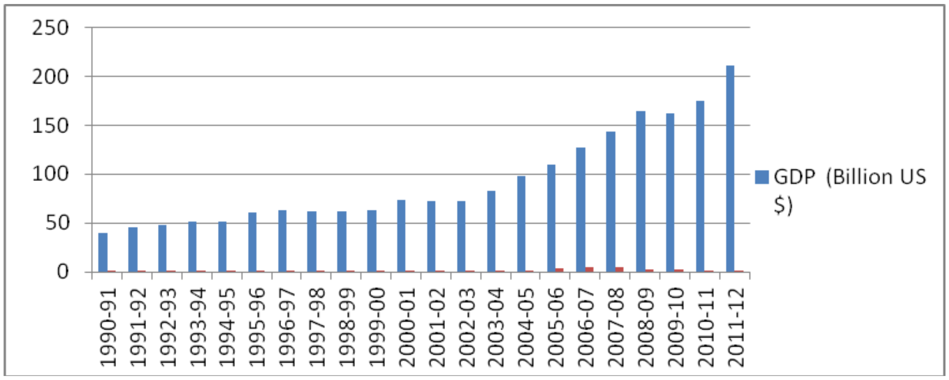
Different studies have been observed to analyze the relationship and impact of Foreign Direct Investment on Growth rate. The time series data from different reliable sources have been collected regarding GDP and FDI inflows in Pakistan for selected time period 1990-91 to 2011-12. Data for these two indicators has been collected from World Bank Development indicators: online data base, State Bank of Pakistan and Board of Investment. This paper is simplified to analyze the contribution of FDI and GDP in Pakistan for selected time period. Reliability of data is always questionable in such type of process.

Table.1: GDP and FDI inflows in Pakistan

year	**GDP** (Billion US $)	**FDI** (Billion US $)
1990-91	40.01	0.245
1991-92	45.452	0.258
1992-93	48.638	0.336
1993-94	51.895	0.349
1994-95	51.478	0.421
1995-96	60.636	0.723
1996-97	63.32	0.922
1997-98	62.433	0.716
1998-99	62.192	0.506
1999-00	62.974	0.532
2000-01	73.952	0.308
2001-02	72.31	0.485
2002-03	72.307	0.798
2003-04	83.245	0.949
2004-05	97.978	1.524
2005-06	109.6	3.521
2006-07	127.5	5.140
2007-08	143.203	5.153
2008-09	163.891	3.180
2009-10	161.981	2.151
2010-11	174.799	1.635
2011-12	211.092	0.813

Source: Government of Pakistan (2012) Economic Survey of Pakistan 2011-2012, Islamabad.
Both indicators have been selected in similar units (billion $) of measurement for analysis and proper interpretation. Not significant inflows of FDI in Pakistan except few years from 2004-05 to 2007-08.

Fig.l: Comparison of GDP and FDI inflows in Pakistan



□ *GDP(billion $) mFDI(billion$)*

This comparison shows a huge difference between two indicators from 1990-91 to 2011-12. This shows that the contribution of FDI on GDP growth rate needs great care in case of Pakistan. The GDP has been increasing since 2003-04. It shows a continuous increase after 2003-04 except 2009-10. The FDI bar hardly goes above the horizontal axis during the specified time period. The bar is slightly visible from 2005-06 to 2007-08 else it is hard to see above the horizon. During last twenty two years FDI did not crossed One billion US $ for fifteen years. It shows that there is no major contribution of FDI in GDP of Pakistan for the period of 1990-91 to 2011-12.

Table.2: Growth rate and FDI inflows as percent of GDP in Pakistan

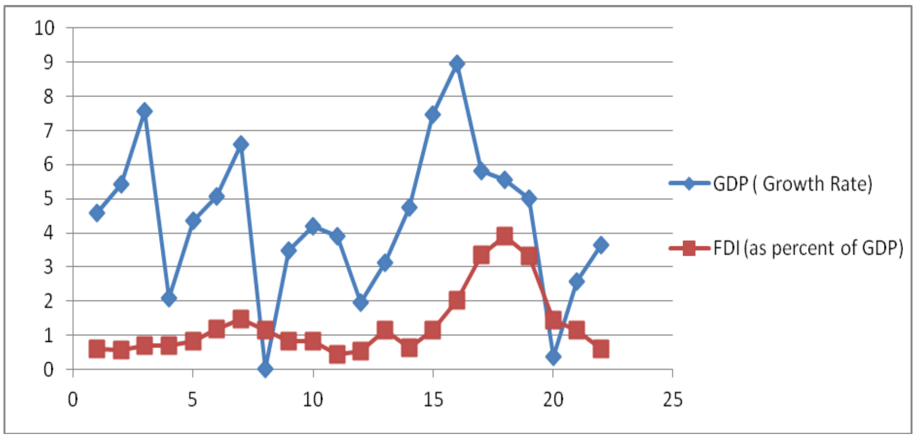
year	GDP (Growth Rate)	FDI (as percent of GDP)
1990-91	4.59	0.61
1991-92	5.42	0.57
1992-93	7.57	0.69
1993-94	2.1	0.68
1994-95	4.37	0.81
1995-96	5.06	1.19
1996-97	6.6	1.46
1997-98	1. 7	1.15
1998-99	3.49	0.81
year	**GDP** (Growth Rate)	**FDI** (as percent of GDP)
1999-00	4.18	0.84
2000-01	3.91	0.42
2001-02	1.96	0.53
2002-03	3.11	1.14
2003-04	4.73	0.64
2004-05	7.48	1.14

2005-06	8.96	2.01
2006-07	5.82	3.35
2007-08	5.54	3.9
2008-09	4.99	3.32
2009-10	0.36	1.44
2010-11	2.58	1.14
2011-12	3.66	0.6

Source: Government of Pakistan (2012) Economic Survey of Pakistan 2011-2012, Islamabad.

It is obvious from the above table that the contribution of FDI inflows in growth rate is poor in case of Pakistan. Although it starts to do better from 2004-05 but again because of world wide economic crisis, poor law and order situation and energy crisis reduce FDI in Pakistan.

Fig.2: Trends of GDP growth rate and FDI inflows as percent of GDP



There is no continues positive trend in both economic indicators for Pakistan; both positive and negative trends can be observed. GDP growth rate is showing expansions and recessions of Pakistan Economy for last twenty two years. In 2005-06 growth rate is almost 9%, which is very good but not sustained in future. From 2005-06 to 2007-08 the FDI starts to inflow in Pakistan but not for longer period. Then fall in growth rate from 2006-07 to 2009-10 makes FDI inflows decreasing since then due to lack of investment from America and other European markets. The trend shows that the impact of FDI upon GDP is positive from 2003-04 to 2007-08. In some particular years when GDP is increasing; FDI shows decreasing trend as happened in 2003-04. Better infrastructure and investment chances attracts FDI from 2002-03 to 2006-07. In the year 2006-07; GDP starts to slow down consequently FDI inflows reduce from 2007-08 due to world economic crisis of 2007-08. It justifies that contribution or impact of FDI on GDP growth rate is positive but Pakistan is still struggling to attract foreign investors. The trend explains that it is the GDP that causes FDI in Pakistan for a very short period of time in the selected tenure.

The reliability of data is always questionable. But with available data, empirical work has been carried out. Both indicators has been converted into Billion US $ for this purpose.

Research Methodology

It is mentioned earlier that this paper is to examine relationship between FDI and GDP of Pakistan from 1990-91 to 2011-12. The data has been collected from the reliable sources as mentioned above. To investigate the relationship between FDI and GDP growth rate a simple regression model is used.

$$Y = a + \beta x + \mu$$

This is simple regression model shows the impact of independent variable (FDI) upon dependent variable (GDP).

We know that FDI has impact upon GDP so with the help of this equation following model has been prepared to examine the relationship of two variables in terms of calculus.

GDP=f (FDI)

To simplify the above function following model has been used to investigate the relationship between selected variables. This is simple regression model as only one independent variable has been selected to investigate its impact upon GDP for a selected period of time.

***GDP = a + J3FDI* + µ** ---------------------**eq. 1**

Where,
GDP= Gross Domestic Product
α= Constant
β = Slope or regression co-efficient
FDI= Foreign Direct Investment
μ /*a* = Error Term

In above equation GDP is a dependent variable and FDI is an independent variable. Model has been designed to investigate the relationship and impact of particular independent variable (FDI) on dependent variable (GDP) from the period 1990-91 to 2011-12. Initially the values of regression coefficient (slope) and constant have been calculated with the help of following equations.

$$\hat{b} = \frac{\sum (X_i-\bar{X})(Y_i-\bar{Y})}{\sum (X_i-\bar{X})^2} \qquad \text{----------------------eq 2}$$

$$\alpha = \bar{Y} - \hat{b}\bar{X} \qquad \text{----------------------eq 3}$$

Then Coefficient of Determination (R) is calculated to measure the proportion of total variation in the dependent variable (GDP) that is "explained" by the regression equation.

$$R^2 = \frac{\text{Explained variation}}{\text{Total Variation}} = \frac{\sum(\hat{Y}-\bar{Y})^2}{\sum (Y_i-\bar{Y})^2} \qquad \text{----------------------eq 4}$$

The standard error of *b* is also calculated as the relationship between a dependent variable and an independent variable is not fixed because the estimate of b will vary for different data samples. The standard error of *b* from one of these regression equations provides an estimate of the amount of variability *m b*.

$$S_{\hat{b}} = \sqrt{\frac{\sum(Y-\hat{Y})^2 / n-2}{\sum (X_i-\bar{X})^2}} \qquad \text{----------------------eq 5}$$

Then t-test is done to determine if there is a significant relationship between the dependent variable and independent variable.

$$\mathbf{t} = \frac{\hat{\mathbf{b}}}{\mathbf{s}}$$

The actual GDP-FDI data points do not lie on the regression line but are dispersed above and below that line. This means that a value predicted by the regression equation will be subject to error. That is, one would not expect the predicted values to be 100% accurate. The standard error of the estimates (Se) is a measure of the probable error in the predicted values. The equation for this standard error is as follow:

$$Se = \sqrt{\frac{\sum(Y-\hat{Y})^2 - b\sum (X_i-X)(Y_i-y)}{n-k-1}} \qquad \text{----------------------eq 6}$$

After done all the calculations with the help of above equations the empirical results have been analyzed and mentioned in the next section of the paper.

Empirical Findings

After calculating the constant (vertical intercept) and regression coefficient, thus the estimated model (eq.l) is as follow:

$GDP = 66.76 + 18.71 FDI$

The Ordinary Least Square method suggests that there is positive relationship between FDI and GDP. The variation in the dependent variable due to independent variable can be measured by calculating Coefficient of Determination and strength between two variables is tested with t-statistic.

The results of testing regression Estimates such as Coefficient of Determination denoted as R^2 (measure how well the overall equation explains changes in the dependent variable), the value of t-statistic (to test the strength of the relationship between an independent variable and dependent variable) and the value of standard error are as follows:

Term	R^2	$S_{\hat{b}}$	t-statistic	Se
Value	0.33	6.08	3.08	41.33

The above results show that:

- The value of Co-efficient of determination (R^2) is low. It shows that only 33% change in GDP occur because of FDI for the time period 1990-91 to 2011-12. While 67% change in GDP is due to un-explained independent variables. Thus the equation appears a particularly poor-fit. But it confirms a positive relationship between the variables.
- Because of the variability in the 6, it is sometimes useful to determine a range for the estimate of the true parameter b, to specify range a 95% confidence interval estimate for b is used $(\hat{b} \pm t_n — k — lS_b)$. This principle represents the value of particular probability distribution. The Standard error of b, the 95% confidence interval estimate would be from 6.03 to 31.39. As this range does not include Zero so *b* is statistically significant, therefore, it appears a positive relationship between the GDP and FDI or FDI has statistically significant impact on GDP during the selected period of time (1990-91 to 2011-12) in case of Pakistan.
- The t-value (3.08) is higher than the tabled value oft for n-k-1 degrees of freedom (2.086), thus it concludes that there is statistically significant and strong relationship between GDP and FDI as it qualifies the t-test.
- The value of standard error for GDP estimated is 41.33.

Conclusion

In ordinary least square method, the null hypothesis is rejected that there is no relationship between the variables or the empirical analysis on basis of Ordinary Least Square Method Suggests that there is a positive relationship between FDI and GDP. It is also concluded that here is strong relationship between the variables and significant impact of independent variable (FDI) on dependent variable (GDP) for the period of 1990-91 to 2011-12. It is vivid that 33% variation is recorded in GDP growth rate of Pakistan due to FDI for selected time period. The t-test also indicates a significant relationship between the selected independent and dependent variable. The percent of FDI inflows is very low during last twenty two years in Pakistan. FDI has become an important factor of growth. The countries having faster growth rate of GDP, attracting larger amount of FDI. Developing countries as Pakistan can get help to narrow down the saving-investment gap. To attract FDI inflows in Pakistan, Government has to formulate policies in this direction. They have to improve law and order situation and reduces energy crisis on priority basis. For significant contribution of FDI in growth rate (GDP), Pakistan has to improve infrastructure, human resource, developing local entrepreneurship, creating a stable macroeconomic framework and conditions conductive for productive investment to enhance economic growth.

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