

Impact of Macroeconomic Variables on Foreign Direct Investment in Pakistan: Time Series Analysis for The Period (1990 – 2015)

Aftab Khan¹, Naeem Ur Rehman²

M.Phil. Economics, Sarhad University of Science & Information Technology,
Peshawar¹

HOD Department of Economics, Sarhad University of Science & Information
Technology, Peshawar²

Abstract

In the modern world no one can deny the importance of the foreign direct investment (FDI) due to diversity in demand for goods, no country can be self-sufficient in production or technological growth. Pakistan is also one of these countries which need continuous inflow of FDI in order to maintain its economic growth rate. The most significant determinants of foreign direct investment in Pakistan are exchange rate depreciation, inflation rate, unemployment rate, and average taxes imposed on the economy. Time series data from the year 1990 to 2015 was used to analyze the relationship between the FDI and the chosen independent variables. For the purpose multiple regression was used to statistically examine the relationships amongst the variables. The main findings of the study were unemployment has extremely strong relationship with FDI inflows, if unemployment increases by one percent, the FDI will increase by 32 percent. Average tax rate has positive but insignificance relationship. Similarly, an insignificant relationship was observed between inflation and FDI during the study period. Thus, the study suggests that the government should keep strict vigilance on the exchange rate depreciation, unemployment rates, taxes imposed on the economy.

Key words: FDI, Exchange Rate Depreciation, Unemployment Rate, Tax Rate

1. INTRODUCTION

Foreign Direct Investment (FDI) is very much characterized as "cross-border venture by a host entity in one economy with the target of gaining a permanent interest for a nearby endeavor in another economy" (OECD, 2012). The deep-rooted thought proposes the nearness of an established connection among the direct investor, the enterprise and a considerable measure of effect by the direct investor on the administration of the enterprise. Possession of no less than 10 percent of the elective

power, demonstrating the influence by the investor, is the fundamental paradigm utilized (OECD, 2012).

Foreign direct investment is the direct investments in fruitful assets by a company/entity in a foreign country. Usually, Foreign Direct Investment used to refer totally to the setting up of a factory in country 'X' by an entity (firm, company or government) originating from Country 'Y'. FDI is the premise of picking up of basic leadership control by a business element of an outside nation over a business element in a host nation (Graham, 1982). For couple of decades the trend has been observed that the developing states are controlled by the developed states in pulling in foreign direct investment. As per conference proceedings of the United Nations "United Nations Conference on Trade and Development (UNCTAD, 2007)" The total amount invested as foreign direct investment in year 2005 was 945.8 billion United States Dollar (USD) in the whole world, the share of the developed economies was 62.4 percent amounting 590.3 billion USD while the developing economies only got 38.6 percent share amounting 314.3 billion USD. Therefore, developing economies are controlled by the developed economies in pulling in foreign direct investment (UNCTAD, 2007).

A wide range of variables have influenced in emerging economies on the size and inflows of foreign direct investment. Countries with high political stability receive higher foreign direct investment inflows as compared to those where the political situation is uncertain (Root and Ahmed, 1979), low level of corruption, better and improved environment for business, good law and order situation (Ghurra and Goodwin, 2000), business and investment friendly tax policies and subsidies (DeMello, 1999). Furthermore, other macro-economic factors like: capable work force, volume of business sectors, physical infrastructure, inflation rate, labor wages, interest rates and mass production are considered important factors affecting the foreign direct investment inflows in the emerging economies (Kravis and Lipsey, 1982; DeMello, 1997, Wang and Swain, 1995, Wheeler and Testy, 1992).

The link of foreign direct investment with the fiscal, societal, monetary, dogmatic and economic related elements of host economies makes them critical factors of the foreign direct investment stream to the host economies. It is essential be remembered the lists of the factors of foreign direct investment is amplified, and indefinable and tend to variation after some time (Hanif, 2001). In addition, investors hesitate to invest in the countries where political precariousness is high as it makes the venture too risky. The overall political components show how stable the legislature of the country is and how predictable it's policies are over a timeframe (Shah and Ahmed, 2003), if political insecurity exists, that will dissolve investor's certainty regardless of the good economy and policies.

Foreign direct investment has many advantages but one of the important is that it accelerates the overall economic growth (Collins et al, 1999). In recent times foreign direct investment is the 60 percent of all private investment in the emerging economies (World Bank, 2007). Foreign direct investment (FDI) conservative the lack of local putting something aside for speculation and enhanced the learning in the field science and innovation. FDI can assume imperative part for modern advancement and upgrade the economy of creating nations (Mottaleb, 2004).

Capital flow is continuously proving its optimistic strength due to huge interest of other developing countries, not just for the accomplishment of their economic development target but also for increasing up investment and consumption, living life style's pattern and as a whole for the welfare of the population. Capital crisis in the perspective of advanced technologies is possibly reduced by foreign investors. It not only improves financial innovation but playing a key role in economic growth by converting labor into productive capital like human capital (Rivero, 2007).

Foreign direct investment in emerging economies support in increasing the employment rate and exploration of the natural and human resource by implementing the new and innovative business ideas, regarding the marketing and administrative; encourages in lessening the budgetary losses. An additional significance of FDI is that it involves the risks and rules of external debt and increases the worth of humanoid assets from side to side on job training and development. Economies having shortage of investment and advance technology as a rule experience advancement slower than those that do. According to different reviews, FDI can fill in as a strategy for trade of innovation and knowledge (Dunning and Hamdani, 1997).

Outlines of FDI to Pakistan have seen blended patterns in the course of the most recent two decades. Amid in the 1990s it got little sum as FDI due to its reliance on debt (Hakro and Ghumro, 2011), Even after freedom and motivations for investors to pull in foreign direct investment execution was dull in such manner (Khan and Kim, 1999), yet the pattern improved afterward 1999 and the foreign direct investment increased to 3.52 billion in 2005-2006 as compared to 322 million in 2000-2001.

2. OBJECTIVE OF THE STUDY

- To investigate the effect of Marco-economic variables i.e., Exchange Rate, Unemployment rate, Average Taxes (Direct and Indirect taxes) and Inflation rate on attracting Foreign Direct Investment during 1990 to 2015.

3. RESEARCH QUESTION

- What is the impact of Inflation, Exchange Rate, Unemployment & Average Tax rates on Foreign Direct Investment Inflows in Pakistan?

4. RESEARCH HYPOTHESIS

- Exchange rate depreciation has a positive relationship with FDI, Inflows.
- Inflation rate has a negative relationship with FDI, Inflows
- Unemployment rate has a positive relationship with FDI, Inflows
- Average tax rates have a negative impact on FDI, Inflows

5. SIGNIFICANCE OF STUDY

Foreign direct investment has the same impact on an economy as an energy drink has on the human body. It provides the country with instant employment, foreign exchange reserves and technology transfer. What is more significant is the nature of Foreign Direct Investment. Since FDI requires long term commitment and massive sunk costs, it cannot be liquidated very easily. For a country like Pakistan, where both political and security situation can drastically change within days, this form of investment is very important because of its sticky nature. A foreign firm that has set up a multimillion dollar power plant in Pakistan will be unable to relocate even when there is a major political/security crisis in the country. On the other hand, foreign investment in stock market will be liquidated at the slightest hint of the crisis. Additionally, the country experiences regular current account deficits which require sufficient foreign exchange reserves. Therefore, the importance of FDI in Pakistan is huge, beyond the scope of any monetary measurement.

It is extremely inappropriate that the 26th largest economy in the world ranks 58th in terms of FDI Inflows (OECD, 2012), and clearly a lot of repair work needs to be done in order to narrow this gap. Also, the all-important questions that needs to be answered is that although the economy of Pakistan is still growing, the average taxes still low than most competing nation's and unemployment amongst the highest in the region (lower cost of labor), why are FDI Inflows not catching up. We know that the rate of return on investment in certain industries is extremely high in Pakistan (Power sector, mining, etc.), therefore it is very important to know the economic factors that can make investment in these sectors even more attractive, making them FDI magnets in future years. Although Foreign Direct Investment has been extensively covered in past studies, 90% of them have focused upon the "IMPACT" of FDI on the Pakistani economy without digging deep into the determinants of FDI and the stimulants which affect it. Therefore, this particular research looks at the actual impact of four extremely significant macroeconomic variables (Exchange rate, Inflation, Average Tax rates & Unemployment rate) on FDI inflows that flow into Pakistan.

6. RESEARCH METHODOLOGY

6.1 Research type

The research is purely quantitative in nature. Only numerical data has been used in the study and a regression analysis has been employed to track the strength of relationship between the defendant and independent variables.

6.2 Data type and research period

Secondary data is used in this study, which has been collected from national and international institutes. The values used in the study are periodically recorded figures; therefore, all data have been reported and analyzed in time series format. An annual figure for all variables is used, starting from 1990 to 2015. This ensured that the data sample is large enough to minimize the error factor and still not too large for the scope of this study.

6.3 Data Collection

Secondary data has been collected from different government and non-government, national and international institutional sources like United Nation, Statistical Year Book, World Development Report Various Issues, Oxford University Press New York, International Financial Statistics Various Issues, Washington DC, State Bank of Pakistan, World Bank Data bases, Pakistan institute of development economics, Economic survey of Pakistan, International monetary fund. It will be used for analysis purpose. Only numerical data will be used in the study and a regression analysis will be employed to track the strength of relationship between the dependent and independent variables.

6.4 Model of the Study

Multiple regression analysis will serve as our primary statistical technique which would find the strength and impact of each independent variable separately. Previously many researchers used multiple regression models to find out the results for time series data like: Abbas et al; (2011), Falki, N (2009), Saleem et al; (2013), Zaib et al; (2014) and Obeid Gharaibeh (2015) used the technique in their research work.

$$FDI = f(ER, UER, ATR, IR)$$

$$(FDI) = \alpha + \beta_1 (EX) + \beta_2 (UER) + \beta_3 (ATR) + \beta_4 (IR) + u$$

Where,

FDI= Foreign direct investment

ER= Exchange Rate

UER= Unemployment rate

IR= Inflation rate

ATR= Average tax rate

6.5 Operational Definitions:

6.5.1 Foreign Direct Investment, Inflows

Foreign direct investment is characterized as “cross-border investment by a resident entity in one economy with the objective of obtaining a lasting interest in an enterprise resident in another economy” (OECD, 2012). FDI inflows are considered the most beneficial and healthy economic medicine, and a highly desirable feature by developing nations. The main reason for this is that FDI inflows are long term investment into a country that cannot be easily liquidated. The risk of capital flight is very low in case of FDI. Foreign direct investment leads to higher exports, employment and development in a country besides other obvious advantages. It is the dependent variable in this research, therefore all the independent variables listed below will be studied and their specific relationship will be examined.

6.5.2 Inflation Rate

A continuously increase in the general price level in an economy is called inflation. The annual percentage cost of living is obtained by measuring consumer price index, which are based on a basket of goods and services bought by consumer in a country. It is review periodically by composition and relative weight of the basket (World Bank, 2016). Inflation occurs when money loses value in relation to the products and services available in a country. High inflation rate is considered an extremely harmful economic indicator as it leads to various social, financial and economic problems. High inflation reduces the cost efficiency of a country's industries and leads to decreases in exporting levels. It also reduces demands for goods which are not considered a necessity. Researches around the world have found a negative relationship between FDI Inflows and Inflation rates.

6.5.3 Unemployment Rate

The unemployment rate is a measure of the being of unemployment (people who are ready to work and are capable to work, but cannot find jobs) in an economy, and it is calculated as a percentage by dividing the number of unemployed individuals by all individuals currently in the labor force (OECD 2016). High levels of unemployment lead to many social problem and unavoidably reduce consumption in an economy. However, various studies have found that to some extent high unemployment rates attract FDI inflows as costs of labor are below their actual value. Usually, multinationals are attracted towards high unemployment countries where they start production units, benefitting from lower wage rate.

6.5.4 Exchange Rates

Exchange rate is the national currency price of a foreign currency in terms of their levels and instability (Goldberg, 2006). It can be affected by the total amount of different direct investment that takes place and the allocation of this investment is expensing across of countries. Currency depreciation means that its value declines comparatively to the value of another currency, this exchange rate implies following effects for FDI.

- It decreases that country's wages and bearing costs relative to those of its different counterparts.
- The authentic currency depreciation has increased locational advantage especially in case of receiving productive capacity investment.
- Exchange rate is compensating the overall rate of return to those foreigners, who takes part in the planning of investment project in this country.

6.5.5 Average Tax Rates

Average Tax Rate is the weighted average of all Tax rates imposed on an economy. Generally, lower levels of taxation mean higher profitability for businesses. Countries where a large portion of the profits are taken away in the form of corporate taxes are increasingly facing outward FDI, especially when companies around the world are trying to reduce costs to counter the prevailing economic crisis. It is a common practice for economies to reduce their taxes in order to attract foreign direct investment. Studies have also found that places where tax exemption is granted attract huge FDI inflows.

7. TECHNIQUES

Since the secondary data being used in this research is purely numerical, statistical techniques will have to be used in order to sufficiently prove the relationship between the dependent variable and the independent variables. To be specific, multiple regression analysis will serve as our primary statistical technique which would find the strength and impact of each independent variable separately. Therefore, we would be using single variable analysis.

7.1 Data analysis

It is extremely important for any research to convert data into meaningful information, and this is where it happens. Both basic and advanced data analysis software's will be used to analyze the collected data. SPSS will be used for conducting the regression analysis. Also, Microsoft Excel & Word will be used for effective representation of the data.

7.2 Data interpretation

The findings from the regression, literature review and data analysis will be used to logically and objectively define what variables play an important role in stimulation foreign direct investment inflows into Pakistan. Their relative importance and absolute significance will be explained in detail, and a specific conclusion will therefore be arrived at.

8. RESULTS

As mentioned earlier regression analysis is the main statistical tool used in this study in order to conduct a time series analysis of certain macro-economic variables (Exchange rate depreciation rate, Inflation rate, Unemployment rate & Average taxes), trying to gauge their effect and influence on Foreign Direct Investment that flows into Pakistan. Multiple variable analyses were conducted using the software “SPSS”. Basically, the regression plots, the line of best fit, or, the least square line, where the relationship between the independent variables and the dependent variable is the strongest. The main values from the regression which will be focused upon in our analysis are R-Squared, P-Value & T Statistic.

Table: 8.1: ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	39.988	4	9.997	12.656	.000 ^b
	Residual	16.589	21	.790		
	Total	56.577	25			
a. Dependent Variable: FDI						
b. Predictors: (Constant), Dollar exchange Rate, Inflation, Unemployment, Average Taxes						

Source: SPSS output

To find out about the nature of the relationship between each independent variable (negative or positive) and the dependent variable, the regression line equation will be used. The regression line that explains the exact relationship between the selected independent variables and FDI from 1980 to 2005 is listed above.

The ANOVA table describe about a statistically significant proportion of the variance of regression model. The linear regression's F-test indicate null hypothesis, which mean that there is no linear relationship among the two variables (in other words $R^2=0$). With $F= 12.656$ with 25 degrees of freedom directed that the test is highly significant, thus we can assume that there is linear relationship between the variables

in our model. Precisely, it uses a ratio to link how well our linear regression model forecasts the outcome to how accurate simply using the mean of the outcome data as an estimate is. The model is statistically significant because ($p < .0005$).

Table: 8.2: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
(Constant)	-1.204	1.777		-.678	.505	-4.899	2.491		
Inflation	-.010	.060	-.027	-.175	.862	-.134	.113	.584	1.712
Unemployment	.322	.239	.219	1.345	.193	-.176	.819	.527	1.898
Average Tax	.257	.042	1.556	6.150	.000	.170	.344	.218	4.586
Dollar exchange Rate	-.055	.014	-.934	-3.852	.001	-.085	-.025	.238	4.209
a. Dependent Variable: FDI									

Source: SPSS output

$$FDI = -1.204 + 0.257 * Average Taxes - 0.055 * Exchange rate - 0.010 * Inflation rate + 0.322 * Unemployment Rat$$

The coefficients table shows that if 1 unite of Inflation increase the FDI will decrease by 0.10 units. Similarly, if 1 unit of Unemployment increases the FDI will also increase by 0.32 units. If Average taxes increase by 1 unit, the FDI will increase by 0.25 units and similarly if 1 unit of rupee depreciates against the dollar the FDI will also decrease by 0.55 units.

There is no multi-Collinearity exist in the model. Above SPSS output shows that the value of the tolerance is greater than 0.1 and VIF less than 10 for all variables which they are not multicollinear.

The model summary provides the correlation coefficient and coefficient of determination (R) for the regression model. As we have already seen a coefficient of 0.841 suggests there is a strong positive relationship between FDI, and: Exchange rate,

Unemployment rate, Average taxes and Inflation rate while $R^2 = .707$ suggests that 71% of the variance in FDI can be explained by the above mention four Macro Economic indicators.

Table: 8.3: Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.841 ^a	.707	.651	.88878	.707	12.656	4	21	.000	1.869
a. Predictors: (Constant), Dollar exchange Rate, Inflation, Unemployment, Average Taxes										
b. Dependent Variable: FDI										

Source: SPSS output

The adjusted R^2 provides us idea how well our model generalized and ideally, we would like its value to be the same or very close to the value of R^2 . In the above table the difference is a far bit ($0.707 - 0.651 = 0.056$ or 1.34%). The shrinkage means if the model were derived from the population rather than sample, it would account for approximately 1.34% less variance in the outcome.

At the last column we have Durbin Watson test. This test tells us first order linear autocorrelation in the data.

The Durbin-Watson $d = 1.87$ is between the two critical values of $1.5 < d < 2.5$, therefore we can assume that there is no first order linear autocorrelation in the data.

9. HYPOTHESIS TESTING

Here the P-Values of the individual variables will determine the strength of relationship with the dependant variable, on which basis the hypothesis will either be rejected or accepted.

9.1 Unemployment Rate

The individual P-value of Unemployment is 0.193 which indicates that there is an extremely strong relationship between this particular variable and FDI. Clearly, in the years where unemployment was high, so was Foreign Direct Investment. The positive relationship between these two variables is proven in the regression line. The T-Statistic which is above 1.345 also supports this finding. The theory behind this is fairly simple,

and it directly matches with our findings in the secondary research. The most attractive resource that developing nations possess is cheap labor, and this is one of the fundamental reasons why firms invest in these countries. Therefore, when unemployment in a country is high the average labor rates fall; making it more attractive for the investors thereby, increasing FDI inflows into the region. Although no sensible economist would try to increase unemployment simply to attract investors, its importance in significantly influencing FDI cannot be ignored. Therefore, the null hypothesis has to be accepted.

9.2 Inflation Rate

The P-Value of Inflation rate is 0.862 (much above 0.1) and the T-Statistic is -0.175 (much below 2), both indicate that there is negative but in-significant relationship between Inflation rate and FDI Inflows. Therefore, the null hypothesis has to be accepted in this case. This finding is quiet shocking because there is a constant belief amongst economists that high Inflation is one of the primary factors curbing FDI investment into Pakistan. One possible explanation can be the fact that though Inflation rates massively influence the costs of production, they do not have an as important role when the overall costs of investing in a country are considered (also involving qualitative/subjective factors).

9.3 Average Taxes

The regression model clearly shows that there is a positive but insignificant relationship between average taxes imposed on goods and services and the foreign direct investment inflows. This is not directly in line with theoretical findings. It makes absolute sense that when the average rate of taxes imposed on goods and services falls in an economy, it becomes more attractive to foreign direct investors as lesser taxes would mean the ability to retain higher profits. But the P-value (0.000) is below 0.1 and the T Statistic is 6.15 (positive) which proves that there is a positive and insignificant relationship between Average taxes and the FDI. The null hypothesis is rejected.

9.4 Dollar exchange rate depreciation

The P-Value of Dollar Exchange rate is 0.001 (which is equal to 0.1) and the T-Statistic is -3.852 (much below 2), so there is negative relationship between Dollar exchange rate and FDI. Data also indicates that there is no significant relationship between Dollar Exchange rate and FDI Inflows. Therefore, the null hypothesis has to be rejected in this case. This finding is quiet shocking because there is a constant belief amongst economist's that Dollar exchange rate is one of the factors curbing FDI investment into Pakistan.

10. CONCLUSION AND RECOMMENDATIONS

As figured out in our secondary research the four independent variables which we have focused upon are generally considered by economists to be the primary determinants of FDI, but clearly that is not the case in the actual practical world. Although arguable, qualitative factors play a much more important role in stimulating or discouraging FDI than quantitative factors. For a country like Pakistan, external environmental factors like the security situation, political condition, level of corruption and international relations play a massive role in determining the absolute levels of FDI, perhaps even more than economic conditions. For example, the immediate stoppage in FDI inflows due to the nuclear tests of the 1998 would not in any way be explained by the conducted regression, and events like these which have been fairly common in Pakistan's history have diluted the accuracy of the conducted research. Nevertheless, the findings of the research cannot be completely ignored. We now know that out of the four variables studied, unemployment plays the most significant role in stimulating FDI and inflation has little impact on the absolute levels of FDI. What can be derived from this is that the government should concentrate on marketing the benefit of low labor rates (due to high unemployment) to attract foreign investors and stop focusing excessively on curbing inflation, when creating policies to stimulate FDI. Future research should be targeted towards analyzing and studying the exact impact of qualitative factors that influence FDI in order to make the picture clearer.

10.1 Conclusion

The first conclusion of the study is signified by the identification of the relationship among the unemployment and inflows of foreign direct investments. Greater unemployment causes greater inflows of foreign direct investments proving, so that foreign investors explore locations where the availability of the work force will not be a problem.

The effect of inflation, brought under scrutiny, also showed that whereas inflation rate did not have major effect on the inflow of FDI into the Pakistan economy, the reason may be that during the past decade the inflation was high with the high FDI inflows in the country, especially in the President Musharraf Era.

Theoretically Dollar exchange depreciation rate has the positive impact in bringing the FDI, but data for the last 25 years shows the opposite in Pakistan. During 1999 to 2007 the dollar exchange rate was stable and at that time a huge FDI flows in Pakistan, what happened after the 2007, Pakistani currency depreciated against dollar and hence the FDI also decreased to the history low.

Payment of taxes and contributions in Pakistan is complex and burdensome. The Average taxes have positive but insignificant impact on FDI inflows during the study period from 1990 to 2015. The reason of positive taxes impact on FDI is may be the corporate tax rate which is 35% currently and was imposed in 1997 for the first time in Pakistan with 37 % initially, that raise the average tax rate and instead of going lower the FDI it increased from 1990 to 2007.

10.2 Recommendations

The governments should focus their efforts towards planning policies for attracting the foreign investors. However, this finding essential to be considered with attention since the relation might change if the unemployment increases too much because foreign investors will not be interested in locating a future investment in a country in the absence of macroeconomic instability.

Although Inflation hasn't the major effect on the inflows but still Policy makers should bring under control the inflation rate as it disturbs the overall Economic growth of the country.

The government should formulate such policies that with depreciation in currency more FDI is attracted to the country.

Although initially the Tax averages and FDI increases simultaneously which show positive relationship but after 2007 the average taxes increased but the FDI decreased; Therefore, Government should decrease the average taxes especially the indirect taxes on heavy machinery to attract more FDI is in the country.

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