Impact of Foreign Direct Investment on Poverty Reduction in Pakistan

Anisa Shamim
Department of Economics, G.C University, Faisalabad, Pakistan

Dr. Pervaiz Azeem
Department of Economics, G.C University, Faisalabad, Pakistan

Syed M. Muddassir Abbas Naqvi
Department of Economics, University of Lahore, Lahore, Pakistan
Corresponding author: nmuddassirqau@yahoo.com

Abstract

Many developing countries are competing to attract foreign direct investment with a belief that it can be a tool for poverty reduction. The government of Pakistan has opened several economic sectors to attract foreign investors and also issued several investment incentives for foreign investors. Since the market oriented economic reforms took place in 1992, in which emphasis has been given to attract FDI. In this study, the relationship between FDI and poverty reduction is analyzed empirically. It is based on time series data which are collected from the Hand Book of Statistics, World Development Indicators (WDI) and Economic Survey of Pakistan. The period covered in this study was 1973-2011.The first model in this study was estimated by using the ARDL technique. The results showed that there was positive relationship among Investment to GDP Ratio, Trade Openness, Exchange Rate, Political Stability, Financial Development and FDI. The second model was estimated by using the co-integration technique. The results showed that FDI had a negative impact on Poverty and hence reduces Poverty in the country along with other control variables like Financial Development, Gross Domestic Product and Public Investment which also reduces poverty in the country.

Key words: FDI, Poverty Reduction, Co-integration, ARDL

1. Introduction

The relationship between Foreign Direct Investment (FDI) and poverty reduction is broken down into two parts. These parts are relationship between FDI and growth on one hand while between growth and poverty reduction on the other hand. Regarding the relationship between FDI and growth , it is generally found that flow of FDI in the country encourage more

rapid economic growth , more standard of living of the individuals which ultimately results in more reduction of poverty in the country.

FDI represents the investment made to achieve lasting interest in enterprises operating outside the economy of the investor. Further, in cases of FDI, the investor's objective   is to get an efficient voice in the management of the enterprises. According to World Bank "FDI is defined as the investment made to acquire a lasting management in an enterprise operating in a country other than that of the investor."

There are five different types of Foreign Direct Investment [14]. The first type of FDI is made to acquire access to specific input factors like resources, technical knowledge, patent or brand names etc. owned by a company in the domestic country. The second type of Foreign Direct Investment is developed by Raymond Vernon in his product cycle hypothesis. According to this model, the company shall invest its part of income in order to gain access to cheaper factors of production, e. g low cost labor. The third type of FDI involves international competitors undertaking mutual investment in one another, e.g. through cross-shareholdings or through foundation of combined venture, in order to achieve access to each other's product ranges. The fourth type of FDI concerns the access to customers in the domestic country market. In this type of FDI there is no observed transfer in comparative advantage either to or from the domestic country. The fifth type of FDI correlates with the trade divisionary aspect of regional integration. This type exists when there are location advantages for foreign companies in their domestic country but the existence of import duty or other barriers of trade prevent the companies from exporting product to the host country.

The extent of the FDI streamline can be revealed by size and growth, sources and the sect oral compositions. The FDI growth in Pakistan was not considered until 1990 as an outcome of regulatory policy structure. Conversely, under a considerable liberal policy rule, an advancement of the economy of Pakistan played a vital role. The historical data on FDI included a stable build up after liberalization in Pakistan. As a result, flows of FDI increased from US$ 216.2 million to US$1524 million during 1990-2005 [9]. The reduction to US$322.5 million in the financial year of 2000-01 was the results of many elements like the US limitations which were executed on Pakistan after different types of tests in the nuclear sector, economic volatility and economic calamity in the East-Asian countries.

 After 2001-02, the flow of FDI in Pakistan turned up as a consequence of the opened foreign investment environment and the restoration of United States Pakistan association. In 2007-08, FDI was affiliated by $5152.8 million. Since in 2003, Pakistan affiliated a rising ability of the Foreign Direct Investment-Gross Domestic Product ratio and the flows of FDI in Pakistan, except in 2008. This decrease was resulted from the worldwide economic deceleration produced from worsening protection situation due to 'fight against Terrorism', fears of running bankrupt and the financial crisis. Global trends in FDI flows to developing countries have developed dramatically in both quality and quantity. Flows of FDI reached $70 billion in 1993 [15] and nearly $180 billion in 1999. According to Global Development Finance Report, FDI has tripped from $179 billion in 1999 to $143 billion in 2002, but it always remains a projecting source of financing developing countries.

In order to analyze FDI situation in Pakistan over the years, following table can be useful. The table provides a comprehensive view of the inflows arriving in Pakistan, their composition, contributions in different sectors and the major participants of FDI in Pakistan.

Table1.1: Foreign Investment inflows in Pakistan

Year	Greenfield investment	Privatization Proceeds	Total FDI	Private Portfolio Investment
2001-02	357	128	485	-10
2002-03	622	176	798	22
2003-04	750	199	449	-28
2004-05	1161	363	1524.00	153
2005-06	1981	1540	3521.00	351
2006-07	487320	266	5139.60	1820
2007-08	501960	1332	5152.80	19.3
2008-09	371990	-	3179.90	-510.30
2009-10	215080	0.00	2150.80	587.90
2010-11	15736	0.00	1739.40	344.5
Total	2246510	280560	25436.50	2749.00

Source: Board of Institution

Poverty may eventually be defined as the fraction of population whose income level drops below a specified poverty-line, generally known as head counts; the income gap, i.e., the income necessary to bring all the poor above the poverty-line; income variation among the poor known as the FGT index, etc. Whatever measure of poverty is employed, the poverty-line—consumption levels essential to meet the food and other basic needs of the common man—plays a crucial role in the valuation of poverty[20].

[13] defined the poverty-line with reference to a caloric requirement of 2550 for the adult and the discovered expenditure pattern of the poor between food and non-food payments. He estimated the poverty-line for 1984-85 and deflated it by the Consumer Price Index to determine the poverty-line for the earlier years. In the present study, it has been exaggerated to conclude the poverty-line for later years. The basic needs of the poor may also best estimated on the basis of educated deductions of knowledgeable persons.

FDI may have a direct or an indirect impact on poverty decrease in the crowd thrifts. By indirect impact, it is to denote that FDI may persuade the reduction of poverty through economic growth which results in the development of living ethics due to the increase in GDP, improvement of know-how and production, as well as the economic atmosphere. On the other hand, FDI may have a direct impact on poverty reduction through employment creation and income generation resulting from the augmentation in the demand for employment by the foreign investors. Foreign Direct Investment can aggravate poverty by creating employment, directly and indirectly, in host countries. Investments by MNCs often directly cause new employment and create jobs (indirectly) through forward and backward connections with domestic firms [1].

This study was not only accompanied to create experimental positive relationship among FDI, Investment to GDP ratio, trade openness, exchange rate and political stability in the first model but also created the negative impact of FDI and some of control variables as GDP, Financial Development and Public Investment on the Head Count Ratio which was used as the measure of poverty and was also used as the dependant variable in the second model. However, results showed that these effects differ from nation to nation. This study would recognize that how Pakistan had reduced poverty and upgraded its internal level of

productivity. This would determine the major problems and obstacles in the way of improvement of the vital parts and variables of the economy. This would describe the significance of FDI, GDP and negative impact of public investment, and role of financial development to decline poverty in Pakistan, rise standard of living and to create service occasions for the individuals.

The objectives of the study included 1) to analyze the pattern of foreign direct investment in Pakistan 2) to identify the role of FDI in the reduction of poverty in Pakistan 3) to suggest policy measures to obtain the desired objectives.

2. Review of Literature

[19] examined the influence of FDI on the poverty of the developing countries. The effects of FDI on poverty reductions were observed for different regions. The suggestions obtained were recommended that only Africa had improved its economic growth via FDI. The estimates for other regions, though, depict a positive relationship were not important.

[3] investigated the effect of FDI with special orientation to international trade. He created that countries actively following export lead growth strategy, could reveal huge profits from FDI. Export lead policy was defined as the one which connected average real exchange rate on exports to the average effective exchange rate on imports. On the other hand, import replacement regulates were functioned out in such a way that the two exchange rates were equivalent. The earlier strategy favoritisms free trade and cause the need to best exports, however the latter highlighted self-sufficiency through import replacement.

[11] estimated the poverty in rural Pakistan. By using poverty line of 2550 calories per day equivalent, the transformation available in micro- nutrient survey of 1977 was used to translate household strength into adult equivalent. He used data to determine the head count measure for the year 1979 taking the revenue established scarcity line at 1979 prices of Rs.109 per capita per month (poor). Based on grouped data, he deliberated poverty estimates for the year1963-64 and 1969-70.He determined that rural poverty (very poor) increased from 32 per cent in 1963-64 to 43 per cent in 1969-70 and declined to 29 per cent in 1979.

[12] illustrated poverty line at the basic needs income level of families by fixing it at Rs.700 per month (current prices) for the year1979. The investigation revealed that tendencies were very profound to poverty line. Since the cost of living in rural areas differed from that in urban areas, the use of the same poverty line for both in this study by the authors was ambiguous.

[18] advocated the Foreign Direct Investment and its effect on the economy along with elements for the first time.. The study discovered that at least for this country low cost labor was not a major determinant of FDI. The study also determined that the larger the size of the firm, the greater the size of FDI in that industry. Separately from that macro-economic presentation of the country also powerfully distressed the course of FDI in the host country. Another important discovery of this study was that industry specific and location specific determinants were tremendously dynamic to explain the pattern of differences of FDI in Puerto Rice.

[7] extended the work done by making an analysis of the welfare effects of foreign investment. He showed that if there were no distribution, foreign investment enhanced the social uplift of the people. This study strongly favored import substitution polices since such strategy provided greater job opportunities to the people and consequently improve their standards of living but the study found that welfare effects of foreign investment did not explain the pattern of trade in the economy.

[13] used grouped data and adult equivalent scale used by him. The findings indicated that proportion of poor and very poor households and population augmented during the 1960s and then dropped at the end of 1970s and middle 1980s.The study revealed that poverty in rural areas was more than urban areas. The study specified the poverty, when dignified on the basis of residents is higher than those restrained on the basis of household.

[6] used per capita annual expenditures for 2550 calories per day per adult equivalent based on HIES data for the year 1971-72.He arrived at Rs.324, Rs. 960 and Rs.1716 for rural areas and Rs.504, Rs.1404 for urban areas. The result exposed that poverty in rural areas was low and poverty across rural areas had dropped between 1971-72 and 1984-85.

[10] used the primary HIES data of 1984-85 in a more meaningful way as he determined poverty outlines by socio-economic characteristics of household. The study showed that in 1984-85, about 40% household were poor and average income of the poor was 25% below the poverty line. He presented that a quite obstructive organization had been used as all individuals of age 10 and above was treated as adults. The use of adult equivalent might be solved this issue. Two poverty lines based on caloric intake, had been estimated for provinces and rural and urban areas. This problem could have been prevented if a single poverty line based on a specific caloric intake had been used instead. The poverty lines calculated for different regions had been regularized for price differences by the price level of rural Punjab to all regions of the country. This approach assumed the same consumption basket for everyone in the country.

[21] defined the poverty line as 75 per cent of the nationwide average expenditures. To account for differences in need among household members, the monthly expenditures per adult equivalent was estimated by using the equivalent scale. The study assuming negligible differences in the cost of living across provinces used the same poverty line for all provinces. The use of equivalent scale to account for differences in needs and economies of scale in household consumption was debatable. This scale was designed for distributional analysis in developed countries and might not be relevant for developing countries like Pakistan where family size was large and food was a dominant element in overall expenditures.

3. Methodology

Annual time series data from 1973 to 2011 were collected for all different variables like Gross Domestic Product (GDP), Foreign Direct Investment (FDI), Financial Development (FD), Head Count Ratio (HCR), Public Investment (PI), Trade Openness (Openn), Investment to GDP ratio (INVGDP), Exchange rate (ER) and Political Stability (PS). The data were taken from different sources "Hand Book of Statistics, International Financial Statistics (IFS), World Development Indicator (WDI) and Economic Survey of Pakistan.

In the first model, empirical analysis was carried out by following criteria

$$FDI = F (INVGDP, FD, ER, Openness, PS)$$

$$FDI_t = \beta_0 + \beta_1 INVGDP_t + \beta_2 FD_t + \beta_3 ER_t + \beta_4 LnOpenness_t + \beta_5 LnPS_t + u_t \ldots\ldots\ldots\ldots\ldots\ldots(3.1)$$

FDI=   Foreign Direct Investment.

INVGDP=   Investment to GDP ratio. `

 FD= Financial Development.

ER=   Exchange Rate.

Openness=   Trade Openness·

PS=   Political Stability.

U_{t} = stochastic error term assumed to be independently and normally distributed with zero mean and constant variance.

Where β_0 is the intercept and β_i (i=1, 2, 3, 4 and 5) are slopes of models with respect to the independent variables.

According to the key objectives of the study, the following hypotheses were to be tested.

Hypothesis 1
H_0: β_1= 0   Investment to GDP ratio did not impact the FDI.
H_1: $\beta_1 \neq 0$ Investment to GDP ratio did impact the FDI.

Hypothesis 2
H_0: β_2 = 0   Financial Development did not affect the head FDI.
H_1: $\beta_2 \neq 0$ Financial Development did affect the FDI.

Hypothesis 3
H_0: β_3 = 0   Exchange Rate had no effect on FDI.
H_1: $\beta_3 \neq 0$ Exchange Rate had a significant effect on FDI.

Hypothesis 4
H_0: β_4 = 0   Trade Openness had no effect on FDI.
H_1: $\beta_4 \neq 0$ Trade Openness had a significant effect on FDI.

Hypothesis 5
H_0: β_5 = 0   Political Stability had no effect on FDI.
H_1: $\beta_5 \neq 0$ Political Stability had a significant effect on FDI.

In the second model, empirical analysis was carried out by following criteria.

Head Count Ratio = F (GDP, FDI, FD, PI).

$$Y_t = \beta_0 - \beta_1 GDP_t - \beta_2 FDI_t - \beta_3 FD_t - \beta_4 PI_t + u_t \ldots\ldots\ldots\ldots\ldots\ldots(3.2)$$

Y_t=   Head Count Ratio.

GDP = Real Gross Domestic Product. `

FDI = Foreign Direct Investment.

FD = Financial Development.

PI   = Public Investment in million rupees.

U_{t} = stochastic error term assumed to be independently and normally distributed with zero mean and constant variance.

Where β_0 is the intercept and β_i (i=1, 2, 3, 4 and 5) are slopes of model with respect to the independent variables.

According to the key objectives of the study, the following hypotheses were to be tested.

Hypothesis 1
H_0: β_1= 0   GDP did not impact the head count ratio.
H_1: $\beta_1 \neq 0$ GDP did impact the head Count Ratio.

Hypothesis 2
H_0: β_2 = 0   FDI did not affect the head count ratio.
H_1: $\beta_2 \neq 0$ FDI did affect the head count ratio.

Hypothesis 3

H_0: $\beta_3 = 0$ FD had no effect on head count ratio.

H_1: $\beta_3 \neq 0$ FD had a significant effect on head count ratio.

Hypothesis 4

H_0: $\beta_4 = 0$ Public Investment had no effect on head count ratio.

H_1: $\beta_4 \neq 0$ Public Investment had a significant effect on head count ratio.

3.1 Stationary Test

In time series analysis, stationary test has its own importance to avoid from the unit root problem. It is also necessary to select an appropriate estimation technique for estimating the econometric models which explain the long run relationship between dependent variable and independent variables.

3.1.1 Stationary

In most empirical work based on time series data, we assume that underlying time series is stationary. 'A time series is said to be stationary if its mean, variance and auto-covariance (at variance lags) remain the same, no matter at what point we measure them, that is , they are time invariant.

In other words, a time series is said to be stationary when it moves around its mean value or having tendency to congregate to mean value.

3.1.2 Unit Root Test

The unit root test has been highly popular to test for stationary. To explain this test we start with the following equation.

$$Y_t = PY_{t-1} + U_1 \ldots\ldots\ldots\ldots\ldots(3.3)$$

In this equation, we regress Y_t its lagged value Y_{t-1} and find out if the estimated is statically equal to I, stationary.

Now subtract Y_{t-1} from both sides of the equation and obtain

$Y_t - Y_{t-1} = \rho Y_{t-1} - Y_{t-1} + U_t$

$\Delta Y_t = (\rho-1) Y_{t-1} + \mu_t$

$\Delta Y_t = \delta Y_{t-1+} \mu_t \ldots\ldots\ldots\ldots\ldots\ldots (3.4)$

Now we estimate the above equation and test the null hypothesis $\delta = 0$. If $\delta = 0$ then $\rho = 1$ which means that the time series under consideration is non-stationary and for stationary, ρ should be less than 1. Then to examine the significance of the empirical results, which test we should use if the estimated coefficient of Y_{t-1} in equation (3.4) is zero or not. Firstly, we may tend to use usual t test, but unfortunately, under the null hypothesis that $\delta = 0$ ($\rho = 1$), the t value of the estimated coefficient of Y_{t-1} does not follow the t distribution even in the large sample. Alternatively, Dickey and Fuller considered that under the null hypothesis that $\delta = 0$, the estimated t value of the coefficient of Y_{t-1} follow the τ (tau) statistics. Dickey and Fuller computed the critical values of the tau statistics on the basis of Monte Carlo Simulation. Generally, tau statistics is known with the name of Dickey and Fuller statistics.

The Dickey and Fuller estimated co-efficient of Y_{t-1} in three different specifications like

$\Delta Y_t = \delta Y_{t-1} + \mu_t$ Y_t is Random Walk.

$\Delta Y_t = \beta_1 + \delta Y_{t-1} + \mu_t$ Y_t is Random Walk with drift.

$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \mu_t \ldots\ldots\ldots(3.5)$ Y_t is Random Walk with drift around a stochastic trend.

The procedure of actual estimation is that first, estimates these equations by OLS, divide the estimated coefficient of Y_{t-1} by its standard error to calculated tau statistics and move toward Dickey and Fuller table. Now if the computed absolute value of the tau statistics exceeds the Dickey and Fuller critical value, we reject H_0, that is, $\delta = 0$, in such case, the time

series will be stationary. On the other hand, if the computed absolute value of the tau statistics is less than the Dickey and Fuller critical value, we don't reject the null hypothesis δ = 0 , in such case, the time series is non-stationary.

There are two types of unit root test:
1) Augment Dickey and Fuller test
2) Phillips- Peron test

3.2 The Augmented Dickey and Fuller Test

When we conducted Dickey and Fuller test in the above equation, the error term U_t was assumed to be uncorrelated. But if they are correlated, Dickey and Fuller developed a test named by Augment Dickey and Fuller test to avoid this problem. It is conducted by augmenting the preceding three equations by adding the lagged values of the dependent variable "ΔY_t"

Assume if we use equation (3.5). The Dickey and Fuller test comprises of approximating the following regression

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \sum_{i=1}^{m} \alpha i \Delta Y_{t-1} + \varepsilon_t \ldots\ldots\ldots\ldots(3.6)$$

ε_t is pure white noise error term and $\Delta Y_{t-1} = (Y_{t-1} - Y_{t-2})$

Now how much lagged difference terms should be included, is resolute empirically. The universal idea is that the addition of enough lagged difference relations makes error term serially uncorrelated, in above equation. A time series is said to be integrated of order zero denoted by I(0) if it is stationary without differencing it and if it is stationary after taking its first difference, it will be integrated of order one shown by I (1).

In this study, Augmented Dickey Fuller unit root test is applied to check the stationary position of the variables. The results of this unit root test will lead to a suitable technique to approximate econometric model.

3.3 Econometric Modeling Framework

To test long run and short run dynamics of FDI with its possible deeper determinants, its relationship with growth rate and then its impact on poverty alleviation, Auto Regressive Distributed Lag Model and Johansen Co-integration techniques are used. The beauty of the ARDL modeling approach is that it is irrelevant whether time series or of same order or have different order integration. The detail of this modeling approach is given as:

The first test applied to the data is the one suggested in 1999 by Smith. This test is for a long run relationship between the variables and is applicable irrespective of whether the regressors are I (0), I (1) or mutually co-integrated. The test is based upon the estimation of the underlying VAR model, re-parameterized as an ECM (Error Correction Model).

The VAR (p) model

$$\mathbf{z}_t = \mathbf{b} + \mathbf{c}t + \sum_{i=1}^{p} \mathbf{\Phi}_i \mathbf{z}_{t-i} + \mathbf{\varepsilon}_t \ldots\ldots\ldots\ldots(3.7)$$

Where **z** represents a vector of variables. Under the assumption that the individual elements of **z** are at the most I (1), or do not have explosive roots, equation (3.7) can be written as a simple Vector ECM.

$$\Delta \mathbf{z}_t = \mathbf{b} + \mathbf{c}t + \Pi \mathbf{z}_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta \mathbf{z}_{t-i} + \boldsymbol{\varepsilon}_t \quad ....(3.8)$$

Where $\Pi = -(\mathbf{I}_{k+1} - \sum_{i=1}^{p} \Phi_i)$ and $\Gamma_i = -\sum_{j=i+1}^{p} \Phi_j$, $i = 1,....p-1$ are the (k+1)×(k+1) matrices of the long run multipliers and the short run dynamic coefficients. By making the assumption that there is only one long run relationship among the variables, [16] focused on the first equation in (3.7) and divide $\mathbf{z}_t$ into a dependent variable y_t and a set of other variables **x**. Under such conditions, the matrices **b**, $\mathbf{c}_t$ and most importantly Π, the long run multiplier matrix can also be divided comfortably with the division of z.

$$\Pi = \begin{bmatrix} \pi_{11} & \boldsymbol{\pi}_{12} \\ \boldsymbol{\pi}_{21} & \Pi_{22} \end{bmatrix} \quad \mathbf{b} = \begin{bmatrix} b_1 \\ \mathbf{b}_2 \end{bmatrix} \quad \mathbf{c} = \begin{bmatrix} c_1 \\ \mathbf{c}_2 \end{bmatrix} \quad \Gamma_i = \begin{bmatrix} \gamma_{11,i} & \gamma_{12,i} \\ \gamma_{21,i} & \gamma_{22,i} \end{bmatrix}$$

The key assumption, that **x** is long run variable for y, which implies that the vector $\gamma_{21}=0$, and that there is no feedback from the level of y on Δ**x**. As a result, the conditional model for Δy and Δ**x** can be written as:

$$\Delta y_t = b_1 + c_1 t + \pi_{11} y_{t-1} + \pi_{12} \mathbf{x}_{t-1} + \sum_{i=1}^{p-1} \gamma_{11,i} \Delta y_{t-i} + \sum_{i=0}^{p-1} \gamma_{12,i} \Delta \mathbf{x}_{t-i} + \varepsilon_{1t} ....(3.9)$$

$$\Delta \mathbf{x}_t = \mathbf{b}_2 + \mathbf{c}_2 t + \Pi_{22} \mathbf{x}_{t-1} + \sum_{i=1}^{p-1} \gamma_{21,i} \Delta y_{t-i} + \sum_{i=1}^{p-1} \Gamma_{22,i} \Delta \mathbf{x}_{t-i} + \varepsilon_{2t} ....(3.10)$$

Under standard assumption about the error terms in equations, [16] re-write (3.9) eq. as:

$$\Delta y_t = a_0 + a_1 t + \varphi y_{t-1} + \delta \mathbf{x}_{t-1} + \sum_{i=1}^{p-1} \upsilon_i \Delta y_{t-i} + \sum_{i=0}^{p-1} \phi_i \Delta \mathbf{x}_{t-i} + \varpi_t ....(3.11)$$

Note that in the given eq., a long run relationship exist among the level of variables if the two parameters ϕ and δ are both non zero in which case, for the long run solution (5.5), obtain

$$y_t = -\frac{a_0}{\varphi} - \frac{a_1}{\varphi} - \frac{\delta}{\varphi} x_t ....(3.12)$$

[16] choose to test the hypothesis of no long run relationship between y and x by testing the joint hypothesis that $\phi = \delta = 0$ in the context of above equation. The test which they develop is a bound type test, with a lower bound calculated on the basis that the variables in **x** are I(0) and an upper bound on the basis that they are I(1). [16] provide critical values for this bounds test from an extensive set of stochastic simulations under differing assumptions regarding the appropriate inclusion of deterministic variables in the ECM. If the calculated test statistic (which is a standard F test for testing the null hypothesis that the coefficients on the lagged level terms are jointly equal to zero) lies above the upper bound, the result is conclusive and implies that a long run relationship does exist between the variables. If the test statistic lies within the bounds, no conclusion can be drawn without prior knowledge of the time series properties of the variables. In this case, standard methods of testing have to be applied. If the test statistic lies below the lower bound, no long run relationship exists. Econometric Model is given as:

ARDL Model Long Run equation

$$\Delta FDI_t = \sum_{i=1}^{m} \alpha_i INVGD_{t-i} + \sum_{i=1}^{m} \chi_i FD_{t-i} + \sum_{i=1}^{m} \gamma_i openn_{t-i} + \sum_{i=1}^{m} \omega_i ER_{t-i} + \sum_{i=1}^{m} \theta_i PS_{t-i} +$$

$$\sum_{i=1}^{m} \lambda_i FDI_{t-i} + \sum_{i=1}^{m} \rho_i \Delta INVGDp_{t-i} + \sum_{i=1}^{m} \tau_i \Delta FD_{t-i} + \sum_{i=1}^{m} \psi_i \Delta openn_{t-i} + \sum_{i=1}^{m} \zeta_i \Delta ER_{t-i} +$$

$$\sum_{i=1}^{m} \lambda_i \Delta FDI_{t-i} + \sum_{i=1}^{m} \lambda_i \Delta PS_{t-i} + \varepsilon_t \dots\dots\dots\dots\dots\dots(3.13)$$

$$\alpha_i = \chi_i = \gamma_i = \omega_i = \theta_i = \lambda_i = 0$$

F test of the null that: $\alpha_i = \chi_i = \gamma_i = \omega_i = \theta_i = \lambda_i = 0 \quad \forall \ i = 1 \text{ to } k.$

ARDL Model Short Run equation:

$$\Delta FDI_t = \sum_{i=1}^{m} \rho_i \Delta INVGDp_{t-i} + \sum_{i=1}^{m} \tau_i \Delta FD_{t-i} + \sum_{i=1}^{m} \psi_i \Delta openn_{t-i} +$$

$$\sum_{i=1}^{m} \zeta_i \Delta ER_{t-i} + \sum_{i=1}^{m} \lambda_i \Delta FDI_{t-i} + \sum_{i-1}^{m} \beta_i ECM_{t-1} + \varepsilon_t \dots\dots\dots\dots(3.14)$$

3.4 Johansen Co integration technique for second model

The innermost idea for co-integration test is related to the functional forms of model. This is based on the long run relationship of one endogenous variable with other exogenous variables. More clearly, co-integration defines the presence of long run stable relationship between the variables. If the time series variables are non-stationary at I (0) then they can be integrated at I (1) order of integration and their first differences are stationary. These variables can be co-integrated if they have one or more linear combinations among themselves and they are stationary. Nevertheless, if these variables are co-integrated then there occurs a constant long-run linear relationship among these variables.

The co-integration method was first used by Engel and Granger (1987). Afterwards, it was additional developed and changed by Stock and Watson (1988), Johansen (1988, 1991, 1992, 1995) and Johansen and Juselius (1990). This test is very easy and useful to check the long run equilibrium relationships between the explanatory variables. In this study, Johansen maximum likelihood (ML) approach is pragmatic to examine the co-integration among variables. The main reason is that Johansen co-integration is the most stable one. The main benefit of this approach is that, one can estimate several co-integration relationships among the variables at the same time. Two statistical tools are used for co-integration, namely the Trace (Tr) test and the Maximum Eigen value (λ max) test. The estimation procedures of these statistical tools have been explained as under:

Let us suppose X_t be a (n X_1) vector of variables with a sample of t. It is assumed that X_t seems to follow I(1) process that recognizes the number of co-integrating vector. This technique involves estimation of the vector error correction representation as following:

$$\Delta X_t = A_0 + \Pi X_{t-p} + \sum_{i=1}^{p-1} A_i \Delta X_{t-1} + \varepsilon_t \dots\dots\dots\dots\dots(3.15)$$

In the above equation (3.15), the vector ΔX_t and ΔX_{t-1} are variable integrated at I(1) order of integration. As a result, the long run stable relationship among X_t is resolute by the rank of Π, says r, is zero. In such context, equation (3.15) cuts to a VAR model of pth order. These

have a tendency to conclude that variables in level are not having any co-integrating relationship. Instead, if $0 < r < n$ then there are $n * r$ matrices of α and β such that

$$\Pi = \alpha\beta' \ldots\ldots\ldots\ldots(3.16)$$

Where, α, β are mostly used to measure the strong point of co-integration relationship and $\beta' X_t$ is I (0), although X_t are I (I). In such an environment, $(A_0, A_1,\ldots, A_{p-1}, \Pi)$ is estimated through maximum likelihood methods, such that 'Π' can be written as in equation (3.16). Two steps approach is employed for estimation of all these parameters. Initially, we have to regress ΔX_t on ΔX_{t-1}, ΔX_{t-2}, ..., ΔX_{t-p+1} and acquire the residuals $\hat{\mu}_t$. In the second step, X_{t-1} on ΔX_{t-1}, ΔX_{t-2}... ΔX_{t-p+1} is regressed to obtain the residuals $\hat{e}_t$. After finding residuals such as '$\hat{\mu}_t$' and '$\hat{e}_t$', variance-covariance matrices are estimated.

$$\sum_{uu}^{\wedge} = \left[\frac{1}{T}\right]\sum_{t=1}^{T}\hat{u}_t\hat{u}_t'$$

$$\sum_{ee}^{\wedge} = \left[\frac{1}{T}\right]\sum_{t=1}^{T}\hat{e}_t\hat{e}_t'$$

$$\sum_{ue}^{\wedge} = \left[\frac{1}{T}\right]\sum_{t=1}^{T}\hat{u}_t\hat{e}_t'$$

The maximum likelihood estimator of 'β' can be measured by solving:

$$\left| \lambda\sum_{ee}^{\wedge} - \sum_{eu}^{\wedge} INV (\sum_{uu}^{\wedge}) \sum_{ue}^{\wedge} \right| = 0$$

With the Eigen-values $\hat{\lambda}_1 > \hat{\lambda}_2 > \hat{\lambda}_3 > \ldots\ldots\ldots > \hat{\lambda}_n$. The normalized co-integrating vectors are $\hat{\beta} = (\hat{\beta}_1, \hat{\beta}_2, \ldots\hat{\beta}_n)$, such that $\hat{\beta}' \sum_{ee}^{\wedge} \hat{\beta} = I$. Moreover, one can estimate the null hypothesis that $r = h$, $0 \leq h < n$ against the alternative one of $r = n$ by obtaining the following statistics as given below:

λtrac = $L_A - L_0$

Where,

$$L_0 = -\left(\frac{Tn}{2}\right)\log(2\Pi) - \left|\frac{Tn}{2}\right| - \left(\frac{T}{2}\right)\log\left|\sum_{uu}^{\wedge}\right| - \left(\frac{T}{2}\right)\sum_{i=1}^{h}\log(1-\hat{\lambda}_i)$$

and

$$L_A = -\left(\frac{Tn}{2}\right)\log(2\Pi) - \left|\frac{Tn}{2}\right| - \left(\frac{T}{2}\right)\log\left|\sum_{uu}^{\wedge}\right| - \left(\frac{T}{2}\right)\sum_{i=1}^{n}\log(1-\hat{\lambda}_i)$$

Hence
$$L_A - L_0 = -\left(\frac{T}{2}\right)\sum_{i=1+h}^{h}\log(1-\hat{\lambda}_i)$$

$$2(L_A - L_0) = -T\sum_{i=r+1}^{h}\log(1-\hat{\lambda}_i)$$

Where $\widehat{\lambda}_{r+1},......\widehat{\lambda}_{p}$ are the calculated p-r smallest Eigen-values. The null hypothesis can be examined. The null hypothesis is that there is at most r co integrating vectors among variables. Simply, it is said that it is the number of vectors that is less than or equal to r, where r is 0, 1, or 2, and so on. Like the upper case, the null hypothesis will be examined against the general alternative one. The λ_{max} statistics is give below:

$$\lambda_{max} = -T\log(1-\widehat{\lambda}_{r+1})....................(3.17)$$

The hypothesis of co-integrating vectors is being examined against the alternate hypothesis of r +1 co-integrating vectors. As a result, hypothesis of r = 0 is tested in contradiction of the alternative hypothesis of r = 1, r =1 against the alternative r = 2, and onward. It is well known that the co-integration tests require lag length. The Akaike Information Criterion (AIC) and Schwarz Bayesian Criterion (SBC) have been used to select the number of lags on the basis of minimum values of both measures.

3.5 Error Correction Model

When there is a long run relationship among the variables i.e. the variables are co-integrated, there is an error correction representation. So this study estimated mentioned below error correction model

.

$$\Delta HCR = \beta_1 + \sum_{I=1}^{n} \beta_2 \Delta GDP_{t-1} + \sum_{I=1}^{n} \beta_3 \Delta FDI_{1_{t-1}} + \sum_{I=1}^{n} \beta_4 \Delta FD_{t-1} +$$

$$+ \sum_{I=1}^{n} \beta_5 \Delta PI_{t-1} + \sum_{I=1}^{n} \beta_6 \Delta PI_{t-1} + \alpha ECM_{t-1} + \mu_t ....(3.18)$$

If the long run relationship among the variables exists, it means that the variables under discussion move together over time and if any instability is occurred, it is corrected from the long run trend

.

4. Results

4.1Unit Root Results

Firstly, all independent and dependent variables were examined for the unit root over the period 1973-2011. Following table denoted to the consequences of the stationary test using ADF test with and without linear trend.

Table 4.1 ADF Unit Root Results at the Level

Variables	With trend	Without trend	Conclusion
	Test statistics	Test statistics	Non-stationary
Y_t	-1.41	-0.60	Non-stationary
GDP	-2.19	-1.02	Non-stationary
FDI	0.95	-1.86	Non-stationary
FD	-3.87	-0.03	Non-stationary
PI	-4.04	-2.90	Non-stationary
INVGDP	0.79	4.09	Non-stationary
Openn	-1.02	1.83	Non-stationary
ER	-1.84	3.43	Non-stationary
PS	-4.08	-3.98	Stationary

Regarding deductions given in the Table 4.1, the values of ADF statistics are more than the critical values in case of without trend. That is why, the null hypothesis, that is, all dependent and independent variables have unit root, is accepted. This concludes that all series except political stability are non-stationary at their level but political stability variable is stationary at level. In case of taking trend, the values of ADF statistics are well above the critical values. That is why, the null hypothesis, that is, all dependent and independent variables have unit root, is known. This states that all series are not non-stationary at their level but only one is stationary.

Table 4.2 ADF Unit Root Test Results for the first Difference

Variables	With trend	Conclusion	Without trend	Conclusion
	Test statistics		Test statistics	
Y_t	-5.74*	Stationary	-5.66*	Stationary
GDP	-5.76*	Stationary	-5.74	Stationary
FDI	-7.03*	Stationary	-3.48*	Stationary
FD	-6.48*	Stationary	-6.78*	Stationary
PI	-4.26*	Stationary	-4.39*	Stationary
INVGDP	-4.03*	Stationary	-3.12*	Stationary
Openn	-3.24*	Stationary	2.78*	Stationary
ER	-6.02*	Stationary	3.11*	Stationary

*identified the significance level at 1 %, 5 and 10%
** identified the significance level at 10%

 The results in Table 4.2 show that in case of with and without trend, the values of the ADF statistics are lower than the critical values at 1%, 5%, 10% level of significance for head count ratio, real GDP,FDI , Financial development, public investment ,investment to GDP ratio, trade openness and exchange rate. Thus H_0 is rejected and it is concluded that public investment, financial development, foreign direct investment, head count ratio, investment to GDP ratio, trade openness, exchange rate and real GDP are stationary at the first difference. On the other hand, the values of the ADF statistics are higher than the critical values at 10% level of significance for FDI in case of with trend. That is why; H_0 is rejected and it is concluded that FDI is stationary at the first difference.

    In case of without trend, the value of the ADF statistics for FDI is lower than the critical value. So, H_0 is accepted which indicates that FDI is non-stationary at their first difference only at 1% level but stationary at 5% and 10% because here the ADF Statistics values are greater than the critical values at both 5% and 10%.So,FDI is stationary at both levels without trend only.

Finally, ADF unit root test results indicated that all variables are non-stationary at the level except political stability; which is stationary at the first difference. In such situation, we can employ Johansen Co-integration and Auto-regressive Distributed Lagged techniques to examine the long term and short term association among the dependent and independent variables.

4.2 Description of First Model

This section elaborates the finding of first model that shows empirical associations between FDI and its real determinants for Pakistan economy. Thus in order to obtain the empirical findings of the model, we use the ARDL model to examine the long run as well as the short run relationship between FDI and its determinants. The beauty of ARDL approach is that there is no need for pre-testing of a unit root. Nevertheless, Ouattara (2004) exclaimed that during the presence of I (2) variables the computed F-statistics provided by PSS (2001) become invalid because bounds test is based on the assumption that the variables are I (0) or I (1). Therefore, it is necessary to ensure that before applying the ARDL method none of the variable is integrated of order I (2) or away from.

Table 4.3: Estimated Long Run Coefficients using the ARDL Approach

Dependent Variable: (FDI)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	367.03	218.81	1.68	0.11
$INVGDP_{t-1}$	91.75	42.27	2.17	0.04
FD_{t-1}	0.0008	0.0004	1.96	0.05
PS_{t-1}	10.64	5.11	2.08	0.03
ER_{t-1}	42.12	17.62	2.39	0.03
$OPENN_{t-1}$	14.53	5.09	2.86	0.01
FDI_{t-1}	-1.32	0.34	-3.84	0.00
R-squared	0.83	**F-statistic**		9.99
Adjusted R-squared	0.75	**Prob (F-statistic)**		0.00
Durbin-Watson stat	2.06			

The empirical results of the long-run model obtained by normalizing the FDI are presented in above table. The above table results show that there exist positive relationship between investment to GDP ratio and FDI which is also suggested by many other individuals, one unit change in the investment lead to change the 91.75 unit change in the FDI. Country's political stability is seen to play an important role in economic progress; there exists positive relationship between political stability and FDI in Pakistan, which shows that under autocracy FDI inflow in more than as compare to democracy. There exits positive relationship between trade openness and FDI. Al-Sadig (2013) statistically significant which shows one unit increase in the trade openness leads to increase the FDI 14.53 unit. The estimated results of the FDI and its dependant variables show that there exist positive relationship between financial development and FDI. The real exchange rate plays a more fundamental role in the determination of FDI. [4] and Gulzmann *et al*. (2007) have made similar arguments as well that a positive association between the degree of exchange rate flexibility and FDI. The above

results of the ARDL model show there exists positive relationship between exchange rate and FDI.

Tests of the null hypothesis of no long run relationship can thus be carried out using an F test of the null that $\alpha_i = \chi_i = \varphi_i = \gamma_i = \omega = \theta_i = 0$

Table 4. 4-F test for the existence of a long run relationship			
Test Statistic	**Value**	**Df**	**Probability**
F-statistic	6.484047	(6, 24)	0.0004
Chi-square	38.90428	6	0

Note: The critical values are taken from [16], unrestricted intercept and no trend with six variables at 5 per cent is 3.027 to 4.296; at 10 per cent are 2.035 to 3.153.

The above results of the Wald test verified that there exists long run relationship between FDI and its determinants. F-statistic shows the rejection of null hypothesis means has no co-integration, as suggested [16].
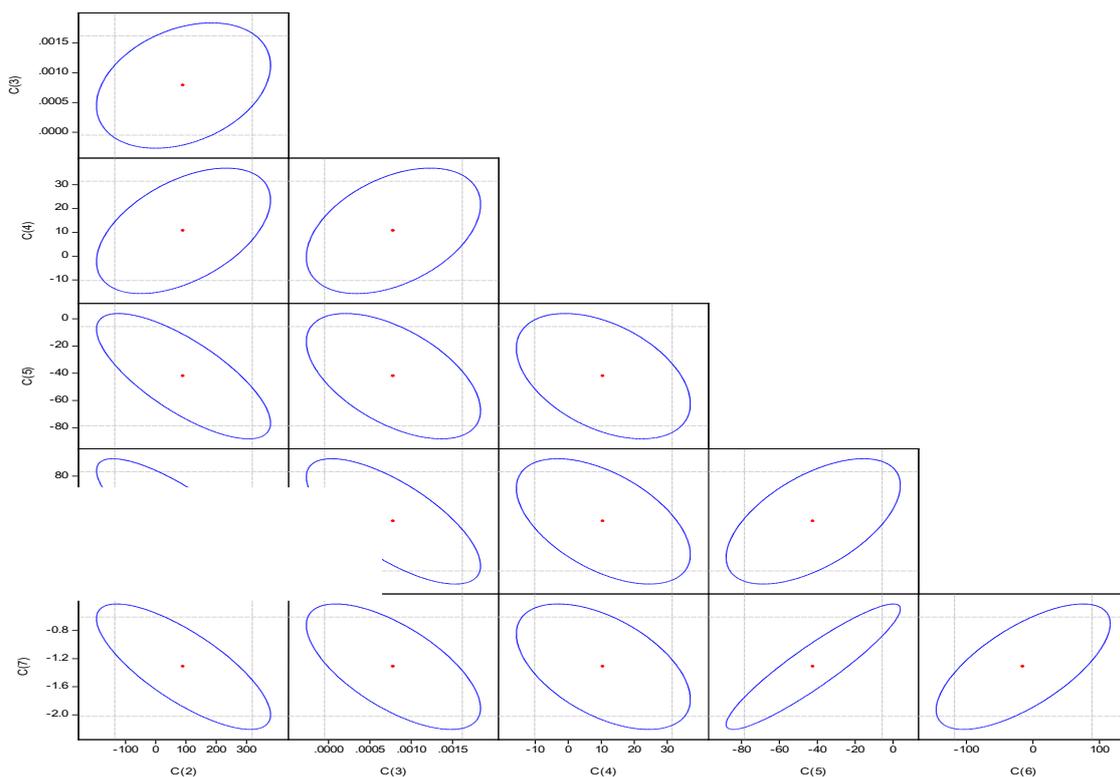

Figure: 4.1 Confidence Ellips Test
 Now in order to identify the strength of the linear association between two vari ConfiElli
 Now in order to identify the strength of linear association between two variables, we used Confidence-Ellips Test, after finding the long run relationship. A Confidence-Ellipse diagram which considers as a visual test to examine bivariate-normality as well as an indication correlation. Therefore, after employing the Confidence-Ellipses test, above figure, which

represents the scatter plot matrix and which clearly follows a bivariate normal distribution indication; hence it is an appropriate to interpret confidence ellipses. Normally, there are two ways to interpret the ellipse diagram (4.1) confidence curves for bivariate normal distribution (2) indicators of correlation. From above diagram, the Confidence Curve approach tells that the specified percentage of data must lie in ellipses that is an indication of the bivariate normal distribution because under the bivariate normality approach, the percentage of all observations falling inside the ellipse that illustrate closely agree with the specified confidence level.

Hence, after identifying the strength of the linear association by using Confidante Ellips test

now CUSUM Test is used to check the stability of the parameters. If the parameters are instable then it will go outside from the area between two lines, while in the case of stable parameters then that are moving between the two lines. Following diagram represent the complete description of both parametric stability tests.
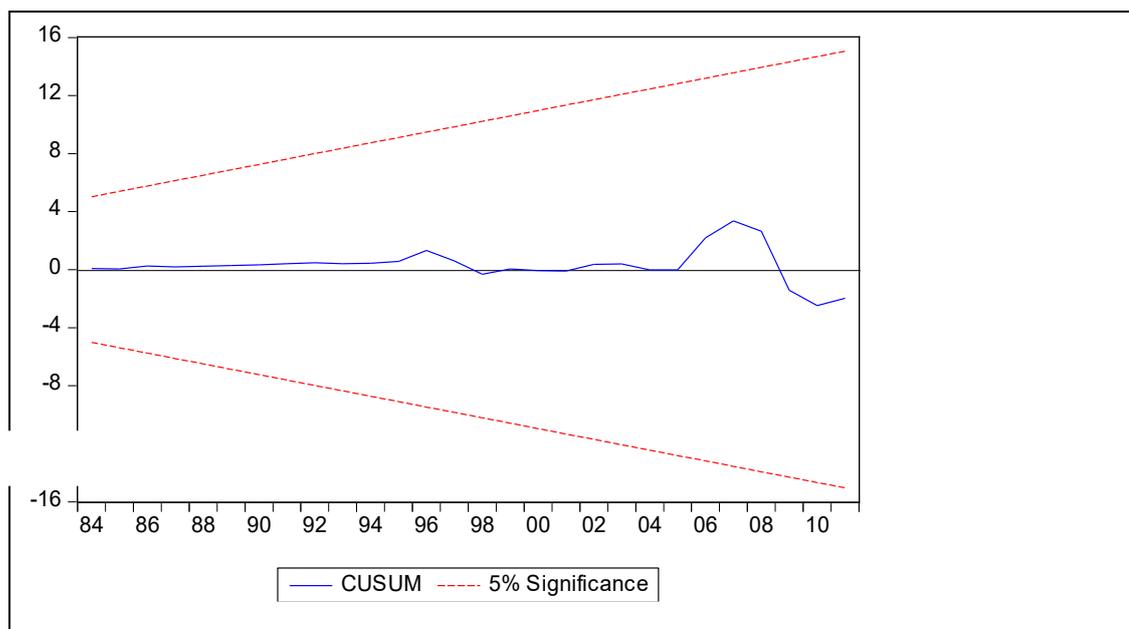

Figure: 4.2   Parametric Stability Tests

After identifying the existence of the long - run relationship between FDI inflow and its determinants; hence in order to determine the short-run dynamics we used the Error-Correction Model (ECM). From the Table given below, the results of the ECM model will be elaborated that confirm the existence of a short-run relationship among FDI and real its determinants in Pakistan. Error Correction Model (ECM) value shows the speed of convergence which is near about 0.60. The value of the error correction model shows that 60 % (per cent) convergence take place in one year.

Table-4.5: Estimated Short run Coefficients using the ARDL Approach
Dependent Variable: (FDI)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	107.66	101.08	1.07	0.30
$\Delta INVGDP_{t-1}$	207.77	75.43	2.75	0.01
ΔFD_{t-1}	0.00	0.00	-0.56	0.58
ΔPi_{t-1}	-14.99	18.09	-0.83	0.41
ΔER_{t-1}	-74.18	39.27	-1.89	0.07
$\Delta OPENN_{t-1}$	-53.92	29.53	-1.83	0.08
ΔFDI_{t-1}	0.29	0.24	1.23	0.23
ΔECM_{t-1}	**-0.60**	**0.34**	**-2.76**	**0.03**
R-squared	0.61	**F-statistic**		6.20
Adjusted R-squared	0.51	**Prob (F-statistic)**		0.00
Durbin-Watson stat	1.93			

In order to determine the existence of a short-run dynamics, we used the Error Correction Model (ECM).From table 4.5, the results of the ECM model were elaborated which confirmed the existence of short run relationship between FDI and FDI and its determined variables in Pakistan. Error correction model (ECM) value showed the speed of convergence which was near about 0.60. The value of the error correction model shows that 60 % (per cent) convergence take place in one year.

4.3 Description of Second Model
4.3.1 Co-integration between Different Series

After the selection of the lag length, the next step was to find out the presence and number of the co-integrating vector among the variables in the model. For this purpose, two tests were used: maximum Eigen value test; and trace test.

Table 4.6 Johansen Co-integration Rank Test (Trace)

The following table shows the outcomes of the maximum trace test:

Hypothesized		Trace	0.05	
No. of CE(s)	Eigen value	Statistic	Critical Value	Prob.**
None *	0.855033	181.4557	95.75366	0.0000
At most 1 *	0.752293	109.9995	69.81889	0.0000
At most 2 *	0.564970	58.36571	47.85613	0.0038
At most 3	0.395788	27.56915	29.79707	0.0885
At most 4	0.011259	0.418941	3.841466	0.5175

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

The results of the mentioned above table indicates 3 co-integrating vectors at 5 % level of significance because the value of the trace statistics are well above its critical values at the five per cent significance level.

Table 4.7 Johansen Co-integration Rank Test Results (Maximum Eigen value)

Hypothesized No. of CE(s)	Eigen value	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.855033	71.45620	40.07757	0.0000
At most 1 *	0.752293	51.63379	33.87687	0.0002
At most 2 *	0.564970	30.79656	27.58434	0.0187
At most 3	0.395788	18.64170	21.13162	0.1077
At most 4	0.011259	0.418941	3.841466	0.5175

Max-eigen value test indicates 3 co-integrating equations at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

The results of the mentioned above table indicates three co-integrating vectors at 5 % level of significance because the Eigen values are statistics and are well above its critical values at the five per cent significance level.

As a result, findings of the both maximum Eigen value and trace tests highlighted 1 co-integrating vector at 5% level of significance.

In the Johansen model, coefficients in the co-integrating vectors can be explained as the estimates of the long term co-integrating connection between the variables. The estimated parameters of these equations are interpreted in term of long term when they are normalized as given below:

4.3.2 The Empirical Relationship between Poverty Reduction and its Key Factors

The experiential exploration to explain the relationship between poverty and its key determinants was conducted by employing Johansen Co-integration technique. Usually, financial development and public investment had negative impact on the head count ratio in the long run. Other variables like FDI, GDP influenced the head count ratio in a negative way during this time period.

Table` 4.8 Estimated Co-integrated Vector in Johansen Estimation

Variables	Coefficients	t-statistics
GDP	1.492215	0.24558
FDI	0.129309	0.03365
FD	0.056819	0.04671

PI	0.272284	0.11372

$T_{0.01}=0.24$, $T_{0.05}=0.03$, $T_{0.10}=0.08$

$$Yt = -5.48 - 1.49GDP_t - 0.129FDI_t - 0.057FD_t - 0.272PI_t \ldots\ldots\ldots(4.2)$$

The estimated co- efficient of the GDP, FDI, FD and public investment were explained in term of elasticity's with respect to the dependent variable during the given time period.

Statistically, the estimated coefficient of the FDI was seen significant at 10% significance level. So H_0 was rejected. It was also clear that FDI had exhibited a negative impact on the poverty reduction in the long run due to its positive influence on economic growth, development of human capital ,recessive institutions, and crowding in of the domestic investment and other reason which require further analysis. This consequence was also favoured by [17] and [22]. The negative estimated co-efficient of FDI revealed that on the average, 0.129 units decrease in the poverty was resulted from 1 unit increase in FDI.

The estimated coefficient of the GDP was also found statistically significant at 1% significance level resulting that Ho could not be accepted. It stated that the GDP had discovered a negative impact on the poverty in the long time period, which was considered a key and positive sign of the poverty reduction because of negative estimated coefficient. The negative impact of the GDP on the poverty was a result of various inside and outside elements like high standard of living, increase in per capita income and rise in employment level. [2] also agreed with these outcomes. The negative and statistically significant coefficient of GDP was observed to be 1.49 which displayed that on the average, 1 % increase in GDP had caused poverty to be decreased by 1.49% in the long time period.

The estimated coefficient of the financial development was also found statistically significant at 10% significance level resulting that Ho could not be accepted. It specified that the financial development had exposed a negative effect on the poverty in the long time period because of negative estimated coefficient. The negative impact of the financial development on the poverty reduction was a result of various inside and outside elements. The positive and statistically significant coefficient of financial development was observed to be 0.05 which displayed that on the average, 1 unit increase in financial development had caused poverty to be decreased by 0.05 units in the long term.

The negative estimated coefficient of public investment was shown statistically significant at 1% significance level concluding that H_0 was rejected. It implied that public investment had made a negative contribution to poverty in the long term. This conclusion was also supported by [8].

The negative and statistically significant coefficient of the public investment was observed to be 2.48 which indicated that on the average, one percent increase in the public investment had caused 0.272 % decrease in the poverty during the same time.

Table 4.9 The results of Error Correction Model
Dependent variable: D (LOG (HCR))

Independent variables	Coefficients	Standard errors	t-statistics

Constant	-0.053014	(0.02708)	[-1.95782]
ΔGDP_{t-1}	0.185718	(0.04621)	[4.01892]
ΔFDI_{t-1}	-0.390625	(0.68155)	[-0.57314]
ΔFD_{-1}	-0.957771	(0.47183)	[-2.29092]
ΔPI_{t-1}	-0.176271	(0.12372)	[-1.42474]
ECM_{t-1}	-0.103067	(0.07688)	[-1.34064]

$T_{0.01}$=2.72, $T_{0.05}$=2.02, $T_{0.10}$=1.68

Table 4.6 explained the short term dynamics between dependent and independent variables given in the above table.

4.3.3 Description of the Error Term

The coefficient of the error correlation term (ECM) shows negative sign and this negative sign means that there is a tendency from short term instabilities to equilibrium in the long run. The estimated coefficient of error correction term (EC_{t-1}) is -0.10 which is significant with theoretically correct sign. The coefficient of ECM 0.10 indicates that 10 per cent of the disequilibrium in variables is corrected instantaneously, i.e. in the next year. It means that the deviation of the variables which are impact on the economic growth from the long run equilibrium is corrected by 0.29 per cent in the current period.

The value of R^2 indicated that 51% variation in the poverty reduction had been explained by the variables given in the model.

5. Conclusions and Policy Recommendations

The conclusion of this study is that there exists positive relationship between investment to GDP ratio and FDI which is also suggested by Leonce Ndikumana and Sher Verick (2008). Country's political stability is seen to play an important role in economic progress Servén and Solimano, 1993; Oshikoya, 1994), there exists positive relationship between political stability and FDI in Pakistan, which shows that under autocracy FDI inflow in more than as compare to democracy.

There exits positive relationship between trade openness and FDI which also suggested by Ali J. Al-Sadiq (2013) statistically significant which shows one unit increase in the trade openness lead to an increase in the foreign direct investment. The estimated results of the FDI and its dependant variables show that there exist positive relationship between financial development and FDI.

Keeping in view the importance of the impact of FDI and its control variables i.e. GDP, Financial development (FD) and Public Investment (PI) on the poverty reduction in Pakistan, effect was empirically tested, using time series annual data over the time period 1973-2011. For this determination, the VAR based Johansen Co-integration test was employed to calculate the long period suggestion between independent variables (GDP, FDI, FD and public investment) and the dependent variable (head count ratio).

The empirical results showed a negative relationship between GDP and head count ratio. This evidence established the rationality of GDP oriented growth hypothesis in Pakistan. Employed real capital stock was a major determinant for economic growth. Gross Domestic Product of goods and services observed adequate involvement into the poverty reduction during the same time period because of cumulative standard of living, enhancement in technology, rise in production level and augmentation in the per capita income of the country.

Among the independent variables, the estimated coefficient of FDI was observed to be negative and small. It is severely exaggerated by continual energy disaster, poor law and order situation unsecure condition in the business activities due to terrorism, very high prices of fuel and gas, government carelessness. Frequently, foreign investor got profits and moved them to their countries and did not transfer the latest technologies to the host countries. As a result, FDI less impacted the economic growth and does not increase the poverty. The financial development negatively prejudiced the head count ratio in the long period. It was also detected that increase of financial development had caused reduction in poverty during this time period because of reduced charges to additional loans, movement of more money in the economy and increased savings prospects. As a result, increase in financial development would reduce the poverty. This outcome was also favoured by [5].Therefore,

instead of trading real goods for each other's poor would have more chances to use money in interchange for goods. This would reduce the large costs of finding trading partners, storing and transporting goods.

Public investment presented its negative impact on poverty because of use of more goods which are widely financed, increase in government incomes and transfer expenditures which ultimately reduce poverty. Generally, the empirical results of this research work verified a significant adverse relationship between foreign direct investment, Gross Domestic Product, Public Investment, Financial Development and head count ratio.

The following suggestions and policy recommendations stem out from the above cited results and conclusions:

➢ Govt. should provide anticipated and value-added organization facilities and adequate safety situation to attract FDI in the country which is very necessary to reduce poverty.

➢ Govt. should create political stability in the country due to war against terrorism in order to increase the protection of foreign direct investors. So, by this method FDI will be enhanced in our country GDP growth will be enhanced and will remove all the hurdles in the way of reducing poverty.

➢ The FDI should be increased by increasing the level of investment to GDP ratio in order to decrease the level of poverty in the country.

➢ Govt. should remove all the restrictions and limitations to improve the level of free trade or trade openness for the attraction of more foreign direct investment in the country. So, our country will be improved in the trade sector, resulting in generation of more and more income, increasing the growth level and poverty will be decreased in the country.

➢ Govt. should increase the degree of flexibility of exchange rate in order to enhance the flow of more FDI in the country which will ultimately increase the level of exports and decrease the level of imports of the country. After this activity when more growth level will be achieved, as its reaction level of poverty will be decreased. So, we can say that there is a positive link among exchange rate flexibility FDI and growth level in the country.

➢ Govt. should provide different facilities to human capital in the form of education ,training in order to increase the level of their efficiency, skills and abilities. These all activities will increase the growth level and ultimately reduce poverty.

References
[1] Asiedu, A (2008) Foreign Direct Investment and Poverty in the ASEAN Region. Final Report of the First Gap Research Sub-Project. *University of Bradford.*
[2] Aslam, T (2010) Technological Capabilities and Learning in African Enterprises. World Bank Technical Paper 288, Africa Technical Department Series, *Washington DC: World Bank.*

[3] Bhagwati, V. N.*et al.* (1978) Foreign Direct Investment and Growth in EP and IS Countries. *The Economic Journal, 106, 1-26.*

[4] Bhalla, R (2007) Macroeconomic Policies and their impact on Poverty Alleviation in *Pakistan Development Review, 36(1):39-68.*

[5] Bollard, R. E (2007) Financial Development and New Findings on the Turnover and Mobility of Firms, *Journal of Economic Literature, 36(4).*

[6] Ercelawn, A (1989) Poverty in Pakistan: Choice of Poverty Criteria, Draft Paper, *World Bank Washington DC.*

[7] Gonzalez, E (1988) Foreign Direct Investment in the World Economy. IMF Working Paper WP/95/ 59, Washington D.C: International Monetary Fund*.*

[8] Farooq, S (1987) Poverty, Inequality and Social Protection, *Working Paper: 00/01, April, Jakarta: UNSFIR.*

[9] Government of Paksitan (2004-05) Economic Survey of Pakistan, Economic Adviser's Wing, Finance Division, Islamabad.

[10] Havinga, V (1989) Host Country Reforms and FDI Inflows: How Much Difference Do They Make? World Development, 26 (7), 1299-1314.

[11] Irfan, E (1984) Foreign Direct Investment in the World Economy. IMF Working Paper WP/95/ 59, Washington D.C: International Monetary Fund*.*

[12] Kruijick, A (1985) Productivity Spill Over From Competition Between Local Firms and Foreign Affiliates, *Journal of International Development. 8(4).*

[13] Malik, E (1988) Technology Transfer to Overseas Subsidiaries by US-based firms, *Quarterly Journal of Economics, 95(4).*

[14] Millar, C (1997) Foreign Investment and Poverty Alleviation in Korea: 1970-1990, *Journal of Economic Development. 22(1): 79-89.*

[15] Nair, U and Weinhold , D (2001) Causality Tests for Cross-Country Panels: A New Look at FDI and Economic Growth in Developing Countries, *Oxford Bulletin of Economic and Statistics, 63(2).*

[16] Pesarran, T *et al.* (1999) Technological Capabilities and Learning in African Enterprises. World Bank Technical Paper 288, Africa Technical Department Series, *Washington DC: World Bank.*

[17] Remla, A (2010) Foreign Direct Investment and Poverty in the ASEAN Region, Final Report of the First Gap Research Sub-Project*. University of Bradford.*

[18] Santiago,V (1987) Technology Transfer, Firm Ownership, and Investment in Human Capital*, Review of Economics and Statistics, 75(4).*

[19] Stoneman (1975) Foreign Direct Investment, Structural Change, and Deregulation in Indonesia, The New Wave of Foreign Direct Investment in Asia, Nomura Research Institute and ISEAS.

[20] World Bank, (2009) The South Asian Miracle, Foreign Direct Investment and Public Policy. World Bank Policy. *Oxford University Press.*

[21] Zaidi (1992) MIGA and Foreign Direct Investment: Evaluating Develop- Mental Impacts. *Washington, DC: World Bank.*

[22] Zaidi, A *et al.* (2004) The Impact of FDI on Economic Growth Under Free Trade Regimes: A Case Study of Pakistan*. The Pakistan Development Review,* 2(12), 114-120.