

Foreign Direct Investment and Its Impact on Macroeconomic Performance in Pakistan

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Abstract

This research has been conducted to investigate foreign direct investment and its impact on macroeconomic performance in Pakistan. This paper analyzes whether foreign direct investment and its indicators have significantly affected Pakistan's economic performance. In this research, economic performance is measured in the form of an index. While foreign direct investment with its indicators gross fixed capital formation, remittances, reserves, money supply and credit to private sectors by the bank is analyzing the economic performance. We conducted various econometric models: Bound test, Autoregressive distributed lag (ARDL) model and Error Correction model. In the empirical section, the findings of the bound test have proved the existence of long run ARDL. The empirical analysis of long run ARDL has proved the positive and significant influence of foreign direct investment, gross fixed capital formation, remittances and reserves on economic performance in Pakistan. While money supply and credit have no direction to affect the economic performance in Pakistan. In the end, the error correction model evidenced the significant impact of foreign direct investment and its indicators on Pakistan's economic performance in the short run. Moreover, the findings of the error correction model have stabled the error from short run to long run. The overall findings of empirical analysis evidenced the positive and significant impact of foreign direct investment on economic performance in Pakistan.

Key Words: Foreign Direct Investment, Economic Performance Index, ARDL, Error Correction Model

1. Introduction

Graham (1995) define direct foreign investment is explained: “as an increase in the book value of the net worth of investment in one country held by investors of another country where the investments are under the managerial control of the investor”. FDI plays a vital role, and it’s a better way to get foreign investment from foreign sources. FDI is a better way for developing countries for accumulating capital from external sources. Over the last few years, developed countries have decreased foreign investment in developing countries. Foreign direct investments have become a popular tool for increasing the economic growth of developing countries. Most of the underdeveloped countries, like that Pakistan, face the problems of high population growth, high burden of foreign debt, level of national income are low, level of capital is low, the process of industrialization is low, saving rate is low, the balance of payment is a deficit, managerial and technical skill is low, and mostly export the raw material etc. Due to a lack of financial resources, developing countries do not finance their development projects properly. Therefore FDI becomes an important tool to overcome this weakness. Why do foreign countries invest in host countries, and why do the host countries promote foreign investment? The investor country wants to earn a profit, and the host country needs foreign investment for their development, so both countries benefit from the FDI.

Due to the following arguments, Pakistan is a suitable country for FDI.

First, the economy of Pakistan can absorb the various shocks, and the business community faces the minimum risk. These stable and favorable environments for investment attract foreign investors to invest in these countries. Second, the Pakistan consumer goods market is largely due to the increasing population. On the other hand, cheap labor reduces the production cost, and the purchasing power of the middle class is growing. Third, Pakistan physical infrastructures are suitable for foreign investors. Finally, According to Hussain (2003), due to the global security situation and strategic consideration, Pakistan is a suitable country for foreign investors.

According to UNCTAD, the Trend in FDI flows upward in 2013. According to this report, nine percent increase in World foreign direct investment in 2013. FDI inflows increased in developed, developing, and transition economies. At first, a rise in investment is started in developed countries, looking for other markets, and spreading to developing countries.

II. Literature Review

Sahoo (2006) studied the relationship between the log of real GDP and foreign investment as % of gross domestic product, labor force growth for 1970 to 2003. Foreign direct investment and its possible determinants are significantly evidenced and have a dynamic association in the long run. The important factors of foreign direct investment inflow are the growth of the labor force, the openness of trade, market size, and the infrastructure index in South Asia regions.

Tang *et al.* (2008) examine the causal association between economic growth, foreign and local investment in china. The data is used from 1988 to 2003 in terms of time series. The estimation outcome shows a bidirectional causation relation among growth level of economy and domestic investment, while a one-way causation relation from foreign investment to the development of economy and investment in the domestic term.

Falki (2009) study the link between FDI inflow and GDP through time series data from 1980 to 2006. The OLS method estimates the relationship between GDP growth, labor force, domestic capital, FDI and openness of trade policies. The finding suggests an opposite and insignificant association between direct foreign investment and gross domestic product inflow.

Gudaro *et al.* (2010) discovered the association between FDI and GDP through time series data from 1981 to 2010. The variables GDP, FDI, and CPI found the direct and important relationship between GDP and direct foreign investment. In contrast, the opposite and important association was obtained between gross domestic product and inflation.

Shaikh (2010) explored the causality affiliation between economic growth, trade and investment by foreigners in Pakistan. The researcher used the quarterly data of time series 1998 to 2009. They found that the bidirectional connection between foreign investment, economic development and export and these two factors are important to enhance economic growth in Pakistan.

Shahzad *et al.* (2012) examined the factors that influence the foreign investment inflows in Pakistan, while the time series data is collected for the desired purpose from 2001 to 2011. The researcher used foreign investment as the dependent variable and gross domestic growth rate, degree of openness, corruption control index, inflation and political stability as independent variables. The research study suggests that Pakistan policymakers restructure the foreign direct investment policy to attract the FDI inflow in Pakistan.

Anna *et al.* (2012) explored the association between interest rate and FDI by using the data from the period 2009 to 2011. They used the variables such as interest rate, inflation, gross domestic product, exchange rate, labor cost and risk factors. The study found a negative relationship between foreign direct investment and labor cost, interest rate, risk factors, and inflation but positive relation with gross domestic product.

FaridUllah and Rauf (2013) analyzed the effect of macroeconomic indicators on the growth level of selected Asian economies by covering the data from 1990 to 2010. Findings from empirical analysis proved that saving and foreign direct investment are positively related to the GDP of sample countries, but other variables are negatively related to GDP.

Saqib *et al.* (2013) explored the bond of GDP and foreign investment. The figures measure this bond from 1981 to 2010. The empirical analysis found a positive relationship between domestic investment and GDP. At the same time, the opposite association is found among FDI, debt, trade, inflation and gross domestic product.

III. Data and Methodology

To examine the impact of foreign investment on macroeconomic performance in Pakistan, different sources are used to collect the data of time series for the period of 1972 to 2014.

a. Concept of Variables used in the Study

Following are the main variables used in this study

Gross Domestic Product

It is the value in the market finalizes following all goods and services produced domestically during a specific period. However, GDP does not include the primary and intermediate goods because of double-counting error, while it only includes final goods. Furthermore, GDP includes only those final goods produced within the country boundary and within a specific period.

Foreign Direct Investment

The direct investment by the firm or investor in which they are the efficient regulator, and get investment opportunities in the world market, refers to foreign direct investment. In concern of manufacturing sector, FDI involves a physical setting up conveniences of production in a foreign country. However, in the service sector, FDI involves building services facilities and foothold investment following capital contribution and office building.

Remittances

According to the 6th edition of the BOP manual of the International Monetary Fund. Personal remittances are the sum of the two components, employee's compensation and personal transfers. Employee's Compensation refers to the Seasonal, border, and other short term income of the resident and not resident households. The personal transfer includes all the income received or made by the resident and nonresident households.

Gross fixed capital formation

It is generally called gross domestic fixed capital formation, including the domestically produced new capital goods and import the new or used capital goods from abroad. Capital goods consist of buildings, machinery, equipment, and structure used in the production process. Gross fixed capital formation means making the expenditure on country fixed assets and inventories net change.

Money Supply (M2)

The M2 measure of the money supply consists of M1 and money in deposit accounts. So the increase in money supply will positively impact macroeconomic performance.

Credit to the Private Sector by Bank

Bank provides credit to the private sector in the form of loans and other financial assistance. These credits have a positive impact on macroeconomic performance.

Reserve

A reserve is cash which a bank holds in its accounts. State bank of Pakistan held the foreign currency to reduce the deficit of the balance of payment. So reserve has a positive impact on performance at the macro level.

b. Model Specification

This research work started by the functional form to estimate the relationship between economic performance index and foreign direct investment, gross fixed capital formation, remittances, reserve, credit, money supply and all the variables selected as a percentage of GDP.

$$EPI = f(\text{FDI, GFCF, REM, RES, Credit, M2})$$

Where:

EPI = Economic Performance Index

FDI = Foreign Direct Investment

GFCF = Gross Fixed Capital Formation

REM = Remittances

RES = Reserve

M2 =Money Supply

Credit = Credit to the Private Sector by Bank

Model in the form of econometric can be written as:

$$EPI = \beta_0 + \beta_1 FDI + \beta_2 GFCF + \beta_3 REM + \beta_4 RES + \beta_5 Credit + \beta_6 M2 + e_t$$

Where ϵ = error term.

IV. Result and Discussion

Bound Test / Wald Test

The bound test is applied for the purpose to find that whether the long term bond among variables exists or not. Under consideration, variables that should be associated in the long term are based on null and alternative hypotheses. In the bound test, the alternative hypothesis should be accepted to prove the long term existence of variables. While table 2 presents the results of the bound test.

Null hypothesis $H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = 0$ (No long run exist)

Alternative hypothesis $H_1: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 \neq 0$ (Long run exist)

| Equation | F-statistics | Critical Value of Bound at 5% | | The critical value of Bound at 10% | |
|------------------------------------|--------------|-------------------------------|------|------------------------------------|------|
| | | I(0) | I(1) | I(0) | I(1) |
| EPI/ FDI, REM, GFCF, CRED, M2, RES | 13.80906 | 2.63 | 3.62 | 2.33 | 3.25 |

Table: 2The F-test for Co-integration

Note: Pesaran et al. (1996) give the Critical values of lower and upper bound. At the same time, the table of lower and upper critical bound values is given in Appendix.

From the Bound test, calculate the value of F-statistics, which is 13.80906, is greater than the value of upper bound at 1%, 2.5%, 5% and 10%. The given results show that the existence of the long run relationship. It means the alternative hypothesis that supported the long term existence is accepted, and the null hypothesis that does not support the long run existence is rejected.

Long Run Estimating Results

After applying the Wald test to estimate the association among the variables in the long term, now we are capable of estimating the coefficients of the long period through the ARDL technique by measuring the impact of FDI on the macroeconomic performance of Pakistan. To estimate the model on different lags through ARDL technique and result shows that some of the variables are significant and dropped the variables that are insignificant. After some procedure, we are capable of getting the finding of our under consideration model that shows all variables are significant except money supply and credit. Overall performance of our model is satisfactory. The estimated long period coefficient results following the ARDL technique are presented in Table 3.

Table: 3 Estimated Long Run Coefficient using the ARDL Approach

| Dependent Variable: EPI | | ARDL(3, 4, 3, 4, 3, 4, 4) | | |
|-------------------------|-------------|---------------------------|-------------|--------|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| GFCF | 3.048944 | 0.778523 | 3.916317 | 0.0078 |
| REM | 3.755549 | 0.764955 | 4.909503 | 0.0027 |
| FDI | 7.902110 | 3.792148 | 2.083808 | 0.0823 |
| RES | 0.774476 | 0.248413 | 3.117695 | 0.0206 |
| M2 | 0.146188 | 0.437939 | 0.333808 | 0.7499 |
| CREDIT | 0.296747 | 0.275898 | 1.075567 | 0.3235 |
| @TREND | 0.001842 | 0.078726 | 0.023403 | 0.9821 |

Source: Authors' calculation

We have specified six explanatory variables like Personal remittances and Gross fixed capital formation, life expectancy at birth, Domestic credit to the private sector by banks, Trade openness and Government expenditure, and dependent variable (EPI) macroeconomic performance index. Here in this model, we take the six independent variables: foreign direct investment, gross fixed capital formation, personal remittances, money supply, reserves, and credit. The dependent variable is the macroeconomic performance index (EPI).

First, we discuss the impact of the core explanatory variable (foreign direct investment) on Pakistan's macroeconomic performance. The FDI coefficient value is 7.90 that illustrates a rise in foreign investment, which significantly improves the performance at the macroeconomic level. It means a 1 percent surge in foreign direct investment leads to an upsurge in the macroeconomic performance of about 7.90 percent. It means that foreign direct investment main factor to determine macroeconomic performance in Pakistan.

Gudaro *et al.* (2010) explored the bond of FDI and GDP (used to measure the macroeconomic performance). They used the variables GDP, FDI and CPI. They found a direct and significant relationship between GDP and FDI while an opposite and significant association was obtained between gross domestic product and inflation. Ahmed *et al.* (2013) used macroeconomic variables such that GDP, rate of interest, rate of inflation and rate of exchange to examine the impact on foreign direct investment inflows. The study concludes that the GDP growth and interest rates are affirmatively related to foreign direct investment. In contrast, exchange rate and inflation are adversely related to foreign direct investment determining the inflows of foreign direct investment.

Our model's second important independent variable is Gross fixed capital formation, which shows a significant and positive impact on Pakistan's macroeconomics performances. This indicates that a rise in Gross fixed capita formation will improve Pakistan Macroeconomic performance. It means a 3.1 percent increase in Pakistan's macroeconomic performance due to a 1 percent increase in gross fixed capital formation. Sahoo (2006) study the bond of GDP with FDI. The GDP accompanies other indicators such as exports, capital formation, labor force, literacy rate, and trade volume. Conclude that direct investment of foreigners and its deterministic determinants have a significant and affirmative association in the long period. The findings of Caroline Kariuki (2015) following trade volume, capital formation and foreign direct investment in African economies are in line with the findings of this research. The outcomes evident the effective rise in inflows of FDI, which comes from efficient trade volume and infrastructure betterment.

The third important factor determining the macroeconomic performance is remittances, which show a significant and positive influence on Pakistan's macroeconomic performance. The value of remittances is 3.6 percent, which indicates that the 1 percent increase in remittance leads to an increase in the 3.6 percent of Pakistan macroeconomic performance. Javed *et al.* (2012) discussed the impression of international remittances on the growth level of the economy and poverty in provinces of Punjab, KPK, Baluchistan and Sind. ARDL technique was pointed out the impression of foreign remittances on the growth level of Pakistan economy and poverty in Pakistan. The research explored that remittances were significantly and positively associated with economic growth.

Here, the fourth important factor is the reserve, which shows the positive and significant impact on Pakistan's macroeconomic performance. The coefficient value is 0.77, which indicates an increase in Pakistan macroeconomic performance by 0.77 percent due to a 1 percent increase in reserves. Yasin and Ramzan (2013) examined the relationship between GDP, Exports. He used the (Solow 1956) model to examine the effect of foreign investment on the rate of growth-restricted by falling returns in the physical assets. The economic growth theory concludes that foreign investment may influence the per capita level of output and growth rate. Using the autoregressive distributed lag model, the study found that direct foreign investment and export volume add less economic growth. There is a short period of time association between dependent and independent variables.

Here fifth and sixth indicator is the money supply and credit, which show the negative impact on macroeconomic performance in Pakistan. The value of the coefficient of the money supply is 0.15, and the value of the coefficient of credit is 0.3 percent, which shows a 0.15 and 0.3 percent decrease in Pakistan's macroeconomic performance due to a 1 percent increase in the money supply. Because the increase in money supply leads to increased inflation, which negatively affects Pakistan's macroeconomic performance. Similarly increasingly credit burden have badly affected the macroeconomic performance of Pakistan, which also badly affect the foreign investment

Error Correction Estimating Results

Here we use the error correction model that is unrestricted to determine the dynamic short-run parameters, and the ECM findings are presented in table 4.

| Table:4 Error Correction Representation for the Selected ARDL Model | | | | |
|--|--------------------|-------------------|----------------------------------|--------------|
| Dependent variable: DEPI | | | ARDL(3, 4, 3, 4, 3, 4, 4) | |
| I | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| D(EPI(-1)) | 0.537938 | 0.096906 | 5.551150 | 0.0014 |
| D(EPI(-2)) | 0.354497 | 0.079739 | 4.445690 | 0.0043 |
| D(GFCF) | -1.482656 | 0.407582 | -3.637689 | 0.0109 |
| D(GFCF(-1)) | 4.044524 | 0.382363 | 10.577706 | 0.0000 |
| D(GFCF(-2)) | 0.737931 | 0.334404 | 2.206707 | 0.0695 |
| D(GFCF(-3)) | 2.263256 | 0.326939 | 6.922565 | 0.0004 |
| D(REM) | 1.434248 | 0.312495 | 4.589673 | 0.0037 |
| D(REM(-1)) | -2.477115 | 0.401757 | -6.165711 | 0.0008 |
| D(REM(-2)) | -1.874230 | 0.353766 | -5.297934 | 0.0018 |
| D(FDI) | 14.789476 | 1.237727 | 11.948898 | 0.0000 |
| D(FDI(-1)) | -6.085879 | 1.000762 | -6.081244 | 0.0009 |

| | | | | |
|---|------------|-----------|------------|--------|
| D(FDI(-2)) | -1.127122 | 0.820201 | -1.374201 | 0.2185 |
| D(FDI(-3)) | 4.967200 | 0.938233 | 5.294206 | 0.0018 |
| D(RES) | -0.090109 | 0.080055 | -1.125596 | 0.3033 |
| D(RES(-1)) | 0.860147 | 0.112477 | 7.647285 | 0.0003 |
| D(RES(-2)) | 0.555573 | 0.090351 | 6.149083 | 0.0008 |
| D(M2) | 1.605435 | 0.136112 | 11.794979 | 0.0000 |
| D(M2(-1)) | -0.138195 | 0.191391 | -0.722059 | 0.4974 |
| D(M2(-2)) | 1.103963 | 0.186248 | 5.927386 | 0.0010 |
| D(M2(-3)) | 0.451687 | 0.178820 | 2.525938 | 0.0449 |
| D(CREDIT) | -0.822927 | 0.228247 | -3.605425 | 0.0113 |
| D(CREDIT(-1)) | -0.376481 | 0.232335 | -1.620420 | 0.1563 |
| D(CREDIT(-2)) | -1.002042 | 0.210782 | -4.753935 | 0.0031 |
| D(CREDIT(-3)) | -0.475539 | 0.233825 | -2.033738 | 0.0882 |
| C | 197.590792 | 12.747035 | 15.500921 | 0.0000 |
| ECMEq(-1) | -0.848980 | 0.099511 | -17.471165 | 0.0000 |
| Cointeq = EPI - (-3.0489*GFCF + 3.7555*REM + 7.9021*FDI -0.7745*RES + 0.1462*M2 + 0.2967*CREDIT + 0.0018*@TREND) | | | | |

Source: Authors' calculations

The above table examined the period of the short-run parameters for the period of the long run relationship through the equation of co-integration. The value of the coefficient of the error correction model is significant and negative. The estimated value of the error correction coefficient is -0.848980 percent. Error correction model indicates the adjustment from the previous year to the equilibrium of the long run. Also, the result of DFDI (foreign direct investment) and Pakistan macroeconomic performance in the short run are significantly and positively associated with each other. Here term "D" represents the variable first difference, and the value of the coefficient is 14.789476. This value shows that Pakistan's macroeconomic performance is 14.789476 due to a 1 percent increase in foreign direct investment. Falki (2009) study the association between direct foreign investment inflow and gross domestic product. The finding suggests that there is an opposite and insignificant association between direct foreign investment and gross domestic product inflow. Roy and Mandal (2012) analyzed the relationship between foreign direct investment and economic growth for selected Asian countries. Granger causality test suggests that for some countries like India, China, Sri Lanka, Pakistan, Phillip Pines, Singapore, and Indonesia, causality direction runs from economic growth to foreign investment. In Malaysia, there is no causality, but only bidirectional causal relation exists in the case of Thailand. Another independent variable is gross fixed capital formation, which has a negative and significant impact on Pakistan's macroeconomic performance. But after taking the first lag of the value becomes positive.

The significant negative impact of credit on Pakistan macroeconomic performance. But after taking the first, second, and third differences, they also become negative. It means that the value of the coefficient of the credit D (credit) is -0.822927, which indicate the 1 percent increase in credit to affect the macroeconomic performance -0.822927 percent inversely. Younas *et al.* (2014) study the association between foreign investment and GDP. To analysis the relationship between the variables GDP, FDI, inflation, external debt, export and domestic investment. His finding shows that foreign investment has directly affected the gross domestic product of Pakistan. On the other side that a decline in inflation will recover economic growth. The rate of exchange has a direct association with

a gross domestic product, suggesting that a decline in the value of the Rupee will recover the gross domestic product of Pakistan. Foreign debts show opposite association with growth meaning that increasing foreign debts without increasing investment.

Here value for the coefficient of the fourth important factor, money supply, is 1.605435. This value shows the positive and significant impact of money supply on Pakistan macroeconomic performance. Oladipo (2013) examined the macroeconomic factors that determined foreign direct investment in Nigeria and used the variables supply of money, GDP, the openness of trade, expenditures on capital by govt., inflation, interest rate, poverty level, govt. Recurrent expenditure and foreign direct investment of the previous year as independent variables. At the same time, the dependent variable is taken in the form of FDI. The result shows that money supply, exchange rate, interest rate and trade openness positively impact foreign direct investment.

The core reserve coefficient value is negative; they become positive after taking the first difference. If the country's reserve rises, it means that it shows a positive sign about the macroeconomic performance of Pakistan. Because the reserve is used to reduce the balance of payment deficit and improve the value of the currency, this leads to a positive impact on Pakistan's macroeconomic performance.

IV. Conclusion and Recommendations

To measure the long period association among the variables, we have adaptable the ARDL approach. The association between foreign investment and economic performance index (EPI) is significant and positive in the short and long periods. So foreign investment direct effects increase the investment level in the country's economic performance and improve the country's economic performance. The indirect effects of the FDI are increasing economic growth and creating employment opportunities in the country.

From the Autoregressive Distributed Lag Model, his research work found that gross fixed capital formation is also significant and impacts Pakistan macroeconomic performance because the value of gross fixed capital formation is 3.048944, and this positive association of gross fixed capital formation is supported by the Model of the Harrod Domar.

Another important variable that affects the macroeconomic performance of the country is the money supply. In the short run and long run, money supply positively impacts economic performance at the macro level, but the short run result of money has positive and insignificant related. So the rise in the money supply is helping to improve the investment level in the country. The value of the Credit coefficient is positive and insignificant in the long term and negatively related to macroeconomic performance in the short run. The results of the reserve are direct and significant in the long run but indirect in the short run. It means an increase in the reserve of the country will lead to enhance the macroeconomic performance in Pakistan.

On the basis of the finding of this study, government policymakers should encourage the inflow of foreign investment in the country. So we can achieve the positive impact of foreign direct investment on Pakistan macroeconomic performance if the government adopts the suggested recommendations.

- Ensure Friendly Environment For Business
- Improvement in Educational Sector
- Improvement in Agricultural Sector
- Ensure Political Stability
- Improvement in Quality Of Infrastructure

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