Foreign Capital Flows and Economic Growth in Pakistan:  
An Empirical Analysis

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Abstract: Pakistan economy has received large inflows of foreign capital, in shape of foreign debt, FDI and worker’s remittances, over the years. The present study is focused on the examination of effects of these flows on economic growth in Pakistan. Johansen cointegration technique and Granger causality test has been used for the analysis for the sample period of 1972-2013. The results reveal negative impacts of these flows on economic growth of the economy in long run. Short run analysis confirmed unidirectional causality running from debt service, FDI, inflation and literacy rate to growth. Causality from domestic investment is not concluded but it run from growth to domestic investment. Bidirectional causality between remittances and growth has been found. The analysis suggests some policy recommendations such as domestic resource mobilization, building of physical infrastructure, financial development, suitable macroeconomic framework for price stability and improvement in human capital for the long run growth of the economy.

JEL Classification: C32, E31, F21, F34, F43, O53  
Key words: Foreign Capital  •  Investment  •  Remittances  •  Economic growth  •  Cointegration  •  Causality  
• Pakistan

INTRODUCTION

Foreign financial resources have been playing momentous role in the growth process of capital-deficient economies of the world. The history of arguments for the importance of the role of international capital inflows dates back to the emergence of dual-gap models [1] on the canvass of the economic theory. Foreign capital has also been considered to be key element in the process of economic globalization and integration of the world economy. The flows of capital have been welcomed, to complement domestic financial resources, as a development catalyst. The resource deficient economies relied heavily on foreign capital to achieve the object of higher growth. The experience of the newly industrialized economies of south-east Asia has firmed the belief that foreign capital could fill the resource gap of the capital-deficient economies.

Foreign capital comprises the movement of financial resources from one economy to another. Foreign capital movements, in broader term, includes the borrowing of the governments by other governments, international financial institutions, short term or long term lending from banks, investment in public and private bonds and equities, foreign direct investment to increase the productive capacity of the economy, aid and the workers’ remittances [2]. Most of the developing economies have accumulated a huge amount of external debt and have been facing serious debt servicing problems.

Papanek [3] disaggregated foreign capital flows into three main elements: external aid, foreign investment and all other foreign capital. He used cross sectional data of 34 economies in 1950 and 51 economies in 1960 to find out statistically robust effect of these capital inflows on economic growth. Oyinlola [4] also disaggregated the foreign capital flows into external debt, foreign direct investment and export earnings to find out, using the dual-gap model in [1], that foreign direct investment was negatively associated with economic growth in Nigeria. There is a positive relationship between FDI and Growth [5] [6] [7]. Chakraborty and NunnenKamp [8], analyzing the impact of FDI and economic reforms in India, found that growth impacts of FDI differ in different sectors of the economy. The authors observed only transitory
impact of FDI on service sector output. The study concluded that FDI could not make wonders in Indian economy.

Mosley [9] shed light on the relationship between international capital inflows and growth by disaggregating these flows into aid and other financial flows. The author suggested a strong negative association between aid and growth for all of the countries included in the sample. Bowen [10] attempted to explore the direct and indirect association between aid and growth in 67 underdeveloped economies. Bowen [10] found an indirect impact of aid on growth through strong negative effect of foreign aid on domestic savings. Razzaque and Ahmad [11] also observed a negative correlation between aid and domestic savings. There was a positive impact of foreign aid and growth [12] [13]. But, in contrast to Burnside and Dollar [12], Hansen and Tarp [13] were of the opinion that positive impact of foreign aid was conditional on suitable policy regime.

Some empirical studies suggest contribution of foreign capital in economic growth of the economies to be conditional on quality of human capital. Foreign capital may contribute to economic growth when human capital is more improved. Increased share of educated labor forces couple with better healthcare would help in improving growth of the economy [14, 15, 16]. Legal and institutional milieu is important for FDI and growth association [17]. A number of studies stressed the need of international liberalization and openness for the contribution foreign capital, FDI, to growth [15, 18].

Prasad et al. [19] concluded that non-industrial economies relying on external capital could not grow faster than those that could not rely on industrialized economies. There was a cost involved with the reliance of these economies on foreign capital. The authors found no evidence of growth stimulating impact of foreign capital inflows. The study suggested that reduction in the reliance on external financial capital were related to higher levels of growth in nonindustrial economies. The results of analysis suggested that emerging economies needed to develop absorptive capacity. The development of financial sector was suggested to benefit from the foreign capital inflows.

Gong and Zou [20] concluded that a perpetual rise in external aid reduces long run capital formation, increase in domestic consumption and amplify external borrowing. The authors developed an “infinite-horizon” model with external aid, external borrowing and domestic capital formation, a rise in consumption, a rise in external borrowing and endogenous time preferences. The study suggested that an increase in aid lead to an increase in investment, a decline in domestic consumption and foreign borrowing in short run. Moreover, a temporal increase in aid increased consumption and external borrowing but a decrease in investment.

Hameed et al. [21] showed negative effect of external debt service in Pakistan. The authors used cointegration and error correction techniques to explore the effects of external debt on economic growth and business activities in Pakistan from 1970 to 2003. They argued that negative association between external debt and growth in Pakistan reduced the debt servicing capacity of the economy in long run. Malik et al. [22] used simple OLS model to conclude a negative and statistically robust relationship between economic growth and external debt in Pakistan.

Kaosar and Idrees [23] explored, using the Least Squares Dummy variables (LSDV), the impact of aid on growth in South Asian economies. Moreover, it is stressed that aid effectiveness depends on policy environment in the economy. Aid, without a suitable policy environment, neither can reach the deserved nor can it improve the economic development indicators [23].

Shen, Lee and Lee (2010) [24] used panel data of 80 economies to examine the association between international capital flows and growth. The authors broke international capital flows into foreign direct investment and foreign portfolio investment. FDI was positively related to economic growth but there was unfavorable impact of portfolio investment on growth. FDI have negative impact on growth in Pakistan economy [25].

Gee and Karim [26] used the Autoregressive Distributive Lag (ARDL) model to investigate the impact of foreign direct investment on manufacturing sector growth in Malaysia. The study was aimed to explore the impact of spillover effects of the origin of FDI on host economy. The results of analysis are evident that the FDI from European Union economies, China and the United States has its positive impact on manufacturing sector in Malaysia. But the FDI from ASEAN-4, Japan and ASEAN-4 economies showed its negative impact on manufacturing sector growth in Malaysia. It is also argued that the FDI flows from developed economies to research and development intensive sector may have positive impacts on manufacturing sector through the channel of technology transfer [26].

Nkoro and KelvinUko [27] shed light on the impact of foreign capital inflows and economic growth in Nigerian Economy. The authors used the methodology of cointegration, variance decomposition, impulse responses and block exogeneity causality test to examine the
interaction among foreign aid, FDI, external debt and GDP. The study confirmed the causality running from external aid, remittances, external debt and FDI to real GDP growth in Nigeria.  

Nkoro and Furo [2] examined the dynamic association between foreign capital flows (aid, remittances, foreign direct investment and foreign debt) and economic growth of Nigerian economy. The cointegration technique, variance decomposition, impulse response analysis, block exogeneity test were used for the analysis. The authors found a causal association between external capital flows and growth. It has been found that causality runs from aid, remittances, external debt and FDI to real GDP growth. The results of Block Exogeneity test showed that a significant Granger causality runs from remittances and external debt to growth. The results of error correction model suggested positive effect of aid, negative impact of remittances, positive impact of foreign direct investment and negative impact of external debt on real GDP growth of the Nigerian economy.  

Aurangzeb and Ul Haq [28] examining the impact of international capital inflows on growth of Pakistan economy found that external debt, remittances and FDI had positive impact on GDP. Bidirectional Granger causality between foreign debt and remittances, external debt and growth, FDI and external debt, FDI and remittances was observed. Najid et al. [29] also concluded a positive correlation between FDI and growth in Pakistan. Foreign aid and foreign direct investment increase income inequality in Pakistan [30].  

Qayyum and Haider [31] analyze the impacts of external debt, foreign debt and governance on growth of Pakistan economy. The study confirms the positive impact of governance and aid on growth. But negative impact of external debt is concluded. Albu [32] stresses the need of FDI into the Romanian economy. The author finds growth stimulating impact of FDI. FDI inflows coupled with the trade expansion have positive effects on growth in Romania [32].  

Ferreira and Simões [33] shed light on the aid and growth relationship by taking into account the factors that might influence this relation in two chief recipient regions of the world: Sub-Saharan Africa and Asia. Generalized method of moments was used to find out negative association between foreign aid and growth in 44 economies of Sub-Saharan Africa and 31 Asian economies from 1972-2007. The authors could draw no general conclusion about the impacts of policy variables such as quality of institutions and financial development on growth.

The review of different studies is evident that the discussion about the impact of foreign capital on economic growth is inconclusive. Pakistan economy is one of those developing economies that has accumulated huge amount of external debt and experienced FDI and remittances inflows. Despite huge amount of debt accumulation and significant inflows of remittances Pakistan economy has shown slower growth over the years. The present analysis is an attempt to explore the impact of these flows on growth trajectory of Pakistan from 1972 to 2013.

**The Data Sources and Model Specification:** The study is an attempt to explore the impact of foreign capital flows on economic growth of Pakistan from 1972 to 2013. The variables to be included as explanatory variables are external debt servicing, FDI, workers’ remittances, domestic investment, inflation rate measured by GDP deflator and the literacy rate. The dependent variable is economic growth. GDP growth rate has been used as proxy variable for economic growth in the economy. Annual time series data for the variables has been taken from the Word Development Indicators of the World Bank [34], various issues of Pakistan Economic Survey [35] and various issues of Annual Reports [36] of State Bank of Pakistan. The model to be estimated is:

\[ G_t = \gamma_0 + \gamma_1 D_t + \gamma_2 F_t + \gamma_3 R_t + \gamma_4 L_t + \gamma_5 P_t + \gamma_6 I_t + \epsilon_t \]

Here G is natural log of growth rate, D is log of external debt servicing, F is log of FDI, R is log of workers’ remittances, I is log of domestic investment, P is log of GDP deflator, L is log of literacy rate and \( \epsilon_t \) is white noise error term. All of the variables except literacy rate are taken as percentage of GDP.

**Methodology and Results of the Empirical Analysis**

**The Unit Root Analysis:** It has become a routine practice to test the presence of unit root in time series variables. As the annual time series data is used for the economic analysis so we used ADF unit root test [37] to explore the order of integration of each of the time series. When the time series variables are integrated of the same order then the variables may share common trend [38]. The Augmented Dickey-Fuller (ADF) test [37] is applied at level and 1st difference of each of the time series with constant but no trend and with constant and trend. The ADF test can be applied when there are serially correlated and homogeneous error terms. The ADF unit root test comprises of the regression:
\[ \Delta x_i = \delta_i + \delta_t t + \tau x_{i-1} + \sum_{j=1}^{p} \phi_j \Delta x_{i-j} + \nu_i \]  \hspace{1cm} (1)

Here \( \Delta x_{i-1} = (x_{i-1} - x_{i-2}), \Delta x_{i-2} = (x_{i-2} - x_{i-3}) \) and so on. \( \nu_i \) is a white noise error term. The ADF statistic test the null hypothesis that \( \tau = 0 \) (i.e. the time series is nonstationary) against the alternative hypothesis of \( \tau < 0 \). The ADF test each of the variable with drift and with drift and trend, at level and first difference was applied.

The ADF test results are reported in the Table 1. The unit root test statistics are evident that all of the time series are non-stationary, at their level, except GDP growth rate, external debt servicing (D) and GDP deflator (P). All of the time series, with constant and no trend and with constant and trend, at their first difference are found to be integrated of order one. The ADF statistics lie to the left of the critical values concluding all of the time series to be first difference stationary.

**Cointegration Analysis:** After finding the variables to be stationary at first difference we employed cointegration technique developed by Johansen [39, 40]. Time series variables that are integrated of the same order are cointegrated [37]. That is, the linear combination of non-stationary may not have unit root [38]. If the linear combination is stationary it is known as cointegrating equation. In the Johansen [39] consider a VAR of order \( m \):

\[ x_t = A_1 x_{t-1} + \ldots + A_m x_{t-m} + B y_t + \mu_t \]  \hspace{1cm} (2)

Here \( x_t \) is a \( k \)-vector of \( I(1) \) time series variables, \( y_t \) is a \( q \)-vector of deterministic variable and \( \mu_t \) is vector of innovations. The VAR may be written as:

\[ \Delta x_t = \theta x_{t-1} + \sum_{j=1}^{m-1} T_j \Delta x_{t-j} + \nu_t \]  \hspace{1cm} (3)

Here:

\[ \theta = \sum_{i=1}^{m} A_i - I, \text{ and } T_j = - \sum_{j+1}^{m} A_j \]  \hspace{1cm} (4)

If the coefficient matrix \( \theta \) has reduced rank \( r < k \), then there would be \( k \times r \) matrices \( (\alpha \text{ and } \beta) \) each with rank \( r \) such that \( \theta = \alpha \beta \) and \( \beta x_t \) is integrated of order zero. Here \( r \) is the cointegrating rank (the number of cointegrating vectors) and each column of \( \beta \) would be cointegrating vector. \( \alpha \) would be the adjustment parameter in vector error correction model. In Johansen’s method of cointegration, the \( \theta \) matrix is estimated, to test the restrictions implied by the reduced rank \( \theta \), from unrestricted vector autoregression.

### Table 1: The ADF Unit Root Test Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>c or ct</th>
<th>Level</th>
<th>p-value</th>
<th>1st difference</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gc</td>
<td>c</td>
<td>0.00</td>
<td>0.00</td>
<td>1.167</td>
<td>0.00</td>
</tr>
<tr>
<td>Dc</td>
<td>c</td>
<td>0.00</td>
<td>0.00</td>
<td>1.151</td>
<td>0.00</td>
</tr>
<tr>
<td>Fc</td>
<td>c</td>
<td>0.03</td>
<td>0.00</td>
<td>1.42</td>
<td>0.00</td>
</tr>
<tr>
<td>Rc</td>
<td>c</td>
<td>0.07</td>
<td>0.00</td>
<td>1.63</td>
<td>0.00</td>
</tr>
<tr>
<td>Lc</td>
<td>c</td>
<td>0.15</td>
<td>0.00</td>
<td>1.56</td>
<td>0.00</td>
</tr>
<tr>
<td>Pc</td>
<td>c</td>
<td>0.01</td>
<td>0.00</td>
<td>1.38</td>
<td>0.00</td>
</tr>
<tr>
<td>Pct</td>
<td>c</td>
<td>0.01</td>
<td>0.00</td>
<td>1.31</td>
<td>0.00</td>
</tr>
<tr>
<td>Lct</td>
<td>c</td>
<td>0.02</td>
<td>0.00</td>
<td>1.92</td>
<td>0.00</td>
</tr>
<tr>
<td>-2.21</td>
<td>c</td>
<td>0.00</td>
<td>0.00</td>
<td>3.97</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Note: c = with constant but no trend, ct = with constant and trend
*(**) significant at 0.01 and 0.05 levels respectively

Cointegration methods are very sensitive to lag length so before the cointegration analysis optimum lag length of 3 was selected by using the Akaike Information Criterion (AIC). It is frequently used measure of optimum lag length selection. Cointegration technique development by Johansen and Juselius [40] is utilized to test the presence of long run association between the variables. Before the application of cointegration test optimal lag length of 3 has been selected by using Akaike Information Criteria. In the Johansen method of cointegration two likelihood ratios (Trace and Max-eigenvalue statistics) are estimated. The results of the cointegration test are reported in Table 2.

Johansen’s cointegration technique estimates two test statistics, the Trace and Likelihood Ratio, to test the null hypothesis of the presence of any cointegrating vector. Trace Statistic is estimated as:

\[ T_{trace} = - \sum_{i=r+1}^{k} \log(1 - H_i) \]  \hspace{1cm} (5)

Here \( H_i \) in above equation is \( i \)-th largest eigen-value of the matrix \( \theta \) in equation 3. The estimated trace statistic is reported in the third column of Table 2. The max-eigenvalue, estimated, in the Johansen’s cointegration test, is estimated as:

\[ L_{max}(r | r+1) = - \lambda \log(1 - H_{r+1}) \]  \hspace{1cm} (6)

The estimated max-eigenvalue is given in the fifth column of Table 2. The trace and max-eigen statistics both rejected the null hypothesis of at most two cointegrating vectors against the alternative hypothesis of three cointegrating vectors at 1 percent level of significance.
### Table 2: Cointegration Test Results

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Eigen-value</th>
<th>Trace Statistic</th>
<th>p-value</th>
<th>Max-Eigen Statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>0.96</td>
<td>331.91*</td>
<td>0.00</td>
<td>118.41*</td>
<td>0.00</td>
</tr>
<tr>
<td>At most 1</td>
<td>0.92</td>
<td>213.50*</td>
<td>0.00</td>
<td>97.57*</td>
<td>0.00</td>
</tr>
<tr>
<td>At most 2</td>
<td>0.85</td>
<td>115.93*</td>
<td>0.00</td>
<td>71.83*</td>
<td>0.00</td>
</tr>
<tr>
<td>At most 3</td>
<td>0.44</td>
<td>44.10**</td>
<td>0.02</td>
<td>21.82</td>
<td>0.10</td>
</tr>
<tr>
<td>At most 4</td>
<td>0.33</td>
<td>22.28</td>
<td>0.09</td>
<td>15.29</td>
<td>0.11</td>
</tr>
<tr>
<td>At most 5</td>
<td>0.17</td>
<td>6.99</td>
<td>0.33</td>
<td>6.98</td>
<td>0.25</td>
</tr>
<tr>
<td>At most 6</td>
<td>0.00</td>
<td>0.01</td>
<td>0.93</td>
<td>0.01</td>
<td>0.93</td>
</tr>
</tbody>
</table>

*Mackinnon-Haug-Michelis (1996) p-values*

*(***) indicate rejection of the null hypothesis at 1% (5%) level of significance.

### Table 3: Normalized Cointegrating Coefficients

<table>
<thead>
<tr>
<th></th>
<th>$G_t$</th>
<th>$D_t$</th>
<th>$F_t$</th>
<th>$R_t$</th>
<th>$I_t$</th>
<th>$P_t$</th>
<th>$L_t$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>-1.56*</td>
<td>-0.28*</td>
<td>-0.72*</td>
<td>1.71*</td>
<td>-0.99*</td>
<td>0.45*</td>
<td></td>
</tr>
<tr>
<td>Standard Error</td>
<td>0.21</td>
<td>0.27</td>
<td>0.10</td>
<td>0.34</td>
<td>0.11</td>
<td>0.17</td>
<td></td>
</tr>
<tr>
<td>t-value</td>
<td>-7.40</td>
<td>-4.25</td>
<td>-7.06</td>
<td>5.01</td>
<td>-8.78</td>
<td>2.69</td>
<td></td>
</tr>
</tbody>
</table>

* Significant at 0.01 level.

### Table 4: VEC Granger Causality/Block Exogeneity Wald Tests Results ($\chi^2$ values with df = 3)

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\Delta G_t$</th>
<th>$\Delta D_t$</th>
<th>$\Delta F_t$</th>
<th>$\Delta R_t$</th>
<th>$\Delta I_t$</th>
<th>$\Delta P_t$</th>
<th>$\Delta L_t$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\Delta G_t$</td>
<td>-</td>
<td>3.38 [0.33]</td>
<td>3.50 [0.32]</td>
<td>19.01* [0.00]</td>
<td>9.42** [0.02]</td>
<td>1.42 [0.69]</td>
<td>1.45 [0.69]</td>
</tr>
<tr>
<td>$\Delta D_t$</td>
<td>6.76*** [0.08]</td>
<td>-</td>
<td>2.14 [0.54]</td>
<td>7.51* [0.05]</td>
<td>23.47* [0.00]</td>
<td>4.78 [0.19]</td>
<td>3.87 [0.28]</td>
</tr>
<tr>
<td>$\Delta F_t$</td>
<td>11.15 [0.01]*</td>
<td>19.61* [0.00]</td>
<td>-</td>
<td>0.21 [0.98]</td>
<td>15.95* [0.00]</td>
<td>0.11 [0.99]</td>
<td>4.45 [0.22]</td>
</tr>
<tr>
<td>$\Delta R_t$</td>
<td>18.40* [0.00]</td>
<td>1.27 [0.74]</td>
<td>3.69 [0.29]</td>
<td>-</td>
<td>12.10* [0.01]</td>
<td>9.95** [0.02]</td>
<td>0.78 [0.85]</td>
</tr>
<tr>
<td>$\Delta I_t$</td>
<td>5.39 [0.15]</td>
<td>6.10 [0.11]</td>
<td>3.25 [0.36]</td>
<td>3.91 [0.27]</td>
<td>-</td>
<td>0.64 [0.88]</td>
<td>3.63 [0.30]</td>
</tr>
<tr>
<td>$\Delta P_t$</td>
<td>32.20* [0.00]</td>
<td>1.36 [0.71]</td>
<td>1.82 [0.61]</td>
<td>7.38** [0.06]</td>
<td>9.35** [0.02]</td>
<td>-</td>
<td>1.37 [0.71]</td>
</tr>
<tr>
<td>$\Delta L_t$</td>
<td>8.05*** [0.04]</td>
<td>1.02 [0.80]</td>
<td>3.51 [0.32]</td>
<td>2.97 [0.39]</td>
<td>2.16 [0.53]</td>
<td>4.88 [0.18]</td>
<td>-</td>
</tr>
<tr>
<td>$\Sigma \chi^2$ (df = 18)</td>
<td>80.53* [0.00]</td>
<td>25.76 [0.11]</td>
<td>19.56 [0.36]</td>
<td>52.87* [0.00]</td>
<td>97.25* [0.00]</td>
<td>32.13** [0.02]</td>
<td>11.16 [0.88]</td>
</tr>
<tr>
<td>ECT(-1)</td>
<td>-2.27** (-2.78)</td>
<td>-1.49 (-1.97)</td>
<td>2.32 (1.63)</td>
<td>1.87* (3.04)</td>
<td>0.17 (1.59)</td>
<td>-1.30 (-1.00)</td>
<td>0.07 (0.49)</td>
</tr>
</tbody>
</table>

*Significant at 0.01 level. **significant at 0.05 level. ***significant at 0.10 level.

Whereas, trace statistic indicated four cointegrating vectors as the null hypothesis of at most 3 cointegrating vectors was rejected against the alternative hypothesis of more than three variables. The Max-eigen statistic shows 3 cointegrating vectors. Trace statistic is consistent in small samples so the results based on the trace value may be more dependable [53]. Johansen [39] and Johansen and Juselius [40] cointegration test concluded to show a long run association between the growth and international financial flows and other explanatory variables. Normalized cointegrating coefficients are reported in the Table 3.

Debt servicing elasticity of GDP growth in Pakistan is concluded to have negative sign showing a negative impact of external debt servicing. The elasticity is significant at 99 percent level of confidence. Foreign direct investment, worker’s remittances and inflation rate also have negative signs and the coefficients of these variables are also significant at 0.01 level. Domestic investment and literacy rate increase the growth rate of the Pakistan economy in the long run.

**Error Correction Model and Causality Analysis:**

Indication of the presence of cointegrating vectors by the Johansen cointegration implies that there is long run association between the variables. The long run behavior of the variables can be articulated as Error Correction Mechanism (VECM) expression [38]. The presence of the long run association between growth rate and international financial flows implies that the relationship between these variable can be explained as error correction mechanism. So vector error correction model was estimated, with 4 cointegrating vectors, to examine the short run dynamics of the model. We used diagnostic tests to find out the residuals of the error terms of each of the error correction equation to be normally distributed, serially uncorrelated and homoscedastic. We proceeded further to apply VEC Granger Causality/Block Exogeneity Wald Test. The values of the coefficients of the error correction equation of the each variable and $\chi^2$ values (with $df = 3$) are summarized in the Table 4.
The coefficient of error correction term for $\Delta G_t$ has the negative sign and it is significant at confidence level of 0.95. The significance of the coefficient of error correction term confirms the long run causality running from independent variable to growth rate in Pakistan. The Wald test/$\chi^2$ values for $\Delta G_t$ show presence of individual causality of the variables running from each explanatory variable to growth rate. The $\chi^2$ for $\Delta D_t$, $\Delta F_t$, $\Delta R_t$, $\Delta P_t$, $\Delta L_t$, in the equation of $\Delta G_t$ are significant except $\Delta I_t$, so the Wald test static confirm causality running from $\Delta D_t$, $\Delta F_t$, $\Delta R_t$, $\Delta P_t$, $\Delta L_t$ to $\Delta G_t$. In column 5 and 6 of the table 4, we see that Wald coefficients of $\Delta G_t$ for error correction equations of $\Delta R_t$ and $\Delta I_t$ respectively, verify that causality also runs from $\Delta G_t$ to $\Delta R_t$ and $\Delta G_t$ to $\Delta I_t$. So the Granger causality test based VECM authenticates short run unidirectional causality running from debt servicing to growth rate, foreign direct investment to growth rate, inflation rate to growth rate, literacy rate to growth rate, growth rate to domestic investment. Causality tests validated bidirectional causality between growth rate and workers’ remittances.

**DISCUSSION**

External debt servicing has negative and significant impact on economic growth in the long run and short run as the causality runs form from external debt service to growth rate. The inflows of externally borrowed money are considered to fulfill the saving-investment and foreign exchange gap as argued by Chenery and Strout [1]. The underlying assumption of the dual-gap models was that borrowed money would be used one to one for the investment purposes but in the real world it seldom happens. Misallocation and wastage of borrowed money may be the cause of negative impact of external debt on growth. The impact of external debt on growth in Pakistan has been explored in a number of studies. The association between the external debt and growth is inconclusive. Some of the studies concluded a positive and significant due to reduction in labor force participation.

The cointegration and causality analysis confirms the negative and statistically significant impact of FDI on economic growth in Pakistan. A unidirectional causality runs from FDI to GDP growth in Pakistan. Our results are in contrast to that of Ahmad et al. [29] (2012). The negative impact of FDI flows on economic growth may be due to outflows of capital in the shape of earned profits from the recipient economy. FDI may have its negative effect on growth by reducing the competition. The capital-starved economy may extend especial shelter to external investors to attract their investments. This may contribute to hinder domestic investment and therefore hamper growth of the recipient economy. The FDI inflows from the rich economies to the developing countries are deleterious for long run growth of the host economy [25].

The study confirms the growth reducing impact of the workers’ remittances in Pakistan. While taking into consideration the short run dynamics of workers’ remittances on growth we conclude bidirectional Granger causality. The negative impact of remittances on growth is also observed by Chami et al. [43]. Chami et al. [43] suggested that foreign remittances are likely to make possible the reduction in effort by making growth performance of the economy weak. The authors found negative effects of remittances on growth. Remittances may have negative impact on growth through reduction in the exports of the economy due to appreciation of the real exchange rate. This negative effect is observed in the economies with large and sustained remittance inflows relative to size the size of the economy [44]. The use of remittances for consumption might have increased the welfare the recipient household rather than improving the overall growth of the economy. A large and sustained remittance inflow may have its adverse impact on growth due to reduction in labor force participation.

The cointegration results confirm a positive and significant impact of gross domestic investment and growth in Pakistan over longer period of time. The Granger causality test based on the block exogeneity test suggests a unidirectional causality running from domestic investment to GDP growth in Pakistan. Our results are in strong agreement with the Ahmad et al. [45]. But in [45], the direction of causality was from domestic investment to GDP. The results of the analysis are in concurrence with the economic theory. In economic theory investment plays a critical role in the determination of growth.
trajectory of the economy. Investment has multiplier impact on income and output level in the economy. Increase in domestic saving can boost the economic growth of the economy. Development of infrastructure such as building of dams, electricity generating plants, development of roads, railways and telecommunication builds the confidence of the investors. Furthermore, increased investment increases the future productive capacity of the economy. There is a direct association between impact on income and output level in the economy. School education and growth in Pakistan economy [50]. Increase in domestic saving can boost the economic growth of the economy. Development of infrastructure such as building of dams, electricity generating plants, development of roads, railways and telecommunication builds the confidence of the investors. Furthermore, increased investment increases the future productive capacity of the economy.

The findings of the long run and short run analysis are evident that inflation rate reduces the growth rate of the economy. A unidirectional causality runs from inflation to GDP growth rate. The long run inflation elasticity of growth rate is -0.99 (with t-value = -8.8) and it statistically significant. The results imply that an increase in inflation rate by 10 percentage points is associated on decrease in GDP growth rate by 99 percentage points. The inflation in the case of adversely affects the growth of the economy. The results are in contrast to that in [46]. The results are in agreement with the results in [42]. Barro [42] stressed the fact that high rates of inflation affect the growth rates adversely. The inflation and economic growth are negatively correlated in Pakistan [47].

The results of the analysis conclude growth stimulating impact of education both in long and short run. The positive impact of education on growth is supported by the economic theory. The conclusion is in agreement with the economic theory that accumulation of human capital may be a precondition for the growth of the economy. Human capital, in the economy, may have direct influence on the productivity and efficiency in the determination of an economy’s capability to innovate new techniques of production suited to domestic production process [48]. The impact of education on growth process of a country can be thought of in three ways. Firstly, increase in the average attended schooling years increases the labor size measured in efficiency units. The growth in the efficiency per worker in turn increases the output per unit of efficient labor and furthermore rate of growth of the economy. Secondly, educated labor force helps the economy to produce industrially sophisticated and advanced products. It helps the economy to set up its growth trajectory. Thirdly, in this very contemporary world of knowledge, research and development and innovation an educated and technically skilled labor force is desirable for the production activities. Increase in the education and education facilities assist the labor force to take in foreign technology [49]. The results of the present study are also maintained in different studies regarding the impact of education on economic growth of the Pakistan economy. There is a direct association between school education and growth in Pakistan economy [50]. Education is indispensable for growth in the Pakistan economy [51]. Education helps to improve living standards of the poor [52].

**CONCLUSION**

The study explores the impact of foreign capital flows measured by foreign debt, FDI and worker’s remittances on economic growth in Pakistan economy for the period of 1972-2013. After finding all of the time series variables to be stationary at their first lag Johansen cointegration method and Granger causality test based on the block exogeneity test have been applied for the long run and short run effects of foreign capital flows on growth, respectively. Foreign capital inflows are in terms of external debt servicing, FDI and worker’s remittances hamper growth in Pakistan economy over a long run period. Causality test results conclude unidirectional causality running from debt servicing, FDI, inflation and literacy rate to economic growth. The causality form domestic investment to growth is not found but causality from growth to domestic investment is confirmed. Bidirectional causality between remittances and growth is concluded.

The negative impact of external debt on growth calls for the reliance of the economy on domestic resources. Domestic resource mobilization and incentives for domestic investment can be helpful for long run growth. The improvement in the financial sector and inducement of the remittances through the banking channels would help channelize the finances to productive uses. The approach of domestic investors to the remitted finances would increase the creditworthiness of the investors by reducing the cost of capital in the economy. Development of infrastructure and financial sector would have growth stimulating impact in the economy. Suitable macroeconomic policies to control inflation would help in reducing the cost of capital and prices of the materials used in the domestic production. The improvement in the quantity and quality of human capital through better education, training and improved healthcare would help increasing the productivity and efficiency of the economy. Skilled and trained manpower acts as active and productive agent. It is the human capital that can improve the productivity of the economy. Foreign direct investment, in the presence of improved human capital, can be much more beneficial for the long run growth and development of the economy.
REFERENCES