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**RESEARCH PAPER**

# Impact of Foreign Capital Inflows on Economic Development of Pakistan: A Disaggregated Approach

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**ABSTRACT**

The central intent of this study is to locate the fallouts of Foreign Capital Inflows (FCI) on economic development. Influenced from Human Development Index (HDI), constructs of economic development are disaggregated in multiple models and the time series estimation is done while relied upon forty-two years data ranging from 1980 to 2021. For cointegration analyses, Bound Test and Autoregressive Distributed Lag (ARDL) are used. Findings proved positive effects of components of FCI on the indicators of HDI except foreign debt. As a suggestion, it is recommended to focus upon appropriate debt management policy to eradicate the harmful consequences of foreign debt and to improve institutions and infrastructure to maintain certain inflow of foreign financing.

| **Keywords** | Autoregressive Distributed Lag, Economic Development, FDI, Foreign Capital Inflows, Foreign Debt, Human Development Index, Official Development Assistance, Workers Remittances |
| --- | --- |

## Introduction

For the last few decades, the importance of globalization is felt inevitable. Therefore, the countries are building links in terms of trade and immigration of labor beyond national frontiers. However, the volume of trade and the presence of non-liberal trade with the imposition of quotas and tariffs and challenges of jobs abroad have dampened the scope of vivid economic development. Not just developing rather developed countries are also facing same conditions except few who are bestowed with fertile land, rich mineral, extensive oil reserves, man power, and rich technological base. Meanwhile from 18th century, the concept of foreign capital inflows came into fast swing due to the need of capital to entertain the macroeconomic targets.

The concept of globalization has enabled the world economies to perform developmental tasks together, like in last few scores, different international financial institutions such as Asian Development Bank, World Trade Organization, International Monetary Fund, and World Bank help provide financial assistance in order to foster speed of economic growth and development. It is because the need for foreign assistance and capital has increased with the realization of increasing demand

of goods, services, and economic problems. Many of the world economies are even not able to finance their own domestic budget.

Because of all these reasons, the FCI are nothing but an "insignia of relief", which can solve macroeconomic problems of recipient nations. Provision of foreign debt and grants, trade liberalization, to ease the mode of migration and foreign investment via multinational corporations (MNCs), can increase the employment level and address other economic challenges. Since economic activities are not confined within the borders, cross-border exchange of skills, information, goods, latest technology, foreign assistant, and capital can lessen major monetary problems such as deficit in balance of payment. Nonetheless, macroeconomic indicators as poverty rate, employment level, income distribution and low GDP growth can be improved too.

The commonly known component of FCI is Foreign Direct Investment (FDI) where a company, individual or a firm establishes business in the host country via capital, training programs, and modern machinery. MNCs own their main headquarters in advanced countries and the expansion of their enterprises happen through opening franchises in other countries. During this exercise, labor is mostly recruited from host country. In this regard, FDI facilitates in favoring economic growth and nonetheless in increasing job opportunities in a host country.

Globally FDI has fallen from 630$ billion to 478$ billion by 2009. During first decade of 21st century inflow of FDI decreased from 37% to 16%. Foreign investment conventionally gravitates more towards the nations which could generate reasonable financial return than the nations with major socio-economic problems. Due to this factor, FDI targets beneficial destinations.

Meanwhile, labor force began migrating to big cities and industrialized countries in pursuit of decent work after industrialization. When people travel abroad for work, they remit a portion of their earnings to their families in the host country, this is referred to as remittances. When salaries in rich economies are adjusted to purchasing power parity, they are typically five times greater than salaries in underdeveloped nations, even in the same occupation. These greater incentives outbound workers to countries of strong currencies like United Kingdom, the United Arab Emirates, Europe, Kuwait, and the United States. Because of these inducements, about 200 million migrants were documented in 2010. The damages caused by "brain drain" is offset by overseas inflows such as worker remittances. According to World Bank (2020), remittances help to alleviate poverty in nations such as Asia and Africa. Because of migration, recipient's standard of living improves as a result of new homes, adequate education, and nutritious food. At the globe, worker remittances have generated a 5% growth in GDP during the last three years (World Bank, 2020).

Likewise, the voluntary transfer of resources from one or more countries and financial institutions to another country are provided by the governments, financial institution, and Non-Government Organizations (NGOs) to the needy countries. The host country can reap the benefits of foreign aid by directing it toward profitable projects. Multilateral aid, bilateral aid, tied aid, united aid, military aid, project aid, and volunteer aid are all examples of foreign aid. Sources of Official Development Assistance (ODA) such as grants, technical assistance, aid from various NGOs, and bilateral and multilateral aid are included in this component of FCI. On an international level, developed countries are encouraged to donate 0.07% of their GDP to underdeveloped countries. Sweden, the Netherlands, Luxembourg, and Denmark

are contributing in accordance with the aim, whereas the United States has the lowest ratio of ODA-to-GNI in comparison to other industrial countries.

Foreign debt refers to the portion of a country's debt that is borrowed from a foreign lender such as international financial institutions, government, or the central banks of developed countries. If the borrower country is unable to repay debt borrowed from a foreign source, the receiving country may face severe economic difficulties. Pakistan's core exertion is its high level of foreign debt. The government can create revenue through taxes and the profits of government institutions which are benefited by foreign debt. The government of Pakistan is unable to produce revenue through taxes or government entities as a result borrowing is the only available alternative for addressing the issue of a lack of finance. Internal sources typically supply the loan at a high interest rate. As a result, Pakistan is heavily reliant on external debt. During the early stages of growth, a developing country like Pakistan requires a reasonable amount of capital to recover from natural disasters or macroeconomic volatility. External, productive investment (after effective loan use) is a remedy a recover from variety of economic problems such as rising unemployment and income inequities. The host country can spend this money on education, human capital, health care, and agriculture sectors. However, appropriate debt management is required which can assist the host country's fiscal conditions.

However, the "debt overhang" is a major issue for every developing economy. If a country is unable to repay the loan, the lender countries can delay future debt instalments, causing the borrower's local currency to collapse and thus cause a slew of other issues. Typically, disbursement of loans by the lending countries is usually under numerous terms and circumstances relating to debt repayment and coercive policies. As an example, IMF advised the government of Pakistan to raise tax rates, electricity price, and to impose petroleum levy even though world oil prices are in falling trend still government of Pakistan is not able to transfer such benefits to the people.

Earlier, economic development was mostly measured through income per capita (in which inflation rate is excluded) and per capita GNI. The measurement was just about the employment and production. Then in 1950 and 1960 process of economic growth was considered superior over economic development. Economic development was redefined in 1970 as providing employment, balanced income distribution, and reduction in poverty. But living standard of public was not a matter of concern. Amartya Sen's "capability approach" came up with three core values of the development i.e., sustenance, self-esteem, and freedom from servitude was an approach to measure happiness and development.

Subsequently, HDI and Goals of millennium became popular methods for measuring economic development because of their unique and basic approach. According to latest studies, school enrollment, human health, gender equality, education, improved maternal health, purchasing power parity, and living standards are better indicators to measure economic development because these can measure changes and improvement on root level. A country cannot develop until its whole population is not getting satisfactory nutrition, education, and health facilities.

The motivational factor of this study is to locate the affection of these core components of FCI on the economic development of Pakistan. For deep insight, economic development is further bifurcated in order to check the impacts of FCI on education, life expectancy, living standard, and HDI, respectively. In this regard, the

study is organized in five Sections. Section I is the Introduction of Study followed by Section II and Section III of Literature Review and Methodology. Hereafter, Section IV throws a light on the Results and Discussion. At the foremost, Policy Recommendations and Conclusion are given in Section V.

**Literature Review**

This section gives a precise insight on previous research in the relevant area. To start with, Hussain et al. (2017) investigated that how could FCI affect economic growth of Pakistan. Empirical results showed the negative impact of external debt on economic growth. On the contrary, FDI proved beneficiary in both short and long time period. However, significance of remittances was just confined to short run just like foreign aid. The reason was that households tend to consume remittances even in short run. Moreover, it was found non-linear relationship between FCI and economic growth (associated to financial growth). If a conclusion is drawn, the countries having financial markets where the economic development is beyond a threshold level could only avail positive impact of FCI, apart from the size of financial markets (Baharumshah et al., 2015). Somewhat often, the effects of FCI are mixed. Findings of Duodu and Baidoo (2022) confirmed unidirectional and varied impacts of FCI on economic growth of Ghana.

Jawaid and Saleem (2017) also studied the impact of FCI on economic growth of Pakistan. But hard to find proper results because of the instability in different sectors of Pakistan. In long run, FDI and remittances were found to have significant and positive impact on GDP growth. FDI specifically targets technological field that's why usually traditional professions are neglected which are considered back bone for third world countries. External debt creates crowding out in public sectors which further deteriorates public investment. On the other hand, results were quite different in case of official development assistance and external debt. In this regard, the research of Rehman and Ahmad (2016) ascertained the conclusion that the implication of effective fiscal and monetary policy can reduce the negative impact of such inflows.

Sedai (2019) investigated the pros and cons of FCI on developing countries like East Asia, Sub-Saharan Africa, and BRICS after certain reforms in these countries. In short run, the impact of equity inflows was advantageous for economic growth somehow but not in long run. Therefore, the study concluded that the investors should be aware of uncertainty and risk in investment by using their vigilant insight on the economic stature of the host country.

Furthermore, Chorn and Siek (2017) tested the hypothesis that how economic growth responds in presence of FCI. The study found that both FDI and ODA were held significant and positive for economic growth. within the same context, Ali, and Nishat (2009) and Anthony-Orji et al. (2018) found mix results within the specific area of FCI and economic growth where some components of FCI proved significant and some insignificant for economic growth because of improper utilization of resources. In this regard, Tian et al. (2022) also confirmed causal relationship of capital flows on economic growth.

Earlier, Shahid et al. (2013) witnessed positive and significant impact of remittances on growth of Pakistan. On the other hand, FDI was significant but negative for economic growth of Pakistan, like Mehmood et al. (2018a; 2018b), and Mehmood and Hassan (2017). To Kirabavia and Razin (2010), apart from negative results witnessed on some of the FCI, it is stated that such inflows are advantageous

for any nation. To some extent, due to asymmetric information on macroeconomic postures, the country which depends on foreign equity portfolio and foreign debt to finance its domestic investment are largely seen allocating such funds inefficiently. Looking into the negative effects of FDI on economic growth, it is resulted due to adverse selection of capital market. Therefore, FDI is thus associate with comparatively higher liquidation cost (Kirabavia & Razin, 2010).

Zeb, Qiang and Suhail (2014), Iqbal et al. (2014), Ghulam (2005), and Akram (2011) stated the positive impression of FCI on socio-economic conditions of different nations. Remittances increase job opportunities and schooling rate and is useful supplement to better off human capital. Job creation increases the rate of return of the school education. Because of this process, brain drain (caused due to migration) converts into brain gain. Multi-national companies have the ability to bring advancement in the field of technology, level of employment and the growth of the capital stock of any country.

Wise use of foreign aid assists to compensate the budgetary deficit and improves balance of payment by supporting both traditional (agriculture) and advanced (industrial) sectors. In recent, Tefera and Odhiambo (2022) went with panel data analyses of 25 low-income countries in Africa. The foreign aid was split up into total aid, traditional and non-traditional donor aid. The findings, rested upon GMM framework, suggested that impact of total aid and traditional aid was negative on economic development, apart from non-traditional aid. The reason was allocation of funds on sectors which are far away from the precedent of appreciable productivity. Among previous researches like Acharya et al. (2012) and Loko et al. (2003) also concluded negative effects of these FCI on different development indicators of various countries on the basis of their econometric analysis. Reason being the income inequalities could worse off because of remittance. However, properly handled foreign debt causes economic growth that further makes the recipient country able of repaying debt.

**Material and Methods**

This section is allocated to have a brief view of the methodological issues, given that the objective of the study is to locate the affection of core components of FCI on the economic development of Pakistan.

**Data Collection and Description of Variables**

Economic development, according to several definitions, is not only the acquisition of fundamental necessities, but also the dignity, freedom, and human fulfilment. The question now is what kind of adjustments these foreign financing could bring to the living standard of ordinary people in emerging countries. For the purpose of analyses, the time series data for Pakistan from 1980 to 2021 is used in this analysis. In which FDI net inflows (BOP, current US$), personal remittances received (current US$), net ODA received (current US$) and net external debt (TDS, current US$) are taken as dependent variables. The data is collected from various sources. The operational definitions and descriptions of variables are given in Table 1.

**Table 1**
**Operational Definitions of Variables**

| Variables | Data Collection | Definition of Variable |
| --- | --- | --- |

| EDU | World Development Indicators | Education attainment (2/3 of adult literacy rate (LIT) and 1/3 of school enrollment (SCE)) |
|---|---|---|
| PRM | World Development Indicators | Personal remittances in Billion (USD) |
| FDI | World Development Indicators | Foreign direct investment Billion (USD) |
| ODA | World Development Indicators | Net official development assistance Billion (USD) |
| NPT | World Development Indicators | Numbers of primary teachers in total |
| GEE | UNESCO Institute of Statistics | Govt. expenditures on education (% of GDP) |
| GDP | World Development Indicators | GDP per capita, purchasing power parity current (USD) |
| EDT | World Development Indicators | net external debt Billion (USD) |
| INF | International Monetary Fund | Consumer Price Index |
| PGR | United Nations Population Division | Population growth, percentage annual |
| LEX | World Development Indicators | Life expectancy at birth (years) |
| NDR | Ministry of Health, Pakistan Bureau of Statistics | Numbers of doctors in total |
| HFC | Pakistan Economic Survey | National medical and health establishments (number of hospitals, dispensaries, maternity facilities, and BHUs sub-health centers) in total |
| LTR | World Development Indicators | Adult literacy rate, total (% of people) |
| HDI | The United Nations | Human development Index |
| TRD | World Development Indicators | Trade openness, (sum of exports + imports)/ GDP |

**Model Specifications**

This study employs four models to quantify the influence of FCI on economic development and related indicators. The first model is cited for education. Where education is a dependent variable. EDU (education attainment) is the sum of 2/3 of adult literacy and 1/3 of gross school enrolment (only primary and gross school enrollment are taken due to unavailability of rest of the data).

$$EDU = f (PRM, FDI, ODA, NPT, GEE) \qquad [1]$$

In the second model, dependent variable is GDP per capita at PPP which represents living standard of people of Pakistan.

$$GDP = f (PRM, FDI, EDT, INF, PGR) \qquad [2]$$

In third model, life expectancy is used as a proxy to estimate average age of humans of Pakistan (which represents indirectly health facilities and advancement in the respective field).

$$LEX = f\,(PRM,\ FDI,\ NDR,\ HFC,\ LTR) \qquad [3]$$

The dependent variables in Model [1, 2, 3] are the indicators of economic development, inspired from traditional HDI theory which was presented in 1990 during UN development program.

In forth model, dependent variable is based on the constructed HDI which is a composite expression of economic development.

$$HDI = f\,(FDI,\ PRM,\ EDT,\ ODA,\ GDP,\ TRD) \quad [4]$$

In Model [4], HDI is used to measure economic development. GDP at per capita (purchasing power parity) is used to calculate people's living standards as a proxy for GDP per capita. Life expectancy is incorporated to assess the health advancement variable. The adult literacy rate and gross enrolment are then utilized to assess educational provision. However, due to the lack of gross enrollment statistics, the proxy of elementary school enrolment is employed.

**Unit Root Test**

In case of empirical analyses, the variables are checked for the presence of unit root. In this regard, Augmented Dickey Fuller ((ADF), 1979) test is used. The description of the test is given in Eq. [5].

$$\Delta R_t = c + \Gamma v_{t-1} + \sum_{j=1}^{k-1} \rho R_{t-j} + \beta T + \varepsilon_t \qquad [5]$$

Where, $R$ represents the explanatory variables and time period and stochastic term are shown by $t$ and $\varepsilon$, respectively. $p = 0$ is the $H_0$ that refers to non-stationarity against $p \neq 0$ of stationary series.

**Modeling of Autoregressive Distributed Lag**

Next to the unit root test, the regression technique proposed by this study is of ARDL which is suitable to compute the long run and short run coefficient as well as to know the state of cointegration by the mean of bound test. According to Narayan (2005) and Odhiambo (2008), the results of ARDL provide appropriate insight about the regression estimate of either time horizon (Bentzen & Engsted, 2001; Mehmood et al. (2022a; 2022b).

The unrestricted versions of vector error correction for the specified Model [1 to 4] are given in Eq. [6 to 9].

$$\Delta EDU_t = \alpha_0 + \sum_{i=1}^{a} \delta_1 \Delta EDU_{t-i} + \sum_{i=0}^{b} \delta_2 \Delta PRM_{t-i} + \sum_{i=0}^{b_1} \delta_3 \Delta FDI_{t-i} + \sum_{i=0}^{b_2} \delta_4 \Delta ODA_{t-i} + \sum_{i=0}^{b_3} \delta_5 \Delta NPT_{t-i} +$$

$$\sum_{i=0}^{b_4} \delta_6 \Delta GEE_{t-i} + \sigma_1 EDU_{t-1} + \sigma_2 PRM_{t-1} + \sigma_3 FDI_{t-1} + \sigma_4 ODA_{t-1} + \sigma_5 NPT_{t-1} + \sigma_6 GEE_{t-1} + \varepsilon_t$$

$$[6]$$

$$\Delta GDP_t = \alpha_0 + \sum_{i=1}^{a} \delta_1 \Delta GDP_{t-i} + \sum_{i=0}^{b} \delta_2 \Delta PRM_{t-i} + \sum_{i=0}^{b_1} \delta_3 \Delta FDI_{t-i} + \sum_{i=0}^{b_2} \delta_4 \Delta EDT_{t-i} + \sum_{i=0}^{b_3} \delta_5 \Delta INF_{t-i} +$$

$$\sum_{i=0}^{b_4} \delta_6 \Delta PGR_{t-i} + \sigma_1 GDP_{t-1} + \sigma_2 PRM_{t-1} + \sigma_3 FDI_{t-1} + \sigma_4 EDT_{t-1} + \sigma_5 INF_{t-1} + \sigma_6 PGR_{t-1} + \varepsilon_t$$

$$[7]$$

$$\Delta LEX_t = \alpha_0 + \sum_{i=1}^{a} \delta_1 \Delta LEX_{t-i} + \sum_{i=0}^{b} \delta_2 \Delta PRM_{t-i} + \sum_{i=0}^{b_1} \delta_3 \Delta FDI_{t-i} + \sum_{i=0}^{b_2} \delta_4 \Delta NDR_{t-i} + \sum_{i=0}^{b_3} \delta_5 \Delta HFC_{t-i} +$$

$$\sum_{i=0}^{b_4} \delta_6 \Delta LTR_{t-i} + \sigma_1 LEX_{t-1} + \sigma_2 PRM_{t-1} + \sigma_3 FDI_{t-1} + \sigma_4 NDR_{t-1} + \sigma_5 HFC_{t-1} + \sigma_6 LTR_{t-1} + \varepsilon_t$$

[8]

$$\Delta HDI_t = \alpha_0 + \sum_{i=1}^{a} \delta_1 \Delta HDI_{t-i} + \sum_{i=0}^{b} \delta_2 \Delta FDI_{t-i} + \sum_{i=0}^{b_1} \delta_3 \Delta PRM_{t-i} + \sum_{i=0}^{b_2} \delta_4 \Delta EDT_{t-i} + \sum_{i=0}^{b_3} \delta_5 \Delta ODA_{t-i} +$$

$$\sum_{i=0}^{b_4} \delta_6 \Delta GDP_{t-i} + \sum_{i=0}^{b_5} \delta_7 \Delta TRD_{t-i} + \sigma_1 HDI_{t-1} + \sigma_2 FDI_{t-1} + \sigma_3 PRM_{t-1} + \sigma_4 EDT + \sigma_5 ODA_{t-1} +$$

$$\sigma_6 GDP_{t-1} + \sigma_7 TRD + \varepsilon_t$$

[9]

Where *a*, $b_i$ are representations of varied time horizon between the dependent and independent variable. Moreover, $\Delta$ is first difference and the $\sigma_i$ and $\delta_i$ are the short run and long run coefficient.

### 3.5    Bound Test

For the information regarding the long run relationship, the approach of Bound Test is followed. It is worked out by conventional ordinary least square estimation for the computation of Wald Test F-Statistics. The $H_0$ of no long run relationship is given as;

$$\sigma_1 = \sigma_2 = \sigma_3 = \sigma_4 = \sigma_5 = \sigma_6 = \sigma_7 = \sigma_8 = 0$$

Alternatively, $H_1$; $\sigma_1 \neq \sigma_2 \neq \sigma_3 \neq \sigma_4 \neq \sigma_5 \neq \sigma_6 \neq \sigma_7 \neq \sigma_8 \neq 0$ confirms long run relationship. The computed *F*-Statistic is viewed with upper and lower bound critical values as mentioned in Narayan (2005) where the $H_0$ is rejected given the computed value is higher than the corresponding upper bound value.

### 3.6    Estimation of Long run and Short run Coefficients

Followed by the Bound Test of cointegration, the long run coefficients are estimated for each Model [1 to 4]. The ARDL representations are given in Eq. [10 to 13].

$$EDU_t = \alpha_0 + \sum_{i=1}^{a} \delta_1 EDU_{t-i} + \sum_{i=0}^{b} \delta_2 PRM_{t-i} + \sum_{i=0}^{b_1} \delta_3 FDI_{t-i} + \sum_{i=0}^{b_2} \delta_4 ODA_{t-i} + \sum_{i=0}^{b_3} \delta_5 NPT_{t-i} + \sum_{i=0}^{b_4} \delta_6 GEE_{t-i} + \varepsilon_t$$

[10]

$$GDP_t = \alpha_0 + \sum_{i=1}^{a} \delta_1 GDP_{t-i} + \sum_{i=0}^{b} \delta_2 PRM_{t-i} + \sum_{i=0}^{b_1} \delta_3 FDI_{t-i} + \sum_{i=0}^{b_2} \delta_4 EDT_{t-i} + \sum_{i=0}^{b_3} \delta_5 INF_{t-i} + \sum_{i=0}^{b_4} \delta_6 PGR_{t-i} + \varepsilon_t$$

[11]

$$LEX_t = \alpha_0 + \sum_{i=1}^{a} \delta_1 LEX_{t-i} + \sum_{i=0}^{b} \delta_2 PRM_{t-i} + \sum_{i=0}^{b_1} \delta_3 FDI_{t-i} + \sum_{i=0}^{b_2} \delta_4 NDR_{t-i} + \sum_{i=0}^{b_3} \delta_5 HFC_{t-i} + \sum_{i=0}^{b_4} \delta_6 LTR_{t-i} + \varepsilon_t$$

[12]

$$HDI_t = \alpha_0 + \sum_{i=1}^{a} \delta_1 HDI_{t-i} + \sum_{i=0}^{b} \delta_2 FDI_{t-i} + \sum_{i=0}^{b_1} \delta_3 PRM_{t-i} + \sum_{i=0}^{b_2} \delta_4 EDT_{t-i} + \sum_{i=0}^{b_3} \delta_5 ODA_{t-i} +$$

$$\sum_{i=0}^{b_4} \delta_6 GDP_{t-i} + \sum_{i=0}^{b_5} \delta_7 TRD_{t-i\,t-1} + \varepsilon_t$$

[13]

For the sake of short run coefficient estimation and of particularly the coefficient of Error Correction Term (ECT), the following ARDL representations are prescribed as in Eq. [14 to 17]

$$\Delta EDU_t = \alpha_0 + \sum_{i=1}^{a} \delta_1 \Delta EDU_{t-i} + \sum_{i=0}^{b} \delta_2 \Delta PRM_{t-i} + \sum_{i=0}^{b_1} \delta_3 \Delta FDI_{t-i} + \sum_{i=0}^{b_2} \delta_4 \Delta ODA_{t-i} + \sum_{i=0}^{b_3} \delta_5 \Delta NPT_{t-i} + \sum_{i=0}^{b_4} \delta_6 \Delta GEE_{t-i} + \lambda ECT_{t-1} + \varepsilon_t$$

[14]

$$\Delta GDP_t = \alpha_0 + \sum_{i=1}^{a} \delta_1 \Delta GDP_{t-i} + \sum_{i=0}^{b} \delta_2 \Delta PRM_{t-i} + \sum_{i=0}^{b_1} \delta_3 \Delta FDI_{t-i} + \sum_{i=0}^{b_2} \delta_4 EDT_{t-i} + \sum_{i=0}^{b_3} \delta_5 \Delta INF_{t-i} + \sum_{i=0}^{b_4} \delta_6 \Delta PGR_{t-i} + \lambda ECT_{t-1} + \varepsilon_t$$

[15]

$$\Delta LEX_t = \alpha_0 + \sum_{i=1}^{a} \delta_1 \Delta LEX_{t-i} + \sum_{i=0}^{b} \delta_2 \Delta PRM_{t-i} + \sum_{i=0}^{b_1} \delta_3 \Delta FDI_{t-i} + \sum_{i=0}^{b_2} \delta_4 \Delta NDR_{t-i} + \sum_{i=0}^{b_3} \delta_5 \Delta HFC_{t-i} + \sum_{i=0}^{b_4} \delta_6 \Delta LTR_{t-i} + \lambda ECT_{t-1} + \varepsilon_t$$

[16]

$$\Delta HDI_t = \alpha_0 + \sum_{i=1}^{a} \delta_1 \Delta HDI_{t-i} + \sum_{i=0}^{b} \delta_2 \Delta FDI_{t-i} + \sum_{i=0}^{b_1} \delta_3 \Delta PRM_{t-i} + \sum_{i=0}^{b_2} \delta_4 \Delta EDT_{t-i} + \sum_{i=0}^{b_3} \delta_5 \Delta ODA_{t-i} +$$

$$\sum_{i=0}^{b_4} \delta_6 \Delta GDP_{t-i} + \sum_{i=0}^{b_5} \delta_7 \Delta TRD_{t-i\,t-1} + \lambda ECT_{t-1} + \varepsilon_t$$

[17]

The ECT explains about the time taken for the readjustment of disequilibrium. Here, it is important that the conditions of ECT should be met such as; negatively signed, statistically significant, and lying within the range of -1 to 0.

**Results and Discussions**

Next to the section of methodology, to analyze the effects of FCI on economic development of Pakistan, this section reveals the discussions on the empirical findings. This section is bifurcated into following subsections:

**Descriptive Analysis**

Descriptive analysis is given in Table 2. The constructs of EDU are LIT and SCE where wider dispersion is found in mean and standard deviation. In case of PRM and FDI, mean and standard deviation are close thus indicate consistency in flow of PRM, ODA, and FDI, unlike that of EDT. It is significant to note that NPT, GEE, GDP, LEX, NDR, HDI, and HFC have improved in their respective state within the analytical range of the present study.

**Table 2**
**Descriptive Statistics**

| Variables | Mean | Std. D | MIN | MAX | Median |
|---|---|---|---|---|---|
| EDU_LIT | 44.00 | 11.25 | 24.74 | 60.50 | 44.25 |
| EDU_SCE | 70.67 | 13.39 | 49.24 | 96.70 | 70.66 |
| PRM | 6.36 | 6.74 | 1.00 | 22.32 | 2.58 |
| FDI | 1.18 | 1.38 | 0.03 | 5.59 | 0.63 |
| ODA | 1.48 | 0.92 | 0.50 | 3.76 | 1.16 |
| NPT | 348938.00 | 122405.80 | 140949.00 | 520252.00 | 415797.50 |
| GEE | 2.39 | 1.32 | 1.32 | 3.03 | 2.50 |
| GDP | 702.47 | 382.95 | 303.10 | 1482.30 | 515.75 |
| EDT | 3.12 | 1.66 | 0.87 | 7.58 | 2.91 |
| INF | 8.12 | 3.80 | 2.50 | 20.30 | 7.75 |

| | | | | | |
|---|---|---|---|---|---|
| **PGR** | 2.65 | 6.44 | 2.06 | 3.36 | 2.70 |
| **LEX** | 62.49 | 3.11 | 56.86 | 67.30 | 62.69 |
| **NDR** | 99782.30 | 60964.98 | 11860.00 | 231286.00 | 90.48 |
| **HFC** | 10678.48 | 2202.31 | 5616.00 | 13575.00 | 11520.00 |
| **HDI** | 0.46 | 0.07 | 0.36 | 0.56 | 0.45 |
| **TRD** | 32.59 | 3.48 | 25.31 | 38.50 | 32.59 |

*4.2     Unit Root Test*

This sub section elaborates the empirical results. At prelim, the results of ADF test are published in Table 3. ADF is a unit root test which is useful to check the presence of unit root where there is an unpredictable trend on time series observation. The results of ADF indorse mixed order of integration i.e. I(0) and I(1). Therefore, ADF results suggest to incorporate ARDL technique of cointegration for the purpose of cointegration analyses.

**Table 3**
**Unit Root Test**

| Variables | I(0) (Constant) | I(0) (Trend) | I(1) (Constant) | I(1) (Trend) | Conclusion |
|---|---|---|---|---|---|
| **EDU** | -1.80 (0.37) | -2.64 (0.26) | -8.27* (0.00) | -8.57* (0.00) | I(1) |
| **PRM** | 3.84 (1.000) | 0.25 (0.9976) | -3.44* (0.02) | -5.05* (0.00) | I(1) |
| **FDI** | -2.44 (0.14) | -3.46* (0.06) | -4.31* (0.00) | -4.24* (0.01) | I(0) |
| **ODA** | -2.19 (0.21) | -3.50** (0.05) | -5.99* (0.00) | -5.89* (0.00) | I(0) |
| **NPT** | -1.25 (0.64) | -1.06 (0.92) | -3.39* (0.02) | -3.51** (0.05) | I(1) |
| **GEE** | -3.59* (0.01) | -3.58** (0.04) | -3.27** (0.02) | -3.23*** (0.09) | I(0) |
| **GDP** | -4.19* (0.00) | -3.05 (0.13) | -4.04* (0.00) | -4.71** (0.00) | I(0) |
| **EDT** | -1.09 (0.71) | -3.53** (0.04) | -7.99* (0.00) | -6.48* (0.00) | I(0) |
| **INF** | -2.69 (0.08) | -2.60 (0.28) | -6.17* (0.00) | -6.13* (0.0001) | I(1) |
| **PGR** | -0.70 (0.83) | -2.41 (0.36) | -5.00* (0.00) | -4.95* (0.00) | I(1) |
| **LEX** | -3.82* (0.01) | -1.76 (0.69) | -2.98** (0.04) | -3.69** (0.03) | I(0) |
| **NDR** | -0.73 (0.82) | -4.12* (0.01) | -4.61* (0.00) | -3.14 (0.11) | I(0) |
| **HFC** | -4.30* (0.00) | -2.73 (0.22) | -7.69* (0.00) | -9.23* (0.00) | I(0) |
| **LTR** | -1.73 (0.40) | -0.45 (0.98) | -13.03* (0.00) | -13.47* (0.00) | I(1) |
| **HDI** | 0.10 (0.96) | 1.57 (0.78) | -5.37* (0.00) | -5.30* (0.00) | I(1) |
| **TRD** | -2.46 (0.13) | -2.75 (0.22) | -7.08* (0.00) | -6.98* (0.00) | I(1) |

Note: probabilities are given in parenthesis. *, **, & *** show significant at 1, 5, and 10 percent, respectively.

### 4.3 Bound Test

The bounds test is commonly used to determine whether the regression model has a long run relationship (co-integration). The results are given in Table 4. Optimal lag of 3 is selected based on Schwarz Bayesian Criterion. In case of Model-I, the upper computed *F*-Statistics of 89.35 is significantly higher than the upper bound critical value at 5 percent level of significance. Therefore, the long run relationship is confirmed. Model-II comes up with the computed Wald Test *F*-Statistic of 35.59 which is again higher than upper bound critical value as per Pesaran and Shin (1999). Thereby, long run relationship is again confirmed. The results of bound test in Model-III and Model-IV are also likewise where *F*-Statistics are 12.70 and 8.45, respectively. Thus, the conclusion is that all the models have significantly passed the bound test and the long run relationship is confirmed in all the models of the study.

**Table 4**
**Bound Test Results**

| Model | F- Statistics (Computed) | Critical Value | | Conclusion |
|---|---|---|---|---|
| | | Upper Bound | Lower Bound | |
| I | 89.35 | 2.45 | 3.61 | Long run Relationship |
| II | 35.59 | 2.62 | 3.79 | Long run Relationship |
| III | 12.70 | 2.62 | 3.79 | Long run Relationship |
| IV | 8.45 | 2.45 | 3.61 | Long run Relationship |

The critical values are cited from Pesaran and Shin (1999) at 5 percent level of significance.

**Autoregressive Distributed Lag Model**

This sub section is to highlight the results of ARDL.

**ARDL Estimates of Long Run Coefficients**

The ARDL estimates of long run coefficients of Model-I to Model-IV are furbished in Table 5.

**Table 5**
**ARDL Estimates of Long Run Coefficients**

| Variable | Coefficient | *t*-Statistic (Prob.) | Coefficient | *t*-Statistic (Prob.) | Coefficient | *t*-Statistic (Prob.) | Coefficient | *t*-Statistic (Prob.) |
|---|---|---|---|---|---|---|---|---|
| | Model-I | | Model-II | | Model-III | | Model-IV | |
| PRM | 0.01 | 3.34 (0.01) | 0.04 | 2.42 (0.05) | 0.02 | 4.91 (0.01) | 0.01 | 10.20 (0.00) |
| FDI | 0.03 | 4.34 (0.00) | 0.1 | 11.52 (0.00) | 0.1 | 6.61 (0.00) | 0.01 | 4.81 (0.01) |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **ODA** | 0.01 | 5.46 (0.00) | — | — | — | — | 0.01 | 4.39 (0.01) |
| **EDT** | — | — | -0.1 | -6.17 (0.00) | — | — | -0.01 | -16.08 (0.00) |
| **NPT** | 0.1 | 5.89 (0.00) | — | — | — | — | — | — |
| **GEE** | 0.1 | 9.14 (0.01) | — | — | — | — | — | — |
| **INF** | — | — | -0.02 | -2.69 (0.04) | — | — | — | — |
| **PGR** | — | — | -0.1 | -5.67 (0.00) | — | — | — | — |
| **NDR** | — | — | — | — | 0.1 | 1.13 (0.08) | — | — |
| **HFC** | | | | | 0.02 | 7.33 (0.00) | | |
| **LTR** | — | — | — | — | 0.1 | 8.99 (0.02) | — | — |
| **GDP** | — | — | — | — | — | — | 0.02 | 17.24 (0.00) |
| **TRD** | — | — | — | — | — | — | 0.02 | 1.08 (0.04) |
| **C** | 1.63 | 28.59 (0.00) | 3.49 | 34.36 (0.00) | 49.39 | 29.96 (0.00) | 0.23 | 8.03 (0.00) |
| **Adjusted R-Squared** | 0.96 | | 0.98 | | 0.96 | | 0.98 | |
| **D.W (*F-Statistic*)** | 3.11 (0.00) | | 2.17 (0.00) | | 2.82 (0.00) | | 3.28 (0.00) | |

According to empirical results of this study for all four models three FCIs like FDI, remittances and foreign aid are proven significant and positive for indicator of economic development and for development itself. These results are same as findings of Tian et al. (2022), Tefera and Odhiambo (2022), Iqbal et al. (2014) and Ghulam (2005) who found positive impact of FDI, remittances and aid respectively on economic well-being. On the other hand, foreign debt has significant and negative impact on economic development just like study of Loko et al. (2003) who found foreign debt one of the reasons for economic instability.

In Model-I where the dependent variable is EDU and PRM, FDI, and ODA are used as independent variables from FCI side. Entire components of FCI are significant and have positive impact on education attainment. Increasing education rate via FCI increases urge of employment via better education. Other variables like that of NPT and GEE are significant and proven positive towards EDU and economic development.

In Model-II, FDI and PREM are significant and positively affect GDP that is proxy of living standard. The inflow of FDI and remittances can improve living standard of people in Pakistan, like Baharumshah et al. (2015), Chorn and Siek (2017), Jawaid and Saleem (2017), Duodu and Baidonn (2022). Contrary to this, external debt is significant but has negative impact on living standard, findings are similar to Hussain et al. (2017). Therefore, the conclusion is that with an increase in external debt living standard of people get worse off. Other variables like of inflation and

population growth are significant but negative in their effects on living standard of Pakistan. Thus, with every increase in Inflation and population, it is challenging for the government to tackle with such bearings therefore the ultimate effect is the deteriorated state of living standard.

Likewise, in Model-III, FDI and PREM are significant and have positive impact on life expectancy at birth (proxy for health outcome). Facilitation of FDI is evident by the availability of life saving infrastructure ranging from medicine to heath related machines and equipment. The personal remittances which are received by families in Pakistan are utilized on better food, health facilities, and hygienic products which increase average life span in Pakistan and especially shrink down the infant mortality rate. Moreover, with the exception of NDR, HFC and LTR are significant too and have positive impact on life expectancy at birth.

Finally, Model-IV where HDI is taken as dependent variable is also not away from the previous results. Being an indicator of economic development, HDI is evident to move in positive in response to FDI, PREM, and ODA. On the contrary, external debt has negative impact on economic development in Pakistan. It is concluded that those FCI having positive impact on HDI are the sources to finance budget deficit and bridge between saving-investment, expenditure-revenue, and import-export gap therefore, help fostering economic development. While external debt is a burden that creates unrest in economy from the channel of tax impositions which later cause inflation and thus effect the economy in destructive way. Furthermore, dissimilar to Rani et al. (2019), apart from TDR, GDP per capita is significant and positive in effect on economic development.

**ARDL Estimates of Short Run Coefficients**

The ARDL estimates of short run coefficients of Model-I to Model-IV are furbished in Table 6. The conclusions drawn from short run coefficient results are also not dissimilar to long run. In most of the models, FCI are found to bring positive impact on EDU, living standard, life expectancy, and HDI. Out of four components of FCI, however, EDT is found negative in relationship to living standard and HDI. Therefore, the conclusion is that EDT is fatal for economic development in either time horizon. Other variables like of NPT and GEE are positively affecting EDU. Whereas, INF and PGR are found bringing downward trend to living standard since rising prices and rising population is always a challenge for especially a developing country like Pakistan. On the dissimilar note, NDR, HFC, LIT, GDP, and TRD are found encouraging life expectancy rate and HDI.

**Table 6**
**ARDL Estimates of Short Run Coefficients**

| Variable | Coefficient | t-Statistic (Prob.) | Coefficient | t-Statistic (Prob.) | Coefficient | t-Statistic (Prob.) | Coefficient | t-Statistic (Prob.) |
|---|---|---|---|---|---|---|---|---|
| | Model-I | | Model-II | | Model-III | | Model-IV | |
| D(PRM) | 0.01 | 4.40 (0.00) | 0.02 | 4.69 (0.00) | 0.01 | 2.52 (0.03) | — | — |
| D(PRM(-2)) | -0.03 | -6.37 (0.00) | -0.01 | -2.02 (0.09) | 0.04 | 3.23 (0.01) | — | — |
| D(PRM(-3)) | — | — | 0.01 | 2.54 (0.04) | -0.02 | -2.47 (0.03) | — | — |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **D(FDI)** | 0.02 | 4.79 (0.00) | 0.03 | 3.07 (0.02) | — | — | 0.01 | 2.29 (0.05) |
| **D(FDI(-1))** | -0.01 | -3.57 (0.00) | — | — | -0.05 | -2.61 (0.02) | — | — |
| **D(FDI(-2))** | — | — | — | — | — | — | -0.01 | -3.39 (0.08) |
| **D(FDI(-3))** | — | — | -0.02 | -4.09 (0.01) | 0.09 | 8.47 (0.00) | — | — |
| **D(ODA)** | 0.01 | 2.09 (0.06) | — | — | — | — | 0.002 | 2.27 (0.05) |
| **D(ODA(-1))** | — | — | — | — | — | — | -0.01 | 2.28 (0.05) |
| **D(ODA(-2))** | — | — | — | — | — | — | -0.01 | -3.41 (0.08) |
| **D(ODA(-3))** | 0.01 | 3.93 (0.00) | — | — | — | — | — | — |
| **D(EDT)** | — | — | -0.01 | -4.14 (0.01) | — | — | -0.002 | -4.48 (0.05) |
| **D(EDT(-1))** | — | — | -0.02 | -5.32 (0.00) | — | — | -0.01 | -3.43 (0.08) |
| **D(EDT(-2))** | — | — | -0.02 | -5.21 (0.00) | — | — | — | — |
| **D(EDT(-3))** | — | — | — | — | — | — | 0.003 | 4.05 (0.06) |
| **D(HFC)** | — | — | — | — | 0.00007 | 2.78 (0.02) | — | — |
| **D(NPT)** | 0.00 | 2.00 (0.07) | — | — | — | — | — | — |
| **D(NPT(-1))** | 0.00 | 2.41 (0.03) | — | — | — | — | — | — |
| **D(NPT(-2))** | 0.00001 | 3.84 (0.01) | — | — | — | — | — | — |
| **D(NPT(-3))** | 0.00001 | 4.61 (0.00) | — | — | — | — | — | — |
| **D(GEE)** | 0.047 | 2.36 (0.02) | — | — | — | — | — | — |
| **D(PGR(-1))** | 3.13 | 3.33 (0.02) | — | — | — | — | — | — |
| **D(PGR(-2))** | -5.01 | -3.48 (0.01) | — | — | — | — | — | — |
| **D(PGR(-3))** | 1.66 | 1.89 (0.10) | — | — | — | — | — | — |
| **D(LIT)** | — | — | — | — | 0.02 | 2.21 (0.05) | — | — |
| **D(LIT(-1)** | — | — | — | — | -0.08 | -4.02 (0.00) | — | — |
| **D(LIT(-2)** | — | — | — | — | 0.09 | 8.75 (0.00) | — | — |
| **D(LIT(-3)** | — | — | — | — | -0.06 | -3.61 (0.00) | — | — |
| **D(TRD)** | — | — | — | — | — | — | 0.01 | 2.21 (0.06) |
| *ECT* | -0.77 | -5.36 (0.00) | -0.88 | -4.24 (0.00) | -0.75 | -4.39 (0.00) | -0.35 | -1.70 (0.03) |

The *ECT* in each model is also found significant and within the acceptable range. Thus, the study confirms the correction of disequilibrium in each model at 77, 88, 75, and 35 percent, respectively.

## Diagnostics

For the authenticity of findings, sufficient number of diagnostic checking is conducted. The results are published in Table 7. At first, results of Breusch-Godfrey LM Test confirm no traces of heteroscedasticity. Moreover, no serial correlation is evident given the findings of Breusch-Pagan Godfrey Test. The conclusion of Remsey

RESET Test authenticates that Model I to Model- IV are correctly specified. Similarly, normally distributed residuals are evident, given the results of Jarque-Bera.

**Table 7**
**Diagnostics**

| Test | Findings | | | |
|---|---|---|---|---|
| | **Model-I** | **Model-II** | **Model-III** | **Model-IV** |
| **Breusch-Godfrey LM Test** | 1.47(0.25) | 0.83(0.44) | 1.34(0.28) | 1.48(0.24) |
| **Breusch-Pagan Godfrey** | 7.22(0.20) | 6.51(0.37) | 7.66(0.18) | 6.69(0.35) |
| **Remsey RESET Test** | 12.57(0.08) | 0.05(0.83) | 1.94(0.17) | 0.02(0.98) |
| **Jarque-Bera** | 0.44(0.80) | 6.79(0.34) | 1.94(0.38) | 0.08(0.96) |

**Conclusion**

The study concludes that the tires of FCI are spectacular in their impact on economic development.

The study was conducted to contribute the impact of worthy FCI on economic development of Pakistan. The term economic development was further split-up into four models. Using the analytical technique of ARDL, the results approved the positive connection of components of FCI and economic development with the exception of foreign debt. However, the affection of FCI was minute in nature while economic development was under the consideration. In case of living standard (GDP) and life expectancy, the impact of FDI was relatively higher than personal remittances and net official development assistance. In case of the measure of living standard, effect of FDI and external debt was found similar though opposite in trend.

**Suggestions for Future Research**

This study suggests the future researchers to initiate panel data analyses on FCI and economic development or to have sectoral analyses of sequels of FCI on Pakistan. It can enable to have more precise view of sector wise spell outs of FCI on macroeconomic aspects of Pakistan

**Policy Implications**

As a policy implication, there is a need of economic and political stability to intact consistency in flow of FCI towards Pakistan.

- To attract foreign investment, it is necessary to provide a peaceful and healthy environment to MNCs. Taxes exemption and trade liberalization (for raw material) could help in this regard.

- For transaction of personal remittances, legal methods should be promoted among common people to utilize this money for betterment of Pakistan and to be credited into the foreign exchange reserves.

- Official development assistant can help develop country like Pakistan only if funds are being used for development projects. These funds must be used for education and health. Pakistan is an agrarian economy so ODA should be focused towards this sector.

- External debt is proved negative for economic development of Pakistan due to mismanagement and built-in fact of reversal of payment with interest. This burden never lets governments of especially developing countries to secure macroeconomic harmony rather impose heavy taxes and cut development budget which is disastrous for economic development.

- The funds collected on account of foreign debt should be devoted to those sectors which are productive for the economy. Mostly, due to political pressure funds are allocated to non-productive sectors which bring political appreciation that is indeed temporary and at the cost of depressed economic growth and waste of precious funds. Therefore, proper scrutiny of sector is need for such funds to be allocated.

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