

IMPACT OF FOREIGN DIRECT INVESTMENT ON ECONOMIC GROWTH: A TIME SERIES ANALYSIS OF PAKISTAN

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ABSTRACT

The study aims to determine the relationship between foreign direct investment and economic growth in the case of Pakistan by using the annual data from 1973-2021. The three independent variables are foreign direct investment, inflation, and trade while gross domestic product (GDP) is the dependent variable. The unit root test results explore that all variables are integrated at first difference. The Johansen cointegration technique examines both short- and long-term relationships. The study found long run as well as short run relationship among variables. All variables are integrated at first difference, based on the outcomes of the first unit root test. The Johansen cointegration method is used to investigate both the short-term and long-term connections. The findings suggest that while inflation negatively correlates with GDP, trade and foreign direct investment have a favorable (positive) effect on economic expansion. The policy recommendation is that only some foreign investment sectors benefit Pakistan's economy due to the different characteristics of developing and developed countries. The Government may give incentives to foreign investors, give cheap raw materials, and make better economic policies that are fruitful for foreign investors. The Government may reduce the taxes directly and indirectly and give subsidies.

Keywords: Economic Growth, Inflation, Trade, FDI

INTRODUCTION

Foreign direct investment is a significant component that affects economic growth. A country's economy benefits when a sizable contribution from outside sources enters the country. This approach has helped developing countries' economies as a whole by generating money. Over the past ten years, foreign investment in developing nations has expanded in order to boost the country's development and economic progress (Muhammad, 2007). Increased productivity, more job possibilities, and technological advancements are typically mentioned as benefits of FDI. The main advantages of foreign direct investment in emerging countries are better management and raw material availability. Access to marketing is also provided to foreign investors. The stock of human capital in the host economy also increases. In providing a thorough definition of foreign direct investment (FDI) in 1996, the Organization for Economic Co-operation and Development (OECD) stated that it was the goal of a resident firm (a direct investor) to acquire a long-term stake in an economy that is different from the investor's own. This serves as yet another contributing aspect, demonstrating the important role that FDI plays in the development of the economy (Shahbaz & Rehman, 2010).

Foreign direct investment (FDI), despite the developing countries' small or even falling share in the global distribution of FDI, has grown through time to become the main source of external resource flows to these countries and a crucial portion of capital formation in these countries. Foreign direct investment (FDI) is widely acknowledged to aid in the expansion of developing countries (Khan, 2007).

Since 1950, there have been two separate generations of models based on the economic growth hypothesis. Up until the late 1960s, the literature was dominated by exogenous causes for long-term growth, or the neoclassical model, which influenced the first generation of growth models (exogenous-growth models). Then, the focus shifted to inflation and unemployment as factors impacting growth.

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The Romer hypothesis enabled the second generation of growth models, often known as new growth models or endogenous-growth models. Combining research on the transmission of technology with endogenous growth models has lately brought attention to how important foreign direct investment is to the economy (Bashir, 1999).

The major objective of the study is to investigate the relationship between FDI and economic growth in Pakistan from 1973 to 2019. The objectives are to examine the relationship between inflation and economic growth as well as the relationship between trade and economic growth in the case of Pakistan.

REVIEW OF LITERATURE

Shkodra et al. (2022) study found that FDI and economic development positively impact North selected countries. The study used time series data from 2005 to 2020. The dependent variable is economic growth and independent variables are foreign direct investment, wages and salaries, subsidies, social transfers, and capital expenditures. The data has been taken from several sources like central banks, statistical agencies, and World Bank indicators (WDI). The study found that some nations have the opposite relationship with economic expansion. In some nations, economic expansion and FDI flow are significantly and positively related. In Kosovo or Bosnia and Herzegovina, investments have no positive impact on economic growth.

Quadro et al. (2012) examined the relationship between Pakistan's GDP, FDI, and inflation (CPI). The study used time series data collected from the World Bank's data source covering the years 1981 through 2010. GDP was used as the dependent variable, while FDI and inflation were used as the independent variables. Results of the study show significant and negative relationships between GDP and FDI and a significant and negative relationship between GDP and inflation.

Javaid (2016) tried to determine the relationship between Pakistan FDI and economic growth and employed the ARDL approach. The study used the time series data collected from World Development covering the year 1966 through 2014. GDP was used as a dependent variable while FDI, inflation, population, gross capital formation, and trade were used as independent variables. Results of the study demonstrate that FDI has positive and significant effects on GDP in the long and short run, and negative effects on inflation and favorable effects on population. Trade and gross capital formation play no significant role towards Pakistan's economic growth.

Mahmood et al. (2012) analyzed the effects of foreign direct investment on Pakistan's economic expansion experimentally. The Study used time series data gathered from Pakistan state bank and world bank from 1971 through 2009. The study used the independent element (FDI) and the dependent element (change in per capita GNP) as (CHK). Exports of commodities and services as a percentage of GDP, used as independent variables. The Government of Pakistan calculated the labor force growth rate (LBGR) (1996, 2006). Study used the bound testing procedure for cointegration within the context of the autoregressive distributed lag model (ARDL). Study's findings show the positive effect that FDI has on economic growth. Foreign direct investment yields higher productivity than domestic investment. Exports have a small but positive impact.

Ahmed et al. (2005) examined the foreign direct investment and economic growth on Pakistan sector wise multivariate cointegration analysis. Study data work on panel data and selected variables Gross Domestic Product (GDP), Institutions, domestic investment, infrastructure, human capital, and foreign direct investment (INST). Information was gathered from several sources like the United Nations Development Program reports of the World Governance Indicators, the Pakistan Bureau of Statistics, the Pakistan State Bank, and the Economic Survey of Pakistan (2012–2013). The fully modified ordinary least square (FMOLS) test, the panel unit root test apply for checking the variables stationarity, the panel cointegration test, and vector error correction model used in this study (VECM). The panel cointegration test's findings indicate that FDI, domestic investment, infrastructure, human capital, and institutions are all long-term partners. Furthermore, the expansion of the economy in Pakistan is negatively correlated with domestic investment, and human capital. The features of foreign projects must be the primary focus of the policies rather than FDI. The ability to admire FDI results should lie with the lender and human capital. Increase domestic markets' secondary and tertiary permeability to increase growth and prevent spillover effects to other industries.

Saqib et al. (2012) investigated the role of foreign direct investment FDI towards economic growth in the case of Pakistan. The study used annual data from 1981 through 2010, collected from the

State Bank of Pakistan and the World Development Indicators. The study considered the gross domestic product (GDP) per capita at purchasing power parities, foreign direct investment, debt, gross domestic investment, inflation, and trade. The augmented dickey fuller (ADF) test was used to evaluate the stationary after looking at the coefficients of the regression equation with the conventional least squares approach. According to study findings, foreign direct investment is hurting Pakistan's economy. However, domestic investment boosted the economy, reducing the adverse effects of the country's debt, trade, and inflation on GDP.

Gul et al. (2015) investigated the relationship between FDI and economic expansion in a number of industrialized and emerging countries, including Pakistan. Time series data used for 2008 through 2013 were obtained from a secondary source, the State Bank of Pakistan. Study variables included domestic capital, labor force, FDI, and total export growth rate. GDP was held as the dependent variable. Study used the Regression Analysis, Correlation Coefficient, and Durbin Watson Test. According to study findings, all variables have a significant and positive relationship between FDI, domestic capital, and total exports.

Nilofer et al. (2018) examined the three types of investment—public, private, and foreign direct investment (FDI)—in the expansion of the Pakistani economy, with a special emphasis on the contribution of FDI to Pakistan's GDP growth. The study used time series data from 1970-2015 obtained from the national bank of Pakistan. The study used the ADF test for unit root, ARDL Bounds test for cointegration, and diagnostic tests. According to the study, while FDI and public consumption harm Pakistan's economic growth, public and private investment have a positive impact.

Abubakar et al. (2017) examined the long-term connection between economic expansion and foreign direct investment by using time series data for the 1980 through 2010 gathered from World Bank indicators. The study treated economic growth as a dependent variable, while labor, FDI, physical capital, human capital, and trade were treated as independent variables. Utilize the ARDL bound cointegration test. In the short run ARDL bound test, significant and positive effects for fixed capital, FDI, and human capital but the negative effects on labor and trade. It suggests that the government develop more human skills to attract more desirable FDI.

Iqbal et al. (2014) examined the association between GNP and foreign direct investment by using the annual data from 1982 through 2012 gathered from the Pakistani state bank, World Development Series, FBS, and Economic Surveys of Pakistan. The study used the variables Gross Capital Formation (K), Labor (L), Health Expenditures (H), Foreign Direct Investment (FDI), and Trade Openness in an Export-Oriented Economy (OP*FDI). The study found a favorable correlation between Pakistan's GDP and FDI. However, over the past few decades, Pakistan has yet to attract FDI sufficiently.

Donny (2018) used multiple linear regression models to find out the relationship between government spending, exports of goods and services, imports of goods and services, household expenditure, capital business investment (including FDI), and exports of goods and services. Results show that real GDP growth increased FDI growth by 90.4%, while other model variables increased real GDP growth by 9.6%, according to the study's findings.

Hong et al. (2018) used the data from 1986 to 2015 and found that trade openness and global crises have a big impact on the inflow of foreign investment and economic expansion. FDI positively impacts openness to trade, GDP is positively correlated with FDI, and openness has a negative first lag correlation with GDP and FDI but a positive second lag correlation. The international crisis has a strong and detrimental effect on FDI, and a detrimental impact on trade openness as exports decline due to declining global demand.

Laura (2003) collected the data from the World Bank's Development Indicators, the Global Country Risk Guide. The study used GDP, foreign direct investment (FDI), state spending, inflation, quality of institutions, trade openness, credit to the private sector, and educational level. FDI flows into the primary, manufacturing, and service sectors of the economy have diverse effects on economic growth, according to the study's findings. While FDI inflows into the manufacturing sector positively impact growth, they typically harm the primary sector. The evidence derived from foreign investments in the service industry needs to be clarified. According to this research, not all types of foreign investment are advantageous for host economies.

Fayyaz (2012) examined the relationship between foreign direct investment flows in developing countries like Sub-Saharan Africa, Eastern Europe, Asia, and Latin America. The last ten

years' worth of macro panel data from 57 countries with low and lower middle incomes are used in this study (2000 through 2009). The study used the variables GDP, global trade integration tariffs, education, inflation, FDI, and board money supply in this study, and collected the data from World Development Indicators dataset of the World Bank served source. The Ordinary Least - square (OLS) method and TSLS regression were both used by the author. The impact of most variables is higher when the OLS methodology applies, according to both regression results. This suggests that measurement error is why OLS estimates are too small. When this instrument is used, all of the variables are statistically significant. Second, TSLS estimates point to market size (GDP per capita) and global integration (tariff), while FDI flows into developing nations are impacted by an unstable macroeconomic environment (high inflation). In general, developing nations can draw FDI by concentrating on expanding their market or enacting more lenient trade policies. Additionally, they can draw foreign direct investment by growing their skilled labor force and developing financial institutions with moderate and stable inflation.

DATA AND METHODOLOGY

Pakistan's annual data from 1973 to 2021 has been used in the study. This study used the gross domestic product as a dependent variable, while trade, inflation, and foreign direct investment were used as independent variables.

Table 1: Variable Description

Variables	Description	Definition	Source
GDP	GDP is measured on the annual % ratio	GDP calculates the cost of the completed products and services brought in by the consumer that was produced in a nation over a specified time (say, a quarter or a year)	WDI
Foreign Direct Investment	The GDP ratio measures FDI (net inflow of the country).	The term "foreign direct investment" (FDI) refers to an investment that entails a long-term partnership and needs to reflect a long - term interest and regulate by a resident entity in a single country (fdi flows shareholder or parent enterprise) in an enterprise residing in a financial system other than the foreign direct investors.	WDI
Inflation	The Inflation rate is measured on the consumer price index (CPI) basis.	In economics, inflation (or, less frequently, price inflation) refers to a general increase in an economy's price level over time.	WDI
Trade	Trade percentage of GDP	Trade is the difference between the import and export of a country in a certain period.	WDI

Data has been taken from the World Development Indicator. The GDP has been used as a proxy of economic growth. The study followed Saqib et al. (2013) and Gudaro et al. (2012) to use this proxy. Consumer prices index (CPI) has been used as a proxy for inflation. The study followed the study by Gudaro et al. (2012) to use this proxy. The study's econometric model is as follows,

$$GDP_t = \alpha_0 + \beta_1 FDI_t + \beta_2 INF_t + \beta_3 T_t + \epsilon_t$$

RESULTS AND DISCUSSION

Unit-Root test

In order to avoid the unit root problem the study used ADF test to check the data stationarity. The results of the ADF test depict that all the variables are stationary at first difference.

Table No. 2 Results of ADF test

Series	ADF – test				Result
	Level		1 st difference		
	ADF	P- value	ADF	P- value	
GDP	-4.761556	0.0019	-10.21272	0.0000	I(I)
FDI	-3.314093	0.0767	-4.569362	0.0034	I(I)
INFLATION	-3.28696	0.0829	-7.720607	0.0000	I(I)
TRADE	-2.628347	0.2702	-6.760197	0.0000	I(I)

Table No. 3 Results of Pearson Correlation Matrix

	GDP	FDI	INF	Trade
GDP	1	-0.20	-0.15	0.05
FDI	-0.20	1	0.05	0.25
INF	-0.15	0.05	1	0.29
Trade	0.05	0.25	0.29	1

The results of the correlation matrix depicts that GDP has negatively correlated with FDI and inflation while positively correlated trade. FDI is positively correlated with inflation and trade while inflation is also positively correlated with trade. The overall correlation among variables is not high which shows no possible presence of multicollinearity in the results.

Results of Johansen Cointegration test

The results of Johansen cointegration shows the existence of a long run relationship among variables. The results show one cointegrating vector.

Table No. 4 Results of Johansen Cointegration

Rank Test for Unrestricted Cointegration (Trace and maximum Eigen-value)				
Null hypothesis	Fisher Stat.*		Fisher Stat.*	
	(From trace test)	Prob.	(From max-Eigen test)	Prob.
None Co-Integer. equation *	79.8410	0.0000	45.6334	0.0001
There is 1 Co-integer. equation *	34.2076	0.0146	24.9180	0.0139
There are 2 Co-integer. Equations	9.2895	0.0339	9.1549	0.2735
There are 3 Co-integer. Equations	0.1345	0.7137	0.1345	0.7137

(Long Run Estimates of Johansen Cointegration model)

Explanatory variables	Co-efficient
FDI_C	3.41E+11*
INF_t	- 9.04E+10
$Trade$	+3.95E+10

The value of ECT must contain a negative sign, indicating the variables' divergence and convergence. The value of how much is closer to -1 indicates the long-term period's convergence speed. The Vector Error Correction Model's output is as follows.

Short-Run VECM Results**Table 5: Result of Short Run Error Correction Model**

Variables	coefficient	St. Error	T-Statics	P-value
ECT (-1)	-0.65	0.21	-3.21	0.00
D (GDP (-1))	-0.145	0.16	-0.91	0.36
D(FDI)	0.506	0.76	0.67	0.50
D(INFLATION)	-0.097	0.08	-1.19	0.24
D(TRADE)	0.153	0.13	1.12	0.26
D (TRADE (-1))	0.018	0.12	0.14	0.88
R-Squared 0.36			Durbin-Watson 1.83	
Adjusted R-Square 0.26			F-statistics 3.71	

The findings, as mentioned earlier, show the short-term relationships between the variables. ECM plays a crucial role in demonstrating how disequilibrium approaches long-term equilibrium. ECM provides a speed indication for the adjustment.

RESULTS AND DISCUSSION

This study examines the relationship between foreign direct investment and economic growth in Pakistan, using the Johansen cointegration technique to investigate both short- and long-term connections. The results indicate that foreign direct investment and trade have a favorable impact on economic growth, while inflation has a negative correlation with GDP. The policy recommendation is that all foreign investment sectors are not beneficial for Pakistan's economy due to the different characteristics of developing and developed countries. The government may give incentives to foreign investors, give cheap raw materials, and make better economic policies that are fruitful for foreign investors. The government may reduce taxes directly and indirectly and give subsidies.

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