RELATIONSHIP BETWEEN FOREIGN DIRECT INVESTMENT AND PAKISTAN'S ECONOMIC GROWTH

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ABSTRACT-*The objective of this research paper is to analyze relationship between Foreign Direct Investment (FDI) and Economic growth. Time series data for the period of 1980-2017 was used. Different variables like Inflation, Gross capital formation, Foreign Direct investment, Trade, Population growth and Gross Domestic Product (GDP) are used to check the impact of FDI on economic growth of Pakistan. We used ARDL approach, Bound test and Error correction Model to determine short run and long run effects of FDI on economic growth. Our results show that there is long-run and short-run significant relationship between FDI and Economic Growth. Other variables such as the inflation and the population growth rate have significant impact on GDP in the long run whereas the gross capital formation and foregin trade have no significant impact on economic growth of Pakistan in the long- run.*

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1. INTRODUCTION:

GDP growth is generally used to estimate the production level of a country (Hassan, 1997). Economic growth is determined through expenditure, net exports of goods and services and investment from side to side productivity growth. Foreign Direct Investment (FDI) plays a vital role in economic growth of a country because it does not only bring capital but also technology. The role of FDI in Pakistan's economic growth is very important because Pakistan meets its twin deficits through remittance being sent by overseas Pakistanis every year (Awan, Jabbar,2012) and foreign direct investment in development of infrastructure, fixed assets and capital market. The main objectives of this paper is to measure the impact of FDI on Pakistan's economic growth.

1.2 Main Research Problem:

Main research problem of this research paper is to analyze the impact of foreign direct investment on Pakistan's economic growth.

1.3 Objectives of study:

The objectives of this research study are outlined as under: -

1.To analyze the impact of FDI on economic growth of Pakistan.

2.To examine the relationship between economic growth, gross capital formation and inflation.

3.To measure the impact of population growth and foreign trade on economic growth.

1.4 Scope of study:

The scope of the study can be assessed from the fact that every country needs foreign direct investment in the shape of capital and transfer of technology. Pakistan is among those counrties which extremely needs both foreign direct investment and technology transfer for its economic growth.

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Though the results of this research study will be restricted to Pakistan but they can be generalizing to all development countries and policy makers of these countries can take benefit from it. Thus, the scope of this study is substantial.

2. LITERATURE REVIEW:

Several studies have examined the relationship between FDI and economies development. We have made brief review of selected relevant studies which are discussed here briefly in the following: -

Nair and Diana Weinhold (2001) conducted cross-country analysis and included 24 countries in their sample. In their empirical analysis they found heterogeneous results and did not see any clear association between foreign direct investment and economic growth.

Awan et al (2014) has said that foreign direct investment expedites economic growth particularly in the developing countries because they face capital constraints for their development. Their results show that Pakistan's economy is greatly depend on FDI for expansion of its productivity, utilization of surplus labour, introduction of new technology and creation of new job opportunities. They found highly volatile FDI during their study period of 1990 to 2012. They found that the variables like gross capital formation, exports, gross national income had positive relation with economic growth while it had negative relations with external debt.

Awan and Jabbar (2014) explored capital mobility to developing countries since 2001. They concluded that after formation of WTO the mobility of capital from developed to underdeveloped countries had increased because international capital market was opened and the developing could raise required funds from big international market. They conteded that

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globalization had positive impact on capital flow to developing countries like Pakistan.

Siddique, H. M. Ansar, R. Naeem, M.M. and Yaqoob, S. (2017) determine the nexus between monetary expansion and economic growth. They used data from 1980 to 2016 and analyzed this data through ARDL approach. The outcomes of the study show limited causality between economic development and growth in capital stock.

Ahmed et al., (2011) and Khathlan (2012 investigated relationship between foreign direct inevestment and economic growth of Pakistan. They argued that foreign direct investment and remittance had positive effect on Pakistan's economic growth.

Khathlan (2012) and Almfrsji and Almsafir (2014) emphasized that foreign direct investment helped in job creation and reduction in unemployment. They suggest that foreign direct investment might be attracted through fiscal incentives.

Tahir, Imran, Afzal Moshadi Shah(2015)   concluded that there is negative link between imports and economic development. The coefficient estimation of - 3.52 proposes so as to the economic system of Pakistan possibly will be unfavorably partial attributable in the way of the inflow of imports. Hypothetically, imports are essential in favor of a developing economy. In this way, it is difficult to bind the purposes behind the negative effect of imports on economic development.

Tiwari and Mutascu (2011) this implies that FDI had no effect in enhancing local innovation and fares in optional and tertiary part. The arrangements should concentrate on the nature of the outside venture instead

of FDI itself. In addition, neighborhood financial specialists and human capital ought to be enhanced to extricate great consequences from FDI.

3. RESEARCH METHODOLOGY:

3.1 Nature of study:

This study is quantitative in nature and we will use the quantitative data and analytical methods in this study.

3.2 Types of data:

We will use secondary data in this study which will be collected from World Bank's Development Indicators, IMF, Pakistan Economic survey and State Bank of Pakistan.
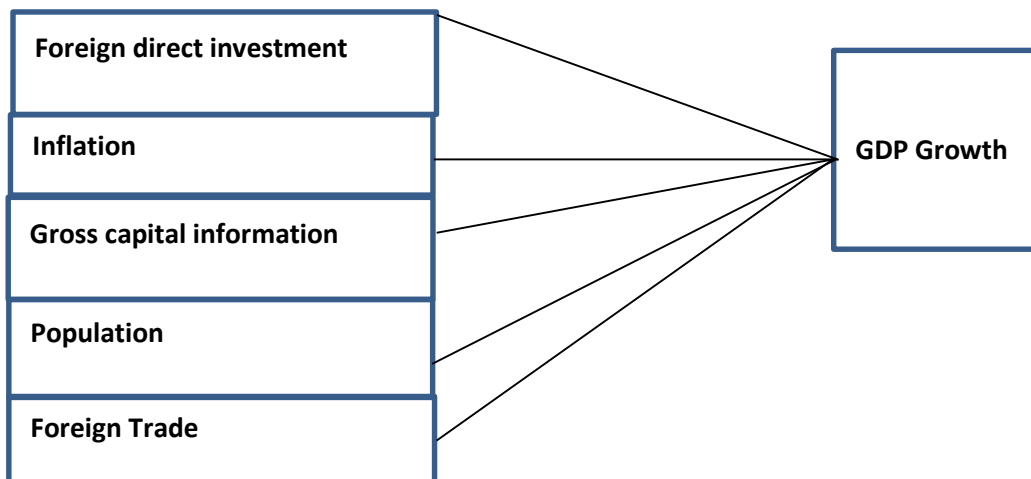
3.3 Sample of study:

To investigate the impacts of the FDI on the GDP growth of Pakistan we use time series data for the period 1980-2017.

3.4 Selected variables:

The conceptual model is shown in Figure 1:

Figure 1: Conceptual models

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3.5 Econometric model:

The econometric model is given in the following equation in which Yt is a dependent variable and Xst are an independent variable while Ut is an error term.

$$\gamma_1 = b_\circ + b_1 X^1 + b^2 X^2 + b^3 X^3 + b^4 X^4 \dots\dots \in \qquad (1)$$

Equation (1) is the long run model that shows long-run relationship between independent and dependent variables. Bound test is used to measure these relationships. Thus, the equation (1) is used as a conditional ARDL (Auto regressive Distributed Lag) model, which is shown in equation 2:

$$\Delta\gamma_t = C_\circ + \sum_{i=1}^{P} *\gamma_1 \Delta\gamma_{t-i} + \sum_{q=0}^{j} *\gamma_2 \Delta x_{t-j} + \pi_1 \gamma_{t-1} + \pi_2 x_{t-1} + \quad (2)$$

4. DATA ANALYSIS:

4.1 ADF Unit Root Test:

To check the order of integration of variables, ADF Unit Root Test is applied. It is used to determine the stationarity of variables. The results of Unit Root Test is shown in Table 1:

Table 1: Results of ADF Unit Root Test

Variables	At Level P value	at 1st difference P value	Order of integration
lnGDP	0.0000		I(0)
lnFDI	0.0583		I(0)
lnINF	0.0003		I(0)
lnPOP	0.5732	0.0354	I (1)
lnTRADE	0.0405		I(0)
lnGCF	0.0000		I(0)

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The data in table 1 shows that all variables except population are stationer at level 1 (0) while variable population is stationer at level 1(1). So it is proved that the variables are stationers at different level and now we can use ARDL approach for analysis of data.

4.2 Optimal lags:

The lag length is number of terms that back down the AR process for which you want to test serial correlation between variables. In other words we can say that it is comparison of time series data with lagged series data and we chose optimal lag from them.

Table 2: Optimal Lag

Variable name	Optimal Lag
Gross domestic products	3
Foreign direct investment	4
Inflation	2
Population	0
Trade	2
Gross capital formation	1
Akaike information criterion	-2.247815

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4.3 Descriptive statistics:

The results of descriptive statistics of variables are shown in table 3:

Table 3: Descriptive Statistics.

	GDP	C	FDI	GCF	POP	INF	TRD
Mean	0.605989	1.000000	-0.361680	1.544755	0.906613	2.028294	3.500363
Median	0.804369	1.000000	-0.416959	1.608801	0.870944	2.095414	3.522050
Maximum	1.899953	1.000000	1.299735	2.919491	1.212065	3.214512	3.646236
Minimum	-2.353059	1.000000	-2.276267	-1.389992	0.669920	-0.915697	3.231051
Std. Dev.	0.916679	0.000000	0.760860	0.830213	0.191847	0.712368	0.094146
Skewness	-1.250997	NA	0.030929	-1.212739	0.434573	-1.761012	-1.269464
Kurtosis	4.579311	NA	3.384157	5.874688	1.620398	8.927127	4.278412
Jarque-Bera	13.86081	NA	0.239721	22.39907	4.209633	75.26451	12.79412
Probability	0.000978	NA	0.887044	0.000014	0.121868	0.000000	0.001666
Sum	23.02757	38.00000	-13.74385	58.70069	34.45131	77.07518	133.0138
Sum Sq. Dev.	31.09111	0.000000	21.41957	25.50237	1.361790	18.77631	0.327946
Observations	38	38	38	38	38	38	38

The statistic description in Table 3. has total 38 observations. As can be seen, the mean value of lnFDI is relatively small as compared to the mean of lnGDP.

FDI is positive in some period   while negative in another period and this is the reason of low standard deviation value of lnFDI. The same trend is in other variables during study period.

4.4 ARDL Model: Long run Relationship:

The results of ARDL model are shown in Table 4:

Table 4: Results of ARDL Model

Dependent Variable: GDP
Method: ARDL
Date: 03/16/19   Time: 06:30
Sample (adjusted): 1984 2017
Included observations: 34 after adjustments
Maximum dependent lags: 4 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (4 lags, automatic): FDI GCF INF TRD POP
Fixed regressors: C
Number of models evaluated: 12500
Selected Model: ARDL(3, 4, 1, 2, 2, 0)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
GDP(-1)	-0.265996	0.202087	-1.316245	0.2066
GDP(-2)	-0.418729	0.184031	-2.275319	0.0370
GDP(-3)	0.312066	0.203438	1.533963	0.1446
FDI	0.332859	0.545338	0.610373	0.5502
FDI(-1)	-0.462865	0.519458	-0.891055	0.3861
FDI(-2)	-0.802930	0.466558	-1.720965	0.1045
FDI(-3)	0.018491	0.479645	0.038551	0.9697
FDI(-4)	-0.697610	0.526044	-1.326143	0.2034
GCF	0.352272	0.169416	2.079328	0.0540
GCF(-1)	0.354019	0.184427	1.919567	0.0729
INF	-0.007420	0.289604	-0.025622	0.9799
INF(-1)	-0.107125	0.284250	-0.376869	0.7112
INF(-2)	-0.593341	0.330367	-1.796006	0.0914
TRD	4.086366	3.155574	1.294967	0.2137
TRD(-1)	4.633395	2.905908	1.594474	0.1304
TRD(-2)	-3.482373	2.817519	-1.235971	0.2343
POP	-5.817798	3.148203	-1.847974	0.0832
C	-12.66104	12.08426	-1.047729	0.3103

R-squared	0.764506	Mean dependent var		0.510541
Adjusted R-squared	0.514293	S.D. dependent var		0.917152
S.E. of regression	0.639188	Akaike info criterion		2.247815
Sum squared resid	6.536979	Schwarz criterion		3.055888
Log likelihood	-20.21286	Hannan-Quinn criter.		2.523391
F-statistic	3.055421	Durbin-Watson stat		2.042580
Prob(F-statistic)	0.015249			

*Note: p-values and any subsequent tests do not account for model selection.

Table 4 explain the results of ARDL model. In this model R^2 shows the goodness of fit of the variable, indicating that 76% variation in dependent variable is due to variation in independent variables of the model. It is observed that the variables FDI, population growth rate and inflation have negative impact on GDP growth while trade and Gross capital formation have positive impact on GDP growth rate in the long run in case of Pakistan. The reason is that FDI flow enhances stock of foreign debt and ,similarly, population growth rate also decrease per capita income in the long run. In contrast, Gross capital formation and foreign trade have positive impact on

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GDP because first increases level of productivity while other one enhances foreign exchange earnings from exports.

Table 5: Bound Test result

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
		Asymptotic: n=1000		
F-statistic	5.518244	10%	2.08	3
k	5	5%	2.39	3.38
		2.5%	2.7	3.73
		1%	3.06	4.15
Actual Sample Size	34	Finite Sample: n=35		
		10%	2.331	3.417
		5%	2.804	4.013
		1%	3.9	5.419
		Finite Sample: n=30		
		10%	2.407	3.517
		5%	2.91	4.193
		1%	4.134	5.761

Table 5 explains the Bound test that is helpful for checking the long term relationship between variables along with ARDL model. In this test we have checked that F statistics value and upper and lower bound values. If value of F statistics is more than the value of upper limit it shows that variables have long run relationship and impact of explanatory variable on dependent variable. These results confirm the results of Table 4.

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4.6 The Result of Error Correction Model (EMC):

The results of ECM are shown in table 6:

Table 6 Error Correction Model

ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP(-1))	0.106663	0.128840	0.827875	0.4199
D(GDP(-2))	-0.312066	0.115451	-2.703008	0.0157
D(FDI)	0.332859	0.291464	1.142025	0.2702
D(FDI(-1))	1.482049	0.320956	4.617604	0.0003
D(FDI(-2))	0.679119	0.279472	2.430011	0.0272
D(FDI(-3))	0.697610	0.306393	2.276848	0.0369
D(TRD)	4.086366	1.927428	2.120113	0.0500
D(TRD(-1))	3.482373	1.785483	1.950381	0.0689
D(INF)	-0.007420	0.154000	-0.048184	0.9622
D(INF(-1))	0.593341	0.175067	3.389226	0.0037
D(GCF)	0.352272	0.100125	3.518314	0.0029
CointEq(-1)*	-1.372659	0.188348	-7.287874	0.0000

R-squared	0.817019	Mean dependent var		0.003458
Adjusted R-squared	0.725529	S.D. dependent var		1.040468
S.E. of regression	0.545101	Akaike info criterion		1.894874
Sum squared resid	6.536979	Schwarz criterion		2.433590
Log likelihood	-20.21286	Hannan-Quinn criter.		2.078591
Durbin-Watson stat	2.042580			

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In Table 6 the coefficient of the ECM turns out being statistically significant (-1.3722659), suggesting a converging to the equilibrium path, which means the error-correction process converges to equilibrium level in less than one year. The significance and the correct sign of the error correction coefficient also confirm the presence of short-run relationship between the economic growth and the independent variables of the model.

4.7 Stability Test:

Figure 2: Results of stability test
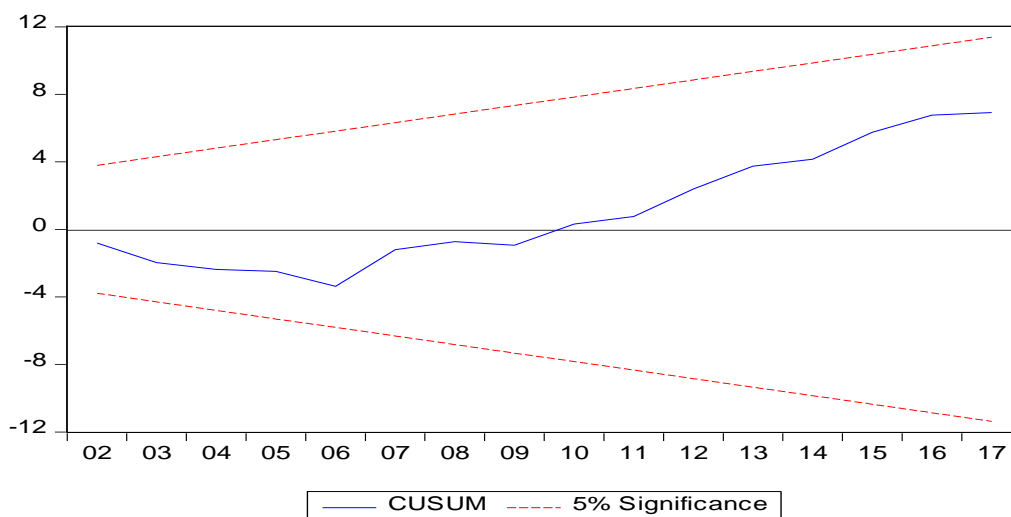
The Stability test in the regression model. We have six variables one is FDI, inflation, GCF, trade and GDP, POP.GDP is dependent variable and FDI, GCF inflation and POP and trade are the independent variables. So I run this regression equation model. Then we apply cusum test we can see two red lines and other blue line between these red lines. It means that this blue line is located within these red lines so our model is stable during the study period.

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5. FINDINGS OF STUDY:

Our study found that there is negative relationship between population growth rate, inflation rate and FDI in the long run while foreign trade and gross capital formation have positive relationship with GDP in the long run. These results are consistent with economic theories which state that foreign direct investment enhance foreign debt as well as annual debt services for the weak developing countries like Pakistan. Similarly, high inflation rate also has increases price level of goods and services and such negatively effecting purchasing power of poor segment of society. Similarly, increase in population also affects negatively GDP because it decreases per capita income of the country in the long run**.** However, gross capital formation increases the production of goods and services and in such a case the country can export its surplus production. Foreign trade also has positive impact on GDP in the long run because the country earns hard needed foreign exchange by selling its surplus goods and services in the international market.

6. CONCLUSIONS:

We have analyzed the relationship between Foreign Direct Investment (FDI) and Economic growth of Pakistan in the period of 1980-2017 to measure short run and in long-run relationship between variables by using ARDL method. We have found that   the FDI has significant and positive impact on the Pakistan's economy in the short run while negative impact in the long run.In the short run, FDI inflow brings capital as well as technology but it enhances total volume of debt and debt services over the years if foreign loans are used in consumption and in unproductive projects. So it is advisable for Pakistan to attract foreign direct investment in fixed assets and productive projects which give highest return in the long run so that borrowed loans can

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be repaid. As inflation rate and population growth rate have negative impact on GDP in the long run it is imperative to keep under control and not allow to rise steeply. Pakistan must pay attention on gross capital formation as increase the volume of capital stock which is a core need of enhancing productivity of the country.

7.RECOMMENDATIONS:

The following recommendations are made in the light of above findings and conclusions:-

- Only FDI should be allowed in fixed assets and for productive projects.

- Pakistan should identify the sectors that need long term FDI and offer these projects to foreign investors.

- Overseas Pakistanis should be given fiscal incentives so that they can invest in their country rather than keeping money abroad. Necessary legal protection should be provided to them.

- Pakistan should devise anti-inflation fiscal and monetary policies to save its negative effects on low income people and to reduce poverty.

- A strong media campaign should launch to control population growth in order avoid multi-dimensional economic and social problems in future.

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CONTRIBUTION OF AUTHORS AND CONFLICT OF INTEREST

This research work was carried out in collaboration between two authors.

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Both authors read the manuscript carefully and declared no conflict of interest with any person or institution.