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Impact of Foreign Direct Investment on Gross Domestic Product (GDP) Growth rate in Bangladesh

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Abstract: The study aims at determining the impact of foreign direct investment (FDI) on the gross domestic product (GDP) growth rate in Bangladesh. The study also attempted to demonstrate the trend of FDI inflow and GDP growth rate over the period of 1980-2019. The proposed study was conducted on the basis of secondary data collected from the world economic data indicator. The data were analyzed by using a linear regression model with SPSS tools. The study mainly considers two variables of which FDI is an independent variable and GDP growth rate is the dependent variable. The result of the linear regression model shows that there is a significant positive relationship between FDI and GDP growth rate. The value of R square is .436 which indicates that the value of GDP is influenced by FDI by at least 43.60%. Furthermore, the trend line of FDI inflow and GDP growth rate shows resilience over the study period with a 6.76% of GDP growth rate over 2010-2019 and an average of 2000 million USD received as FDI in the last ten years. The study results can be used by policymakers to set out an appropriate monetary and fiscal policy for our country.

Keywords: *FDI, GDP, Economic growth, Bangladesh, Linear regression model.*

Introduction: Foreign direct investment refers to the incoming of funds to a country from another country in the form of various business investments. The FDI of a country plays an important role in accelerating the trend of development state of different countries across the world and Bangladesh is not an exception of them. Bangladesh has become one of the prospective investment opportunities for foreign companies and other countries' governments because it has many competitive advantages including economies of scale in production, cheap labor, and relaxed tax slab for new investors to the countries. Investment liberalization has been brought down in different sectors including information technology sectors, ready-made garments (RMG) sectors, and power generation sectors which bring a significant volume of inbound FDI to Bangladesh. Foreign direct investment and foreign aid are the two main contributing sources of capital inflows to Bangladesh and the phase of the incoming fund has been accelerated since 1996 by inducing new opportunities in power and energy sector production with the existence of favorable investment policies [1].

Foreign direct investment and the host country's gross domestic product (GDP) are closely linked together as the inflow of fund through FDI enhance the technological capabilities and human skills in the concerned countries, as a result, host countries' total production rises to lead to a significant shift in the GDP growth rate. A number of studies have been conducted on the measurement of the impact of the foreign flow of funds through FDI on the concerned countries' GDP growth rate all over the world. Most of them presented a positive association between foreign direct investment (FDI) and gross domestic product (GDP) growth rate. Some of the studies present some anomalies in the result showing a negative association between FDI and GDP claiming that FDI induces foreign firms in the host countries which may create dependency on technology, technical know-how, and managerial competencies and ultimately drain resources then accelerate the real GDP of the host countries. This situation guides the researchers to investigate and justify the impact of foreign direct investment (FDI) on the gross domestic product growth rate in Bangladesh. In accordance with the selected topics numbers of research works were reviewed and the summary of the review has been presented below in the literature review section for better understanding.

Objectives of the study: the study is being carried out to accomplish the following objectives:

a) To study the trend of foreign direct investment and GDP growth rate in Bangladesh from 1980-2019.
b) To identify the impact of FDI on the GDP growth rate in Bangladesh.

Literature Review: The investigative study of the nexus between FDI and economic growth for Pakistan for 1980-2019 shows that there is an existence of integration between economic growth, FDI, trade, physical capital, and human capital and a bidirectional relationship is found between physical capital and FDI [2].

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The higher the FDI inflows, the stronger economic growth FDI becomes more eminent and proved to be a significant vehicle for international capital and technology transfer [3].

Another study reveals that there is a positive relationship between remittance flows and FDI with the gross domestic product (GDP) of Bangladesh [4].

A study conducted in China shows that there is a direct effect of FDI on economic growth by raising productivity, Enhancing export, and ensuring positive notions by accelerating the transitions to the market economy and technological inducement [5].

Another study reveals that under certain condition level of human capital has a positive role on GDP, but this result is not significant as education contributes to the coexistence of considerable lapses [6].

The study conducted by [7] concluded that FDI and domestic employment of funds have a positive impact on the economic growth of Bangladesh. On the other hand [8] urges that foreign direct investment may lead to dependency for host countries on other countries as they have innovative technologies, advanced marketing networks, and better human and managerial competencies' which may create a negative impact on economic growth.

The study conducted by [9] reveals the conclusive findings that FDI has a positive association with GDP in the short and long run in Pakistan. On the other hand, FDI represents a negative impact on economic growth, and the FDI inflows in the manufacturing sector foster economic growth [10].

The study conducted by considering the economy of China for the period of 1994-2003 makes conclusive remarks that FDI has no significant association and impact on the economic growth of the country [11].

Some authors presume that FDI rather provides benefit to the origin country rather than the host country due to dependency on technology which in turn pose a great threat to new and local investment causing a decline in innovation capabilities and economic growth [12].

Another study has been conducted on the effect of foreign direct investment (FDI) on the economic growth of nine (9) West African countries for the period of 1995-2015 and found that there is a positive association on economic growth and also urges that FDI need appropriate government policies to bring the best out of it and to avoid the adverse impact of the west African Countries [13].

After careful investigation of the reviewed article on the topic relevant to Impact of FDI on GDP growth rate in Bangladesh it seemed that there has been no precise study which has been done by scholars regarding identifying the impact of FDI on GDP growth rate in Bangladesh for a longer time period. These lead us to undertake the research topic to identify the impact of FDI on GDP growth rate in Bangladesh.

Materials & Method

Data collection: the study is conducted on the basis of secondary data and the data were collected from various published sources and websites including the world economic data indicator for the period of 1980-2019. The data of FDI net inflow in Bangladesh were retrieved from the world economic data indicator site and converted into Millions (U.S.D) for the convenience of the study calculation.

Research model and variable specification: this study considers mainly two variables of which gross domestic product (GDP) growth rate is the dependent variable and foreign direct investment (FDI) is the independent variable. A linear regression model was used to determine the impact of FDI on the GDP growth rate in Bangladesh.

Research Hypothesis: the study considers the following hypothesis:
H0: There is no significant impact of FDI on the GDP growth rate of Bangladesh.
H1: There is a significant impact of FDI on the GDP growth rate in Bangladesh.

Results and Discussions:

Trend of FDI inflow in Bangladesh since 1980: the trend of FDI inflow is summarized by the following graph:

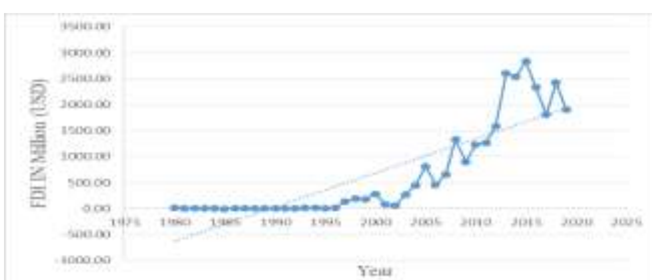

Figure 2: Trend of FDI inflow in Bangladesh
Source: *Authors own compilation from the world economic data indicator*

The FDI inflows in Bangladesh are depicted above in the trend line which shows a relatively steady growth. FDI inflow was running a critical period in the year between 1984-1985 having a negative balance of (.55) and (6.66) million USD respectively. Then after Bangladesh crosses the earmarks of 100 million USD of FDI in the year 1997 and then it increases gradually with a steady growth rate with a few exceptions in the financial year 2001-2002.
Afterward, Bangladesh now receives more than 2000 million USD average per year from 2009-2019. The result of this FDI inflow is can be attributed as one of the key reasons for stable government control in public and private sectors which encourages foreign firms and nationals to invest in Bangladesh.

Trend of GDP growth rate in Bangladesh: the pattern of GDP growth rate in Bangladesh experienced some trying time in the past but now it is increasing at a steady growth rate which is depicted below:

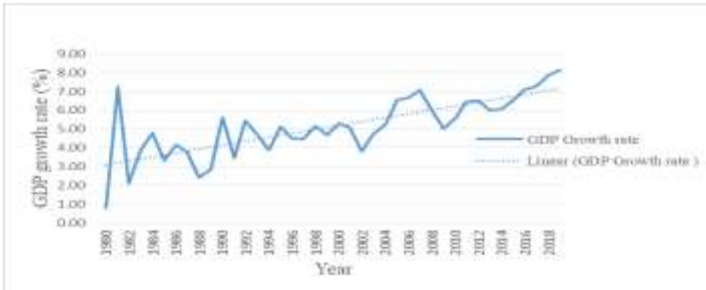

Figure 2: Trend of GDP Growth rate in Bangladesh.
Source: Authors own compilation from the world economic data indicator

The trend line GDP growth rate shows that, Bangladesh starting with less than 1% annual GDP growth rate in 1980 and eventually reaches up to about 5% average annual GDP growth rate during the period of 1981-2009. From then and on wards Bangladesh attained an average annual 6.76% GDP growth rate during the period 2010-2019. The uplifting trend of the annual GDP growth rate is achieved due to the continuous inflow of funds and appropriate investment in multiple sectors in Bangladesh.

Analyzing the impact of FDI on GDP growth rate in Bangladesh*:* The impact of FDI inflow on the GDP growth rate in Bangladesh is analyzed below:

Table: 1 Descriptive Statistics of the variables.

	Mean	Std. Deviation	N
GDP	5.1403	1.61219	40
FDI	659.6565	905.89479	40

The result of table (1) shows that the Mean GDP over the study period is 5.14% and the standard deviation is 1.61% whereas the mean value of FDI inflow is 659.65 million USD over the study period.

Table: 2 Correlations.

		GDP	FDI
Pearson Correlation	GDP	1.000	.660
	FDI	.660	1.000
Sig. (1-tailed)	GDP	.	.000002
	FDI	.000002	.
N	GDP	40	40
	FDI	40	40

The above table (2) shows that, the correlation between FDI and GDP growth rate is significant as it represents that Pearson Correlation coefficient is .660 which indicates that the value of independent variable FDI influence positively to the dependent variable GDP growth rate.

Table: 3 Model Summary[b].

Model	R	R^2	R^2_{adj}	Standard error of the estimates	R square change	F change	df 1	df 2	Sig. F change	Durbin-Watson
1	.660[a]	.436	.421	1.22690	.436	29.341	1	38	.000004	1.912
a. Predictors: (Constant), FDI b. Dependent Variable: GDP										

Table (3) represents the regression model summary in which R indicates the correlation between the independent and dependent variable. As the value of R is .660 denotes that there is a positive significant correlation between FDI and GDP growth rate in Bangladesh. On the other hand, the value of R square is .436 indicating that the value of the GDP growth rate is influenced by 43.60% by the independent variable FDI inflow in Bangladesh.

Table: 4 ANOVAa.

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	44.166	1	44.166	29.341	.000004[b]
	Residual	57.201	38	1.505		
	Total	101.367	39			
a. Dependent Variable: GDP						
b. Predictors: (Constant), FDI						

The above ANOVA table (4) shows that; the significance value is less than .05 meaning that the model is statistically significant to predict how the volume of FDI inflow affects the GDP growth rate in Bangladesh. The calculated value of F is greater than the critical value of F which denotes the model is statistically significant with a significant value of .000004.

Table: 5 Coefficients[a].

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	4.365	.241		18.111	2.7637E-20	3.877	4.853
	FDI	.001	.000	.660	5.417	.000004	.001	.002
a. Dependent Variable: GDP								

The above table (5) represents a summary of the linear equation. The significance value is .000004 which is less than .05 indicating there is a significant relationship between the two variables.

Result of hypothesis testing: The null hypothesis (Ho) is rejected and the alternative hypothesis (H1) is accepted as the significance value is .000004 which is less than .05 indicating there is a positive relationship between FDI inflow and GDP growth rate in Bangladesh.

Findings, Recommendations, and Conclusions: The study reveals that there is a significant positive relationship between independent variable FDI and dependent variable GDP growth rate in Bangladesh. Furthermore, it demonstrates the foreign flow of funds growth rate which shows a steady positive growth rate over the study period. The result of this study can be utilized further to identify the others factors which significantly affect the GDP growth rate in Bangladesh. From the result of the study, we can make a conclusive remark that the government of Bangladesh may attempt to introduce more foreign flow of funds to accelerate the annual growth rate of GDP by ensuring a conducive business environment and promoting prospective sectors of investment.

The government of Bangladesh should undertake following measures to enhance GDP growth rate in Bangladesh:

(i) Ensure friendly foreign investment environment through accelerating FDI inflows in global partnership arrangement.
(ii) Enhance inwards inflows of FDI and reducing foreign investment opportunities by the host countries.
(iii) Provide tax holidays opportunities for the prospective companies from outsider's countries.

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List of Abbreviations

D	Durbin-Watson test
FDI	Foreign direct Investment
GDP	Gross domestic product
H_0	Null hypothesis
H_1	Alternative hypothesis
r	Pearson correlation coefficient
r-value	Pearson correlation coefficient
R^2	Coefficient of determination
${R^2}_{adj}$	Adjusted coefficient of determination
Sig.	Significance Value
SPSS	Statistical package for the social sciences