



Impact of Foreign Direct Investment, Inflation, and Trade Openness on the Economic Growth in Bangladesh: An Econometric Approach

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Abstract

The real Gross Domestic Product (RGDP), foreign direct investment, inflation, and trade openness are the most crucial macroeconomic indicators for a country. These indicators are an integral part of the overall development effort and national growth of all countries like Bangladesh. This paper investigates the impact of foreign direct investment (FDI), inflation, and trade openness on economic growth in Bangladesh using annual time series data from 1972 to 2019 by using the Johansen cointegration test, VECM approach, and Granger causality test. The Johansen Co-integration test results confirm that there is a statistically significant long-run relationship among FDI, inflation, trade openness and economic growth. The results of the VECM show that the disequilibrium in the long-run economic growth is corrected or adjusted by 12.2% in the short-run following the next year. The results also suggest that FDI has a statistically significant positive impact on economic growth, trade openness also has a statistically positive impact on economic growth but inflation has a statistically significant negative relationship with economic growth. The results from the Granger causality test reveal that there exists a unidirectional causal relationship from RGDP to FDI, from inflation to RGDP, from trade openness to RGDP and trade openness to FDI. Therefore the study concludes that government of Bangladesh should reformulate the current policies regarding the FDI, and trade openness and should introduce effective policies to reduce inflation rate to enhance its economic growth.

Keywords: Economic Growth, FDI, Trade Openness, Johansen Co-Integration test, VECM, Granger Causality.

1. Introduction

The real Gross Domestic Product (RGDP), foreign direct investment, inflation, and trade openness are the most crucial macroeconomic indicators for a country. These indicators are an integral part of the overall development effort and national growth of all countries like Bangladesh. In modern economic studies, economic growth analysis is one of the most concerning issues that provide the forecast of further economic analysis of the world economy. Another crucial component of economic studies is the FDI. These two materials are also closely related to each other. Foreign Direct Investment refers to the net inflow of direct investment in an economy of a country by any other country or business firm. FDI consists of the sum of equity capital, reinvestment of earnings, long term and short-term capitals/ intra company loans. It generally involves participation in management, joint venture, transfer of technology and experience.

Industrial development is an important prerequisite for the economic growth of a developing country. Researchers have marked FDI as an important factor in accelerating economic success and wealth of a country as well as a door in creating jobs, creating a more competitive environment and contributing productivity to the host country. FDI also brings transfer of new business and enhance skills of local labor by introducing new technology and knowledge. Host country can promote its products in the international market. FDI is mainly used to reduce saving-investment gap.

As Bangladesh is a developing country, FDI has a significant role in the modernization of her economy as well as in accelerating the GDP. Economic growth can be fostered by FDI due to many reasons. It will bring technological improvement in the economic growth. FDI also enhanced human resource and administrative ideas, skilled labor force and managerial skills. The interrelation among FDI, Inflation, trade openness, and Economic growth is therefore important to examine. This study aim at investigating whether there is any long-run relationship between FDI and GDP growth.

During the 1980s, FDI to Bangladesh was very little and mostly focused on banking and a few other sectors. She started attracting FDI in the energy and power sector. For unexplored gas and oil resources, in 1996 supportive economic policies were reformed. In 1972, the annual FDI inflow was 0.09 million USD and in 1996 it became 231.61 million USD which rose significantly in 2008 to 1086.31. FDI scenario in Bangladesh was not much promising from the period 1980-2010. But the FDI scenario in Bangladesh was increasing significantly during the last few years which rose

significantly in 2018 to 3613.30. But in the last year it has declined to 2873.95 million USD in 2019 (Bangladesh Board of Investment). FDI inflows (net) from major countries during 2019 were China, United Kingdom and Singapore. The impact of FDI in economic growth depends on the degree of the capacity of the host country to use FDI efficiently.

The remaining sections of this study are arranged as follows: Section 2 discusses the literature review of the study and Section 3 represent data and research methodology. Section 4 presents the results and discussion. Finally, Section 5 provides the conclusion of the study.

1.1 Objective of the study

The general objective of the study is to investigate the impact of foreign direct investment (FDI), inflation, and trade openness on the economic growth in Bangladesh over the periods from 1972 to 2019. Subsequently the specific objective of this study is as follows:

- i. To find out whether there is any relationship between FDI and economic growth.
- ii. To find out impacts of the inflation and trade openness on economic growth in Bangladesh.
- iii. To examine if there is a long-run or short run relationship among GDP, FDI, inflation and trade openness.
- iv. To determine the direction of the causality among GDP, FDI, inflation and trade openness.

1.2 Justification of the study

FDI in developing countries, especially in Bangladesh, takes a trembling of GDP stimulation. The need for this research arises because FDI promotion policies have been encouraged and still now the policies are encouraging the developed countries' desire to promote their economies. FDI traditionally implies the export of real capital from home to the host nation. It also allows the transfer of technology and FDI inflow to emerge export-oriented sectors that enhanced the domestic economic growth and infrastructure development. Profits generated by FDI contribute to the corporate and tax revenue of the host country. FDI enhanced the employment generating activities and contributes to human capital development. So, the contribution of FDI to the growth of an economy is considerable. But on the other hand, when the capital outflow from the country, it actually does not contribute to GDP growth. In our country, despite increasing the volume of FDI, we have a poor rate score in net inflow. The study about FDI net inflow in Bangladesh can find out the actual relationship between FDI and GDP Growth.

2. Literature review

On the question of economic development with foreign Direct Investment, a thick layer of studies and comments are available. Though, it turns to be a matter of further analysis as there are still some conflicts among the results of studies. But most of them show a positive relationship between FDI and the GDP growth.

De Mello (1989) concludes that FDI has positive impact on economic growth but this evidence is weak. Zhang (2001) finds the existence of the positive relationship between FDI and economic growth and concludes that the magnitude of the above mentioned relationship depends upon host country's conditions. Bengoa and Sanchez-Robles (2003) analyze panel data of 18 Latin American countries and reach to the same conclusion.

Charkovic and Levine (1998) use both panel and cross section data for 72 developing and developed countries for the period 1960-95 for analyzing the relationship between FDI and economic growth. They employ OLS and GMM methods of estimation and fail to find the existence of the relationship between FDI and economic growth.

Kukeli *et al.* (2006) find a positive relationship between FDI and output in ten Central Asian and Eastern European countries. Shujie and Wei (2007) find positive impact of FDI on the economic growth of newly industrialized countries. Pardhan (2009) investigates the causal relationship between FDI and economic growth in ASEAN countries namely Indonesia Malaysia, Thailand Singapore and Philippines over the period 1970-2007. The study finds bidirectional causality between FDI and economic growth except Malaysia.

Herzer *et al.* (2008) re-examine the FDI-led growth hypothesis for 28 developing countries. Using Engle-Granger co-integration and error correction model, they fail to find the existence of long-run and short-run relationship between FDI and economic growth in most of the countries included in the sample. They find no evidence of causality between FDI and economic growth. Wu and Hsu (2008) use cross-sectional data of 62 countries for the period 1975

Mottaleb (2007) studies the determinants of FDI and its effect on economic growth in developing countries. He studies panel data of FDI flows of sixty low-income and lower-5 middle income countries. He says that FDI has an important impact on economic growth of developing countries

by creating bridge between the gap of domestic savings and investment and familiarizing the up to date technology and management skill from developed countries.

Abdul Rehman, Orangzab, Ali Raza (2009) conducts an analysis by using the data collected over the period of 1975-2008 and identified the determinants of FDI and its impact on Economic growth in Pakistan through different statistical tests and found positively significant impact of FDI on Economic growth of Pakistan. Furthermore, these results indicate that market size, trade openness / access to international market and quality of labor are the major determinants that have significant affect on the FDI inflow. The study also found no affect of market potential and communication facility on the attraction of FDI inflow in Pakistan.

Muhammad Azam (2010) examines the impacts of exports and FDI on economic growth of South Asian countries namely Bangladesh, India, Pakistan and Sri Lanka with simple log linear regression model using secondary data ranging from 1980 to 2009 and found that due to promotion of exports, economic growth of each country would increase. He also finds FDI as positively significant at 1% level of significance for Bangladesh and Pakistan, while for India it's insignificant and in case of Sri Lanka though it is significant but with unexpected negative sign.

Quader, Syed Manzur (2009) applies extreme bounds analysis to the data of the various catalyst variables of FDI inflows in Bangladesh. They finds FDI and domestic investment have a positive effect on economic growth. Foreign investment helps to fill the saving-investment gap caused by the lack of domestic savings converting into investment (Ahmad 1990). Bangladesh specifically faces many obstacles in expanding its cities with overpopulation and low GDP per capita. FDI is a fundamental and necessary component for long-term sustainable growth in Bangladesh (Sattar 1999).

In Bangladesh FDI plays a very important role in achieving expected economic growth. FDI flows have been successful in increasing GDP. At the same time, FDI has also made a contribution in improving the income level of Bangladesh. FDI can ensure Bangladesh to realize higher growth by having the capabilities of using all the resources to the fullest potential. There is an increasing trend in foreign investment due to positive effect of the incentives provided and changes in our economic policies. FDI has positive correlation with GDP, export and private investment. (Afsana Rahman, May 2012, FDI in Bangladesh- prospects and challenges and its impacts on economy, online)

FDI inflows have been able to increase GDP by raising the economy's output capacity and full employment level. At the same time, it has also delivered development by improving per capita income levels. These enhancements are allowing the country to become more export-oriented and continue on its quest for development. Overall, FDI can provide the necessary tools for Bangladesh to progress further and realize higher growth levels by utilizing all its resources to their fullest potential (Razeen Kabir, 2007).

Using modern time series econometric approach Shafin, Abdullah and Salina identified that there is very poor statistical indication of long run relationship between foreign direct investment and economic growth and it is observed that foreign investment helps to fill the saving-investment gap caused by the lack of domestic savings converting into investment (Ahmad 1990).

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3. Methodology of the Study

3.1 Sources of Data and Time Preference

This study uses annual time series data of real GDP which is used as a proxy for economic growth, FDI net inflow, Trade Openness (TO) that is $\{(Export + Import) \div GDP\} \times 100\%$, and Consumer Price Index (CPI) which is used as a proxy for Inflation covering the period from 1972- 2019 in Bangladesh to examine the relationship between economic growth and FDI net inflow along with inflation and trade openness. This paper is fully based on secondary information. The relevant secondary data are collected from World Bank and International Monetary Fund (IMF).

3.2 Methods of data analysis

To examine the relationship between economic growth and FDI net inflow, inflation and trade openness, this study are employed by using the Johansen cointegration test, VECM approach, and Granger causality test. The Augmented Dickey-Fuller Test is employed to determine whether the variables in the model are stationary or non-stationary. To investigate the extent of the long-run relationship among Economic growth, FDI, Trade Openness and inflation, this study has resorted to econometric modeling such as the Johansen Cointegration test. The vector error correction

model (VECM) are employed to estimate the error correction term and short run relationship. To determine the direction of the causality among GDP, FDI, Trade Openness, and inflation in Bangladesh, this study has used Granger Causality Test.

3.3 Specification of the Econometric Model

In the light of the literature review section and the following equation is used as the basic model. Economic growth are used as the dependent variable while FDI, Trade Openness and Inflation are used as the independent variable. If all the remaining economic variables remain constant then the functional relationship between the variables can be expressed as:

$$\text{Real GDP} = f(\text{FDI}, \text{INF}, \text{TO}) \quad 1$$

The above model in its explicit form is written as:

$$\Delta \text{RGDP}_t = \beta_0 + \beta_1 \text{FDI}_t + \beta_2 \text{INF}_t + \beta_3 \text{TO}_t + \varepsilon_t \quad 2$$

Where, RGDP is that the Real Gross Domestic Product, FDI is the foreign direct investment net inflow, INF is the inflation and TO is the trade openness. β_0 is constant, β_1 , β_2 , and β_3 are coefficients and ε is White Noise Disturbance Error Term, and t is the time periods.

3.4 Estimation Techniques

3.4.1 Unit Root Test for Stationary of Data

The main purpose of conducting the unit root test is to understand the time series data we've used whether stationary or non-stationary. Before estimating our defined model it's essential to test out the stochastic properties of the variables to be estimated. In this study, this task is realized by conducting the unit root test. The analysis is completed using the Augmented Dickey-Fuller (ADF) test. The null hypothesis for the test is unit root or the time series is non-stationary (i.e. $\delta-1 = 0$) while the alternative hypothesis states that there's no unit root or the time series is stationary (i.e. $\delta-1 < 0$).

3.4.2 Co-integration Test

Two variables will be co-integrated if they have a long-term or equilibrium relationship between them. In this study, the study employed the Johansen co-integration test to check co-integration

since it's the single test that which can estimate more than one co-integration relationship if the data set contains two or more time-series data also as gives the utmost rank of cointegration.

To determine the number of co-integration vectors, Johansen and Juselius suggest the use of two statistical tests which are the Trace test and Maximum Eigenvalue test. These two tests are estimated with the following equation

$$\lambda_{\text{trace}}(r) = -T \sum_{j=r+1}^n \ln(1 - \hat{\lambda}_j) \quad 3$$

$$\lambda_{\text{max}}(r, r+1) = -T \ln(1 - \hat{\lambda}_{r+1}) \quad 4$$

Where λ_{trace} test the null hypothesis $r = 0$ against the alternative hypothesis of $r > 0$

T = number of usable observations

λ_i = Eigenvalues or estimated characteristics root

λ_{max} test the null hypothesis $r = 0$ against the alternative hypothesis of $r = 1$

3.4.3 Vector Error Correction Model

The main purpose of the VECM model is to detect the speed of adjustment from short-run equilibrium to the long long-run equilibrium through the coefficient of the error correction term which would imply long-run causality.

Equation (2) can be transformed into the VECM model as follows:

$$\Delta \text{RGDP}_t = \beta_0 + \lambda \text{ECM}_{t-1} + \sum_{i=1}^k \beta_1 \Delta \text{RGDP}_{t-i} + \sum_{i=1}^k \beta_2 \text{FDI}_{t-i} + \sum_{i=1}^k \beta_3 \Delta \text{INF}_{t-i} + \sum_{i=1}^k \beta_4 \Delta \text{TO}_{t-i} + \varepsilon_t \quad 5$$

Where β_0 is the Constant term, Δ is the first difference operator, k denotes the lag length, and λ is the speed of adjustment, ECM_{t-1} is the lagged error term and ε_t is the white noise disturbance error term. In this specification, a long-run convergence process works between variables if the parameter (λ) of the error correction term is negative and statistically significant in terms of its associated t-values.

4. Data Analysis, Interpretation, and Result discussion

4.1 Descriptive Statistics

Descriptive analysis is conducted to find out the statistical properties of the variables. Table 1 shows descriptive statistics of the variables of the estimation model. The mean and median values for all variables are on the brink of one another depict minor symmetry. The maximum, minimum,

and standard deviation explain the measure of the dispersion of the data. Here the data aren't widely scattered. Additionally, the standard deviation for each variable is found low as compared to the mean value, showing a small coefficient of variation. Similarly, the low numeric skewness confirms normality. The value of the RGDP, FDI, inflation, and trade openness is positively skewed. Besides the Jarque-Bera test statistics for each variable indicates normality of the distribution since the probability values of the Jarque -Bera test are greater than 0.05. Thus, the normality of the distribution is ensured within the present study.

Table 1. Descriptive Statistics of the Variables

Variables	RGDP	FDI	INF	TO
Mean	72.597	0.550	9.420	27.731
Median	54.131	0.014	8.691	26.201
Maximum	209.974	2.831	20.200	48.111
Minimum	21.476	-0.008	1.908	10.996
Std. Dev.	50.559	0.862	5.084	9.989
Skewness	1.119	1.443	0.734	0.499
Kurtosis	3.263	3.676	2.535	2.066
Jarque-Bera	10.150	17.573	4.740	3.740
Probability	0.006	0.000	0.093	0.154
Observations	48	48	48	48

4.2 Unit Root Test Results

Before testing for co-integration, the unit root test is conducted to establish the stationary properties of the data on the chosen variables. The Augmented Dickey-Fuller test is employed on the time series variables. The results for the test are presented in the following table.

From the table 2, the result reveals that all variables are non-stationary at level form. This is because the computed absolute values of the ADF test statistics do not exceed the critical values of ADF which led a study to fail to reject the null hypothesis and state that there is the unit root or the time series is non-stationary. But all the variables become stationary after the first difference as the computed absolute values of the ADF statistics exceeded the ADF critical values, which led

a study to reject the null hypothesis. This as well, means that GDP growth, FDI, CPI, Trade openness all variables are integrated of order one I (1).

Table 2. Unit Root Tests Using (ADF) Test at Levels and First Difference

Variables	ADF		Decision	Order of Integration
	Level	First difference		
RPGDP	2.421	6.088***	Stationary	I(1)
FDI	-0.867	-3.543**	Stationary	I(1)
INF	-2.195	-8.950***	Stationary	I(1)
TO	-1.097	-7.303***	Stationary	I(1)

Notes. ***, **, * indicates significance level of 1%, 5%, 10%, respectively. The 95% critical values for ADF are -3.524

4.3 Optimal Lag Length Selection:

Before conducting with the Johansen's co-integration test and the Vector Error Correction model, the optimal lag selection criteria are applied to determine the lag length to be used in carrying out the estimation. The lag selection can be done through the basis of Final Prediction Error (FPE), Akaike Information Criteria (AIC), Schwartz Information Criterion (SC), and Hannan and Quinn Information Criteria (HQ) are presented in table 3. All the criteria, the maximum lag length of 1 is selected and it is used throughout the analysis of the present study.

Table 3. VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-500.316	NA	106082.700	22.923	23.086	22.984
1	-235.654	469.174*	1.314*	11.621*	12.432*	11.921*
2	-221.899	21.882	1.484	11.723	13.182	12.264
3	-209.005	18.169	1.795	11.864	13.972	12.646
4	-194.789	17.447	2.144	11.945	14.702	12.968

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

4.4 Johansen Cointegration Test

As the all variables are integrated of order one, I (1) this, therefore necessitated the test for the presence of co-integration in the variables. Besides, as in the optimal lag length selection criterion, the maximum lag length of 1 is selected, the test is conducted by using the Johansen co-integration test to examine the long-run relationship among GDP, FDI, inflation and trade openness. For co-integration analysis based on Johansen, two tests are available, the trace statistic and the maximum eigenvalue test. If the calculated values for Trace statistics and the Maximum Eigen-value statistics are greater than the critical values, it confirms the existence of long -run relationship among the variables and vice versa. Table 4 and 5 presents the results of the test.

Table 4. Cointegration Test Using the Trace Test

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.625	76.671	47.856	0.000
At most 1 *	0.366	31.573	29.797	0.031
At most 2	0.146	10.611	15.495	0.237
At most 3	0.070	3.350	3.841	0.067
Trace test indicates 2 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Table 5. Cointegration Test Using the Maximum Eigenvalue Test

Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.625	45.099	27.584	0.000
At most 1	0.366	20.962	21.132	0.053
At most 2	0.146	7.261	14.265	0.459
At most 3	0.070	3.350	3.841	0.067
Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

In Johansen's cointegration method, both the eigenvalue and trace statistics can be used to determine whether variables are cointegrated in the long run or not. The co-integration result of Trace value statistics indicates that the number of co-integrating equations is two at a 5% level of significance. And the co-integration result of the Maximum Eigenvalue statistics indicates the number of co-integration equations is one at a 5% level of significance. For simplification, the study uses one co-integration equation. The presence of cointegration implies that GDP growth, FDI, CPI, and Trade openness share a long-run equilibrium relationship. Therefore, these results allow in estimating the Vector Error Correction Model.

4.5 Vector Error Correction Model

Since the co-integration test results shows long-run connection among the variables, therefore the study is used VECM to determine the short-run relationship among FDI, inflation, trade openness and economic growth in Bangladesh. Table 6 shows the results of VECM where there is a stable long-run equilibrium relationship and short-run relationship among the variables.

Table 6. The Results of the Short-run Dynamic Relationship between the Variables (VECM).

Variables	Coefficient	Std. Error	t-Statistic	Prob.
Constant	4.486	0.626	7.168	0.000
ECT_{t-1}	-0.122	0.017	-7.378	0.000
$\Delta RGDP_{t-1}$	-0.124	0.167	-0.741	0.463
ΔFDI_{t-1}	0.038	0.018	2.111	0.042
ΔINF_{t-1}	-0.103	0.044	-2.344	0.024
ΔTO_{t-1}	0.069	0.033	2.123	0.040
R-squared	0.974	Mean dependent var		4.082
Adjusted R-squared	0.971	S.D. dependent var		3.795
S.E. of regression	0.648	Akaike info criterion		2.092
Sum squared resid	16.812	Schwarz criterion		2.331
Log likelihood	-42.120	Hannan-Quinn criter.		2.182
F-statistic	300.414	Durbin-Watson stat		2.047
Prob(F-statistic)	0.000			

The coefficient of the error correction term ECT_{t-1} is negative, as expected, and also statistically significant which confirms the existence of a long-run causal relationship running from the FDI,

inflation, and trade openness to economic growth (GDP). This also implies that FDI, inflation, and trade openness jointly promote economic growth (GDP) in the long run in Bangladesh. The speed of adjustment of the error correction term is -0.122 which implies that about 12.2 percent of the disequilibrium in the previous year's shock adjusts back to the long-run equilibrium in the current year.

The VECM results reveal the impact of FDI inflows, inflation and trade openness on RGDP growth. The VECM result shows that all the estimated coefficients are highly statistically significant, for their P values are small. The coefficient of Net inflow of FDI is positive which means that foreign direct investment has positively influence on Economic growth in Bangladesh. The sign of inflation co-efficient is negative. The result indicates that inflation is negatively correlated to the economic growth of Bangladesh and it has not yet been established as a significant determining factor for the economic growth of Bangladesh. Also, an increase in country's trade openness (TO) has resulted a positive increase in economic growth in Bangladesh.

The coefficient of determination (R square) =0.974 implied that about 97.4% of the variation in RGDP has been explained by FDI, trade openness and inflation rate and about 2.06% is captured by error term to induce other factors which might have a substantial influence on economic growth but are not included in the model. Since the large percentage of variations in economic growth have been explained by FDI, Trade openness and inflation rate, this means that this model is well fit.

4.6 Pairwise Granger Causality Test:

The pairwise Granger Causality test is employed to analyze the cause and the effect relationship between the variables used in the study and to further analyze the causal relationship among economic growth, FDI, inflation, and trade openness. The results of the pairwise Granger Causality test are shown in table 7. The result based on the significant probability values less than or equal to 0.05 shows that there exists only a unidirectional causal relationship from RGDP to FDI, from inflation to RGDP, from trade openness to RGDP, from trade openness to FDI.

Table 7. Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.	The decision about the direction of Causality
FDI does not Granger Cause RGDP	47	0.046	0.831	Accept H0
RGDP does not Granger Cause FDI		6.095	0.018	Reject H0
INF does not Granger Cause RGDP	47	5.344	0.026	Reject H0
RGDP does not Granger Cause INF		0.568	0.455	Accept H0
TO does not Granger Cause RGDP	47	11.884	0.001	Reject H0
RGDP does not Granger Cause TO		0.773	0.384	Accept H0
INF does not Granger Cause FDI	47	0.169	0.683	Accept H0
FDI does not Granger Cause INF		0.483	0.491	Accept H0
TO does not Granger Cause FDI	47	10.640	0.002	Reject H0
FDI does not Granger Cause TO		0.191	0.664	Accept H0
TO does not Granger Cause INF	47	1.147	0.290	Accept H0
INF does not Granger Cause TO		0.986	0.326	Accept H0

4.7 Diagnostic Tests:

This study also conducted diagnostic tests for the VECM model. The result of the diagnostic tests reveals that the model is free from the non-normality of the errors, serially correlated errors, ARCH effect, and heteroscedasticity from the probability value are greater than 5%.

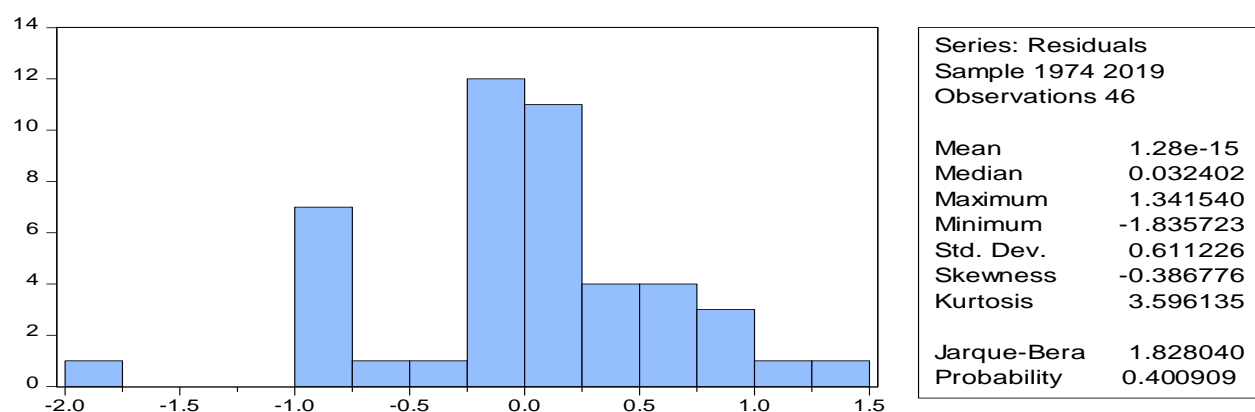


Figure 1. Test for Normality of the Residual

Table 8. Breusch-Godfrey Serial Correlation LM Test Result

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.888	Prob. F(1,39)	0.177
Obs*R-squared	2.124	Prob. Chi-Square(1)	0.145

Table 9. Heteroscedasticity Test Result

Heteroskedasticity Test: ARCH			
F-statistic	3.644	Prob. F(1,43)	0.063
Obs*R-squared	3.516	Prob. Chi-Square(1)	0.061

5. Conclusions

The main objective of the study is to analyze the relationship between the net inflow of FDI and economic growth in Bangladesh along with two other factors- inflation rate and trade openness. This study investigates the long-run causal relationship among economic growth, FDI, inflation, and trade openness using annual time series data over from 1992 to 2019. The study follows an econometric approach to avoid spurious regression results where various tests are performed. All methods are run using Eviews with GDP growth rate as the dependent variable while FDI, Trade Openness and which is used as a proxy variable for Inflation are used as the explanatory variable.

This study is employed the Johansen Cointegration test, and the Vector Error Correction Model. Besides, the estimation methodology employed is the Augmented Dickey-Fuller (ADF) Test, and the Granger Causality Test. The results of the unit root test show that all the variables are found to be stationary after first differencing under the ADF test. The Johansen's cointegration test result shows that the variables are cointegrated and thus have a long-run causal relationship among FDI, inflation, trade openness, and GDP growth in Bangladesh. The VECM results confirm the existence of the long-run causal relationship running from the FDI, inflation, and trade openness to economic growth. From the analysis, it is evidenced that there is a positive correlation between FDI and the growth of real GDP. Trade openness also has a statistically significant positive impact on economic growth in Bangladesh and inflation has a statistically significant negative relationship

with economic growth. This implies that FDI, inflation, and trade openness has a significant impact on economic growth in Bangladesh.

The result of the Granger Causality test reveals that there exists a unidirectional causal relationship from RGDP to FDI, from inflation to RGDP, from trade openness to RGDP and trade openness to FDI. From the above result discussion, the study conclude that there is a dynamic relationship among FDI, inflation, Trade openness, and economic growth in Bangladesh. The above empirical exercise does find a significant role for FDI in the economic growth in Bangladesh. It can be said that FDI has a positive impact on the economic growth on Bangladesh.

The FDI policy should be formulated as follows that causes the attraction of more foreign potential direct investors and NRIs to take a position within the country in those sectors which create employment and income on a large scale. The country needs more FDI to the priority sectors, so that country gets immediate yields from the investment. Investment in the infrastructure export-led manufacturing sectors can contribute more and FDI is imperative in this case.

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