# Foreign Direct Investment-growth Nexus Revisited: New Evidence from Bangladesh

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**ABSTRACT**

Due to mixed empirical findings, Foreign Direct Investment (FDI)-growth nexus is still an issue of debate. This paper estimates the long-run association between FDI and economic growth for Bangladesh using time series data for the period 1985–2014. Results from dynamic ordinary least squares demonstrate positive and significant long-run relationship between FDI and economic growth. A bidirectional causality also exists between them. The study further indicates that financial development (FD) and trade openness (TO) also Granger cause economic growth. Variance decomposition analysis results confirm the future positive role of FDI, TO and FD in the context of Bangladesh. Policy implications are discussed.

**Keywords:** Bangladesh, Dynamic Ordinary Least Squares, Economic Growth, Foreign Direct Investment
**JEL Classifications:** F21, F43

## 1. INTRODUCTION

Growth heterogeneity across countries has drawn academic attention and curiosity for quite a while now. Factors contributing towards such heterogeneity especially in developing countries have been a key focus among development researchers. Foreign Direct Investment (FDI) is recognized as one of the growth-enhancing factors that may potentially reduce such asymmetry in growth (Rahman, 2009). With rapid globalization in the last two decades, international transfers have become increasingly important for economies across the world. FDI is one of the most important catalysts for such transfers. It already proved itself to be critical towards formation of capital in both developed and developing countries (Iamsiraroj, 2016). One of the policy priorities of countries especially of developing countries is to attract FDI inflows with a view to boosting long-run economic growth through technology transfer, skill transfer and technical know-how among other potential benefits resulting from it.

Bangladesh is an emerging South Asian country with an impressive and stable GDP growth rate of over 6% in the last one decade despite being plagued with the highest density of population in the world and frequent natural calamities (Rahman, 2009). FDI

is expected to stimulate the economic growth of Bangladesh by creating employment opportunities, sharing knowledge and experience, enhancing technical know-how, boosting R and D and other positive externalities. Bangladesh has been consistently pursuing FDI-friendly policies for a long time to attract FDI. It offers one of the most liberalized trade policies in South Asia (Khatun and Ahamad, 2015).

The phenomenal growth in theoretical and empirical literature especially after the 1990s on FDI-growth nexus reflects the growing importance of such investigation. While FDI may potentially promote economic growth, economic growth itself may be a local determinant of FDI. The possibility of such reverse causality may lead to problems of endogeneity and simultaneity. Although a few studies have investigated FDI-growth association for Bangladesh (Khatun and Ahamad, 2016; Rahman, 2009; Faruk, 2013; Adhikary, 2013; Shimul, 2009), none of these studies considered the potential endogeneity and simultaneity problems that are likely to produce biased results. Thus, the core objective of this paper is to revisit the FDI-growth association for Bangladesh while addressing the problems of endogeneity and simultaneity within an endogenous growth model framework. As bivariate models are likely to suffer from variable omission bias

(Lean and Smyth, 2010), this study included two other potential variables - financial development (FD) and trade openness (TO) that affect growth.

The rest of this paper is structured as follows: Section 2 presents a literature review; data and methodology is discussed in Section 3; Section 4 presents the estimation results; and the paper ends with section 5, with conclusions and policy implications of the findings.

## 2. LITERATURE REVIEW

### 2.1. FDI, Trade Openness, FD and Economic Growth

In recent years, the rapid growth of FDI, speedy globalization of production and their overall magnitude have introduced huge interest that resulted in numerous studies in economics literature about the relationship between FDI, trade openness, FD and economic growth in host countries.

The neoclassical growth theory argues that FDI will only promote growth if it affects technology positively and permanently. It considers technological progress as exogenous (De Mello Jr, 1997; Solow, 1957). On the other hand, endogenous growth literature suggests that FDI can effect growth endogenously if it generates increasing returns in production via externalities and spillover effects. Endogenous growth model implies that FDI incorporates organizational, managerial, technical and human skills, innovation and technological progress and accumulation of knowledge endogenously (Borensztein et al., 1998; Lucas, 1988, Mankiw et al., 1992).

On the other hand, FDI may not always be beneficial to the host country according to dependency theories. These theories suggest that FDI may even have negative effect on growth and income distribution as these investments are made in certain sectors which may create monopoly resulting in underutilization of domestic resources (Adams, 2009). The influence of the FDI providing countries also matters. Thus, a negative multiplier effect of FDI may be in place that may even jeopardize the economy.

FD also contributes to economic growth. A developed financial system offers productive environment for efficient resource mobilization and allocation; better monitoring of investment projects which will contribute to higher economic growth (Levine, 1991; Shen and Lee, 2006; Ozturk, 2008; Acaravci et al., 2009; Faisal et al., 2016; Gungor and Ringim, 2017). Demetriades and Andrianova (2004) expressed that a sound financial sector is a precondition for innovations and efficient resource allocation. Blejer (2006) noted that countries with efficient financial systems are less prone to banking and currency crises and suffer much less when a crisis does occur. Alfaro et al. (2004) provide evidence that only countries with well-developed financial markets gain significantly from FDI in terms of their growth rates. The endogenous growth theories also emphasize that open trade policy promotes economic growth by reallocating factors of production to sectors that have comparative advantages in trade (Balasubramanyam et al., 1996; Solow, 1956).

The empirical literature about FDI and growth provides mixed results. Balasubramanyam et al. (1996) examined the effect of FDI on average growth rate for 46 countries over the period 1970–85. They found that FDI has a positive effect on economic growth in host countries which have an export promoting strategy, but not in countries which have an import substitution strategy. Bashir (1999) examined the empirical relationship between FDI and per capita GDP growth in selected six Middle East and North American (MENA) countries for the years 1975–1990 using a growth model. The study concluded that the larger the number of foreign firms operating in the economy and the higher the level of human capital, the higher the growth rate of the economy. The study also argued that the effect varies across regions and over time. Choe (2003), Mullen and William (2005), Tan and Tang (2016) and Yao (2006) also found positive relationship between FDI and economic growth in their studies.

In contrast, Carkovic and Levine (2002) concluded that FDI has no significant impact on economic growth. Alagoz et al. (2008) examined the relationship between FDI and economic growth for Turkey covering the data from 1992 to 2007. Their study found no granger causality between these two variables for that time period in Turkey. Roy and Mandal (2012) examined causal relationship between FDI and economic growth for selected nine Asian countries (China, India, Pakistan, Sri Lanka, Indonesia, Malaysia, Philippines, Singapore and Thailand). They employed Granger-causality test. Their study found bidirectional relationship only for Thailand. For Malaysia they found granger neutrality which implied that no causal relationship between these two variables for Malaysia. On the other hand, unidirectional causality- economic growth to FDI was found for rest of the seven countries.

The studies examining the impacts of FDI, trade openness and economic growth also provide inconclusive results for various countries. Alici and Ucal (2003) investigated the effect of Turkey's liberalization process on economic growth employing a Granger causal relationship between trade, FDI and economic growth during the period 1987–2002. They found that there is an evidence of Export- led growth hypothesis for Turkey but not FDI-led growth hypothesis because the spillover effects from FDI to GDP do not exist.

Yaoxing (2010) examines the long-run impact of FDI and trade openness on economic growth in Cote d'Ivoire using bounds testing cointegration approach and the VAR Granger causality tests over the period 1980–2007. The study found a long run relationship between the FDI, trade openness and output. It also revealed unidirectional causal relationship running from FDI, trade openness to output and from output, FDI to trade openness. Both FDI and trade openness are found significant for output growth in Cote d'Ivoire.

Belloumi (2014) examines the relationship between trade, FDI and economic growth for Tunisia by applying the bounds testing autoregressive distributed lag (ARDL) model for the period from 1970 to 2008. The tests confirm the existence of a long-run relationship. However it found no significant Granger causality from FDI to economic growth, from economic growth to FDI, from trade to economic growth and from economic growth to trade in the short run. Hisarciklilar et al. (2006) studied the relationship

between economic growth, FDI and trade in some MENA countries for the period 1970–2003 using the Engle cointegration and pairwise Granger Causality tests and found no causality between FDI and GDP for most of the Mediterranean countries.

Several studies have been made in this specific topic for Bangladesh. Alam (1999) noted that FDI inflow emerges export-oriented sectors which promote employment generation, infrastructure development and enhanced economic growth in Bangladesh. Kabir (2007) investigated the relationship of FDI and sustainable growth for Bangladesh and found positive result. Shimul (2009) examined the long run relationship between FDI and economic growth for Bangladesh using time series data of 1973–2007. They employed ARDL model and Engle granger two step procedures to analyze the data. The study found no cointegration between FDI and GDP. The granger causality revealed that the FDI and openness were not significantly causing the GDP per capital both in the short and long run.

Adhikary (2011) examines the linkage between FDI, trade openness, capital formation, and economic growth rates in Bangladesh over a period 1986–2008 using time series analysis. He found a strong unidirectional long-run relationship between GDP growth rates and the explanatory variables. The volume of FDI and level of capital formation are found to have significant positive effect on real GDP growth rates. The degree of trade openness releases negative but diminishing influence on GDP growth rates. He also recommended to formulate FDI-led polices to enhance economic growth for Bangladesh.

Javed et al. (2012) studied the relationship between FDI, trade and economic growth for four South Asian Countries (Bangladesh, India, Sri Lanka and Pakistan) using time series data from 1973 to 2010. They used generalized method of moments to analyze the data. They concluded that FDI has positive effect on growth in all countries except Sri Lanka. They also found positive impact of export on output growth for all countries. Hossain and Hosain (2012) investigated cointegration between FDI and GDP growth in both short run and long run for three south Asian countries (Bangladesh, India and Pakistan) for the period 1972–2008. They found no co-integration between FDI and GDP in the short and long run in Bangladesh and India. However, for Pakistan they found positive association in both the short and the long-run. Also a few other studies, Shimul (2009), Adhikary (2012), Faruk (2015), Khatun and Ahamad (2015) and Rahman and Ahsan (2015) used time series data to investigate FDI-growth relation for Bangladesh. But all these studies suffer from the weaknesses of endogeneity and simultaneity issues.

# 3. DATA AND METHODOLOGY

## 3.1. Model

Based on neoclassical, endogenous growth theories and dependency theories, this study assumes that economic growth is affected by FDI, FD and TO. Therefore, the following econometric equation was estimated for this study:

$$GDPCG_t = \beta_0 + \beta_1 FDI_t + \beta_2 FD_t + \beta_3 TO_t + \varepsilon_t \qquad (1)$$

Where $\beta_0$ and $\varepsilon_t$ are the constant and stochastic error term, respectively.

## 3.2. Data

In this study, we used annual data for 1985–2014 sourced from the World Development Indicators Database CD ROM (World Bank, 2013). The economic growth rate was defined as the real GDP per capita (GDPCG) growth rate. The variable FD was estimated from the ratio of credit to private sector as a share of GDP, while trade openness (TO) was defined as the sum of exports and imports as a share of GDP (Sassi and Goaied, 2013; Yartley, 2008).

## 3.3. Estimation Procedures

The estimation of our model proceeded as follows:
i.   A number of appropriate time series unit root tests were conducted to assess the stationarity of the data.
ii.  This follows Johansen maximum likelihood estimation test to verify the cointegrating relationship among the variables.
iii. Having confirmed the presence of a cointegrating association, the dynamic ordinary least squares (DOLS) (Stock and Watson, 1993) method was employed to estimate the coefficients of the long-run relationship between the variables.
iv.  Finally, the robustness of the causal association was checked by the variance decomposition analysis technique.

### 3.3.1. Unit root tests
Because the unit root test helps us with a robust causality assessment (Kumar, 2013), we employed KPSS (Kwiatkowski et al., 1992) and PP (Phillips and Peron, 1988) unit root tests to examine stationarity of data. However, these tests were followed by another test, the Dickey Fuller-generalized least squares (DF-GLS) proposed by Eliott et al. (1996) — as it is considered to a more powerful test than these conventional ones.

### 3.3.2. Cointegration tests
Since the respective variables are found to be first-difference stationary, a cointegrating association between variables cannot be ruled out. Therefore, we have applied Johansen (1988) maximum likelihood ratio tests in order to a examine cointegration.

### 3.3.3. DOLS estimates
Finally, the authors applied DOLS estimation method to estimate the long-run coefficients between the variables. The rationale for applying this test is that DOLS regresses one of the I(1) variables, the I(0) variables and lags and leads of the first difference of I(1) variables and thus addresses simultaneity problem. Also another strength of this technique is that it doesn't allow endogeneity of any of the regressors on the robustness of the estimates. It is asymptotically equivalent to the maximum likelihood estimation of Johansen (1988). Nevertheless, this DOLS proved to provide a superior performance especially in finite samples as is the case of this study. To conserve space, this study skips the mathematical derivation of DOLS. The detailed derivation can be obtained from Stock and Watson (1993).

### 3.3.4. Variance decomposition analysis
Despite its importance for policy implications, one of the weaknesses of the causality analysis is that it cannot predict the

strength of the causal relationship beyond the sample period. To overcome this limitation and to forecast FDI-growth relationship beyond the sample period, this study employed variance decomposition analysis technique. The variance decomposition (Pesaran and Shin, 1998) measures the percentage contribution of each shock in the dependent variable resulting from the shocks in independent variables beyond the selected time period. The main advantage of this approach is that it can be applied regardless of the order of variables. Engle and Granger (1987) and Ibrahim (2005) It is argued that the variance decomposition approach produces more reliable results than other traditional approaches (Engle and Granger, 1987; Ibrahim, 2005).

## 4. EMPIRICAL RESULTS

Table 1 presents descriptive statistics of the log values of all the variables. It reveals that the data are fairly dispersed around the mean having a considerable degree of homogeneity. This justified further estimation of our data.

Table 2 presents the variance inflation factor (VIF) results which clearly demonstrate that all VIF values are less than 5, implying that our model is free from the threat of the multicollinearity problem.

The unit root results are reported in Table 3. All the variables were found to be first difference stationary, indicating the presence of unit root in the data. This implies the likelihood of the presence of a cointegrating relationship among the variables.

Table 4a and b presents results from the Johansen cointegration test, trace and rank respectively. From the results, it is evident that there is at least one cointegrating vector in the model. Thus, it can be concluded that there is a long-run cointegrating relationship among the variables.

### Table 1: Descriptive statistics

| Statistics | GDPCG | FDI_PER_CAP | FD | TO |
|---|---|---|---|---|
| Mean | 3.139081 | 0.423044 | 25.61722 | 31.06383 |
| Median | 3.241412 | 0.329348 | 23.54851 | 31.85240 |
| Maximum | 5.897514 | 1.261671 | 43.00067 | 48.11092 |
| Minimum | −0.497704 | −0.030814 | 13.15682 | 17.27320 |
| SD | 1.696413 | 0.437919 | 9.790512 | 9.835075 |
| Skewness | −0.399845 | 0.470085 | 0.333252 | 0.039161 |
| Kurtosis | 2.348148 | 1.686104 | 1.850104 | 1.798162 |
| Jarque-Bera | 1.286169 | 3.154043 | 2.134508 | 1.752748 |
| Probability | 0.525668 | 0.206589 | 0.343952 | 0.416290 |
| Sum | 91.03334 | 12.26829 | 742.8994 | 900.8511 |
| Sum square deviation | 80.57888 | 5.369638 | 2683.916 | 2708.403 |
| Observations | 29 | 29 | 29 | 29 |

### Table 2: VIF

| Variable | Coefficient variance | Centered VIF |
|---|---|---|
| FDI_PER_CAP | 0.368185 | 4.683399 |
| FD | 0.002201 | 7.73714 |
| TO | 0.002356 | 8.83072 |
| C | 0.416009 | NA |

VIF: Variance inflation factor

Results from DOLS estimation are reported in Table 5. The coefficients suggest that a 1% increase in FDI would cause a 0.47% rise in the economic growth in Bangladesh. FD has a positive but insignificant association with economic growth. Increasingly liberalized trade policies in recent years has started paying off Bangladesh economy. This is reflected in the findings of this study in that, trade openness has a positive and statistically significant effect on economic growth. A 1% rise in trade openness is likely to lead to a 0.21 increase in economic growth.

Table 6 reported Granger causality results. The results indicate that both the null hypotheses of no causal link between FDI and economic growth and between economic growth and FDI are rejected meaning that a strong bidirectional causality exist between them. A bidirectional causal association also exists between trade openness and economic growth. A unidirectional causal linkage running from FD to economic growth is also found to exist.

Variance decomposition analysis results are presented in Table 7. The results forecasted that FDI will have an increasing effect on economic growth. It is indicated that over 6% of the variation in economic growth is expected to be explained by FDI after 24 years beyond the sample period of this study. FD and trade openness were also forecasted to continue to affect economic growth even to a greater extent.

## 5. CONCLUSIONS AND POLICY IMPLICATIONS

This study examined the relationship between FDI inflows and economic growth for Bangladesh using time series data for the period 1985–2014 within an endogenous growth model framework. In doing so, it sought to address the limitations of endogeneity and simultaneity issues of the previous studies especially with regards to the ones involving Bangladesh. The study further considers two other important variables; trade openness and FD that are likely to potentially affect economic growth.

The stationarity of data was tested using a battery of time series unit root tests. This was followed by the Johansen maximum likelihood cointegration test which confirmed the presence of a cointegrating relationship among the variables. The DOLS technique was then applied to estimate the long-run relationship between FDI and economic growth. The causality was determined using the Granger causality test. The robustness of the long-run association was checked by the application of variance decomposition analysis technique.

Findings from DOLS estimates indicated that there was a positive and significant relationship between FDI and economic growth in Bangladesh in the long-run. Trade openness also stimulates economic growth. The study found a positive but insignificant relationship between FD and economic growth. The Granger causality test revealed that there is strong bidirectional causal link between FDI inflows and economic growth and between trade openness and economic growth. A unidirectional causal association running from FD to economic growth was also observed.

**Table 3: Unit root tests**

| DF-GLS | | KPSS | | PP | |
|---|---|---|---|---|---|
| **Trend and intercept** | | **Trend and intercept** | | **Trend and intercept** | |
| **GDPCG** | | **GDPCG** | | **GDPCG** | |
| Level | −1.299*** | Level | −1.3910*** | Level | −1.638 |
| 1st different | −5.345*,**,*** | 1st different | −3.1051*,** | 1st different | −5.4311*,**,*** |
| **LFD** | | **LFD** | | **LFD** | |
| Level | −2.906 | Level | −2.0625*** | Level | −2.746 |
| 1st different | −6.120*,**,*** | 1st different | −4.5856*,**,*** | 1st different | −5.879**,*** |
| **LTO** | | **LTO** | | **LTO** | |
| Level | −3.458*** | Level | −2.758 | Level | −2.868*** |
| 1st different | −6.485*,**,*** | 1st different | −5.738*,**,*** | 1st different | −6.949*,**,*** |
| **FDI PER CAP** | | **FDI PER CAP** | | **FDI PER CAP** | |
| Level | −4.323**,*** | Level | −5.755**,*** | Level | −3.567*** |
| 1st different | −8.6154*,**,*** | 1st different | −7.438*,**,*** | 1st different | −6.895*,**,*** |

*Indicates statistical significance at the 1% level, **indicates statistical significance at the 5% level, ***indicates statistical significance at the 10% level

**Table 4: Results of Johansen maximum likelihood estimation**

| A - Unrestricted cointegration rank test (trace) | | | | |
|---|---|---|---|---|
| **Hypothesized number of CE (s)** | **Eigen value** | **Trace statistic** | **0.05 critical value** | **P**** |
| None* | 0.514563 | 65.30219 | 55.24578 | 0.0000 |
| At most 1* | 0.679847 | 42.37485 | 35.01090 | 0.0000 |
| At most 2 | 0.364947 | 14.54621 | 18.39771 | 0.0623 |
| At most 3 | 0.182623 | 2.432843 | 3.841466 | 0.8196 |

1 - CE (s) denote the co-integrating equation (s), 2 - **denotes rejection of the hypothesis at the 0.05 level,
**MacKinnon-Haug-Michelis (MacKinnon et al., 1999) P values

| B - Unrestricted cointegration rank test (maximum eigenvalue) | | | | |
|---|---|---|---|---|
| **Hypothesized number of CE (s)** | **Eigen value** | **Max-Eigen statistic** | **0.05 critical value** | **P**** |
| None * | 0.523797 | 36.75803 | 30.81507 | 0.0000 |
| At most 1* | 0.422291 | 29.64385 | 24.25202 | 0.0000 |
| At most 2 | 0.364947 | 12.67467 | 17.14769 | 0.4385 |
| At most 3 | 0.182623 | 1.324519 | 3.841466 | 0.6121 |

1 - CE (s) denote the co-integrating equation (s), 2 - *denotes rejection of the hypothesis at the 0.05 level, **MacKinnon-Haug-Michelis (MacKinnon et al., 1999) P values

**Table 5: DOLS**

| Variable | Coefficient | Standard error | t-Statistic | P |
|---|---|---|---|---|
| FDI_PER_CAP | 0.476283 | 1.445803 | 0.329424 | 0.0071 |
| FD | −0.060670 | 0.096353 | −0.629666 | 0.5398 |
| TO | 0.217820 | 0.084678 | 2.572326 | 0.0232 |
| C | −1.879621 | 1.235534 | −1.521303 | 0.1521 |
| R-squared | 0.851421 | | | |
| Adjusted R-squared | 0.714271 | | | |
| SE of regression | 0.882307 | | | |
| Durbin-Watson stat | 2.352345 | | | |
| Mean dependent variable | 3.242778 | | | |
| SD dependent variable | 1.650602 | | | |
| Sum squared residual | 10.12005 | | | |
| Long-run variance | 0.505465 | | | |

DOLS: Dynamic ordinary least squares

**Table 6: Pairwise granger causality tests**

| Null hypothesis | Obs | F-Statistic | P |
|---|---|---|---|
| FDI_PER_CAP does not Granger Cause GDPCG | 28 | 5.81364 | 0.3236 |
| GDPCG does not Granger Cause FDI_PER_CAP | | 2.45522 | 0.4797 |
| FD does not Granger Cause GDPCG | 28 | 10.6072 | 0.8632 |
| GDPCG does not Granger Cause FD | | 0.11089 | 0.0019 |
| TO does not Granger Cause GDPCG | 28 | 8.45449 | 0.6575 |
| GDPCG does not Granger Cause TO | | 2.21738 | 0.2490 |
| FD does not Granger Cause FDI_PER_CAP | 28 | 10.2467 | 0.0037 |
| FDI_PER_CAP does not Granger Cause FD | | 0.33317 | 0.5690 |
| TO does not Granger Cause FDI_PER_CAP | 28 | 4.57098 | 0.0425 |
| FDI_PER_CAP does not Granger Cause TO | | 0.14061 | 0.7108 |
| TO does not Granger Cause FD | 28 | 0.82619 | 0.3721 |
| FD does not Granger Cause TO | | 5.02881 | 0.0340 |

Results obtained from this empirical exercise provide a number of important policy implications. Although findings suggest that the economic growth of Bangladesh is stimulated by FDI inflows, the effect could have possibly been even stronger. Such failure may be attributed to investment impediments such as too much politicization of government decisions, the weakening of

**Table 7: Variance decomposition analysis**

| Period | SE | GDPCG | FDI_PER_CAP | FD | TO |
|---|---|---|---|---|---|
| 1 | 1.002365 | 100.0000 | 0.000000 | 0.000000 | 0.000000 |
| 2 | 1.020515 | 98.34516 | 0.878165 | 0.758900 | 0.017779 |
| 3 | 1.043090 | 94.29126 | 1.205456 | 3.564590 | 0.938691 |
| 4 | 1.086184 | 87.49798 | 1.250201 | 10.34755 | 0.904267 |
| 5 | 1.125280 | 81.61941 | 1.335398 | 15.77794 | 1.267253 |
| 6 | 1.165948 | 76.35591 | 1.321843 | 20.03883 | 2.283411 |
| 7 | 1.204810 | 72.66264 | 1.470810 | 22.88930 | 2.977254 |
| 8 | 1.237909 | 70.18598 | 1.503515 | 24.86123 | 3.449274 |
| 9 | 1.268185 | 67.95183 | 1.480408 | 26.67845 | 3.889314 |
| 10 | 1.298219 | 65.71938 | 1.441043 | 28.54957 | 4.290005 |
| 11 | 1.328170 | 63.56894 | 1.399151 | 30.37491 | 4.656990 |
| 12 | 1.357745 | 1.57472 | 1.364574 | 32.05063 | 5.010071 |
| 13 | 1.386742 | 59.77005 | 1.339422 | 33.54757 | 5.342961 |
| 14 | 1.414977 | 58.14798 | 1.318928 | 34.88631 | 5.646781 |
| 15 | 1.442430 | 56.67169 | 1.299155 | 36.10558 | 5.923572 |
| 16 | 1.469219 | 55.30627 | 1.279385 | 37.23613 | 0.178212 |
| 17 | 1.495450 | 54.03335 | 1.260194 | 38.29228 | 6.414175 |
| 18 | 1.521172 | 52.84519 | 1.242201 | 39.27860 | 6.634012 |
| 19 | 1.546399 | 51.73680 | 1.225666 | 40.19808 | 6.839461 |
| 20 | 1.571141 | 50.70246 | 1.210467 | 41.05544 | 7.031632 |
| 21 | 1.595411 | 49.73538 | 1.196328 | 41.85678 | 7.211513 |
| 22 | 1.619229 | 48.82863 | 1.183031 | 42.60817 | 7.380174 |
| 23 | 1.642618 | 47.97613 | 1.170470 | 43.31473 | 7.538667 |
| 24 | 1.665599 | 47.17296 | 1.158604 | 43.98051 | 7.687931 |
| 25 | 1.688192 | 46.41501 | 1.147405 | 44.60881 | 7.828776 |
| 26 | 1.710410 | 45.69872 | 1.136834 | 45.20255 | 7.961895 |
| 27 | 1.732267 | 45.02083 | 1.126838 | 45.76443 | 8.087895 |
| 28 | 1.753777 | 44.37835 | 1.117367 | 46.29696 | 8.207323 |

democratic institutions such as Election Commission and Anti-Corruption Commission and the recent chaos in the banking system. Nevertheless, recent terrorist activities and the events of recent terrorist activities may potentially be a threat for undermining the potential of FDI inflows into the country. The recent investment deal of around US$20 billion with China may be a turning point for its economy. Finally, the findings of this study should be evaluated carefully as it doesn't provide the last word on FDI-growth nexus for Bangladesh. The results should not be considered robust across the spectrum of the application of other methodologies and analytical techniques.

# REFERENCES

Acaravci, S., Ozturk, I., Acaravci, A. (2009), financial development and economic growth: Literature survey and empirical evidence from Sub-Saharan African countries. South African Journal of Economic and Management Sciences, 12(1), 11-27.

Adams, S. (2009), Can foreign direct investment (FDI) help to promote growth in Africa? African Journal of Business Management, 3, 178.

Adhikary, K. (2011), FDI, trade openness, capital formation, and economic growth in Bangladesh: A linkage analysis. International Journal of Business and Management, 6, 16-28.

Adhikary, B.K. (2012), Impact of foreign direct investment, trade openness, domestic demand, and exchange Rate on the export performance of Bangladesh: A VEC Approach. Economics Research International, 2012, 463856.

Alagöz, M., Erdoğan, S., Topalli, N. (2008), Foreign direct investment and economic growth: Evidence from Turkey 1992-2007. Gaziantep University-Journal of Social Sciences, 7, 78-89.

Alam, M.S. (1999), Foreign direct investment and economic growth of India and Bangladesh: A comparative study. Indian Journal of Economics, 80, 1-16.

Alfaro, L., Chanda, A., Kalemli-Ozcan, S., Sayek, S. (2004), FDI and economic growth: The role of local financial markets. Journal of International Economics, 64, 89-112.

Alici, A.A., Ucal, M.Ş. (2003), Foreign direct investment, exports and output growth of Turkey: Causality analysis. Madrid: European Trade Study Group (ETSG) Fifth Annual Conference. p11-13.

Balasubramanyam, V.N., Salisu, M., Sapsford, D. (1996), Foreign direct investment and growth in EP and IS countries. The Economic Journal, 1996, 92-105.

Bashir, A.H.M. (1999), Foreign direct investment and economic growth in some MENA countries: Theory and evidence 1999. Topics in Middle Eastern and North African Economies. Paper 9. Available from: http://www.ecommons.luc.edu/meea/9.

Belloumi, M. (2014), The relationship between trade, FDI and economic growth in Tunisia: An application of the autoregressive distributed lag model. Economic Systems, 38, 269-287.

Blejer, M.I. (2006), Economic growth and the stability and efficiency of the financial sector. Journal of Banking and Finance, 30, 3429-3432.

Borensztein, E., de Gregorio, J., Lee, J.W. (1998), How does foreign direct investment affect economic growth? Journal of international Economics, 45, 115-135.

Carkovic, M.V., Levine, R. (2002), Does Foreign Direct Investment Accelerate Economic Growth? U of Minnesota Department of Finance Working Paper.

Choe, J.I. (2003), Do foreign direct investment and gross domestic investment promote economic growth? Review of Development Economics, 7, 44-57.

de Mello, L.R. (1997), Foreign direct investment in developing countries and growth: A selective survey. The Journal of Development Studies, 34, 1-34.

Demetriades, P., Andrianova, S. (2004), Finance and growth: What

we know and what we need to know. Financial Development and Economic Growth. London: Springer.

Engle, R.F., Granger, C.W.J. (1987), Cointegration and error correction representation: estimation and testing. Econometrica, 55, 251-276.

Faisal, F., Muhammad, P., Tursoy, T. (2016), Impact of economic growth, foreign direct investment and financial development on stock prices in China: Empirical evidence from time series analysis. International Journal of Economics and Financial Issues, 6(4), 1998-2006.

Faruk, M.O. (2013), The effect of FDI to accelerate the economic growth of Bangladesh and some problems and prospects of FDI. Asian Business Review, 2, 37-43.

Gungor, H., Ringim, S.H. (2017), Linkage between foreign direct investment, domestic investment and economic growth: Evidence from Nigeria. International Journal of Economics and Financial Issues, 7(3), 97-104.

Hisarciklilar, M., Kayam, S.S., Kayalica, O. (2006), Locational drivers of FDI in MENA Countries: A spatial Attempt. Munich Personal RePEc Archive (MPRA) Paper Institution: Istanbul Technical University Faculty of Management.

Hossain, A., Hossain, M.K. (2012), Empirical relationship between foreign direct investment and economic output in South Asian countries: A study on Bangladesh, Pakistan and India. International Business Research, 5, 9.

Iamsiraroj, S., Mehmet, A.U. (2015), Foreign direct investment and economic growth: A real relationship or wishful thinking? Economic Modelling, 51, 200-213.

Ibrahim, M.H. (2005), Sectoral effects of monetary policy: Evidence from Malaysia. Asian Economic Journal, 19, 83-102.

Javed, K., Falak, S., Awan, R., Ashfaq, M. (2012), Foreign direct investment, trade and economic growth: A comparison of selected south Asian Countries. International Journal of Humanities and Social Science, 2, 210-220.

Johansen, S. (1988), Statistical analysis of cointegration vector. Journal of Economic Dynamics and Control, 12, 231-254.

Kabir, R. (2007), Foreign Direct Investment and Sustainable Growth: A Case Study on Bangladesh. Emory University.

Khatun, F., Ahmad, M. (2015), Foreign direct investment in the energy and power sector in Bangladesh: Implications for economic growth. Renewable and Sustainable Energy Reviews, 52, 1367-1377.

Kumar, R.V. (2013), Remittances and economic growth: A study of Guyana. Economic Systems, 37, 462-472.

Kwiatkowski, D., Phillips, P.C.B., Schmidt, P., Shin, Y. (1992), Testing the null hypothesis of stationarity against the alternative of a unit root. Journal of Econometrics, 54, 159-178.

Lean, H.H., Smyth, R. (2010), CO2 emissions, electricity consumption and output in ASEAN countries. Applied Energy, 87, 1858-1864.

Levine, R. (1991), Stock markets, growth, and tax policy. The Journal of Finance, 46, 1445-1465.

Lucas, R.E. (1988), On the mechanics of economic development. Journal of monetary economics, 22, 3-42.

Mankiw, N.G., Romer, D., Weil, D.N. (1992), A contribution to the empirics of economic growth. The Quarterly Journal of Economics, 107, 407-437.

Mullen, J.K., Williams, M. (2005), Foreign direct investment and regional economic performance. Kyklos, 58, 265-282.

Ozturk, I. (2008), Financial Development and economic growth: Empirical evidence from Turke. Applied Econometrics and International Development, 8(1), 85-98.

Pesaran, M.H., Shin, Y. (1998), Generalized impulse response analysis in linear multivariate models. Economics Letters, 58(1), 17-29.

Phillips, P., Perron, P. (1988), Testing for a unit root in time series regression. Biometrika, 75(2), 335-346.

Rahman, M. (2009), Contributions of exports, FDI, and expatriates' remittances to real GDPof Bangladesh, India, Pakistan, and Sri Lanka. Southwestern Economic Review. 36, 141-153.

Rahman, M.S., Ahsan, M.A. (2015), Foreign direct investment as an instrument for promoting economic development in Bangladesh. Asian Business Review, 3, 100-107.

Roy, S., Mandal, K.K. (2012), Foreign direct investment and economic growth: An analysis for selected Asian countries. Journal of Business Studies Quarterly, 4, 15.

Sassi, S., Goaied, M. (2013), Financial development, ICT diffusion and economic growth: Lessons from MENA region. Telecommunications Policy, 37(4-5), 252-261.

Shen, C.H., Lee, C.C. (2006), Same financial development yet different economic growth: why? Journal of Money, Credit and Banking, 38, 1907-1944.

Shimul, S.N. (2009), An examination of the FDI and growth nexus in Bangladesh: Engle granger and bounds testing cointegration approach. BRAC University Journal, 6, 69-76.

Solow, R.M. (1956), A contribution to the theory of economic growth. The Quarterly Journal of Economics, 70, 65-94.

Solow, R.M. (1957), Technical change and the aggregate production function. The Review of Economics and Statistics, 39, 312-320.

Stock, J., Watson, M.W. (1993), A simple estimator of cointegrating vectors in higher order integrated systems. Econometrica, 61(4), 783-820.

Tan, B., Tang, C. (2016), Examining the causal linkages among domestic investment, FDI, trade, interest rate and economic growth in ASEAN-5 Countries. International Journal of Economics and Financial Issues, 6(1), 214-220.

World Bank. (2016), World Development Indicators Database. Available from: http://www.databank.worldbank.org/data/views/variableselection/selectvariables.aspx?source=world-development-indicators.

Yartey, C. (2008), Financial development, the structure of capital markets and the global digital divide. Information Economics and Policy, 20(2), 208-227.

Yao, S. (2006), On economic growth, FDI and exports in China. Applied Economics, 38, 339-351.

Yaoxing, Y. (2010), The relationship between foreign direct investment, trade openness and growth in Cote d'Ivoire. International Journal of Business and Management, 5, 99.