International Journal of Economics and Business Administration
Vol. 6, No. 4, 2020, pp. 163-168
http://www.aiscience.org/journal/ijeba
ISSN: 2381-7356 (Print); ISSN: 2381-7364 (Online)

Measuring the Impact of Foreign Direct Investment (FDI) on Gross Domestic Product (GDP) of Bangladesh

Shekh Md Sahiduj Jaman[1], Bipul Roy[2, *], Md Abdur Rouf[1], Md Asaduzzaman Babu[1], Md Sadat Salim Islam[1], Md Sabber Ahmed[2]

[1]Department of Marketing, Hajee Mohammad Danesh Science & Technology University, Dinajpur, Bangladesh
[2]Department of Accounting, Hajee Mohammad Danesh Science & Technology University, Dinajpur, Bangladesh

Abstract

This paper investigates the impact of Foreign Direct Investment (FDI) on Gross Domestic Product (GDP) of Bangladesh. This study evaluates the relationship between FDI and GDP. That's why we have selected the research title "Measuring the impact of Foreign Direct Investment (FDI) on Gross Domestic Product (GDP) of Bangladesh. For conducting this study, we have taken the secondary source of data series for years from 1972 to 2017. The study analyzed by unit root test, co-integration and granger causality test to figure out the exact impact of FDI on GDP. The result of the study showed that there is a significance positive relationship between FDI and GDP. The GDP of the country was positively affected by FDI. The study told us that the policy maker of the country should work to increase the participation of foreign investors. Though the study showed a positive impact, the study hasn't specified the antecedents of GDP and the issues related to increase or decrease of FDI. The future research work should be conducted on these issues. The Granger Causality results evidence unidirectional causality effect the relationship between FDI and GDP. The result showed that the impact of FDI on GDP is positive.

Keywords

Foreign Direct Investment (FDI), Gross Domestic Product (GDP), Impact of FDI on GDP, Bangladesh

Received: November 13, 2020 / Accepted: December 8, 2020 / Published online: December 24, 2020

1. Introduction

There are many developing countries exist in the world. In south Asia, Bangladesh is a least developing country who became independent on December 16, 1971. After becoming independent, the condition of Bangladesh had not better as like as the current situation. Nowadays Bangladesh has better and stable economic condition after the independence. When Bangladesh became independent, the Gross Domestic Product (GDP) was $6299 million in 1972 where the Foreign Direct Investment (FDI) was $0.09 million. On the other hand in 2017, the Gross Domestic Product (GDP) was $246,200 million where the Foreign Direct Invest (FDI) was $6,371.25 million. In these 46 years the FDI increased by $6,371.16 million and the GDP increased by $239,901 million. GDP is the indicator of improvement of the country's condition. Here we collected the information on a yearly basis from 1972 to 2017 [1]. The World Bank gives the Foreign Direct investment was M$ 0.09 in 1972 which is less amount for the developing countries as like Bangladesh. FDI is the major component for the overall development process of a developing country like Bangladesh. Industrial development is a major factor of a developing country's economic growth. Basically, Bangladesh is an agriculture based country and the economy largely depends upon agriculture. Not only agricultural development but also

* Corresponding author
E-mail address: bipul1203038@gmail.com (B. Roy)

industrial development is mandatory facts for the economic development of the country. In the age of globalization, it has become a major issue to share ideas, views, capital and human resources. Bangladesh government is trying to introduce a favorable investment environment through strategic economic policies, incentives for investors, promoting privatization and so on. Hence, FDI is very much necessary to accelerate the economic growth of the country [2]. FDI means net inflow foreign investment in a country. It is the combination of long term and short term capital, equity capital and reinvestment of earnings. It usually entails contribution joint ventures, management, technology transfer an experience [3]. FDI and encouragement of foreign investors is the need of the time for solving the problems of poverty and unemployment [4].GDP is known as the total market value of goods and service in a given period within the country. Growth and standard of living for a country also determined by the GDP of the country. We can't ignore that each industry or sector of the economy greatly affect the GDP of the country. Per capita GDP is known as the GDP ratio of total population of a zone and the same is called mean standard of living. For the national development and progress of any country GDP is the most powerful statistical indicator. Nosheen [5] reported that inflows of $666m foreign direct investment in 2007 which rose significantly in 2008 to $1086M. Inflows of foreign direct investment recorded to $571M on 2010. In Bangladesh, bureaucracy, poor infrastructure, political conflict, poor governance, inadequate information and ineffective judiciary system are the most common factors that affect the Foreign Direct Investment (FDI). In spite of recognizing some barriers, most of the world best investors appear to be satisfied about the present investment in Bangladesh and expressed their interest in making further investment in the country. There are some sectors like natural resources, human resources, sectors for prospective investment, frozen foods, leather, agro-based industries and information technology which give us competitive advantage rather than other countries. The Board of Investment (BOI) has recently adjusted its investment promotion strategies, from attracting across-the-board investment through board-based incentives to focusing on investment that develops the workforce with special expertise, having more focus on skill development and proper utilization of skilled workforces, transferring technology, supporting R&D and fostering innovation to attract quality investment. We found that the most attractive factor for FDI flow to Bangladesh is the world best low cost of labor in country and attractive location. From this thinking we were concerned to conduct a study to measure the impact of FDI on GDP in Bangladesh. To find out the result we have designed my study and conduct unit root analysis test, co-ingratiation and Granger causality test to measure the impact. The finding of the study will give a clear message about the relationship between FDI and GDP which also focus the impact.

2. Literature Review

The literature review has shown that numerous studies on the relationship between FDI and GDP, they also showed the impacts of FDI on GDP are following. Agrawal [6] reported that there is a linked of modernization and dependency theory on the relationship between FDI and GDP. Modernization theory purpose that capital investment is the main requirement for growth, as well as FDI could play a role on economic growth. However, the new growth theory considers that technology transfer through FDI has a strong role, as enveloping countries require essential infrastructure for example political and socio economic stability, education and liberalized financial markets [7]. FDI brings with it managerial and organizational proficiencies and market access through the organized networks of marketing by multinational corporations, apart from technology transfer [8, 9]. Bloomstorm Lipsey and Zejan [10] found evidence that FDI Granger caused economic growth. However, FDI's positive conditional. According to them, FDI is growth enhancing when the high per capita income used to measure. Caves [11] found the bidirectional relationship. FDI and economic growth have a positive relationship to each other. High economic growth leads high profit opportunities attracting higher domestic and foreign direct investments. On the other hand, FDI through its extra effect has direct positive economic growth of host countries. Borensztein *et al.* [12] analyzed that the foreign direct investments impact on economic growth in the cross country regression framework, over two decades it has taken 69 countries to utilize data on FDI flows from industrial. The study figure out that FDI is an important vehicle for the transfer of technology, contributing relatively more to growth than domestic investment. When the host country has a minimum threshold stock of human capital, the country holds higher productivity of FDI. When a sufficient adaptation capability and availability exist in the host country, FDI contributes to economic growth of the country. Jyun-Yi and Chih-Chiang [13] examined whether the FDI promote the economic growth by using threshold regression analysis. GDP and human capital are the important factor of FDI which figure out from the analysis of 62 countries covering the period from 1975 to 2000. FDI is positively affecting the growth of the country having better level of initial GDP and human capital.

Carkovic and Levine [14] reported that the effect of FDI on economic growth and mentioned that it had no impact on long-term economic growth. 72 countries are taken as sample to analyze the data to determine the impact of FDI on economic growth. They opined that there was no conditional relationship between human capital and lack of positive impact of FDI on economic growth, the level of economic development or openness of the economy. A developed intermediary system leads better resource allocation and which ultimately accelerate the growth and economic growth of the country [15]. Hsiao and Shen [16] showed that there was a strong relationship between FDI and growth which resulted from the survey on 84 countries. According to the findings of Choe [17], relationship between FDI and economic growth, there is small evidence exist that it has a positive relation to each other. Soysa and Oneal [18] stated that host countries are directly and indirectly influenced by the flows of FDI the result found from the analysis of 114 countries, focusing on 97 developing countries as sample for the years of 1980 to 1991. They used Granger tests of causality to analyze the data and found that the two sources of investment are complimentary. An increase in foreign direct investment encourages greater investment from domestic sources (12.89) percent).New domestic investment also encourages new foreign investment, but the effect is much smaller (1.17 percent).

According to Chowdhury [19], the impact of FDI has been an important part of the economic transition, business liberalization and macro-economic growth story in Bangladesh over the last decade. Bangladesh received $1.13 billion as FDI last year compared to $910 million in 2010. This increase to 25% which is higher than the average 23% worldwide growth of FDI.

FDI is essential, and an important tool for economic development in a developing country while infrastructure, import tariffs, political and macroeconomic stability generally have positive impact upon FDI inflows [20]. Foreign direct investment contributes positively on the growth economic but not significantly. FDI also affects economic growth through technology transfer. In addition, Antwi *et al.* [21] also showed the strong link among foreign direct investment and economic growth. Their founding's similar to Wai and Al result positive and the significance of the relationship. But they advise that national firms must use a new technology to well come foreign direct investment that protects them to drop into the monopoly market situation. In additionally study Onu [22] carried out a plurality of FDI by using multiple regressions from 1986 to 2007.

According to Ram and Zhang [23] the impact of FDI on economic growth in the case of cross country shows a positive and significant impact among the both variables in contrast. Dutt [24] showed a significant negative effect of FDI on economic growth. After wards Charkovic and Levine [14] found the negative impact as well. In the latest study, Umeora [25] in this paper used a data covering the period 1986 to 2011 by employing OLS as the estimation technique. The results indicate a negative contribution among foreign direct investment and economic growth.

The researchers and practitioners have done various studies on this topic. They have done their work among different countries. Inspiring from here, we are going to conduct a study on my own country (Bangladesh) by considering two variables FDI and GDP from 1972 to 2017.

3. Research Methodology

3.1. Data Source

The present study is mainly based on the secondary source of information, and the relevant secondary data are collected from various publications of Government of Bangladesh, Bangladesh Bank report, World Bank report, Trading Economics, different journals, various business portal [26, 27]. We were considered the year from 1972-2017. The data of Foreign Direct Investment collected from http://data.un.org/Data and GDP rate had been collected from https://countryeconomy.com/gdp/bangladesh which is the reliable sources of data.

3.2. Data Analysis Technique

This research is conducted by considering the secondary data. We have used EViews8 software to analyze the data. To examine the impact of FDI on GDP we used the following unit root test: Augmented Dickey-Fuller (ADF), Phillips-Perron (PP), Kwiatkowski- Phillips-Schmidt-Shin (KPSS), and Elliott-Rothenberg-Stock (ERS), Co-integration test, Granger causality test which involves the label and first difference to measure the stationery and non-stationery test. From the analysis we have got an impact of FDI on our GDP.

4. Empirical Results and Discussion

4.1. Unit Root Analysis

Table 1. Unit root test.

Variables	Test	Level	First difference	Details
FDI	ADF	0.726977	-3.332000**	SIC, Int
FDI	ADF	2.656089**	-3.945484**	SIC, Int, Tr

Variables	Test	Level	First difference	Details
FDI	PP	-1.743990**	-14.08340***	NW,B, Int
FDI	PP	-3.650846**	-15.97079***	NW,B, Int, Tr
FDI	KPSS	0.765758***	0.195116	NW,B, Int
FDI	KPSS	0.167956**	0.188536 **	NW,B, Int, Tr
FDI	ERS	212.8839	9.759531	SIC. SOLS, Int
FDI	ERS	43.65143	80.78422	SIC. SOLS, Int, Tr
GDP	ADF	0.056769	-8.771484***	SIC, Int
GDP	ADF	-1.795601*	-8.913079***	SIC, Int, Tr
GDP	PP	-1.063003	-9.706784***	NW,B, Int
GDP	PP	-4.013237**	-9.413588***	NW,B, Int, Tr
GDP	KPSS	0.847722***	0.500000**	NW,B, Int
GDP	KPSS	0.148549**	0.500000***	NW,B, Int, Tr
GDP	ERS	322.5436	0.008555***	SIC. SOLS, Int
GDP	ERS	182.6983	0.002950***	SIC. SOLS, Int, Tr

Notes: ***, **and* represent that variables are significant at 1%, 5%and 10% significance level respectively. ADF: Augmented Dickey-Fuller; PP: Phillips-Perron; KPSS: Kwiatkowski-Phillips-Schmidt-Shin; ERS: Elliott-Rothenberg-Stock.

This study applied various unit root tests in order to check the stationary of data including the Augmented Dickey-Fuller (ADF) test introduced by Dickey and Fuller (1981) [28], the phillips-perron (PP) test introduced by Phillips and perron (1988) [29], the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test introduced by Kwiatkowski *et al.* (1992) [30] and the Elliott-Rothenberg-Stock (ERS) test introduced by Elliott *et al.*(1996) [31]. These four unit root tests provide evidence that the variables - FDI and GDP are stationary in their first difference. But FDI is non stationary in the KPSS test in first difference when consider the intercept. In the first difference and the level ERS tests are also the non-stationary when we consider both the intercept and trend respectively.

The ADF, PP, KPSS tests shows that FDI and GDP are stationary in the level when both trend and intercept are considered but when only intercept is considered in the level FDI and GDP are non-stationary in the tests for ADF respectively. On the other hand KPSS tests are stationary in the level both for FDI and GDP. Here the PP tests is stationary for the variable FDI in the level while consider the both intercept and trend as for the GDP is only stationary when consider the intercept and trend otherwise GDP is non stationary when consider the only intercept. For the ERS tests in the level both GDP and FDI are non-stationary while consider the both intercept and trend but in the first difference only GDP is stationary whereas FDI is non-stationary both intercept and trend respectively.

4.2. Co-integration Test Analysis

4.2.1. Rank Test (Trace)

Table 2. Johansen co-integration estimation results between FDI and GDP in Bangladesh (Trace).

Number of Co-integration	Eigenvalue	Trace	5% Critical value	Prob.**
None	0.198698	9.421322	15.49471	0.3278
At most 1	0.002796	0.117600	3.841466	0.7316

4.2.2. Rank Test (Maximum Eigenvalue)

Table 3. Johansen co-integration estimation results between FDI and GDP in Bangladesh (Maximum Eigenvalue).

Number of Co-integration	Eigenvalue	Max-eigen statistic	5% Critical value	Prob.**
None	0.198698	9.303722	14.26460	0.2618
At most 1	0.002796	0.117600	3.841466	0.7316

Trace test indicates 2 co-integration at the 0.05 level; * denotes rejection of the hypothesis at the 0.05 level; ** Mackinnon-Haug-Michelis (1999) p-values.

A Co-integration test is used to test the existence of the long-run and short-run relationship between the variables under the consideration (FDI) and (GDP). A co-integration test suggest that when the probability value (p-value) is more than 5 percent it denotes that it has long term relationship and when the probability value (prob-value) is less than 5 percent it also denotes that it has no long term relationship that mean short run relationship among the variables. From the “table 2” co-integration trace value is (9.421322) is higher than critical value (15.49471) that means it has no relationship between two variables. In “table 3” first row shows Max-eigen value (9.303722) is higher than critical value (14.26460) for this reason null hypothesis is accepted, indicating that there is no co-integrated relationship between FDI and GDP in the 5 percent Level. However, “table 2” and “table 3” second row depict the null hypothesis of at most one, there is at least one relationship between two variables. Since the critical value of both tables is higher than trace value of them. So it indicates that there is long run relationship between FDI and GDP.

4.3. Granger Causality Test Analysis

Table 4. Granger Causality Test.

Variables	Lags	F-statistic	P-Value
FDI	1	1.242	0.271
GDP		5.790	0.020

Source: Analyzed by author

The results of the causality are presented in "table 4". This study also performed the pair wise Granger Causality test in long term causality in the two variables such as FDI and GDP. Before the causality test lags selection is very important factors. Because the granger causality tests results are dependent in lag selection. We are considered the lags 1 in Granger Causality test. FDI does not cause on GDP because the P- Value is 0.271 which is greater than 5 percent. When the P-Value is higher than 5 percent then we accepted null hypothesis and rejected the alternative hypothesis that means FDI does not cause on GDP. But GDP does cause on FDI because the P-Value is 0.020 which is less than the 5 percent. When the P- Value is less than 5 percent we reject the null hypothesis and accepted the alternative hypothesis that means GDP does cause on FDI. FDI and GDP are in the long term relationship. Here FDI depends on GDP but GDP does not depend on FDI. Because FDI affected by GDP. It is a unidirectional relationship.

5. Conclusion

This study investigated the impact of FDI on GDP of Bangladesh. The findings of the study showed that there is a positive relationship between FDI and GDP. That means the enhancement of FDI accelerate the rate of GDP which plays a major role to the development of the country. In this study the unit root test, co-integration test showed a positive and significance relationship and granger causality test showed a unidirectional relationship between FDI and GDP where higher GDP attracts the investors for FDI. Here we can say it that the developments of the country are influenced by the change of FDI because more FDI implies more GDP and Less FDI implies poor GDP of the country. So the policy maker should take the proper steps to increase the amount of FDI. They may increase the commercial contract, commercial treaty and maintain liaison with the investors of developed country for investing in our country. The policy makers of the country have to provide favorable environments and facilities for the foreign investor by considering the interest of the country and investors. Earlier we have seen that there was a low GDP for first few years where the FDI was also low; afterwards the GDP was high when the amount of FDI was high. So the study make a clear understanding that FDI has a positive impact on GDP of the country. To get more valid and reliable dictation, the future study can be conducted to find out the stimulus behind the FDI and the major antecedents of GDP. If the FDI increases the GDP of the country will raise which ultimately accelerate the development of the country.

Funding

This study received no external funding.

Conflicts of Interest

The authors declare no conflict of interest.

References

[1] Global Economy (2018). Bangladesh: Foreign Direct Investment, percent of GDP. https://www.theglobaleconomy.com/Bangladesh/Foreign_Direct_Investment/

[2] Rahman, M. T (2013). Relation between FDI and Economic Growth (A study on Bangladesh). Tartulona. https://tartulona.wordpress.com/2013/09/17/relationship-between-fdi-and-economic-growth-of-bangladesh/

[3] Adams, S. (2009). Foreign direct investment: domestic investment and economic growth in Sub-Saharan Africa. *Journal of Policy Modeling,* 31, 939-949.

[4] Agrawal, G., and Khan, A. (2011). Impact on FDI on GDP: A Comparative Study of China and India, *International Journal of Business and Management,* 6(10), 71-79

[5] Nosheen, M. (2013). Impact of Foreign Direct Investment on Gross Domestic Product. *World Applied Sciences Journal* 24 (10), 1358-1361.

[6] Agrawal, P. (2000). Economic impact of foreign direct investment in South Asia. *Indira Gandhi Institute of Development Research, working paper No. 56.*

[7] Alam, M. S., and Zubayer, M. (2010). Intra Regional Foreign Direct Investment (FDI) Prospect in South Asian Association of Regional Cooperation (SAARC) Region. *International Journal of Economics and Finance,* 2 (3), 114-121.

[8] Alfaroa, L., Chandab, A., Ozcanc, S.K., and Sayek, S. (2004). FDI and economic growth: the role of local Financial markets. *Journal of International Economics,* 64, 89-112.

[9] Awan, M.Z., Khan, K., and Zaman, K. (2010). A Nexus between Foreign Direct Investment & Pakistan's Economy. *International Research Journal of Finance and Economics,* 52, 1450-2887.

[10] Blomstrom, M., Lipsey, R. E., and Zejan, M. (1996). What Explains Developing Country Growth. NBER *Working paper No. 4132 (Cambridge, MA: NBER).*

[11] Caves, R. (1996). Multinational and Economic Analysis, 2nd ed. Cambridge, MA: *Cambridge University Press.*

[12] Borensztein, E. J., Gregorio, D., and Lee, J. W. (1998). How Does Foreign Direct Investment After Economic Growth. *Journal of International Economics,* 34 (1), 115-135.

[13] Jyun-Yi, W., and Chih-Chiang, H. (2008). Does Foreign Direct Investment Promote Economic Growth? Evidence from a Threshold Regression Analysis. *Economics Bulletin,* 15 (12).

[14] Carkovic, M., and Levine, R. (2002). Does Foreign Direct Investment Accelerate Economic Growth? Retrieved from www//ssrn.com/abstract=314924.

[15] Levine, B., Loayza, N., and Beck, T. (2000). Financial Intermediation and Growth: Causality and Causes. *Journal of Monetary Economics* 46, 31-77.

[16] Hsiao, C., and Shen, Y. (2003). Foreign direct investment and economic growth: The importance of institution and urbanization. *Econ. Dev. Cultural Change,* 51, 883-896.

[17] Choe, J. I. (2003). Do foreign direct investment and gross domestic investment promote economic growth? *Review of Development Economics,* 7(1), 44-57.

[18] Soysa, I. D., and Oneal, J.R. (1999). Boon or Bane? Reassessing the Productivity of Foreign Direct Investment. *American Sociological Review,* 64 (5), 766-782.

[19] Chowdhury, A. R. (2012, April 10). *FDI in Bangladesh*. Retrieved from http://www.thedailystar.net/newsDesign/news-details.php?nid=241435.

[20] Biswas, R. (2002). Determinants of foreign direct investment. *Review of Development Economics,* 6 (3), 492-504.

[21] Antwi, S., Mills, E., Mill, G., and Zhao, X, (2013). Impact of foreign direct investment on economic growth: Empirical evidence from Ghana, *International Journal of Academic Research in Accounting, Finance and Management Sciences,* 3 (1), 18-25.

[22] Onu, A. J. C, (2012). Impact of Foreign Direct Investment on Economic Growth in Nigeria. *Inter disciplinary Journal of Contemporary Research in Business,* 4(5), 64-75.

[23] Ram, R., and Zhang, K. H. (2002). Foreign direct investment and Economic growth: Evidence from Cross-country Data for the 1990s. *Economic Development and Cultural Change,* 51(1), 205-215.

[24] Dutt, S, (1977). With Nehru in the Foreign Office, Minerva Associates (Publications).

[25] Umeora and Chinweobo (2013). Effects of Foreign Direct Investment (FDI) on Economic *Growth in Nigeria* Retrieved from https://ssrn.com/abstract=2285329.

[26] Bangladesh GDP- Gross Domestic Product. (n. d.). *Countryeconomy*. Retrieved from *https://countryeconomy.com/gdp/bangladesh*.

[27] Foreign Direct Investment (FDI). (n. d.). *UN Data*. Retrieved from http://data.un.org/Data.aspx?q=world+bank+in+bangladesh&d=WDI&f=Indicator_Code%3aBX.KLT.DINV.CD.WD%3bCountry_Code%3aARB%2cBGD%2cWBG%2cWLD.

[28] Dickey, D. A., & Fuller, W. A. (1981). Likelihood ratio statistics for autoregressive time series with a unit root. *Econometrica: journal of the Econometric Society*, 1057-1072.

[29] Phillips, P. C. B. and P. Perron (1988). ‘Testing for a unit root in time series regression’, Biometrika, Vol. 75, pp. 335–346.

[30] Kwiatkowski, Denis, Peter CB Phillips, Peter Schmidt, and Yongcheol Shin. "Testing the null hypothesis of stationarity against the alternative of a unit root." *Journal of econometrics* 54, no. 1-3 (1992): 159-178.

[31] Elliott, Graham, Thomas J. Rothenberg, and James H. Stock. *Efficient tests for an autoregressive unit root*. No. t0130. National Bureau of Economic Research, 1992.