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EFFECT OF FOREIGN DIRECT INVESTMENT ON GDP, EXPORT AND DOMESTIC INVESTMENT: BANGLADESH PERSPECTIVE

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ABSTRACT

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Foreign Direct Investment (FDI) is pre-requisite to move from an agrarian economy to an industrial economy for any developing country. The purpose of this research was to investigate the status of Foreign Direct Investment (FDI), and its impact on Gross Domestic Product (GDP), export and domestic investment in Bangladesh. Total 42 year's data on FDI, export, GDP, domestic investment were collected from different secondary sources. After necessary testing for time series data, regression analysis was performed to evaluate the impact of FDI on GDP, export and domestic investment. Result shows that FDI inflow was increasing during the last two decades and the major share of FDI inflow in Bangladesh came as equity capital form. Greater portion of FDI inflow came through EPZ areas and which is increasing gradually. On the basis of sector analysis, it shows that, major proportion of FDI is invested on telecommunication sector in the recent years. Result reveals that Malaysia is the highest investor country in Bangladesh. Impact result shows that FDI has positive and significant effects on GDP, export and domestic investment. This research recommends administrative system, corruption, bureaucracy need to be reform for attracting foreign investment in Bangladesh.

Key words: *FDI, GDP, Export, Bangladesh*

INTRODUCTION

Foreign Direct Investment (FDI) has been playing a great role in modernizing the economy of Bangladesh after independence. For developing countries like Bangladesh, moving from an agrarian economy to an industrial economy FDI seems to an important pre-requisite of economic development. Various positive attributes of Bangladesh is now drawing the attention of the investors from both developed and developing countries. In Bangladesh, it is available to get skilled labor at relatively low wages. Moreover, there is reasonably stable macroeconomic environment. These two important factors can make Bangladesh an alluring destination for foreign investors. In 1972, annual FDI inflow in Bangladesh was 0.090 million USD, and after 33 years, in 2005 annual FDI rose to 845.30 million USD and to 1347 million USD in 2013 (Bangladesh Bank, 2013). Therefore, the governments have been trying to create an investment friendly environment by introducing economic policies, incentives for investors, privatization and so on. This study evaluates the impact of FDI on GDP, export and domestic investment. Bangladesh Government has adopted several policy measures to boost the FDI flow in Bangladesh. The government has listed the following five areas in which FDI should be encouraged under joint venture and full ownership by the foreigners: (a) export oriented industries, (b) industries located in the Export Processing Zones (EPZs), (c) industries that are based on high technology, which will either be import substitute or export oriented, (d) basic industries based mainly on local raw materials and investment towards, improvement of quality and marketing of goods manufactured and/or the increase of production capacities of existing industries, (e) physical infrastructure projects on Build-Operate-Own (BOO) and Build-Operate-Transfer (BOT).

FDI generally has a positive impact on economic growth in developing countries. It helps a capital-poor country like Bangladesh to build physical capital, create employment opportunities, develop productive capacity and enhance skills of local labor. The determinants of FDI and its effect on economic growth in developing countries are studied by Mottaleb (2007) and found that FDI has an important effect on economic growth of third world 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. Agosin *et al.* (2000), Athukorala (2003), Balamurali and Bogahawatte, (2004), Bengoa and Sanchez, (2003), Borensztein (1998) Kumar and Pradhan (2002), Lee *et al*. (2009) and Rothgeb and John, (1984) studied on the effects of foreign direct investment on economic growth in developing countries and found positive relationship between FDI and economic growth. Rahman (2012) has evaluated the prospects and challenges of FDI and its impact on economy in Bangladesh. She found positive impacts of FDI on economic growth and domestic investments. Peng Hu (2006) analyses various determinants that influence FDI inflows to India including economic growth, domestic demand, currency stability, government policy and labour force availability against other countries that are attracting FDI inflows and found that India has some competitive advantage in attracting FDI inflows, like a large pool of high quality labour force which is an absolute advantage of India against other developing countries like China and Mexico, to attract FDI inflows. Very few researches has been conducted on FDI and its effects on economic growth in Bangladesh. Therefore, this research has been conducted to investigate the present status of FDI and the impact of FDI on GDP, export and domestic investment. The specific objectives of the study are as: to identify the status of FDI inflows in Bangladesh; to identify the impact of FDI inflows on GDP, export and domestic investment in Bangladesh. This research recommends some guidelines that can be used to attract foreign investment in Bangladesh.

METHODOLOGY

Nature and sources of the data

The main objective of this study is to investigate the present status and FDI in Bangladesh and to evaluate the impact of FDI on GDP, export and domestic investment. Therefore, the model developed for this study uses 42 years annual time series data from 1971 to 2013 collected from different secondary sources such as the online data base of survey report, statistics department of Bangladesh Bank and Foreign Direct Investment in Bangladesh, Board of Investment. We used data from 1996 to 2013 for overview analysis i.e. overview of Bangladesh as the sector specific data were not available for the years prior to 1996. The data from the year of 1971 to 2013 was used for impact estimation.

Data Analysis

There are several tests has been performed to verify the time series data set. These are: non-stationarity issues, augmented dickey-fuller test, normality test, heteroskedasticity test. Test results presented in Appendix 1, 2 and 3. Tabular analysis and graphical presentation was preformed to investigate the status of FDI flows in Bangladesh.

Empirical model

Since one of the main objectives of this study is to evaluate the impact of FDI on GDP, export and domestic investment, therefore we have estimated three equations. Initially, we used only FDI as independent variable and then we assumed that population of the country also has effect on GDP, export and domestic investment, respectively. Therefore, we also estimated multiple regressions. The estimated models are as follows:

Impact of FDI on GDP

$$\ln GDP = \alpha + \beta_1 \ln FDI + \varepsilon \qquad \text{(model I)}$$

and

$$\ln GDP = \alpha + \beta_1 \ln FDI + \beta_2 \ln popu + \varepsilon \qquad \text{(model II)}$$

where *popu* indicates population

Impact of FDI on export

$$\ln ex = \delta + \gamma_1 \ln FDI + \zeta \qquad \text{(model III)}$$

and

$$\ln ex = \delta + \gamma_1 \ln FDI + \gamma_2 \ln popu + \zeta \qquad \text{(model IV)}$$

Impact of FDI on domestic investment

$$\ln di = \chi + \theta_1 \ln FDI + \omega \qquad \text{(model V)}$$

and

$$\text{n}\, di = \chi + \theta_1 \ln FDI + \theta_2 \ln popu + \omega \qquad \text{(model VI)}$$

RESULTS AND DISCUSSION

The trend of inflow of FDI in Bangladesh has increased over the 1980s as compared to earlier periods and this same momentum continues in 1990s as well. The total inflow of FDI has been increasing over the years. During the period of 1977-2010, total inflows of FDI were USD 8927.9 million, among which the total inflows of FDI during 2006-2010 was USD 4158.63 million. In 1977, this inflow was USD 7 million and in 2008, annual FDI reached to USD 1086.31 million. Unfortunately, there was a declination in inflows of FDI in 2010 and 2011 which was USD 913.32 million and 779.04 million. But in 2012-2013 total inflows of FDI increases which was USD 1347 million (Bangladesh Bank, 2013). Figure 1 illustrates the trend of FDI inflows in Bangladesh during 1996 to 2013.

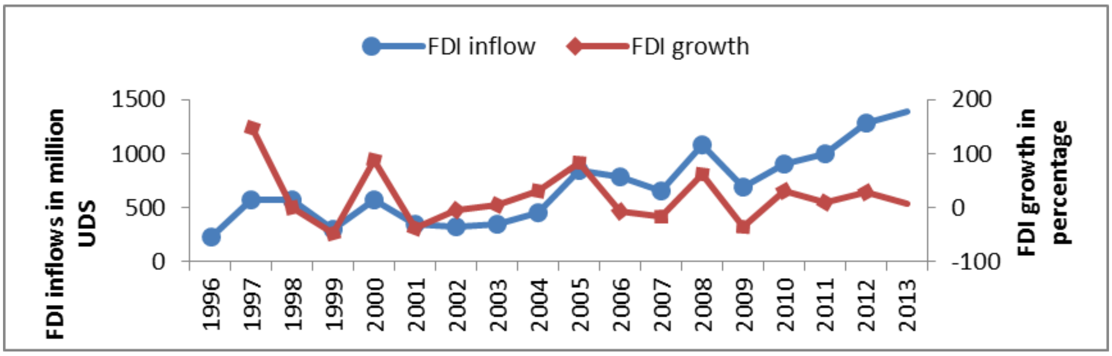

Fig. 1. FDI Inflows in million USD and growth of FDI in Bangladesh during 1996-2013

(Source: Survey Report, Statistics Department of Bangladesh Bank and Foreign Direct Investment in Bangladesh, Board of Investment)

An inconsistent proceeding of year wise FDI inflows is observed during the period 1996 to 2013. In 1996 FDI inflows was USD 231.61 million and then gradually increases in 1997 and 1998. But in 1999 here was a sudden decline in the FDI and the falling trend continued for many reasons again in 2001, 2002, 2003 and 2004. Various unfavorable situations during the period discourage foreign direct investment and it took quite some time to regain the confidence of foreign investors. In 2005 FDI inflows rises very fast and reached USD 845.26 million. It rose to USD 1086.3 million in 2008 but stumped to USD 700.16 million in 2009. Then FDI inflows gradually increases and finally reached USS 1401.86 million in 2013 (Figure 1). On the other hand, the growth rate of FDI (year by year) was found positive in most of the year. From 2001 to 2005 the FDI growth rate was increasing gradually after sharply decreasing from 1997 to 2001. In 2004 and 2005 FDI growth was 31.44 and 83 percent, respectively. Again in 2005, the growth rate was decreasing until 2009.

Figure 2 shows the FDI inflows in Bangladesh by region that is EPZ and Non-EPZ area. FDI inflows in EPZ areas was maximum in 1999 accounting of USD 154.43 million which is 50% of total inflows. Then EPZ area was in declining trend during 2000-2004. In 2005 it increased to USD 110.82 million, then during 2007-2013 EPZ area were gradually increase. FDI inflows in Non-EPZ areas followed declining trend during the period of 2001-2003. In 2004 it increased and continued up to 2005. The FDI inflows in Non-EPZ areas in 2013 recorded to USD 1360.88 million which is 79 percent of total inflows where in the beginning of this period (in 1996) it was USD 189.3 million which is 82 percent of total inflows.

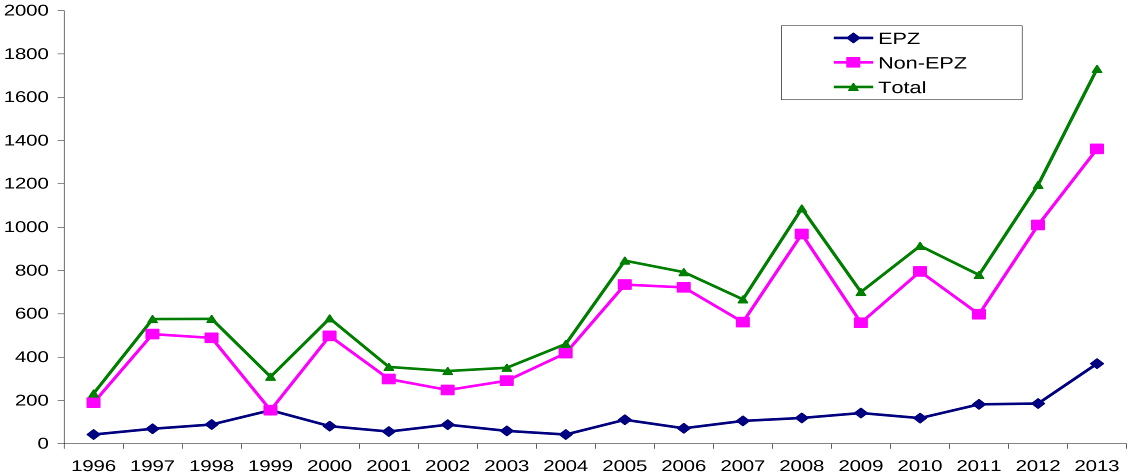

Fig. 2. FDI inflows (in million USD) by area (EPZ and non EPZ) in Bangladesh during 1996-2013
(Source: Survey Report, Statistics Department of Bangladesh Bank and
Foreign Direct Investment in Bangladesh, Board of Investment)

Sector Wise FDI Inflows in Bangladesh

The figure 3 shows the sum of total FDI inflows in different sector from 1996 to 2013. Power and energy, manufacturing, banking and telecommunication were main invested sector whereas the neglected sectors were agricultural, metal and machinery product. In 2005, the main focus of investment was in the telecommunication sector. The success in textiles through the ready-made garments (RMG) industry was a vital part of this investment.

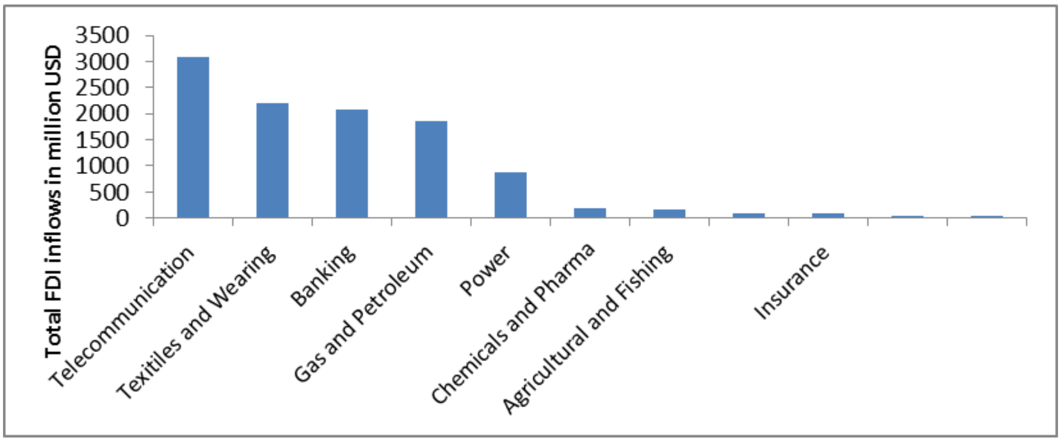

Fig. 3. FDI inflows (in million) USD by sector in Bangladesh during 1996-2013
(Source: Survey Report, Statistics Department of Bangladesh Bank
and Foreign Direct Investment in Bangladesh, Board of Investment)

In figure 4 and figure 5 the shift of FDI in the sectors of Bangladesh. The dimensions of FDI inflows have changed in recent years which are clearly remarked in the pie charts. On the other hand, telecommunication sector is gaining prominence in recent years. In 2008 the telecommunication sector overtook manufacturing sector as the leading recipient of FDI. Due to increased privatization efforts by the government, telecommunication has emerged as one of the fastest growing sectors in Bangladesh economy. Chemical and pharmaceuticals, leather and leather products, banking, insurance, computer software and IT and all other sectors are increasing days by day very firstly which has been made by the foreign investors in their investment in Bangladesh.

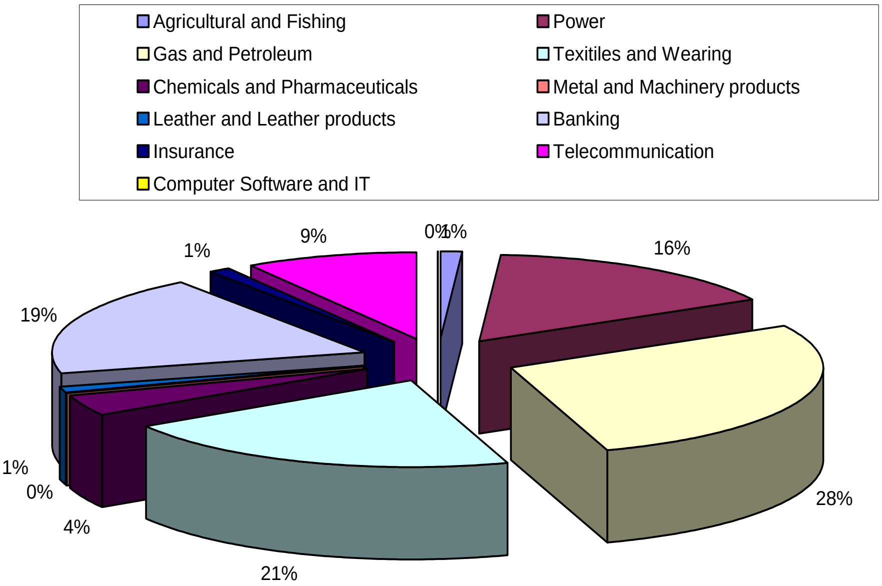

Fig. 4. FDI Inflows (in million) USD by sector in Bangladesh during 1996-2004
(Source: Survey Report, Statistics Department of Bangladesh Bank
and Foreign Direct Investment in Bangladesh, Board of Investment)

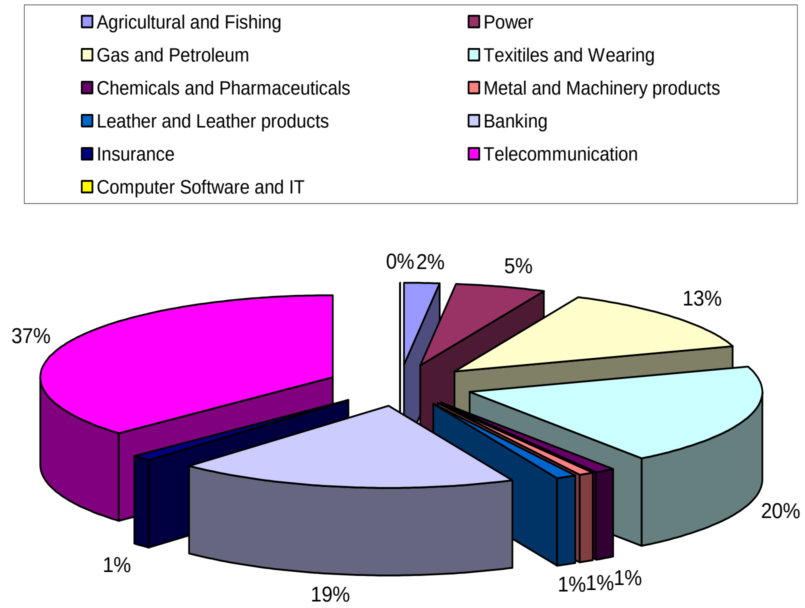

Fig. 5. FDI Inflows (in million) USD by sector in Bangladesh during 2005-2013
(Source: Survey Report, Statistics Department of Bangladesh Bank
and Foreign Direct Investment in Bangladesh, Board of Investment)

From figure 4 and 5 it is clear that the percentage of investment in various sectors has changed quite a lot. The percentage of telecommunication investment was 9% in 1996-2004 which increases to 37% during 2005-2013. On the other hand, the portion of investment in the gas and petroleum sector has declined gradually during the year of 1996 to 2013. It was 28% in 1996-2004 and only 13% in 2006-2013. It is also a matter of great concern that the investment in energy sector has decreased from 16% to 5%, which is very alarming. The government should take a close look in this matter and take necessary steps to identify the causing factors and to rectify those to improve the performance of the energy sector.

FDI Inflows by Countries

FDI inflow for the year of 2013 is shown in Figure 6. From the figure it is clear that in 2013 the highest investor country is Malaysia which is USD 337.97 million. Investor country next to Malaysia is UK, Egypt, South Korea, Singapore, Japan and other middle-east countries. It is also important to continue warm relationship with Middle East countries as their significant share of FDI in recent years.

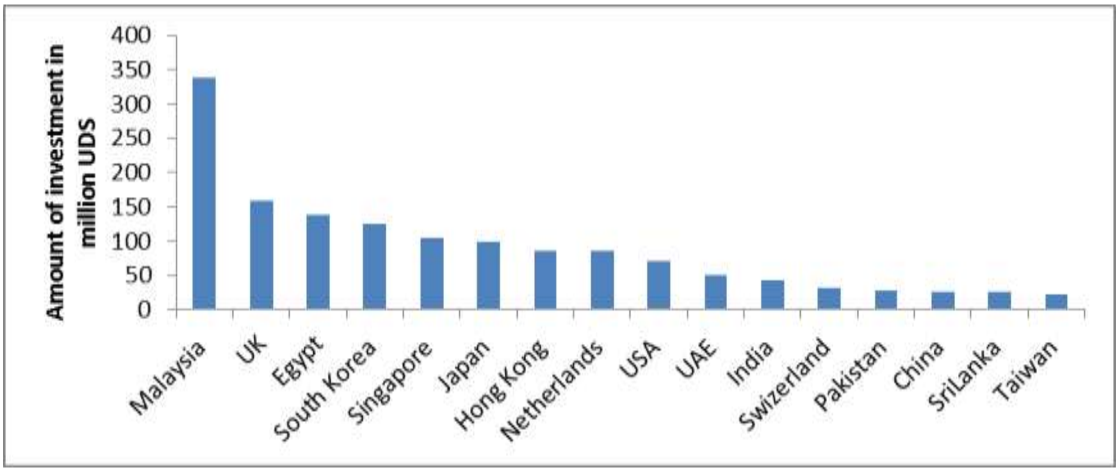

Fig. 6. FDI inflows (in million USD) by countries in 2013
(Source: Board of Investment, Bangladesh)

Impact of FDI on GDP

The effect of FDI on GDP is shown in Table 1. Two models have been estimated to find out the impact of FDI on GDP. In model I, only FDI variables are used as independent variable. On the other hand we assume that GDP does not only affect by FDI but also population has positive effect on GDP. The value of Coefficient of determination (R square and robust standard error of the model is shown in the Table 1. Both models show that the overall impact of FDI on GDP is statistically significant at 1% level and FDI variables are able to explain 80% and 92% of the variation of GDP in model I and model II, respectively. An increase in the capital stock available in an economy leads to an increase in production, which then corresponds to an increase in the growth rate of output. Since FDI is a source of physical (and financial) capital to the host country, increases in FDI should raise the overall level of capital stock available for production. Thus, an increase in foreign-owned capital stock then leads to higher GDP, since FDI is additional capital. However, any increase in the growth rate observed after an increase in the stock of FDI.

Table 1. Impact of FDI on GDP

Items	Model I		Model II	
	Coefficient	Robust Std. Err.	Coefficient	Robust Std. Err.
Constant	25.14***	2.28	-36.55	3.43
FDI	0.09***	0.01	0.04***	0.01
Population	-		0.64***	0.04
R^2	0.80		0.92	
F-value	80.28		315.09	
Prob. >F	0.00		0.00	

*** indicates significant at 1% level

Impact of FDI on Export

Two models have been estimated to find out the impact of FDI on export which is shown in Table 2. In model III, only FDI variables are used as independent variable. On the other hand, we assume that export not only affected by FDI but also larger population has negative effect on export. The Table 2 reveals that the variation caused by FDI inflow in the export is significant. The value of Coefficient of determination (R square) of the model is shown in the Table 2. Both models show that the overall impact of FDI on export is statistically significant and FDI variables are able to explain 70% and 99% of the variation of export in model III and model IV, respectively. It is assumed that FDI inflow is one of the prominent factors that influence the export. Most foreign investors have a tendency to send foreign currency abroad in form of profit repatriation and repayment of capital. Foreign exchange earnings through exports are quite helpful to balance off any such effects. As expected, FDI inflow is found to have positive and significant relationship with export.

Table 2. Impact of FDI on export

Items	Model III		Model IV	
	Coefficient	Robust Std. Err.	Coefficient	Robust Std. Err.
Constant	7.22***	0.31	-22.26***	0.85
FDI	0.60***	0.06	0.08***	0.02
Population	-		6.65***	0.19
R^2	0.70		0.99	
F-value	111.92		1267.84	
Prob. >F	0.00		0.00	

Impact of FDI on domestic investment

The effect of FDI on domestic investment is shown in Table 3. Two models have been estimated to find out the impact of FDI on domestic investment. In model V, only FDI variables are used as independent variable and in model VI, we assume that domestic investment not only affected by FDI but also population. Result reveals that FDI has positive and significant effect on domestic investment at 1% and 5% level in model V and model VI, respectively. The value of Coefficient of determination R square and robust standard error of the model is shown in the Table 3. Variables are able to explain 71% and 94% of the variation of domestic investment in model V and model VI, respectively. FDI can have a positive effect on domestic investment through spillovers. This is because it 'pulls in' other sources of investment. But this positive effect is a result of efficiency gains from FDI rather than higher induced levels of investment. Moreover, FDI is an important vehicle for the transfer of technology, contributing relatively more to growth than domestic investments. Domestic investment can profit from FDI by seizing the opportunities of technological diffusion and thereby contributing to economic growth. As expected, FDI inflow is found to have positive and significant relationship with domestic investment.

Table 3. Impact of FDI on domestic investment

Items	Model V		Model VI	
	Coefficient	Robust Std. Err.	Coefficient	Robust Std. Err.
Constant	5.27***	0.41	-8.11***	1.49
FDI	0.68***	0.06	0.15**	0.05
Population	-		3.39**	0.33
R^2	0.71		0.94	
F-value	110.81		108.05	
Prob. >F	0.00		0.00	

Prospects of FDI

FDI helps the country in building infrastructure, creating more employment, developing capacity, enhancing skills of the labor force of the country through. Various positive features of Bangladesh are now drawing the attention of the investors from both developed and developing countries. In Bangladesh, it is available to get skilled labor at relatively low wages and macroeconomics environment reasonably stable. These two important factors can make Bangladesh an alluring destination for foreign investors. During last two decades, the Government of Bangladesh has also provided some incentives to attract more FDI inflows after independent except five industries. These incentives can be classified as: financial incentives, fiscal incentives and additional incentives. Financial incentives include the followings: no ceiling on investment, cash incentives and export subsidies ranging from 5%-20% granted on the FOB value of the selected product; tax exemption and duty free importation of capital machinery, 90% loans against letters of credit; funds for export promotion; export credit guarantee scheme; permission for domestic market sales of up to 20% of export oriented companies outside EPZ. Fiscal incentives include the followings: tax holiday up to 10 years, corporate tax holiday of 5 to 7 years for selected sectors; reduced tariff on import of raw materials capital machinery; bonded warehousing; accelerated depreciation on cost of machinery is admissible for new industrial undertaking; tax exemption on capital gains from the transfer of shares of public limited companies listed with a stock exchange; reduced corporate tax for 5-7 years in lieu of tax holding and agricultural depreciation and open exchange control. Additional incentives include the followings: cent percent foreign equity allowed; unrestricted exit policy; residency permits for foreign nationals, no restriction on issuing work permit to a foreign national, remittance of royalty, technical know-how and technical assistance fees; full repatriation facilities of dividends and capital at exit; capital, profit and dividend repatriation facilities, adequate protection is available for intellectual property rights such as patents, designs, trademarks and copyrights, an investor can wind up investment either through a decision of the AGM or EGM. The investor can repatriate the sales proceeds after securing proper authorization from the central Bank.

Problems of FDI

FDI encountered several problems in Bangladesh. These are:

- **Political instability:** For the last couple of years it is clearly seen that unrest political situation depreciates the foreigners to invest their capital in Bangladesh;
- **Bureaucratic difficulties:** While implementing FDI a lot of formalities have to be maintained through the official processes which take more time and the investors become hampered as well as annoyed;
- **Market instability:** Fluctuation of market rate is common in Bangladesh, which was failed to take attention of foreign investor.
- **Corruption: Corrupt**ion in Bangladesh resists the investors, while Bangladesh became the champion in corruption several times;
- **Public Private Partnership (PPP):** This would be a great achievement if a country can introduce it properly, because in the age of globalization it is considered to be an effective project.

Besides those problems mentioned above, we identified some other problems which work as obstacle for FDI in Bangladesh as follows: administrative complexity and non-transparency, lack of infrastructural amenities or poorly developed socio-economic and physical infrastructure to attract foreign investment, frequent change in government policies, less improved seaport facilities and malpractices at the port, deteriorating law and order situation.

CONCLUSION AND RECOMMENDATIONS

FDI can play a very important role in achieving expected economic growth in Bangladesh. Present study has been taken to evaluate the overall scenario of FDI and its impact on GDP, export and domestic investment of Bangladesh. This study also tries to identify the prospects and problems of FDI and some recommendation has been drawn on the basis of research findings. Results reveal that the trend of inflow of FDI in Bangladesh has increased over the 1980s as compared to earlier periods and this same momentum continues in 1990s as well. In 1999, there was a sudden decline in the FDI due to various unfavorable situations during the period discourage foreign direct investment and it took quite some time to regain the confidence of foreign investors. The contribution of FDI is very little in case of transfer of hardware technology. Research findings reveals that power and energy, manufacturing, banking and telecommunication were main invested sector whereas the neglected sectors were agricultural, metal and machinery product. In 2005, the main focus of investment was in the telecommunication sector. Malaysia was the highest investor country in Bangladesh in 2013. After Malaysia the another investor country is UK, Egypt, South Korea, Singapore, Japan and other middle east countries. Impact evaluation shows that the overall impact of FDI on GDP is statistically significant at 1% level and FDI variables are able to explain 80% variation of GDP. In addition, the overall impact of FDI on export also found positive and statistically significant and FDI variables are able to explain 70% variation. Result discloses that FDI has positive and significant effect on domestic investment. This study also found prospects and problem of FDI in Bangladesh. Some of the major steps undertaken by the government of Bangladesh to attract FDI during last two decades such as: established private export processing zone, set up regulatory reform commission (RRC), permanent law reform commission, administrative reform commission, Bangladesh Better Business Forum etc. It has provided some incentives to attract more FDI inflows. These incentives are namely; financial incentives, fiscal incentives and additional incentives etc. From this research finding it can be concluded that FDI plays a very important role in achieving expected economic growth in Bangladesh. It is usually considered that foreign capital inflows can boost-up domestic capital and increases employment opportunities. It is expected that the government of Bangladesh should provide more emphasis of the above factors to increase its economic growth. In order to sustain the economic growth and continue the present status of FDI inflow, Bangladesh needs to maintain some effective steps, are:

- the administrative system of the country should be reformed through appropriate and effective measures;
- the bureaucracy needs to be reorganized and the control of bureaucracy should be minimized;
- government should look into the law and order situation to ensure business friendly environment;
- it is important for a developing country like Bangladesh to modernize the laws relating to business and investment and it should be done focusing on international practices; the development of new industrial parks can play a very important role in attracting foreign investment in Bangladesh and the government may consider setting up new EPZs to encourage export oriented investors.

Recently Bangladesh has taken steps to simplify 25 various processes to encourage increased FDI. The government, total financial sector and foreign investors must work together to achieve the goal of making Bangladesh a progressive economy by the end of this decade.

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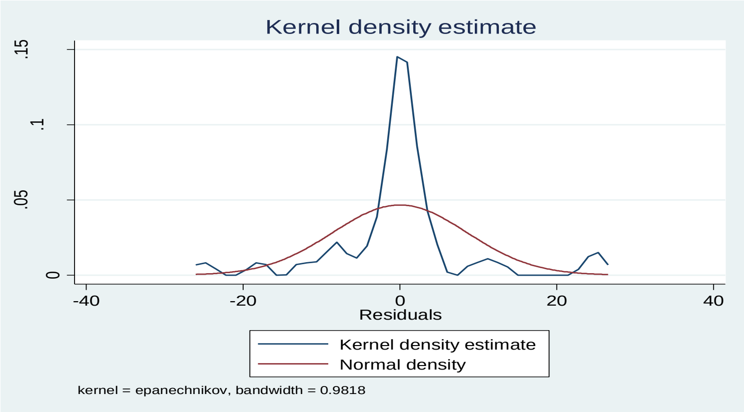
Appendix 1. Augmented Dickey Fuller Test Result

Test statistics	Test statistics	Level of significant		
		1% Critical Value	5% Critical Value	10% Critical Value
FDI	-8.198	-3.655	-2.961	-2.613
GDP	-5.203	-3.648	-2.958	-2.612
Export	-5.107	-3.648	-2.958	-2.612
Domestic investment	-3.931	-3.750	-3.000	-2.630
Population	-4.599	-3.655	-2.961	-2.613

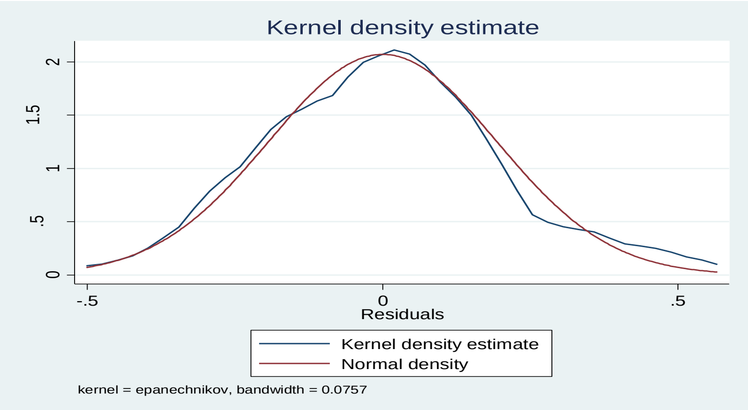
Appendix 2. Autocorrelation test: Durbin-Watson test and Breusch Godfrey test for serial autocorrelation (H_0= no serial correlation)

Test items	Durbin-Watson		Breusch Godfrey	
	Coefficient	P-value	F-statistics	P-value
FDI impact on GDP	1.46	0.86	1.50	0.23
FDI impact on export	1.99	0.88	2.11	0.13
FDI impact on domestic investment	1.51	0.78	1.85	0.19

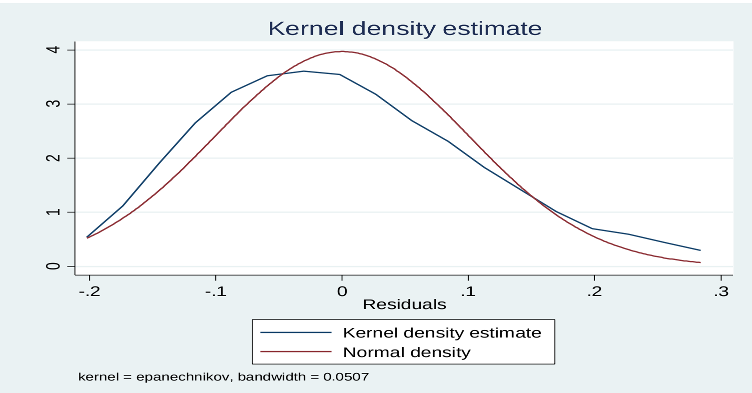
Appendix 3. Normality test of residuals



Normality test for impact of FDI on GDP model



Normality test for impact of FDI on export model



Normality test for impact of FDI on domestic investment model