

Do FDI, Trade Deficit Matter for Gross Domestic Product in Bangladesh?

An Econometric Investigation

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Abstract:

The basic aim of this paper is to investigate the relation between trade deficit and economic growth of Bangladesh. A time series data has been used for the period of 1980 to 2013 for our analysis. GDP is treated as dependent variable while trade deficit and foreign direct investment as independent variables. Augmented Dickey Fuller test has been used to check the unit root and there is unit root in both dependent and independent variables at 5% level of significance. The results of Johansen co-integration show that foreign direct investment has significant and positive relation with GDP of Bangladesh in the long run while trade deficit has insignificant relation with economic growth in the long run. The results of Granger Causality test show that there is uni-directional causality between GDP and FDI and TD has no statistically relation with Gross Domestic Product of Bangladesh.

Key words: GDP, FDI, Trade Deficit, Bangladesh.

JEL Classification: F10; F21; F43; O10; O40; O53

INTRODUCTION

The basic aim of this paper is to investigate the relationship between trade deficit and economic growth of Bangladesh. Trade deficit is the situation in which imports of a country increase than the exports of the country. Bangladesh economy is one of those economies that have experienced volatility in growth and price levels. Foreign Direct Investment (FDI) has emerged as the most important source of external resource flows to developing countries over the years and has become a significant part of capital formation in these countries, despite their share in global distribution of FDI continuing to remain small or even declining. The roles of exports, foreign direct investment (FDI) and the concomitant remittances of emigration are recognized as important economic growth-enhancing factors (Afzal, 2004; Hulugalle et al., 2005). All countries need external resources to finance its development. They implement policies to attract financial resources from outside. Foreign direct investment (FDI) is considered to be one of the main factors that boost the economic growth of the host country. Powered by the growing trend of international financial globalization, foreign direct investment has increased dramatically, especially from the 80s. FDI consists mainly in the creation of overseas units of production or the acquisition of existing units. According to neoclassical growth theory FDI inflows increase the stock of capital in host countries which leads to higher rates of growth that would be obtained by domestic saving. Bangladesh is a rapidly developing country which highly depends on the exports of garments products especially ready-made garment (RMG) for the foreign exchange earnings. The country is known as the world's second largest exporter of western brands. The European Union is the top trading partner of Bangladesh accounting for 60 percent of its exports

(The Daily Star, May 06, 2013). Bangladesh also exports to United States, Germany, Italy, Australia, Canada, Turkey, India, France, China, Japan and many other Asian and South American countries. This economy is endowed with human and natural resources. But it has not shown robustness in setting up the growth track. Simply trade deficit means there is more coming in than coming out. There are different views of the economists about trade deficit. Some think it beneficial for the economy as it raises GDP and increases job opportunities. Some consider it bad for economic growth. But economists agree that capital inflow is good for economic growth. FDI is often seen as an important contribution for economic growth, and some development economists have long argued that countries pursuing outward-oriented development strategies are more likely to achieve higher rates of economic growth than those that are internally focused (Sethi and Sucharita 2011).

Literature review:

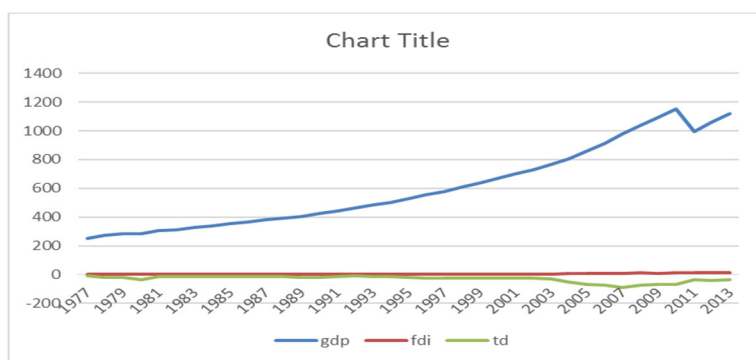
Marcio Holland (2004) investigates the relationship between economic growth and trade balance. He finds long run association among real GDP, exports and imports. Trade liberalization improves growth performance. The volume of exports in developing countries grows slower than the developed countries. As mentioned before, foreign direct investment (FDI) can affect the economic growth through different channels. Borensztein, De Gregorio, and Lee (1998) argue that FDI has a positive growth-effect when the country has a highly educated workforce that allows it to exploit FDI spillovers. While Blomstrom, Lipsey, and Zejan (1994) find no evidence

that education is critical, they argue that FDI has a positive growth-effect when the country is sufficiently rich. In turn, Alfaro, Chandra, Kalemli-Ozcan, and Sayek. (2000) find that FDI promotes economic growth in economies with sufficiently developed financial markets, while Balasubramanyam, Salisu, and Dapsoford (1996) stress that trade openness is crucial for obtaining the growth-effects of FDI. Blomstrom, Lipsey, and Zejan (1994) argue that very poor countries – countries that are very technologically backward – are not able to exploit FDI. They find that very poor countries do not enjoy substantial growth benefits from FDI, but sufficiently rich countries do. Najid Ahmad (2012) shed light on the importance of foreign direct investment by thinking it as an important source of economic growth. Most developing countries think FDI as important source of funding. FDI and economic growth are correlated with each other. Instead of replicating others' policies we should make our own policies according to the need of our country. Najid Ahmad (2012), Iqbal Mahmood (2011), Abu Nurudeen (2010), Abdul Khaliq (2007), ZeshanAtique (2004), Niazi (2011), Mahar (2008), Falki (2009) and Hussein (2009) also talk about economic growth in their studies. According to Bhagwati (1988) increase in trade helps in producing more income (increased GDP) and more income smoothens the progress of more trade and the result being a 'virtuous circle'.

This type of feedback has also been identified by Grossman and Helpman (1991) in their research. Export expansion is believed to lead to and lead by an improved allocation of all types of resources, economies of time and scale, improvements in production techniques by widening knowledge and technical base, through multilateral international arrangements for transfer of technology, accumulation and formation of capital, raising the level of employment by jobs creation and thus, economic growth and development. In developing countries export promotion is a source to fill the imbalances in the external sector. It also assists the economic planners to ensure about the scale and pace of economic recovery. The concept of trade openness is from classical school of economics and from the theories of Adam Smith and David Ricardo.

Yearly trend of GDP, FDI and Trade Deficit in Bangladesh:

Yearly trend of foreign direct investment, Gross Domestic Product of Bangladesh and Trade deficit of Bangladesh is shown in be below for the period of 1977-2013. In These results pictures clearly show that FDI show positive trend with the time but with very low frequency as is the case of GDP. Trade deficit increased with fast speed. There were different factors for it like political instability and terrorism activities reduce FDI and GDP growth speed as was expected in such type of environment. Trade deficit increased because our exports were low and intermediate goods but we imports final goods that results in high trade deficit. This trend is also shown in figure (1).



Data Collection, Methodology and Interpretation:

In order to study the impact of trade deficit and foreign direct investment on economic growth of Bangladesh, a time series data has been used for the period of 1977-2013. The data on these variables has been collected from world development indicator (WDI).

The econometric model is given as

$$GDP = \alpha + \beta_1(FDI) + \beta_2(TD) + \mu$$

where

GDP: Gross domestic product

FDI: Foreign Direct Investment

TD: Trade deficit

B_0 : coefficient is intercept

β_1 and β_2 : coefficients are slopes

μ is residual at time t

Unit root test

The Augmented Dickey-Fuller Test is used to examine existence unit root and determine the order of integration of the variable. The test are done both with trend and intercept and Based on this test, null hypothesis is that there is unit root, and alternative hypothesis is that there is no unit root. As a result, at level with trend and intercept, GDP, FDI, and trade deficit are found to have, which are smaller than 5% level of significance. Thus, null hypothesis cannot be rejected, meaning that there is unit root in both dependent and independent variables.

However, after data is transformed into a first difference, As a result, at level with trend and intercept, GDP, FDI, and trade deficit are found to have, which are larger than 5% level of significance and p-value of GDP FDI, and Trade deficit, are found to be 0.000 which are less than 5% level of significance. Therefore, null hypothesis is rejected, meaning that there is no unit root existing in those variables at first difference.

Table 1: Results of Augmented Dickey Fuller Test

| Variable | Lag | With Trend and intercept | Critical value 5% | With Trend and intercept at first difference | Critical value 5% |
|----------|-----|--------------------------|-------------------|--|-------------------|
| GDP | 1 | -1.846475 | -3.540328 | -6.520834 | -3.544284 |
| FDI | 1 | -1.059616 | -3.544284 | -6.970411 | -3.548490 |
| TB | 1 | -1.639771 | -3.540328 | -5.494346 | -3.544284 |

Cointegration Test

It can seen from the maximum eigenvalue test with constant trend that estimated teststatistic is larger than 5% level of significance for $r=0$. This mean that there is cointegration. To find the number of cointegration we see that for $r=1$ estimated teststatistic is less than 5% level of significance which means that there are only one cointegrating vector. They have long run associations. We can run VECM.

Table 2: Johansen tests for cointegration

| max rank | Lag | trace statistic | 5%Critical value | Maxstatistic | 5%Critical value |
|----------|-----|-----------------|------------------|--------------|------------------|
| 0 | 2 | 30.1407 | 29.68 | 23.1549 | 20.97 |
| 1 | 2 | 6.9857 | 15.41 | 6.8735 | 14.07 |
| 2 | 2 | 0.1122 | 3.76 | 0.1122 | 3.76 |
| 3 | 2 | .. | .. | .. | .. |

Vector Error Correction Model

Vector Error Correction Models (VECM) with a Johansen normalization restriction imposed into the model. The reason for the error correction term is that it measures any movement away from the long-run equilibrium. Table 3 presents results of the VECM long run relationships.

Table 3: Results of long run relationship model of the variables

Dependent: Gross Domestic product

Johansen normalization restriction imposed

| Variable | Coefficient | Std. Error | t-Statistic | p-value | 95% Conf. Interval | |
|----------|-------------|------------|-------------|---------|--------------------|-----------|
| GDP | 1 | . | . | . | . | . |
| FDI | 57.65966 | 22.586 | 1.79 | 0.011 | -101.9274 | -13.39191 |
| TD | 6.567115 | 4.553566 | -7.64 | 0.149 | -15.49194 | 2.35771 |
| Constant | 8.15 | . | . | . | . | . |

Result from table4 show that the long run co-integrating equation will be as follows:

$$GDP_t = 8.15 + \beta_1 57.65966 + \beta_2 6.567115 + \epsilon_t$$

The results of Johansen co-integration test show that there is a positive relation between foreign direct investment and GDP of Bangladesh in the long run. The coefficient of trade deficit is positive that means there is positive relation between trade deficit and gross domestic product of Bangladesh in the long run. The value of p for the variable foreign direct investment is 0.011 that is less than 0.05 means FDI is significant in the long run. The value of p for the variable trade deficit is 0.149 that is greater than 0.05 means variable is insignificant in the long run.

Granger Causality Test

Recent development of the co intregation concept indicate that if they are integrated a VECM should be estimated rather than a VAR as in a standard Granger causality test(Granger,1988).

Following Granger, we estimate a VECM for the Granger causality test because we found intregation relationship between GDP ,FDI and TD.

Causality between FDI and GDP:

$$Y_t = \alpha_0 + \sum_{i=1}^l \alpha_i Y_{t-i} + \sum_{i=1}^l \beta_i FDI_{t-i} + u_t$$

$$FDI_t = \alpha_0 + \sum_{i=1}^l \alpha_i FDI_{t-i} + \sum_{i=1}^l \beta_i Y_{t-i} + v_t$$

Causality between TD and GDP:

$$Y_t = \alpha_0 + \sum_{i=1}^l \alpha_i Y_{t-i} + \sum_{i=1}^l \beta_i TD_{t-i} + u_t$$

$$TD_t = \alpha_0 + \sum_{i=1}^l \alpha_i TD_{t-i} + \sum_{i=1}^l \beta_i Y_{t-i} + v_t$$

The results of pair wise Granger Causality Test conducted between GDP v/s FDI (equation 2) and GDP v/s TD (equation 3) is reported in Table 4.

Table 4 shows Pair wise Granger Causality Tests of the variables. At first stage (equation 2) we have done the causality between GDP and FDI. Up to two lags, we get the result that GDP causes FDI but FDI does not Granger causes GDP. And at second stage (equation 3) we have done the causality between GDP and TD. There is feedback relation that both GDP and TD are independent from each other i.e. no statistical visible relation exists. So finally our conclusion is that there is uni-directional causality between GDP and FDI.

Table 4: Pairwise Granger Causality Tests

| Null hypothesis | lag | obs | f-static | probability | decision |
|--------------------------------|-----|-----|----------|-------------|----------------------------|
| FDI does not Granger Cause GDP | 2 | 35 | 0.16390 | 0.8496 | Accept the null hypothesis |
| GDP does not Granger Cause FDI | 2 | 35 | 3.96115 | 0.0297 | Reject the null hypothesis |
| TD does not Granger Cause GDP | 2 | 35 | 0.35017 | 0.7074 | Accept the null hypothesis |
| GDP does not Granger Cause TD | 2 | 35 | 0.46782 | 0.6309 | Accept the null hypothesis |
| TD does not Granger Cause FDI | 2 | 35 | 2.41881 | 0.1062 | Accept the null hypothesis |
| FDI does not Granger Cause TD | 2 | 35 | 0.33600 | 0.7173 | Accept the null hypothesis |

Conclusion and Policy Implication:

An attempt is made to find the relationship between trade deficit and economic growth of Bangladesh. The study shows positive relation between trade deficit and GDP of Bangladesh in the long run. Sforeign direct investment is necessary for the economic growth for Bangladesh in the short and long run. Government of Bangladesh should control terrorism activities in order to attract foreign investors that are the source of economic development in the short and long run. We can make progress and keep pace with the world if and only if we make our country peaceful by controlling these criminal activities otherwise it would be rather hard to attract foreign investors. The findings show that trade deficit is better for economic growth it raises GDP and increases job opportunities in the long run. It is known fact that technological recovery is not good in developing countries. Bangladesh's economic growth is dependent on imported intermediate goods like capital goods. But total dependency will be harmful as we have to repay prices in the form of debt burden. In order to increase the production in goods and services it is necessary to increase its imports for essential intermediate goods. Here foreign investors' role is very important. It also highlights the importance of exports. We should increase our exports in order to maintain trade balance. It is necessary to educate people through skills development programs. Second, cost of production is very high due to expensive inputs, high interest rate, and taxes. We should think about it if we want to keep pace with the world. It is fair to say here that our results has provided important insights that can be used in the future research for making policies for Bangladesh.

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