

Ahamed, Mazbahul Golam; Tanin, Fahian

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## Determinants of, and the relationship between FDI and economic growth in Bangladesh

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# Bonn Econ Discussion Papers

Discussion Paper 01/2010

## Determinants of, and the Relationship between FDI and Economic Growth in Bangladesh

by

Mazbahul Golam Ahamed and Fahian Tanin

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Bonn Graduate School of Economics  
Department of Economics  
University of Bonn  
Kaiserstrasse 1  
D-53113 Bonn

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# Determinants of, and the Relationship between FDI and Economic Growth in Bangladesh

Mazbahul Golam Ahamad<sup>1</sup> and Fahian Tanin<sup>2</sup>

## Abstract

Inward FDI to the middle-income countries has the evidence as a major stimulus to the economic growth; conventionally at export-oriented manufacturing sector. In point of fact, basic macro fundamentals like as growth of gross domestic capital formation, foreign reserve, infrastructure etc. accelerates the FDI inflows. This study reviews the long-run trend on the time scale of FDI to Bangladesh over the period 1975- 2006 and major factors determining foreign companies' decisions to invest, in associated with economic growth. Contents of the paper describe the theoretical development and extensive literature review to find out the appropriate variables to deter the foreign direct investment from time series data. On the basis of intricate link between foreign direct investment and growth, all explained determinants enhance the facilitation, turnover, and return in FDI concentrated sectors that promote long-term sustainable growth with specific shortcomings, directly or indirectly, in our labor-intensive economic activity. Reduced government's ineffectiveness along with supporting policy framework makes Bangladesh as an attractive destination of FDI, that has a positive spillover and significant impacts affect over time through dynamic effects on economic growth.

**Keywords:** FDI, Determinants, Economic Growth, Bangladesh.

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<sup>1</sup> MSS in Economics, Department of Economics, Shahjalal University of Science and Technology, Sylhet-3114, Bangladesh. Email: [mg.ahamad@gmail.com](mailto:mg.ahamad@gmail.com)

<sup>2</sup> MSS in Economics, Department of Economics, Shahjalal University of Science and Technology, Sylhet-3114, Bangladesh.

## Chapter 1

### Introduction

FDI definition will be followed in accordance with the United Nations (UN) conference on Trade and Development (UNCTAD) and its World Investment Report 2006, which states that “FDI is an investment involving a long-term relationship and reflecting a lasting interest and control by a resident entity in one economy (foreign direct investor or parent enterprise) in an enterprise resident in an economy other than that of the foreign direct investor (FDI enterprise or affiliate enterprise or foreign affiliate)”.

The Bangladesh Board of Investment (2004) maintains the same definition. FDI consists of three core parts: Equity Capital, Reinvested Earnings, and Intra-company Loans. Equity Capital, as the name suggests, refers to ownership and a foreign investor's purchase of shares of an enterprise that is in a country other than his own. Reinvested earnings refer to the investor's share of earnings that are not distributed back to him, i.e. profits that are not given out as dividends but are kept within the firm (or any of its affiliates) as retained earnings. On the other hand, intra-company loans involve debt transactions in the form of short and long-term lending by the foreign parent company to its affiliates. FDI inflows to Bangladesh have increased dramatically in recent years and have had some positive influence on development. The structure of this study will constitute a discussion of the history of FDI followed by identifying the influential factors that determine FDI inflow in Bangladesh.

After evaluating the two components separately, the paper will examine the relationship between economic growth and FDI. The evaluation will consist of two theoretical models, based on previous studies, and two empirical models, based on data collected on Bangladesh from WDI, UN Data, WB, IMF, UNCTAD, ILO and BBS from 1975 to 2006.

Important economic concepts will be used to discuss details of how FDI inflows enhance the production capacity of the economy and raise employment levels. This leads to an increase in exports that allows the country to earn foreign currency with which to pay for external debt, import volumes, and further inflows of FDI. The process continues to help sustain economic growth.

Two model estimated by regressions using two stages least square that models will follow to justify the notion that foreign investment significantly contributes to economic growth in Bangladesh. The core part of the empirical analyses will consist of time-series data to identify trends of FDI and World Development Indicators since the 1975s, when inflows of foreign capital first widely spread in Bangladesh. A number of indicators will be used as metrics of development, including GDP per capita, GDP growth rate, capital formation, foreign reserve, labor force growth, telecom distribution, and export-import volumes.

Entire analyses will examine correlations that may exist between FDI and these development indicators to support the theory. In focusing on the history of FDI in Bangladesh, the paper will provide an overview of the different policy measures the Government of Bangladesh has implemented since the country's independence in late 1971. Until 1985, GNP per capita did not manage to grow nearly as fast as other low income countries. In trying to overcome this stifled growth, external pressure from foreign donors induced the government to privatize major industries and adopt economic reforms of its investment policies as a means to attract more FDI and boost economic growth. Factors that have influenced FDI will also be emphasized, as like as policy changes, overvalued exchange rates, financial risks, political stability, and tax liabilities as exogenous. Overall, the purpose of this study is to analyze the determinants of FDI and the correlation between economic growth and FDI.

### **1.1: Rationale of the Study**

FDI in developing countries especially in Bangladesh takes a vibrant part of GDP acceleration. Empirically, FDI inflow emerges export-oriented sectors that enhanced the domestic economic growth and infrastructure development as well as employment generating activities. But FDI inflow affects by some important determinants like as GDP per capita, average growth rate of GDP, foreign reserve, gross capital formation, human capital, terms of trade and others essential infrastructure. The study about FDI inflows of Bangladesh can find out the determinants and relationship between FDI and economic growth.

## 1.2: Objectives of the Study

The objective of the study is following below.

1. To show current situation of FDI inflows in Bangladesh.
2. To identify the determinants of FDI in Bangladesh.
3. To examine the relationship (either positive or negative) between FDI and economic growth.

## 1.3: Literature Review

**ODI (1997)** analysis on 'foreign direct investment flows to low-income countries: a review of the evidence'. In this article he try to explains foreign direct investment is viewed as a major stimulus to economic growth in developing countries. Its ability to deal with two major obstacles, namely, shortages of financial resources and technology and skills, has made it the centre of attention for policy-makers in low-income countries in particular. Only a few of these countries have been successful in attracting significant FDI flows, however. This paper reviews the recent evidence on the scale of FDI to low-income countries over the period 1970- 96 and major factors determining foreign companies' decisions to invest in a particular country.

**Joong-Wan Cho (2004)** explains in "Foreign direct investment: determinants, trends in flows and promotion policies" that most developing countries were starting to look to FDI as a source of capital when flows of official development assistance (ODA) declined sharply in the 1990s. FDI usually represented a long-term commitment to the host country and contributed significantly to gross fixed capital formation in developing countries. FDI had several advantages over other types of capital flows, in particular its greater stability and the fact that it would not create obligations for the host country, as had been observed in the context of the Asian financial crisis of 1997-1998. FDI can play a key role in improving the capacity of the host country to respond to the opportunities offered by global economic integration, a goal increasingly recognized as one of the key aims of any development strategy.

**Sahoo (2006)** works on 'foreign direct investment in South Asia: policy, trends, impact and determinants'. He said that the FDI environment has undergone a sea change in South Asian countries during the 1990s, and more so in recent years. With their liberalized approach to FDI and constant changes in improving the FDI policy framework, it is certain that South Asia has become

an important destination for investment. Thus, one can conclude that there has been a positive change in policies with regard to FDI with efforts directed more towards bilateral trade agreements and providing investment incentives to foreign investors in all South Asian countries. However, there are still procedural delays, reserved industries where foreign investors are not allowed to invest and ceilings in many industries/sectors in each of these countries. Accelerating the economic reform process and making their economies politically stable and free from internal conflict would go a long way toward making South Asia an attractive destination for FDI. The results of FDI impact on growth show that FDI has a positive and significant impact on growth for four south Asian countries. Other significant factors that contribute to growth are exports, gross domestic capital formation and infrastructure. Therefore South Asian countries need to improve their domestic investment, exports and infrastructure facilities, along with more foreign investment, to achieve higher growth. Further, FDI has a positive impact on export growth through its positive spillovers for South Asian countries. Though FDI does not affect domestic investment in the current period, it has a positive and significant impact affect over time through dynamic effects.

**Mian and Alam (2006)** empirically focused on 'foreign direct investment and development: the Bangladesh scenario'. About his study, foreign direct investment is an important determinant of the economic growth and development of Bangladesh. Empirical studies have shown that the creation of an adequate investment environment facilitates increased trade and investment activities which are crucial for long-term growth. Although attempts have been made to create an investment friendly climate, Bangladesh as a host country has yet to be successful in creating domestic policy settings and factors, hospitable to the facilitation of business. It is argued that both government ineffectiveness in controlling corruption, improving political stability and establishing rule of law and its failure to create physical and policy infrastructure is the most influential determinant that have deterred foreign investors from choosing Bangladesh as a host nation.

**Iftekhar Ahmed (2006)** works on article entitled 'foreign direct investment: impact on scrotal growth in Bangladesh'. He explains, while welcoming FDI, we should also formulate a set of priorities to guide FDI decisions. The general principle one can easily agree on, is to promote long-term sustainable economic growth through labor-intensive economic activities, which should be the primary goal of any investment. The issue of advanced technology and its diffusion, strengthening



of the country's comparative advantage that should be to help develop the domestic capital market are among the elements that should be the next level of focus. However, within these broad guidelines, it can be observed that foreign investors are often keen to private loans. As a result, they have to remit more outside the country for repayment purposes, which creates pressure on the country; foreign exchange reserves. In spite of the negative flows generated in some years, overall FDI has helped output growth, particularly in the service and industrial sectors of the economy. However, one should weigh both the positive and negative implications of individual FDI proposals before taking any decision on them. It would appear that specific policy directives might be revalued so as to reduce dependence on foreign bank borrowing, instead foreign and domestic investors alike should be tapped to raise more capital from the domestic equity market.

**Delali Accolley (2007)** has focused on some theories on the determinants and impacts of Foreign Direct Investment (FDI); at resented and critically discussed. In the empirical investigations which follow this, the effects of some macroeconomic variables such as economic growth, market size, and degree of openness, real effective exchange rate, and labor cost on flows of FDI into the USA have been tested. In the specification of the econometric model, account has been taken of the fact that economic growth could be both a determinant and impact of FDI inflows. The main finding is that economic growth in the USA does not explain the long-run behavior of the FDI inflows equation. It can explain its short run behavior but not significantly. Besides, it has been found that FDI inflows contribute to economic growth in the USA. Open-market operations have been proposed as economic policy to attract FDI flows.

**Razeen Kabir (2007)** analysis about foreign direct investment and sustainable growth: a case study on Bangladesh. Here he explains several benefits of Foreign Direct Investment (FDI) on a macroeconomic level, particularly for a Third World Nation such as Bangladesh, where inflows of foreign investment can expand economic production and growth. FDI provides capital from sources abroad which the country is unable to supply domestically. The inflows facilitate the growth of a number of economic sectors, including industry, manufacturing, infrastructure, and energy. The expansion leads to a rise in the availability of jobs and a fall in the unemployment rate. Consequently, GDP and per capita income increase which, in a developing country, fosters poverty alleviation. In addition, FDI strengthens ties with developed countries that may yield cost

advantages in the form of advanced technology transfers and resulting positive externalities. Increased financial associations also lead to stronger capitalistic markets and ideals of corporate governance and social responsibility. On the basis of this intricate link between FDI and growth, the trade regime of Bangladesh has been intensely liberalized to maintain the streams of investments and finances from abroad. These reasons also increase the effort of the Government of Bangladesh in trying to make the country an attractive destination for FDI which in itself has several advantages. The result has validated a reinforced incentive to educate and train the population to make Bangladesh's labor force more competitive through higher national education expenditure. The objective of this study is to conduct a historical and statistical analysis of the relationship between foreign investment inflows and sustainable economic growth.

**Mottaleb (2007)** works on determinants of foreign direct investment and its impact on economic growth in developing countries. According to his works; by bridging the gap between domestic savings and investment and bringing the latest technology and management know-how from developed countries, foreign direct investment (FDI) can play important role in achieving rapid economic growth in the developing countries. The fact is that FDI mostly flows towards the developed countries and only a small portion of FDI flows to a limited number of developing countries. Thus, most of the developing nations almost fail to attract a handsome amount of FDI. Using panel data from 60 low-income and lower-middle income countries, this paper firstly identifies the influential factors that determine FDI inflow in the developing countries and secondly empirically demonstrates the relationship between economic growth and FDI. It is found that countries with larger GDP and high GDP growth rate and maintain business friendly environment with abundant modern infrastructural facilities, such as internet can successfully attract FDI and FDI on the other hand, significantly affect economic growth of a country.

**Patil and Nawani (2007)** works entitled 'ethnological Capability as a determinant of FDI Inflows: Evidence from Developing Asia & India'. Their paper attempts to explain the country-wise variations in the pattern of FDI flows to developing Asian economies by empirically identifying location specific features influencing such flows. The paper argues that some countries in the region, which have developed long term sources of comparative advantages in the form of superior technological capabilities and supporting infrastructure, have consistently attracted greater

volumes of export-oriented FDI. These attributes are also crucial for explaining the steady improvement in FDI flows to India. The paper finds that with production processes becoming increasingly complex and technology-intensive, developing countries like India, must devote greater attention to the development of R&D and frontier technologies, failing which, they might lose out in the race for FDI.

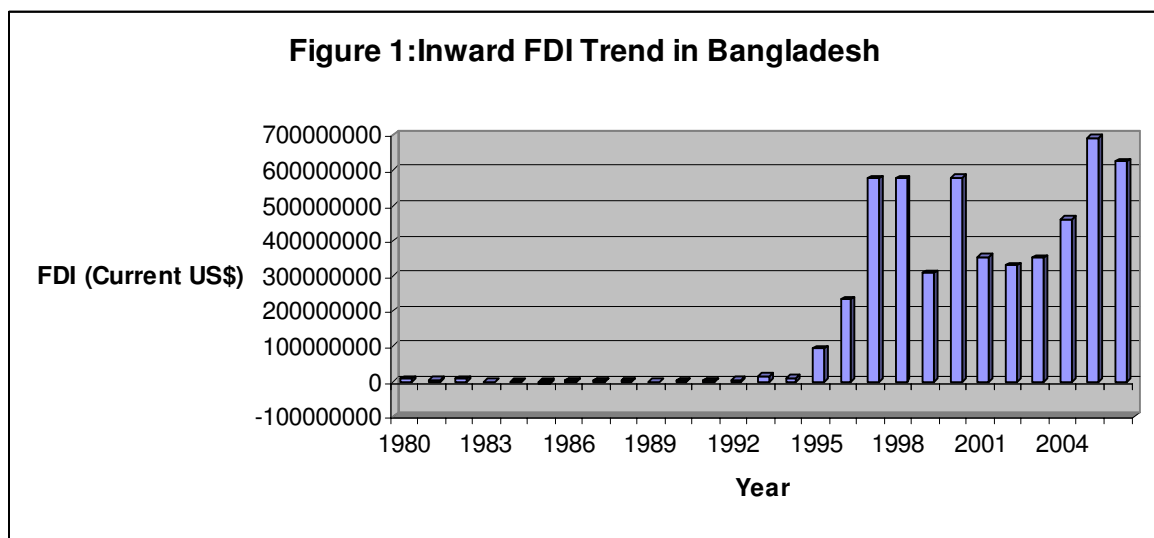
**Khan (2008)** analyzed about on globalization and the Climate of Foreign Direct Investment: A Case for Bangladesh. Foreign Direct Investment is dramatically increasing in this age of globalization. It has played important role for economic growth in this global process. But, the distribution of FDI is uneven in all over the world. Some countries are ahead and some are lag behind to attract foreign direct investment. The poorest countries are disappointing in attracting FDI. First, the study attempts to describe the overall background, trends and definition of FDI in recent years. Second, it describes the theoretical development and extensive literature review to find out the appropriate variables to deter the Foreign Direct Investment from different reputed studies, third, it focuses on the challenges, opportunities, investment and economic environment associated with the inflow of FDI in Bangladesh. The study explores the determining factors of FDI in Bangladesh. It investigates the significant determinants of a particular country in Inflow of Foreign Direct Investment. At the end, it draws the conclusion to promote the inflow of foreign direct investment with a view to take measures to strengthen the positive impacts and reduce the negative impacts of FDI.

## Chapter 2

### The History of FDI and Current Situation of FDI inflows in Bangladesh

From the early stage of 1980s, many of the Least Developed Countries, including Bangladesh, were skeptical of the intentions of FDI and perceived it as a tool for promoting foreign interests. Consequently, a wide array of restrictions were imposed to control FDI inflows through regulations on profit and dividend repatriations, limits on foreign equity and capital, and required royalty payments. In an increasingly globalized world economy, countries have now lifted such barriers to open their economies and take advantage of the benefits of foreign investment.

Inflows of FDI in Bangladesh have grown from a trickle during the 1980s above \$300 million towards the end of 1990s; in 2005, it stood at about \$692 million. **Figure 1** illustrates the rising trend of FDI inflows in Bangladesh.



**Figure 1:** Inward FDI Trend in Bangladesh

Source: WDI Data

UNCTAD (2007) database which also states “FDI inflows comprise capital provided (either directly or through other related enterprises) by a foreign direct investor to a FDI enterprise” and “FDI stock is the value of the share of their capital and reserves (including retained profits) attributable to the parent enterprise, plus the net indebtedness of affiliates to the parent enterprises.”

Factors that have led to this dramatic rise and in order to better understand them, it is necessary to discuss the history of the economic policy implemented by the Government of Bangladesh since the country's independence from Pakistan in 1971. Immediately after the birth of the sovereign nation, the new government attempted to establish a socialist state and adopted the Nationalization Order of 1972 to foster economic growth. 86% of the industrial sector was brought under government control, including key industries such as sugar, jute, and cotton textiles. The First Five Year Plan was undertaken from 1973 through 1978 and focused on a state directed economy. The nationalized industries, however, were inefficient and the economy experienced low growth. The losses incurred by the public sector and its State Owned Enterprises created a build-up of political pressure and the government initiated more laissez-faire measures to encourage a larger role of the private sector.

Consequently, Bangladesh has undergone a series of policy reforms to induce a more capitalistic economy by progressively increasing funding allocations to the private sector; these reforms include the 1978-1980 Two Year Plan, the 1980-1985 Second Five Year Plan, the 1985-1990 Third Five Year Plan, and the 1990-1995 Fourth Five Year Plan.

Concerning to the lack of financial ability, knowledge, and management within the nascent economy of a new nation, the government could not solely rely on the domestic financial market for economic growth. While other low income countries experienced a 3.8% growth of GNP per capita, Bangladesh struggled at 0.4% per year till 1985. To accelerate the development of the economy, foreign investment became a priority and in 1980, the Bangladesh Parliament approved the Foreign Private Investment Act. FDI, however, rose very little owing to the upheld trade restrictions and the Investment Act of 1989 soon followed to establish the Board of Investment (UNCTAD 2000), the primary objective of which is aimed at attracting and facilitating investment from abroad.

**Figure 1** demonstrates that the Bangladeshi economy reflected the efforts of the Board of Investment with increases in FDI inflows, particularly throughout the 1970s. It is important to emphasize the years between 1995 and 1998 which saw the sharpest and most sudden rise in FDI flows. This period can be attributed to a variety of factors.

During the mid-1990s, numerous foreign enterprises led exploratory research campaigns into the nation's natural gas reserves, which have an estimated capacity greater than 10 trillion cubic feet according to the U.S. Geographical Survey. Given the world's scarce resources, external pressure finally urged the Bangladeshi government into liberalizing the energy sector, a move which almost immediately attracted increasing levels of FDI<sup>5</sup>.

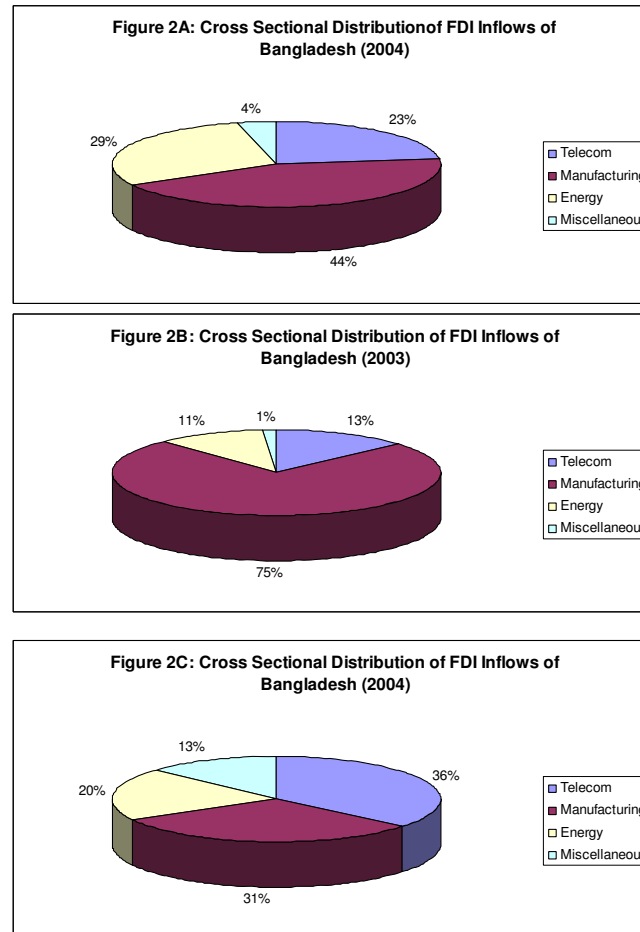
Concurrently, the government also eased capital controls and reduced its bureaucratic red tape to allow private firms to borrow foreign loans without governmental permission, thus encouraging more joint ventures with international companies. In 1995, the Bangladesh government opened up the mobile telecommunication industry for private investment, an area which has fostered technology transfers as well as hundreds of millions of dollars in FDI. All these reforms and policies combined to shape Bangladesh into the nation that it is today.

Considering policy brief, the Bangladesh Board of Investment has taken measures to transform the country into the most liberalized investment regime in the South Asian region. This is largely reflective of the increasingly capitalistic model of the economy where growth is fueled primarily by the private sector. Thus, foreign enterprises are allowed to reduce associated business risks by undertaking joint ventures with domestic private firms. A number of other advantages make Bangladesh a prime destination for FDI. With a 150 million population, the most abundant factor of production is low-cost labor. This attribute makes the country ideal for labor-intensive industries. The densely populated city centers also provide for an untapped, sizeable market.

Only limit is to such a market that the products offered will either only appeal to the upper socioeconomic strata or will have to incorporate low-cost items to appeal to the general population. There is also an abundance of natural resources, such as methane gas, water, coal, and oil.

Furthermore, infrastructure of Bangladesh remains underdeveloped and this provides a wide array of markets for incoming foreign investment with little or no domestic competition. It is also important to realize that the government has neither the capital nor the resources to expand many areas of its infrastructure and consequently has attempted to open its economy towards foreign capital,

particularly in areas such as power plants, construction, transportation, etc. Hence, the country has adopted a sequence of liberalized industrial policy reform for inward FDI.



**Figure 2:** Cross Sectional Distribution of FDI inflows to Bangladesh

Source: Bangladesh Board of Investment (2005-06)

The government of Bangladesh has also established two for the full website address 10 export-processing zones (i.e. areas with minimized trade restrictions) in the country's two largest cities, Dhaka and Chittagong, which account for most of the inward flows of FDI. It is important to note that so far roughly 90% of FDI inflows in Bangladesh have come in the form of equity and reinvestment since there is currently is no limitation on equity participation for foreign private investment.

According to the BoI, two more bureaucratic bodies keep track of FDI registrations and they include the Bangladesh Export Processing Zones Authority and the Bangladesh Bank. **Figure 2** shows the cross-sectional distribution of FDI inflows from 2002 to 2004:

It is important to find out that FDI inflows have increased each of these years and the above only represents the share of FDI each sector has received relative to the other. The pie charts express how the dimensions of FDI inflows have changed in recent years. The reduction in FDI shares of manufacturing demonstrates that it is no longer a stronghold for foreign investment and other sectors, such as telecom and based on percentages gathered from the Bangladesh Board of Investment 2002, 2003, 2004 respectively. The agro-based industry is particularly important since Bangladesh is a sub-tropical delta with very fertile land and is ideal for dairy, poultry, fruits, vegetables, shrimp and fish farms. The smallest, miscellaneous proportions include services in finance, engineering, and computer software.

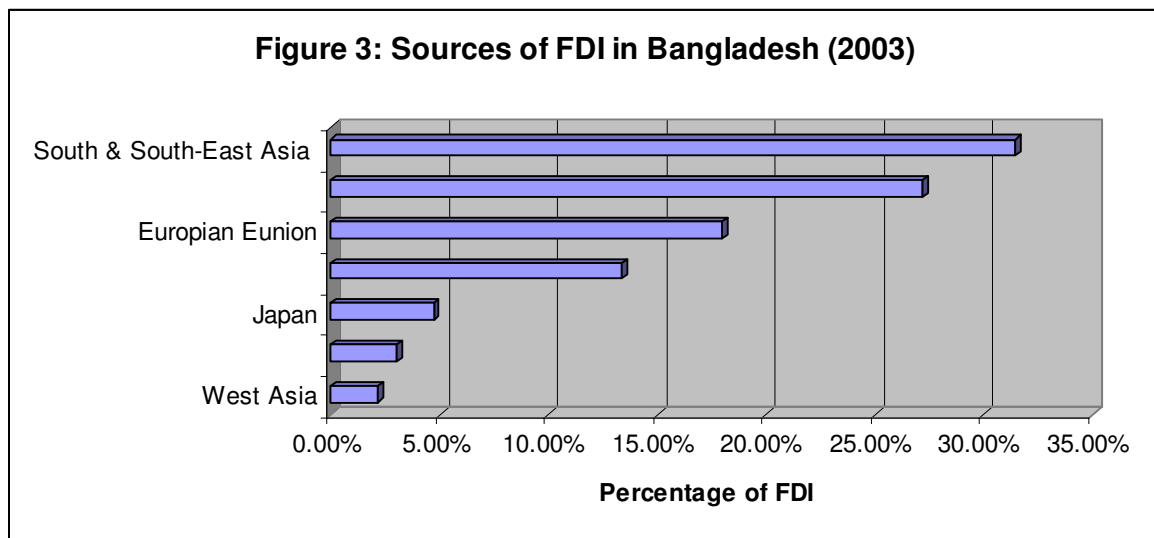
Recent at 2003, the manufacturing sector received the majority of foreign investment inflows. A vital part of this was owing to the success in textiles through the ready-made garments industry. The manufacturing sector involves products which fall under sub-categories such as textile, chemicals, agriculture, food, glass, ceramics, leather, rubbery, printing and publication.

Manufacturing sector (in 2004) was overtaken by the telecommunications sector as the leading recipient of FDI. Owing to increased privatization efforts by the government, telecom has emerged as one of the fastest growing sectors in the Bangladesh economy. Much of this can be explained by the increased competition between large private corporations that have magnified efforts to attract FDI and attain better technology to optimize profits. At the same time, Grameen Phone's efforts to loan out mobile phones to female operators in remote villages have also increased the demand for foreign investment in telecom and satellite communication technologies.

In addition, the energy sector draws in significant levels of FDI albeit in comparatively lower quantities. The country's natural gas reserves partially explain this. Another factor is the country's difficulty in generating electricity. The lack of production capacity causes the government to frequently 'load shed' power, by imposing blackouts 12 in areas of low power usage to meet the



needs of areas of higher power usage. Hence, the energy sector offers much scope for foreign investment as the government lacks the capital and liquidity of building power-grids and expanding the country's electric capacity. Other imports in the energy sector include solar and hydro-electric generators but these have been installed only in limited quantities. Further evidence of the growing credibility of Bangladesh's investment regime can be seen from the numerous countries which have decided to invest in the country, as shown in **Figure 3:**



**Figure 3:** Sources of FDI in Bangladesh (2003)

Source: Bangladesh Board of Investment (2004)

More than a third of FDI originates from developed parts of the world such as North America, Europe, and Japan. Another approximate third are investments from Bangladesh's South Asian neighbors, mostly from the rapidly growing Indian economy.

Furthermore, the Bangladesh Board of Investment (2002) reports that though based on percentages provided by the Bangladesh Board of Investment (2004) 13 approximately 60% of all FDI inflows are transferred through joint ventures to hedge risk, 40% come straight from the parent company without any medium domestic firms (via the establishment of affiliate firms in the host country).

To summarize, there are many prospects for FDI in Bangladesh. The nation has many resources and scope to yield many advantages and opportunities for foreign investors. The government and

economy have also been made very conducive to investment through a series of reforms allowing the nation to become the most liberalized trade regime of the South Asian region. Despite the pros, it is also important to recognize that Bangladesh lags behind its neighboring counterparts such as India and Sri Lanka. In many aspects, it is still viewed as an FDI underperformer and the country is far from achieving its full potential. It will take time before Bangladesh achieves better results in attracting FDI but as long as the inflows continue to increase, the possibilities for the country's future remain hopeful.

### **2.1: Determinants of FDI and the Relationship between Economic Growth and FDI**

Foreign direct investment to developing countries has increased substantially in the nineties. However, Bangladesh has lagged behind and received low FDI inflow compared to other developing countries.

Therefore, the relevance of understanding foreign direct investment flows in the South Asian region is important. FDI flowing into any country depends upon the rate of return on investment and the certainties and uncertainties surrounding those returns. Therefore, private investors compare the potential return and risks of their investment in the context of different investment destinations. The literature on the determinants of FDI is very rich. The expectations of private investors in a host country are guided by a host of economic, institutional, and regulatory and infrastructure related factors. Before making an investment, investors look at certain major economic policy issues particularly relating to trade, labor, governance and the regulatory framework, and the availability of physical and social infrastructure. Some of the fundamental determinants of FDI, such as geographical location, resource endowment and size of the market, are largely outside the control of the national policy. However, national economic policies to create a conducive investment environment, and particularly the investment framework, can help to make FDI inflows consistent with economic potential. Countries can also act on their economic determinants to maximize their economic potential. The East Asian FDI boom before 1997 showed that the accrual of the benefits of FDI depends largely on factors such as income, growth and appropriate infrastructure and labor policy. Sound macroeconomic fundamentals, along with other factors such as stable exchange rate policies, low inflation, and sustained growth, influence the decision of investors in a host country.

There are well-established theories explaining why foreign direct investment takes place and what the potential determining factors are, including the market imperfection hypothesis (Hymer, 1976), internalization theory (Rugman 1986), and eclectic approach (Dunning, 1988). There can be vertical and horizontal FDI inflows. Vertical FDI take place when factor prices are not equalized across countries (Hanson, 2001; Helpman and Krugman, 1985). Higher trade costs and stronger firm level scale economies encourage FDI relative to exports (Barinard, 1997). Thus, horizontal FDI takes place because of trade costs (Markusen, 1984; Markusen and Venables, 1998).

By now, there is a substantial literature explaining the determinants of FDI (Dunning, 1993; Globerman and Shapiro, 1999; Shapiro and Globerman, 2001; Bevan and Estrin, 2004; Campos and Kinoshita, 2003). All the determinants of FDI can be grouped under two categories (i) economic conditions and (ii) host country policies. Economic conditions include market size, growth prospect, rate of return, urbanization/industrialization, labor cost, human capital, physical infrastructure, and macroeconomic fundamentals like inflation, tax regime, external debt, etc. Host country policies include the promotion of private ownership, efficient financial market; trade policies/free trade policy/regional trade agreements, FDI policies, and perception of country risk, legal framework, and quality of bureaucracy. Empirical research suggests that FDI is sensitive to the host country's overall economic policies, including its tax policy.

### **Potential Determinants of Foreign Direct Investment**

**Market size:** The aim of FDI in emerging developing countries is to tap the domestic market, and thus market size does matter for domestic market oriented FDI. Market size is generally measured by GDP, per capita income or size of the middle class. The size of the market or per capita income are indicators of the sophistication and breath of the domestic market. Thus, an economy with a large market size (along with other factors) should attract more FDI. Market size is important for FDI as it provides potential for local sales, greater profitability of local sales to export sales and relatively diverse resources, which make local sourcing more feasible. Thus, a large market size provides more opportunities for sales and also profits to foreign firms, and therefore attracts FDI (Wang and Swain, 1995; Moore, 1993; Schneider and Frey, 1985; Frey, 1984). FDI inflow in any period is a function of market size (Wang and Swain, 1995). However, studies by Edwards (1990) and Asidu (2002) show that there is no significant impact of growth or market size on FDI inflows.

Further, Loree and Guisinger (1995) and Wei (2000) find that market size and growth impact differ under different conditions.

**Labor cost and availability of skilled labor:** Cheap labor is another important determinant of FDI inflow to developing countries. A high wage-adjusted productivity of labor attracts efficiency-seeking FDI both aiming to produce for the host economy as well as for export from host countries. Studies by Wheeler and Mody (1992), Schneider and Frey (1985), and Loree and Guisinger (1995) show a positive impact of labor cost on FDI inflow. Countries with a large supply of skilled human capital attract more FDI, particularly in sectors that are relatively intensive in the use of skilled labor.

**Infrastructure facilities:** The availability of quality infrastructure, particularly electricity, water, transportation and telecommunications, is an important determinant of FDI. When developing countries compete for FDI, the country that is best prepared to address infrastructure bottlenecks will secure a greater amount of FDI. The previous literature shows the positive impact of infrastructure facilities on FDI inflows (Wheeler and Mody (1992), Kumar (1994), Loree and Guisinger (1995), Asidu (2002)). In this study, the construction of an infrastructure index has been attempted taking different infrastructure indicators.

**Openness and export promotion:** The key hypothesis from various theories is that gains from FDI are far higher in the export promotion (EP) regime than the import promotion regime. The theory proposes that import substitution (IS) regimes encourage FDI to enter in cases where the host country does not have advantages leading to extra profit and rentseeking activities. However in an EP regime, FDI uses low labor costs and available raw materials for export promotion, leading to overall output growth. Trade openness generally positively influences the export-oriented FDI inflow into an economy (Edwards (1990), Gastanaga et al. (1998), Housmann and Fernandez-arias (2000), Asidu (2001)). Overall, the empirical literature reveals that one of the important factors for attracting FDI is trade policy reform in the host country. The theoretical literature has explored the trade openness or restrictiveness of trade policies (Bhagwati, 1973; 1994; Brecher and Diaz-Alejandro, 1977; Brecher and Findley; 1983). Investors generally want big markets and like to invest in countries which have regional trade integration, and also in countries where there are greater investment provisions in their trade agreements.

**Human capital:** The availability of a cheap workforce, particularly an educated one, influences investment decisions and thus is one of the determinants of FDI inflow. In the present study, we use labor force growth as human capital.

## **2.2: The Relationship between FDI and Economic Growth in Bangladesh**

Several benefits of FDI on a macroeconomic level, particularly for a Third World Nation such as Bangladesh, where inflows of foreign investment can help broaden economic production and growth. FDI provides capital from sources abroad which the country is unable to supply domestically. Foreign investment helps to fill the saving-investment gap caused by the lack of domestic savings converting into investment (Ahmad 1990). Bangladesh specifically faces many obstacles in expanding its cities with overpopulation and low GDP per capita. The inflows facilitate capital formation and the growth of a number of economic sectors, including industry, manufacturing, infrastructure, and energy. The expansion leads to a rise in the availability of jobs and a fall in the unemployment rate. Consequently, GDP and per capita income increase which, in a developing country, fosters poverty alleviation. In addition, FDI strengthens ties with developed countries that yield cost advantages in the form of advanced technology transfers and resulting positive externalities. Increased financial associations also lead to stronger capitalistic markets and ideals of corporate governance and social responsibility. On the basis of this intricate link between FDI and growth/development, the trade regime of Bangladesh has been intensely liberalized to maintain the streams of investments and finances from abroad.

These reasons also increase the effort of the government to try and make the country attractive destinations for FDI, which in itself has several benefits. The result has validated a reinforced incentive to educate and train the population to make Bangladesh's labor force more competitive through higher national education expenditure. The effectiveness of domestic institutions such as the Grameen Bank, however, appears to be more effective in fostering investment in human capital (via female empowerment) than FDI.

Fry (1999) finds that foreign capital in non-Asian countries has induced decreasing rates of national saving, domestic investment, and economic growth. His study suggests that in most regions FDI tends to substitute and crowd out domestic investments. In the case of South and East Asia,

however, foreign investment has been beneficial in increasing capital formation and has produced positive effects similar to home investment. Since there is little domestic investment to crowd out in Bangladesh, foreign investment can effectively assist with economic growth to increase the country's GDP.

In a country like Bangladesh, where the economy is driven by high volume imports, a huge capital account deficit accumulates as foreign exchange flows out. Sattar (1999) notes that FDI is a fundamental and necessary component for long-term sustainable growth in Bangladesh. In this context, FDI enables various economic sectors to become efficient and increase the production of the economy. Sattar (1999) discusses the advantages of exports and FDI outflows in this context. Outflows enable a nation to earn foreign exchange and improve its capital account; it can increase an already existing surplus or, as in the case of Bangladesh, reduce its budget deficit and possibly help bring about a surplus in the distant future.

FDI inflows tend to deter the capital account as Fry(1999) identifies a strong association with higher imports. However, when such inflows help raise the production capacity, the economy can become more export-oriented (Fry 1999) and gain foreign exchange currency (Sattar 1999). This earned currency can finance increased imports or inflows of foreign capital and, in turn, sustain further growth and development (Sattar 1999). Thus, Bangladesh has adopted a capitalistic, export-oriented growth strategy. Specifically, the relatively recent success of the RMG industry exemplifies this cycle. Sattar (1999) highlights the logic that has underscored Bangladesh's trade policy regime.

Though FDI entails many positives, there remains a concern over capital flight. This notion involves outflows of domestic capital that hurts the country's current account and foreign exchange reserves. Quazi (2004) suggests that international aid and foreign investment tends to accelerate such outflows and stunt economic growth. The study suggests that the foreign currency generated by FDI helps finance the flow of domestic capital abroad as incoming foreign capital substitutes for it within the home country's borders. Conversely, Mondal (2003) identifies reduced capital flight as a benefit of FDI. This infers that the benefits of FDI reduce the risk of home investments by stabilizing economic output and reducing the incentive to invest abroad.

The number of studies examining the precise relationship between FDI and economic growth has been somewhat limited. This can be attributed to a number of reasons. In terms of the macro economy, there are a number of wide-ranging factors that can influence growth and development outside of foreign investment; not including all such factors raises concerns over omitted variable bias in the empirical estimation. This occurs when a significant variable is excluded and the statistical model is underspecified, that is, it has not accounted for all relevant factors. In order for there to be bias, the excluded independent variables must affect both the dependent variable as well as other independent variables of the equation. An upward bias occurs when independent variables are neglected such that the effects of the independent variables are included in the regression are overemphasized. In contrast, a downward bias is the effects of the independent variables are underestimated.

## Chapter 3

### Methodology

#### 3.1: The Model

The original object of these empirical investigations was to test five hypotheses: economic growth, market size, the degree of openness, exchange rate, and labor cost as determinants of inward flows of FDI. The model to estimate was solely the following single equation:

$$FDII = \gamma_0 GDPC + \gamma_1 GDPAGR + \gamma_2 TO + \gamma_3 LFGR + \gamma_4 WR + \mu \quad (3.1)$$

Where FDII, GDPC, GDPAGR, TO, LFGR, WR and  $\mu$  stand respectively for the inward flows of FDI (Current US\$), the GDP (Current US\$), the annual percentage of GDP growth rate, the trade openness, the labor force growth rate, the wage rate and the error term.

The regressors GDPAGR and GDP are not only determinants of FDI inflows but as well endogenous variables explained by FDI inward flows (FDII) and other variables such as technological change, education per worker, growth in labor input, gross fixed capital formation, etc. Biased and inconsistent estimates will be obtained if the feedback between FDI inflows and GDPAGR or GDP is not taken into account in estimating the parameters of relation (3.1). One of the following models can therefore be added to relation (3.1).

$$\Delta GDPC = \delta_0 FDII + \delta_1 \Delta GCF + \delta_2 \Delta EPC + \delta_3 \Delta RFE + \delta_4 \Delta TLCS + \varepsilon \quad (3.2)$$

$$GDPC = \delta_0 FDII + \delta_1 GCF + \delta_2 EPC + \delta_3 RFE + \delta_4 TLCS + \varepsilon \quad (3.3)$$

Where GDPC, FDII, GCF, EPC, RFE, TLCS and  $\varepsilon$  are the GDP (Current US\$), gross capital formation (% of GDP), electric power consumption (KWh per capital), reserve foreign exchange (At the end of the period US\$), telephone line & cellular subscribers and stochastic error term.



Relation (3.2) enables to test the effects of FDI inflows, GCF, EPC, RFE and TLCS on economic growth. Most of the times, GDPC is a stationary variable and FDII is not. Regressing GDPC on FDII will be nonsense if GDPC is  $I(0)$  and FDII is  $I(1)$  or  $I(2)$ . A way of dealing with this issue is to consider in equation (3.2) GDPC as a function of  $\Delta$ FDII and not FDII.

This is equivalent to 3.1. Relation (3.1) combined with relation (3.3) suggest that economic growth in a recipient country is both a determinant and an effect of FDI inflows. This feedback was never tested before over time. What has been done, often, in empirical works is either to test economic growth as a determinant of inward flows of FDI or to test FDI inflows as a source of growth.

To sum up, two structural equations make up the FDI model that is going to be estimated.

$$\begin{aligned} \text{FDII} &= \gamma_1 \text{GDPC} + \gamma_2 \text{GDPAGR} + \gamma_3 \text{TO} + \gamma_4 \text{LFGR} + \gamma_5 \text{WR} + \mu \\ \text{GDPC} &= \delta_1 \text{FDII} + \delta_2 \text{GCF} + \delta_3 \text{EPC} + \delta_4 \text{RFE} + \delta_5 \text{TLCS} + \varepsilon \end{aligned} \quad (3.4)$$

The endogenous variables (jointly determined variables) of the model are: FDII and GDPC (and consequently GDPAGR). The variables are TO, LFGR, WR, GCF, EPC, RFE and TLCS are treated as exogenous (or predetermined).

One of the assumptions underlying the estimation of a single equation by OLS is that the regressors in the model are independent and uncorrelated with the error term (Gujarati, 1995, p. 65). If it occurs that they are not, the estimated parameters will be biased and inconsistent. In the first equation of model (3.4), the regressor GDP is correlated with the error term  $\mu$ . A random increase in  $\mu$  will result in an increase in FDI inflows (FDII) and then in an increase in GDPC. So, GDPC and  $\mu$  move in the same direction, i.e.  $\text{cov}(\text{GDPC}, \mu) > 0$ . In the second equation of model (3.4), the explanatory variable FDII is also correlated with the stochastic disturbance  $\varepsilon$ . If  $w$  increases, GDPC will go up and so will FDII. It follows that model (3.4) cannot be estimated by OLS. There are other methods of estimation which help overcome these problems.

There are: the indirect least squares, the instrumental variable (IV) method, the two-stage least squares (2SLS) method, and the vector autoregression (VAR) model. Model (3.4) will be estimated using 2SLS and VAR models. We use instrumental variable method to estimate equation 3.4.

### 3.2: The Data

The data used in the regressions (FDII, GDPC, GDPAGR, GCF, RFE, TO, LFGR, EPC, TLCS, and WR) have been retrieved from the UN Data. They are US data and are denominated in US Dollar (current). The era of interest ranges from the first quarter of 1975 to the last quarter of 2006. The absolute change in GDP has been computed out of the data on GDP.

The degree of openness has been computed out of data on exports, imports and GDP.

$$TO = \frac{(\text{Exports of goods and Services} + \text{Imports of Goods and Services})}{GDP} * 100$$

### 3.3: Test of Time Series Stationary with ADF test

A random time series  $Y_t$  is said to be stationary (more precisely weakly stationary) if 'its means and variance are constant over time and the value of covariance between two time periods depends only on the distance between the two time periods and not on the actual time at which the variance is computed' (Gujarati, 1995, p. 714).

There are several variants of the DF unit root test. Tests based on relation (3.9) or (3.10) are called augmented Dickey-Fuller (ADF) unit root tests because of the introduction of lags of the regressand as repressors to get rid of serial correlation.

To test whether a time series  $Y_t$  is stationary or not, one of the above relations is estimated the following hypotheses are then formulated.

$$H_0: \delta = 0 \rightarrow \rho = 1$$

$$H_1: \delta < 0 \rightarrow \rho < 1$$

The test statistic is called Dickey-Fuller  $\tau$  statistic and is the estimated  $\delta$  divided by its standard error. The critical values are given by most of the econometric packages offering ADF tests.

If the absolute value of  $\tau$  statistic is less than the critical value for a given level of significance, the null hypothesis of non-stationarity is accepted. Otherwise, the alternative hypothesis of stationarity of  $Y_t$  is accepted.

If it happens that  $Y_t$  is found to be non-stationary. Another DF or ADF unit root test can be performed on its first difference  $\Delta Y_t$ . This is done by substituting  $Y_t$  by  $\Delta Y_t$  in relation and  $Y_{t-1}$  by  $\Delta Y_{t+1}$ . After that, a relation akin to or any of its variants is derived and estimated.

The test of significance of the estimated  $\delta$  is the same as before. If a time series is not stationary but its  $d$ -th difference is, it is said to be integrated of order  $d$  or to follow an  $I(d)$  process. In running regression on time series, it is important to make sure that all the variables follow the same process. Otherwise, the results of the regression will be spurious. This is a necessary condition for cointegration.

**Table 3.1:** Ratios from ADF unit root tests on the time series in model (3.6)

Variable	Trend shows?	Use	ADF test with constant (Intercept)			ADF test with constant & time trend			Integrated of order
		ADF with	Level	1st Difference	2nd Difference	Level	1st Difference	2nd Difference	
FDII	No	Constant	-0.719956	-6.287198	NA				I(1)
GDPG	Yes	Constant & Time trend				-1.501971	-6.954677	NA	I(1)
GDPAGR	No	Constant	-7.902078	NA	NA				I(0)
TO	Yes	Constant & Time trend				0.055971	-6.390764	NA	I(1)
LFGR	No	Constant	-3.184557	-7.165297	NA				I(1)
WR	Yes	Constant & Time trend				-1.161646	-4.586705	NA	I(1)
GCF	No	Constant	-2.674235	-4.583105	NA				I(1)
EPC	Yes	Constant & Time trend				0.357965	-4.568306	NA	I(1)
RFE	No	Constant	0.075836	-4.194755	NA				I(1)
TLCS	No	Constant	-1.806488	6.511646	7.837953				I(2)

ADF unit root tests have been performed on all the time series in model (3.4) using this test. The data are US ones. The lag length is 11. The econometric package used is Eviews 5.1. The  $\tau$  statistics as well as the critical values are reported in tables below.

### 3.4: The Methods and Result of the Estimations

The stationarity of the data is beforehand tested. FDII, GDPC, TO, LFGR, WR, GCF, EPC, and RFE are  $I(1)$ . GDPAGR is  $I(0)$  and TLCS is  $I(2)$ . The specification of model (3.4) will be reconsidered so that the variables in the model be  $I(1)$  –this is a necessary condition for cointegration. So the model is

$$\begin{aligned} \text{FDII} &= \gamma_0 + \gamma_1 \text{GDPC} + \gamma_2 \text{GDPAGR} + \gamma_3 \text{TO} + \gamma_4 \text{LFGR} + \gamma_5 \text{WR} + \mu \\ \text{GDPC} &= \delta_0 + \delta_1 \text{FDII} + \delta_2 \text{GCF} + \delta_3 \text{EPC} + \delta_4 \text{RFE} + \delta_5 \Delta \text{TLCS} + \varepsilon \end{aligned} \quad (3.5)$$

In model (3.5), all the variables are  $I(1)$  except GDPAGR and the intercept terms which are stationary. The specification of the model can again be modified. In the first equation of model (3.5), cointegration will be tested for, first, between the  $I(1)$  variables, i.e. FDII, GDPC, TO, LFGR, and WR. If these variables are found to be cointegrated, then their residuals will be cointegrated with GDPC. The new specification of model (3.6) is:

The new specification of model (3.6) is:

$$\begin{aligned} \text{FDII} &= \gamma_1 \text{GDPC} + \gamma_3 \text{TO} + \gamma_4 \text{LFGR} + \gamma_5 \text{WR} + \mu_1 \\ \text{GDPC} &= \delta_1 \text{FDII} + \delta_2 \text{GCF} + \delta_3 \text{EPC} + \delta_4 \text{RFE} + \delta_5 \Delta \text{TLCS} + \varepsilon \end{aligned} \quad (3.6)$$

$$\text{Where } \mu_1 = \gamma_0 + \gamma_2 \text{GDPAGR} + \mu_1 \quad (3.7)$$

This method of estimation used in this study, as said the 2SLS.

#### 3.4.1: The 2SLS Procedure

The first is to estimate by OLS the reduced form equation of all the endogenous variables appearing in the right-hand side of model (3.6). In the first structural equation of model (3.6), GDPC is the endogenous variable appearing on the right-hand side. In the second equation, FDII is the endogenous variable appearing on the right-hand side. The reduced form equation of an

endogenous variable is this latter expressed as a linear combination of all the pre-determined variables in the model.

$$FDII = \alpha_0 + \alpha_1 TO + \alpha_2 LFGR + \alpha_3 WR + \alpha_4 GCF + \alpha_5 EPC + \alpha_6 RFE + \alpha_7 \Delta TLCS + \mu \quad (3.8)$$

$$GDPC = \beta_0 + \beta_1 TO + \beta_2 LFGR + \beta_3 WR + \beta_4 GCF + \beta_5 EPC + \beta_6 RFE + \beta_7 \Delta TLCS + \eta \quad (3.9)$$

The second stage of the 2SLS is the substitution of the endogenous variables on the right-hand side of model (3.6) by the fitted values obtained from their reduced form equations. In the first equation of model (3.6), GDP will be replaced by the fitted values obtained from relation (3.9) and in the second equation FDII will be replaced by the fitted values obtained from estimating relation (3.8).

#### 3.4.2: The Results of the Estimations by 2SLS

The relations have been estimated using STATA 10. The estimated reduced form equations are given by relations (3.8) and (3.9). The values in brackets are the t-ratios.

$$\begin{aligned} FDII = & -5484.96 + 5812.16TO + 5067.63LFGR - 12847.93WR + 1557.22GCF \\ & (-1.04) \quad (1.67) \quad (0.48) \quad (-1.72) \quad (1.02) \\ & -4837422 EPC - .0084068RFE + 86.83 \Delta TLCS \\ & (-0.42) \quad (-0.15) \quad (1.70) \end{aligned} \quad (3.10)$$

R-square = 0.8234

Adjusted R-square = 0.7672

\* Significant at 10% level of significance

$$\begin{aligned} GDPC = & 26497.08 + 1995.87TO + 13856.27LFGR + 52426.95WR \\ & (0.91) \quad (0.03) \quad (0.24) \quad (1.28) \\ & +15024.09GCF + 7035.06 EPC + 1.790796 RFE - 1725.088\Delta TLCS \\ & (1.79) \quad (1.01) \quad (1.62) \quad (-1.68) \end{aligned} \quad (5.11)$$

R-square = 0.9830

Adjusted R-square = 0.9776

\* Significant at 10% level of significance

## Chapter 4

### Result and Discussion

The parameter  $\alpha_0$  and  $\beta_0$  is expected to be positive. Economic theory suggests that economic boom in a country appeals to foreign investors. This seems to explain most of FDI into the South Asian countries. But it shows that it is - 5484.96 that is negative with FDI in Bangladesh whereas  $\beta_0$  is positively related as theory predict.

The parameter  $\alpha_1$  captures the influence of the degree of trade openness of the host country on the flows of FDI it receives. The trade to GDP ratio, i.e. exports plus imports over GDP is often used to proxy the degree of trade openness. This ratio suggests how a country is being integrated into the new economic order. There is no a priori to make about the sign of the parameter  $\alpha_1$ . In the estimated model it is positively related with FDI of Bangladesh.

The parameter  $\alpha_2$  can have either sign depends on industrial infrastructure established on domestic market. Export processing zones gives an opportunity to increase employment that enhanced inward FDI. In Bangladesh it shows positive impact on FDI.

The sign of the parameter  $\alpha_3$  depends on the level of development of the host country considered. Wage rate or cheap labor cost explains the flows of FDI into some developing economies such as Bangladesh. High labor cost explains divestments from LDC.  $\alpha_3$  is therefore expected to be negative in the Bangladesh. The estimated parameter is negative for Bangladesh perspective as there are some institutional barriers to implement efficient wage rate in manufacturer sector.

Gross capital formation (GCF) or capital formation in domestic economy enhances internal investment as well as external FDI. The estimated parameter ( $\alpha_4$ ) value also predicts the assumption.

Electric power consumption (EPC), foreign exchange reserve (RFE), telephone line and telecommunication subscribers (TLCS) are theoretically show positive relation on FDI. Our prediction about  $\alpha_5$ ,  $\alpha_6$  and  $\alpha_7$  also support this empirically.

In the model about GDPC we consider equal and same parameter to estimate. All coefficient shows positive relation with GDPC (from  $\beta_0$  to  $\beta_6$ ), but  $\beta_7$  is negatively related to GDPC. It explains all but TLCS have positive impact of GDP of Bangladesh.

## Chapter 5

### Conclusion

This study has undertaken a scientific approach to examining the relationship between FDI and economic growth. The histories of each respective component were separated to examine them as independent economic factors before evaluating their connection with each other. The history of Bangladesh exemplifies the plethora of factors that have shaped the country, particularly through reforms in economic policy and public management. The investment regime has undergone a complete transformation via privatization and trade liberalization. These factors have allowed the country to adapt in an increasingly interdependent, global economy, and Bangladesh has successfully reaped many benefits of foreign investment.

This paper has examined the relationship between FDI and GDP using time series data from the Bangladeshi economy. The analysis is performed using annual data for 1970-2006. The conclusion of the econometric analysis may be misleading especially as regards the causality within the relationship. The positive relationship can lead some people to believe that FDI generates economic growth. But our study finds that it is other way round. Instead growth is a determinant of FDI. It is economic growth that attracts FDI. The argument rests on the fact that foreign investors invariably prefer to invest not only in large markets but also in economies which are experiencing high rates of economic growth. A large inflow of FDI can add to foreign exchange and investment resources in a host economy but it may deter the development of local firms or create exchange rate problems.

Though the country is performing much better than the dire straits of extreme poverty during the 1970s and 1980s, it remains poor and populous with very low income per capita. Such inadequacies have stifled growth and development. Therefore, FDI is pivotal in providing Bangladesh the necessary finance and capital to achieve sustainable growth as well as poverty alleviation. Statistical analyses were used to exemplify the essential function of foreign investment in maintaining economic growth. FDI inflows have been able to increase GDP by raising the economy's output capacity and full employment level. At the same time, it has also delivered development by improving per capita income levels.



All these enhancements are allowing the country to become more export-oriented and continue on its quest for development. Overall, FDI can provide the necessary tools for Bangladesh to progress further and realize higher growth levels by utilizing all its resources to their fullest potential.

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