Problems and Prospects of the Foreign Direct Investment-based Organization in Bangladesh

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ABSTRACT

The article examines the problems and prospects of foreign direct investment (FDI)-based organizations in Bangladesh. The article applied a mixture of statistical tools and techniques, including a stratified random sampling and a survey questionnaire to collect relevant data. The sampling frame and sample size were based on the organizations involved in FDI-based businesses in Bangladesh. Exploratory factor analysis was conducted to examine the structure and pattern of the data. Ordinal logistic regression and odds ratio were applied as well. Role of the Board of Investment along with economic freedom and the foreign investment act emerged as the most statistically significant factors which impact patterns of FDI in the country.

Keywords: Economy, Foreign Direct Investment, Bangladesh
JEL Classifications: E, F, G

1. INTRODUCTION

An increase in economic globalization has led to increased inflows of foreign direct investment (FDI) over the last couple of decades (Li and Resnick, 2003) and a significant number of countries have adopted liberalized policies to attract investments from multinational corporations (Blomström et al., 2003). The location for FDI is an important strategic decision for multinational enterprises (Cui and He, 2017) and one of the key issues is how multinational corporations exploit existing resources and explore new resources in the host country through FDIs (Tsang and Yip, 2007). Foreign investments may be driven by institutional constraints in the home country (Witt and Lewin, 2007) and also due to inefficiencies in the financial markets (Forssbaeck and Oxelheim, 2011). FDI is stated to be less volatile in relation to other financial flows (Albuquerque, 2003) and degree of transparency in the policies and institutions of a nation has been identifies as an important determinant for the level of foreign investment (Drabek and Payne, 2002). Therefore, it is important for a developing nation like Bangladesh, with a growing economy, to have an investment policy with a high degree of transparency which will assure potential foreign investors that channeling their capital into the various sectors of the economy will be applied for the maximum financial benefits of the stakeholders.

The Bangladesh economy is moving forward on a positive track, and the Government of Bangladesh in collaboration with public and private sector stakeholders has already implemented a number of policies which will increase the attractiveness of the country as an important destination for foreign investments. More policy changes are on the horizon. However, a critical issue is that along with prospects of growth and development, problems also share the same platform. Therefore it is imperative that any policies and support structure in place need to be flexible enough to resolve the problems that will arise in the course of foreign investments, while at the same time follow a structured framework for governance. The prospects for FDI based organizations in Bangladesh are on the rise, but a defined problem solving mechanism is also important since the swift resolution of problems will serve the maintain the positive image of the country as a lucrative investment destination for potential investors.

2. LITERATURE REVIEW

Developing countries are reforming their economic policies to attract FDIs (Lokesha and Leelavathy, 2012). The developmental impact of FDI on the less developed economies of the world is a subject of intense debate (King, 2000). While the literature in general appears to maintain a positive tone in discussing the impacts of FDIs on developing economies, certain studies adopt a more cautious approach (Choe, 2003). Hansen and Rand (2006) find direct evidence of the link between FDI and growth, while Francis (2010) identifies three principal contributions of FDI to a host nation: The financial capital invested by foreign firms, provision of access to export markets, and faster technology development due to technology transfers. FDI is stated to have a critical role in economic restructuring (Walkenhorst, 2004) and there is stated to be a growing recognition of the need for FDI (Amirahmadi and Wu, 1994). FDIs are presumed to have salutary effects (Desai et al., 2006) while certain studies do not establish any positive links between FDI and impacts on the host nation (Yamin and Sinkovics, 2006).

Levine (2001) finds that International Financial Liberalizations accelerates economic growth. FDI is a key element of the global economy and a driver of economic growth (Jensen, 2003). FDI inflows are stated to be beneficial to the receiving economy (Noy and Vu, 2007) while earlier Mencinger (2003) cautioned that the benefits of FDI to the receiving economy need to be examined closely. International Financial Flows are a major source of financing economic activities in developing countries (Albuquerque, 2003). Singh (2003) strongly advocates the regulation of FDI for maximizing the benefits to the receiving countries. Therefore it is observed that while the literature the supports FDI in general, certain researchers are also cautious about the impacts of FDI. Forbes (2007) is also a supporter of the free movement of capital, but also points out the need to reexamine the desirability of capital controls for emerging markets and developing economies in the context of financial crises. Financial development is found to be an important requirement for FDI, and therefore a well functioning and regulated financial system with strong domestic foundations should be in place (Desbordes and Wei, 2017).

3. METHODOLOGY

All industrial enterprises under pure foreign direct investors and partnership with Bangladesh constituted the target population of the study. The study covered all the 338 industries from 41 categories of products. Samples were taken as of October 2016. FDI that have emerged after October 2016 were not included in the study. To be more specific, proportionate allocation method was adapted for selecting industries irrespective of their product types from eight industrial zones of Bangladesh. The source of information for the case of choosing industries was the Board of Investment (BOI) website (Table 1).

A sampling frame was prepared that contained a list of 77 foreign and foreign and Bangladesh joint venture industries. Thus, a total of 77 industries of the eight industrial zones constituted the sampling frame of the study, which is presented in Table 2.

The study used stratified random sampling. Various established approaches are used in determining sample size such as using a census in case of small population, imitating a sample size of analogous studies, using published tables, and using formulas to calculate a sample size (Israel, 2003). For the present study, the published table method was used in the determination of sample size. Israel (2003) developed the table by using the formula of Yamane (1967) which is presented in Table 3 using the following equation:

$$n = \frac{N}{1+ N(e)^2}$$

(1)

± 5%, ± 7%, ± 10% precision levels where confidence level is 95% and P = 0.5.

Table 3 shows that a sample size is feasible and valid at different precision levels. From the field survey it was found that the total population for the present study was 77 that falls within the population range of 338 in the table. Considering the sample size to be determined at 10% precision level, it can be seen that the sample size for the present study came to 77 within the predetermined population range of 338.

To know the overall status of the FDI opportunities in Bangladesh, a comprehensive questionnaire was prepared through extensive

Table 1: Sampling frame of the industrial zones

Name of EPZ	Number of industry
Adamzee_EPZ	43
Chittagong_EPZ	102
Comilla_EPZ	23
Dhaka_EPZ	85
Ishwardi_EPZ	16
Karnaphuli_EPZ	37
Mongla_EPZ	22
Uttara_EPZ	10
Total	N=338

Table 2: Sample size of the industrial zones

No.	Name of EPZ	Number of industry	EPZ wise proportion	Actual
P1	Adamzee_EPZ	43	9.795857988	10
P2	Chittagong_EPZ	102	23.23668639	23
P3	Comilla_EPZ	23	5.23964497	5
P4	Dhaka_EPZ	85	19.36390533	20
P5	Ishwardi_EPZ	16	3.644970414	4
P6	Karnaphuli_EPZ	37	8.428994083	8
P7	Mongla_EPZ	22	5.01183432	5
P8	Uttara_EPZ	10	2.278106509	2
	Total	N=338	77	77

Table 3: Sample size

Size of population	Sample size (n) for precision (s) of:				
	±5%	±7%	±10%	±15%	±20%
281	165	118	74	42	23
300	171	121	75	43	23
319	177	124	76	43	23
338	183	127	77	44	23
357	189	130	78	44	23

literature review and consultation with the leading academicians and BOI experts and cooperate personalities. Before finalization, the questionnaire was pre-tested with the help of a pilot survey. The questionnaire was divided into 11 sections. Section one was designed to obtain the background information of the respondent such as name of the company, year of establishment, type of the company, location of the company, nature of the company, number of the products, names of the products, number of employees, address of the company, telephone, fax, websites, and email.

Section two comprised of 10 questions. All the questions from section 2 to section 10 were close ended questions. Section 11 included a seven questionnaires on 7-point Likert scale developed to assess the overall perception of FDI in Bangladesh. Section 2 also had ten questionnaires on 7-point Likert scale which was framed to assess the requirement for the establishment of a FDI based business.

Section three had 13 questions composed on a 7-point Likert scale framed to assess the present infrastructures of FDI in Bangladesh. Section 4 included a 10 items of questionnaire on 7-point Likert scale to assess the labor related issues in Bangladesh. Section 5 had seven questionnaires on 7-point Likert scale to assess the tax related issues.

Section 6 included a 14 item questionnaire on 7-point Likert scale to assess the status of economic policy. Section 7 included a nine-item questionnaire on 7-point Likert scale to determine doing the business and its policy. Section 8 comprised with 10-item questionnaire on 7-point Likert scale to assess role of BOI. Section nine included seven-item questionnaire on 7-point Likert scale to determine safety and security issues. Finally, section 10 also included a seven-item questionnaire on 7-point Likert scale to assess the satisfaction about FDI based business.

Explanatory factor analysis was performed to explore the underlying patterns and structure of the responses collected in Likert scale and interprets the pattern and variation through into a smaller number of latent variables. In evaluating the exploratory factor analysis, several criteria were used: The factor loading (≥ 0.60) and the measure of sampling adequacy (≥ 0.70). Two criteria were used in deciding the number of factors. The cut-off point was determined by the criterion that eigen values were equal to 1 or greater and using a screen plot (Kaiser's criterion) from the principle component data extraction method. Only variables with factor loadings of at least 0.6 are used in interpreting a set of factors, based on the sample size of firms and a minimum significant correlation coefficient of $P < 0.05$ sampling adequacy has been measured by the Kaiser–Meyer–Olkin (KMO) statistic, sampling adequacy predicts if data are likely to factor well, based on correlation and partial correlation. KMO varies from zero to one and KMO overall should be 0.60 or higher to proceed with factor analysis (Hair et al., 1995). Factor analysis with principal component extraction method was used to generate the results. After that, Varimax rotation was used to get better interpretation of the pattern of the factors.

Data were collected using Likert scale (1 = strongly disagree to 7 = strongly agree) and in ordinal logistic regression it was reduced into three categories. We have j = 3 ordinal categories with associated probabilities π_1, π_2, π_3. Proportional odds model was used which is based on the assumption that the effect of the covariates x_1, x_2, …x_{p-1} is same across all categories and only the intercept term depends on the category j,

$$\text{Log} \frac{\pi_1 + \ldots + \pi_j}{\pi_{j+1} + \ldots + \pi_j} = \beta_{0j} + \beta_1 x_1 + \ldots + \beta_{p-1} x_{p-1}$$

(2)

4. FINDINGS

From Table 4, it will be observed that Cronbach's alpha is between 0.75 and 0.89 in all aspects except for the role of BOI and infrastructure both of which have a value of above 0.90. If Cronbach's alpha is too high, it may mean that a number of questions are redundant, and hence the same questions are being analyzed from different perspectives.

4.1. Factor Analysis
4.1.1. Infrastructure for FDI based business in Bangladesh
Factor analysis using principal factor extraction method has been conducted to determine which of the variables have an important role for creating a boost in infrastructure for FDI based business in Bangladesh. From Table 5 it is observed that for Factor 1 electricity, gas supply, cost of energy, and water supply have high factor loadings, and railway and seaport communication with adequate number of EPZ and ICT infrastructure have significant impacts. For Factor 2 which is being referred to as the communication factor, multimodal transportation system and adequate number of airports have high positive factor loadings. These two factors explained almost 61.4% and 36% of variance respectively with a sampling adequacy level of 0.92 which is very satisfactory. It is thus concluded that satisfaction, as measured by the questionnaire, is composed of two aspects: One consists of transportation and the other is communication; hence the analysis has reached a classification of the variables.

4.1.2. Ordinal regression analysis
The analysis categorized overall satisfaction level of infrastructure for FDI based business in Bangladesh collected in Likert scale into three categories: Somewhat disagree (Scale-1) to somewhat

Table 4: Reliability analysis

Question name	Reliability statistics	
	Cronbach's alpha	Number of items
Infrastructure	0.93	13
Labor issues	0.85	10
Tax related issues	0.76	7
Economic policy	0.86	14
Designing the business and its policy	0.89	9
Role of BOI	0.91	10
Safety and security	0.85	7
Satisfaction about FDI based business	0.84	7
Overall perception	0.82	7

BOI: Board of Investment, FDI: Foreign direct investment

agree (Scale-5) in one category and agree (Scale-6) and strongly agree (Scale-7) into two other categories. Two factors estimated from the factor analysis has been considered as the independent variables, and for the dependent variable somewhat disagree (Scale-1) to somewhat agree (Scale-5) is selected as the reference category. The regression analysis explains approximately 23% of the variance of overall satisfaction for infrastructure. Regression coefficient of both factors was found to statistically significant and have a positive impact on the overall satisfaction level indicator. For the transportation factor, it can be stated that for a one unit increase, the odds of strongly agree versus the combined agree and strongly disagree to somewhat agree categories are 3.36 times greater, given that all of the other variables in the model are held constant and for the communication factor which is 3.66 times more. On the other hand, the overall regression model is significant (P < 0.000) (Table 6).

4.2. Labor Availability is Satisfactory for FDI in Bangladesh

Principal factor analysis has been conducted to determine which of the variables are important under labor issues for FDI based business in Bangladesh. From Table 7 it is observed that for Factor 1 hiring technically skilled manpower, developing technically skilled manpower through training centers, and the local authority's role for compliance have high factor loadings with significant impacts on Factor 1. The factor has been renamed as skilled labor and authority support. Factor 2 which has been named as the labor cost factor includes competitive labor cost, and facilities and role

of trade union has high positive factor loadings. These two factors explain almost 28.7% and 48.7% of the variance respectively and sampling adequacy level is 0.83 which is very satisfactory. It is thus concluded that satisfaction, as measured by the questionnaire, is composed of those aspects of labor consisting of skilled labor and authority support and the other being labor cost; hence the analysis has reached a classification of the variables.

4.2.1. Ordinal regression analysis (labor satisfaction)
The analysis categorized overall satisfaction level of labor satisfaction for FDI based business in Bangladesh collected in Likert scale into three categories: Somewhat disagree (Scale-1) to somewhat agree (Scale-5) in one category and agree (Scale-6) and strongly agree (Scale-7) into two other categories. Two factors estimated from the factor analysis has been considered as the independent variables and for the dependent variable somewhat disagree (Scale-1) to somewhat agree (Scale-5) is selected as the reference category. The regression analysis explains approximately 22% of the variance of overall satisfaction for infrastructure. Regression coefficient of both factor was found to statistically significant and have a positive impact on the overall satisfaction level indicator. For the labor skill factor, it can be stated that for a one unit increase, the odds of strongly agree versus the combined agree and strongly disagree to somewhat agree categories are 4.26 greater, given that all of the other variables in the model are held constant and for the communication factor which is 2.35 times more. On the other hand, the overall regression model is significant (P < 0.000) (Table 8).

Table 5: Factor analysis of infrastructure for FDI based business variables - Varimax rotation

Variables	Rotated factor loading (transportation factor)	Rotated factor loading 2 (communication factor)	Uniqueness
Bangladesh has adequate transportation facilities for foreign investors	0.59	0.51	0.40
Bangladesh is accessible to multimodal transportation system	0.14	0.70	0.49
Bangladesh has sufficiently available electricity to support FDI	0.62	0.34	0.50
Bangladesh has sufficient natural gas to support industrial need	0.78	0.19	0.35
Energy cost in Bangladesh is competitive in the region	0.63	0.39	0.45
Bangladesh has sufficient sources of water supply	0.62	0.36	0.49
Bangladesh has adequate numbers of airports	0.35	0.81	0.21
Bangladesh has excellent communication through roads and highways	0.61	0.51	0.36
Bangladesh railway can sufficiently support local and regional communications	0.62	0.31	0.52
Bangladesh provides excellent seaports facilities	0.73	0.28	0.39
Bangladesh has adequate numbers of EPZs and economic zones for FDI	0.70	0.18	0.48
Bangladesh has state of the art ICT infrastructure	0.70	0.31	0.42
Most of the utility connections are provided within the required time	0.46	0.61	0.42
Measure of sampling adequacy	0.92		
Explained variance	61.4	36.0	

FDI: Foreign direct investment

Table 6: Ordinal regression analysis of infrastructure

V9Q1 (overall satisfaction infrastructure)	Odds ratio	Standard error	Z-test/Chi-square	P value	95% confidence interval
Transportation factor	3.36	1.23	3.31	0.001	1.64-6.89
Communication factor	3.66	1.42	3.34	0.001	1.71-7.83
LR Chi-square test			32.09	0.000	

LR: Likelihood ratio

4.3. Taxation System is Satisfactory for FDI in Bangladesh

In Table 9 principal factor analysis has been conducted to determine which of the variables have importance in tax issues for FDI based business in Bangladesh. From the table it is observed that for Factor 1, no import duty is applicable for export oriented industry, double taxations are avoided, concessionary duty is imposed on imported capital machinery, Investment Act guarantees the right of investors to repatriate profits, and capital gain have high factor loadings and significant impacts. The factor has been renamed as Import Duty and Investment Act. Factor 2 which is named as tax exemption incentive factor includes Lucrative tax exemptions are available, exemption of income tax are available for expatriate employees in industries, and special tax incentives are provided to encourage non-resident Bangladeshi for investment in Bangladesh have high positive factor loadings. These factors explained almost 30.5% and 59.7% of variance respectively with a sampling adequacy level of 0.69 which is very satisfactory. It is thus concluded that satisfaction, as measured by the questionnaire, is composed of two aspects of tax one consisting of Import Duty and Investment Act and the other tax exemption incentive; hence the analysis has reached a classification of the variables.

4.3.1. Ordinal regression analysis (overall tax system)

The analysis categorized the overall satisfaction level of taxation system for FDI in Bangladesh collected in Likert scale into three categories: Somewhat disagree (Scale-1) to somewhat agree (Scale-5) in one category and agree (Scale-6) and strongly agree (Scale-7) into two other categories. Two factors estimated from the factor analysis has been considered as the independent variables and for the dependent variable somewhat disagree (Scale-1) to somewhat agree (Scale-5) is selected as the reference category. Regression coefficient of both factors was found to statistically significant and has a positive impact on the overall satisfaction level indicator. For Import Duty and Investment Act Factor, it can be stated that for a one unit increase, the odds of strongly agree versus the combined agree and strongly disagree to somewhat agree categories are likely to be 2.90 greater, given that all of the other variables in the model are held constant and for tax exemption incentive factor which is 2.44 times more. On the other hand, the overall regression model is significant ($P < 0.000$) (Table 10).

4.4. Economic Policy is Satisfactory for FDI in Bangladesh

In Table 11 the role of economic policy for FDI in Bangladesh has been examined. All questionnaires have been regrouped under three loading factors described as follows:

Factor 1 (Economic Freedom and Foreign Investment Act): Bangladesh has a favorable economic environment for foreign investors, better economic freedom in the Asia Pacific region, Foreign Investment Act ensures legal protection for foreign investors, and Bangladesh Bank regulates and ensures an investor friendly environment.

Factor 2 (economic growth and support system): Bangladesh has steady economic growth; Bangladesh has an efficient finance system to support investment, Bangladesh exhibits positive trends in gross domestic product, and Bangladesh pursues a liberal market economy.

Table 7: Factor analysis of labor availability is satisfactory for FDI variables - Varimax rotation

Variables	Rotated factor loading (factor is related to skilled labor and authority support)	Rotated factor loading 2 (can be called labor cost factor)	Uniqueness
Bangladesh has labor-investor friendly labor relations	0.57	0.29	0.59
Bangladesh is allowed to recruit technically skilled man power from home and abroad	0.72	0.23	0.43
Bangladesh has adequate legal support for labor management	0.39	0.54	0.56
Bangladesh has highly competitive labor costs in the region	0.22	0.74	0.40
Bangladesh allows trade union in EPZs	0.19	0.69	0.49
Bangladesh has the opportunity to develop labor skills through multiple training centers	0.77	0.29	0.32
Local police and Industrial police jointly work to maintain fair labor practices	0.76	0.13	0.40
Bangladesh Labor Law incorporates ILO mandates	0.32	0.30	0.81
Bangladeshi labors are highly productive in nature	0.43	0.45	0.61
Bangladesh has enough supply of labors	0.57	0.25	0.62
Measure of sampling adequacy	0.83		
Explained variance	28.7	48.7	

FDI: Foreign direct investment

Table 8: Ordinal regression analysis for labor satisfaction

V9Q2 (overall satisfaction labor)	Odds ratio	Standard error	Z-test/Chi-square	P value	95% confidence interval
Labor skill factor	4.26	1.51	4.10	0.00	2.13-8.53
Labor cost factor	2.35	0.76	2.66	0.01	1.25-4.41
LR Chi-square test			31.5	0.000	

LR: Likelihood ratio

Table 9: Factor analysis of taxation system is satisfactory for FDI in Bangladesh related variables - Varimax rotation

Variables	Rotated factor loading (Import Duty and Investment Act)	Rotated factor loading 2 (Tax Exemption Incentive)	Uniqueness
Lucrative tax exemptions are available	0.24	0.69	0.47
No import duty is applicable for export oriented industry	0.83	−0.01	0.31
Double taxations are avoided	0.62	0.11	0.61
Exemption of income tax are available for expatriate employees in industries	0.09	0.87	0.23
Concessionary duty is imposed on imported capital machinery	0.76	0.28	0.34
Special tax incentives are provided to encourage NRBs for investment in Bangladesh and the investors enjoy similar facilities as for FDI	0.11	0.79	0.37
Investment Act guarantees the right of investors to repatriate profits, capital gain, etc.	0.64	0.32	0.50
Measure of sampling adequacy	0.69		
Explained variance	30.5	59.7	

NRB: Non-resident Bangladeshi, FDI: Foreign direct investment

Table 10: Ordinal regression analysis for overall tax system

V9Q3 (overall satisfaction tax system)	Odds ratio	Standard error	Z-test/Chi-square	P value	95% confidence interval	
Import Duty and Investment Act Factor	2.90	0.93	3.34	0.00	1.55	5.42
Tax exemption incentive	2.44	0.70	3.11	0.00	1.39	4.27
LR Chi-square test			26.3	0.000		

LR: Likelihood ratio

Table 11: Factor analysis of economic policy is satisfactory for FDI in Bangladesh related variables - Varimax rotation

Variables	Rotated factor loading (Economic Freedom and Foreign Investment Act)	Rotated factor loading 2 (economic growth and support system)	Rotated factor loading 3 (efficient capital market)	Uniqueness
Bangladesh has steady economic growth	0.25	0.61	0.11	0.56
Bangladesh has a favorable economic environment for foreign investors	0.70	0.08	0.14	0.49
Better economic freedom in the Asia Pacific region	0.71	0.30	0.24	0.35
Foreign Investment Act ensures legal protection for foreign investors	0.54	0.36	0.21	0.53
Bangladesh operates its Financial Intelligence Unit according to international standards	0.36	0.42	0.10	0.68
Foreigners have the option for portfolio investment by purchasing shares in publicly listed companies on the stock exchange	−0.12	0.12	0.54	0.68
Bangladesh has an efficient finance system to support investment	0.35	0.60	0.31	0.43
Bangladesh bank regulates and ensures an investor friendly environment	0.56	0.35	0.20	0.52
Bangladesh exhibits positive trends in GDP	0.10	0.60	−0.10	0.62
Bangladesh pursues a liberal market economy	0.35	0.56	0.16	0.53
Financial sectors in Bangladesh are continuously evolving towards a more modern and efficient system of finance	0.30	0.10	0.73	0.37
Securities and Exchange Commission monitors overall conditions and administers security legislations	0.18	0.08	0.77	0.36
ICB controls issues of securities, financing programs, maintains investment accounts and operates DSE, and CSE properly	0.34	0.43	0.31	0.60
Cost of living is affordable	0.47	0.38	0.16	0.61
Measure of sampling adequacy	0.82			
Explained variance	18.0	34.3	47.6	

GDP: Gross domestic product, ICB: Investment Corporation of Bangladesh, FDI: Foreign direct investment

Factor 3 (efficient capital market): Foreigners have the option for portfolio investment by purchasing shares in publicly listed companies on the stock exchange, financial sectors in Bangladesh are continuously evolving towards a more modern and efficient system of finance, financial sectors in Bangladesh are continuously evolving towards a more modern and efficient system of Finance, and Securities and Exchange Commission monitors overall conditions and administers security legislations.

The explained variance is 18%, 34.3% and 47.8% respectively with a sample adequacy level of 82% which is quite high.

4.4.1. Ordinal regression analysis: Economic policy
The analysis categorized the overall satisfaction level of regarding economic policy for FDI in Bangladesh collected in Likert scale into three categories: Somewhat disagree (Scale-1) to somewhat agree (Scale-5) in one category and agree (Scale-6) and strongly agree (Scale-7) into two other categories. Three factors estimated from the factor analysis have been considered as the independent variables and for the dependent variable somewhat disagree (Scale-1) to somewhat agree (Scale-5) is selected as the reference category. Regression coefficients of both factors were found to be statistically significant and have a positive impact on the overall satisfaction level indicator. For Economic Freedom and Foreign Investment Act, it can be stated that for a one unit increase, the odds of strongly agree versus the combined agree and strongly disagree to somewhat agree categories are likely to be 7.55 greater, given that all of the other variables in the model are held constant and for economic growth and support system which is 3.34 times more. On the other hand, the factor associated with efficient capital market has been found to be insignificant. Results shows that the overall regression model is significant (P < 0.000). The regression analysis explains approximately 29% of the variance of overall satisfaction infrastructure (Table 12).

4.5. Designing the Business and its Policy
In Table 13 the role of business policy for FDI in Bangladesh has been examined. All questionnaires have been regrouped under 1 loading factor. The regrouped factor is as followed:

Factor (access to latest technology, HR and competitive environment): Investors can take the advantage of the latest technology in selecting equipment, materials and tools; investors can utilize the most recent processes and procedures for the plant; investors can recruit skilled and professionally oriented office staff; investors may select the strategies to manage and succeed in the competitive environment; investors enjoy the freedom to plan the business according to their choice (by considering factor loading higher than 0.7).

The explained variance is 48.4% with a sample adequacy level of 86% which is quite high.

4.5.1. Ordinal regression analysis for designing the business and its policy
The analysis categorized the overall satisfaction level of designing the business and its policy for FDI in Bangladesh collected in Likert scale into three categories: Somewhat disagree (Scale-1) to somewhat agree (Scale-5) in one category and agree (Scale-6) and strongly agree (Scale-7) into two other categories. One factor estimated from factor analysis has been considered as the independent variable and for the dependent variable somewhat disagree (Scale-1) to somewhat agree (Scale-5) is selected as the reference category. Regression coefficients of the goodwill and impression factors are found to be statistically significant and have a positive impact on the overall satisfaction level indicator. For access to latest technology, HR and competitive environment factor, it can be stated that for a one unit increase, the odds of strongly agree versus the combined agree and strongly disagree to somewhat agree categories are likely to be 5.5 greater, given that all of the other variables in the model are held constant. On the other hand, the overall regression model is found to be significant (P < 0.000) (Table 14).

In Table 15, all questions are found to be significant under role of BOI.

The explained variance is 52% where as sample adequacy is 0.88.

4.5.2. Ordinal regression analysis for role of BOI
The analysis categorized the overall satisfaction level of role of BOI for FDI in Bangladesh collected in Likert scale into three categories: Somewhat disagree (Scale-1) to somewhat agree (Scale-5) in one category and agree (Scale-6) and strongly agree (Scale-7) into two other categories. One factor estimated from the factor analysis has been considered as the independent variable and for the dependent variable somewhat disagree (Scale-1) to somewhat agree (Scale-5) is selected as the reference category. Regression coefficient of the role of BOI factor is found to be statistically significant and has a positive impact on the overall satisfaction level indicator. For the role of BOI factor, it can be stated that for a one unit increase, the odds of strongly agree versus the combined agree and strongly disagree to somewhat agree categories are likely to be 8.9 greater, given that all of the other variables in the model are held constant. On the other hand, the overall regression model is significant (P < 0.000) (Table 16).

In Table 17 principal factor analysis has been conducted to determine which of the variables have importance in safety and security for FDI based business in Bangladesh. All questionnaires

Table 12: Ordinal regression analysis for economic policy

V9Q4 (overall satisfaction economic policy)	Odds ratio	Standard error	Z-test/Chi-square	P value	95% confidence interval
Economic Freedom and Foreign Investment Act	7.55	3.30	4.63	0.00	3.21-17.78
Economic growth and support system	3.34	1.27	3.18	0.00	1.59-7.03
Efficient capital market	0.72	0.31	−0.77	0.44	0.31-1.66
LR Chi-square test			45.9	0.000	

LR: Likelihood ratio

have been regrouped under 1 loading factor. The analysis considered the loaded factor value above 0.7. The regrouped factor is as follows:

4.6. Fully Equipped and Experienced to Handle Calamities

Bangladesh takes satisfactory security measures for foreigners; Bangladesh is capable of handling any natural calamities through disaster management; Bangladesh is capable of handling any natural calamities through disaster management; Bangladesh law enforcing agencies have an established record of handing any adverse situation; Bangladesh assures continuous support and cooperation to the business community in resisting terrorism and militancy in the country; Bangladesh is not in a vulnerable position in terms of current threats and unrest; Bangladesh takes satisfactory security measures for foreigners.

The factor explained almost 51.6% of variance with a sampling adequacy level of 0.87 which is very satisfactory. It is concluded that satisfaction, as measured by the questionnaire, is composed of those single aspects of safety and security consisting of fully equipped and experienced to handle calamities) of the variables.

4.6.1. Ordinal regression analysis: Safety and security

The analysis categorized the overall satisfaction level of safety and security for FDI based business in Bangladesh for FDI in Bangladesh collected in Likert scale into three categories: Somewhat disagree (Scale-1) to somewhat agree (Scale-5) in

Table 13: Factor analysis of designing the business and its policy is satisfactory for FDI in Bangladesh related variables - Varimax rotation

Variables	Rotated factor loading (access to latest technology, HR and competitive environment)	Uniqueness
Investors enjoy the freedom to plan the business according to their choice	0.70	0.51
Investors may select the strategies to manage and succeed in the competitive environment	0.79	0.38
Investors can make impressions and goodwill	0.68	0.54
Investors can recruit skilled and professionally oriented office staff	0.80	0.36
Investors can take the advantage of the latest technology in selecting equipment, materials and tools	0.75	0.43
Investors can utilize the most recent processes and procedures for the plant	0.63	0.60
Investors can procure fresh inventory at a competitive price	0.50	0.75
Investors can freely design a preferred management information systems	0.67	0.55
BOI provides pre-investment information and counseling service	0.69	0.52
Measure of sampling adequacy	0.86	
Explained variance	48.4	

FDI: Foreign direct investment

Table 14: Ordinal regression analysis for designing the business and its policy

V9Q5 (overall satisfaction access to latest technology, HR and competitive environment)	Odds ratio	Standard error	Z-test/Chi-square	P value	95% confidence interval	
Access to latest technology, HR and competitive environment	5.54	1.93	4.90	0.00	2.79	10.98
LR Chi-square test			34.7	0.000		

LR: Likelihood ratio

Table 15: Role of BOI

Variables	Rotated factor loading (role of BOI)	Uniqueness
BOI provides expert opinion for the investors of different categories	0.67	0.55
BOI has updated user friendly website to provide necessary information	0.72	0.48
BOI identifies the hindrances of investment and provides necessary facilities and assistance in the establishment of the business	0.65	0.58
BOI provides one-stop logistics for company formation	0.62	0.62
BOI provides major services online	0.73	0.46
BOI provides a clear investment road map for foreign investors	0.73	0.47
BOI facilitates access to the right information policy	0.80	0.36
BOI provides pre-investment information and counseling service	0.79	0.37
BOI facilitates all utility connections within stipulated time	0.80	0.36
BOI assists with import clearance and warehouse licenses	0.68	0.54
Measure of sampling adequacy	0.88	
Explained variance	52.0	

BOI: Board of Investment

one category and agree (Scale-6) and strongly agree (Scale-7) into two other categories. One factor estimated from the factor analysis has been considered as the independent variable and for the dependent variable somewhat disagree (Scale-1) to somewhat agree (Scale-5) is selected as the reference category. Regression coefficient of safety and security for FDI based business in Bangladesh factor is found to be statistically significant and has a positive impact on the overall satisfaction level indicator. For safety and security for FDI based business in Bangladesh factor, it can be stated that for a one unit increase, the odds of strongly agree versus the combined agree and strongly disagree to somewhat agree categories are likely to be 6.8 greater, given that all of the other variables in the model are held constant. On the other hand, the overall regression model is significant (P < 0.000) (Table 18).

5. CONCLUSION

All the regression model are found to be very significant to overall satisfaction level. The analysis will try to separate the most influential factors from the groups according to the degree of the odds ratio. According to the magnitude of the odds ratio a table has been designed and presented in Table 19.

According to the degrees of the odds ratio, it is observed that role of BOI has got highest degree of sensitivity to overall satisfaction.

It includes online services, utility connection, pre investment counseling guideline with road map, etc.

Economic Freedom and Foreign Investment Act has got second degree of sensitivity according the magnitude of the odds ratio. This includes legal protection from government, sound policy from Bangladesh bank as well as favorable economic zone for investment.

Investors give importance to the preparation to handle calamities to third highest priority. This includes government preparation to handle disaster management as well as security issues with changing global terrorism threat.

Access to latest technology, HR and competitive environment has also vast importance to run industry. Even though Bangladesh is not technology intensive country it is labor intensive, it has got priority more than the labor issues. So our FDI policy should be directed towards more technology intensity rather than depending on low skill labor. Followed by latest technology factor labor skill factor ranked fifth according to sensitivity.

Communication and transportation factor, economic growth and support factor, import duty and tax related factor has got role to overall satisfaction. However the degree of intensity is not high. Surprisingly the labor cost factor has got low sensitivity because

Table 16: Ordinal regression analysis for role of BOI

V9Q6 (overall satisfaction role of BOI)	Odds ratio	Standard error	Z-test/Chi-square	P value	95% confidence interval
Role of BOI	8.90	3.92	4.96	0.00	3.75-21.11
LR Chi-square test			40.6	0.000	

LR: Likelihood ratio, BOI: Board of Investment

Table 17: Safety and security

Variables	Rotated factor loading (fully equipped and experienced to handle calamities)	Uniqueness
Bangladesh is not in a vulnerable position in terms of current threats and unrest	0.66	0.57
Bangladesh takes satisfactory security measures for foreigners	0.71	0.49
Bangladesh provides extra security measures in the EPZs and also in the special economic zones	0.65	0.58
Bangladesh is satisfactorily equipped and prepared for any industrial accident	0.62	0.61
Bangladesh is capable of handling any natural calamities through disaster management	0.73	0.46
Bangladesh law enforcing agencies have an established record of handing any adverse situation	0.73	0.47
Bangladesh assures continuous support and cooperation to the business community in resisting terrorism and militancy in the country	0.80	0.36
Bangladesh is not in a vulnerable position in terms of current threats and unrest	0.79	0.38
Bangladesh takes satisfactory security measures for foreigners	0.80	0.37
Bangladesh provides extra security measures in the EPZs and also in the special economic zones	0.68	0.54
Measure of sampling adequacy	0.87	
Explained variance	51.6	

Table 18: Ordinal regression analysis for safety and security

V9Q6 (overall satisfaction) safety and security	Odds ratio	Standard error	Z-test/Chi-square	P value	95% confidence interval
Safety and security	6.81	2.71	4.82	0.00	3.12-14.85
LR Chi-square test			35.7	0.000	

Table 19: Odds ratio

Factor name	Odds ratio
Role of BOI	8.90
Economic Freedom and Foreign Investment Act	7.55
Fully equipped and experienced to handle calamities	6.81
Access to latest technology, HR and competitive environment	5.54
Labor skill factor	4.26
Communication factor	3.66
Transportation factor	3.36
Economic growth and support system	3.34
Import Duty and Investment Act Factor	2.90
Tax exemption incentive	2.44
Labor cost factor	2.35
Efficient capital market	0.72

BOI: Board of Investment

of dominance of other issues. Role of capital market is not that sensitive bacause of the link of the capital market to industry development.

REFERENCES

Albuquerque, R. (2003), The composition of international capital flows: Risk sharing through foreign direct investment. Journal of International Economics, 61(2), 353-383.

Amirahmadi, H., Wu, W. (1994), Foreign direct investment in developing countries. The Journal of Developing Areas, 28(2), 167-190.

Blomström, M., Kokko, A., Mucchielli, J.L. (2003), The economics of foreign direct investment incentives. In: Foreign Direct Investment in the Real and Financial Sector of Industrial Countries. Berlin, Heidelberg: Springer. p37-60.

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

Cui, L., He, X. (2017), Expanding near the home base or venture far? The influence of home country state on the economic distance of foreign direct investments. Journal of Business Research, 75, 95-107.

Desai, M.A., Foley, C.F., Hines, J.R. (2006), Capital controls, liberalizations, and foreign direct investment. Review of Financial Studies, 19(4), 1433-1464.

Desbordes, R., Wei, S.J. (2017), The effects of financial development on foreign direct investment. Journal of Development Economics, 127, 153-168.

Drabek, Z., Payne, W. (2002), The impact of transparency on foreign direct investment. Journal of Economic Integration, 17(4), 777-810.

Forbes, K.J. (2007), The microeconomic evidence on capital controls:

No free lunch. In: Capital Controls and Capital Flows in Emerging Economies: Policies, Practices and Consequences. Chicago and London: University of Chicago Press. p171-202.

Forssbaeck, J., Oxelheim, L. (2011), Corporate financial determinants of foreign direct investment. The Quarterly Review of Economics and Finance, 51(3), 269-282.

Francis, S. (2010), Foreign direct investment concepts: Implications for negotiations. Economic and Political Weekly, 45(22), 31-36.

Hair, J.F.Jr., Anderson, R.E., Tatham, R.L., William, C. (1995), İn: Black, W., editor. Multivariate Data Analysis with Readings. New Jersey: Prentice Hall.

Hansen, H., Rand, J. (2006), On the causal links between FDI and growth in developing countries. The World Economy, 29(1), 21-41.

Israel, G.D. (2003), Determining Sample Size. Gainesville: University of Florida.

Jensen, N.M. (2003), Democratic governance and multinational corporations: Political regimes and inflows of foreign direct investment. International Organization, 57(3), 587-616.

King, L.P. (2000), Foreign direct investment and transition. European Journal of Sociology, 41(2), 227-258.

Levine, R. (2001), International financial liberalization and economic growth. Review of International Economics, 9(4), 688-702.

Li, Q., Resnick, A. (2003), Reversal of fortunes: Democratic institutions and foreign direct investment inflows to developing countries. International Organization, 57(1), 175-211.

Lokesha, B.K., Leelavathy, D.S. (2012), Determinants of foreign direct investment: A macro perspective. Indian Journal of Industrial Relations, 47(3), 459-469.

Mencinger, J. (2003), Does foreign direct investment always enhance economic growth? Kyklos, 56(4), 491-508.

Noy, I., Vu, T.B. (2007), Capital account liberalizaton and foreign direct investment. The North American Journal of Economics and Finance, 18(2), 175-194.

Singh, A. (2003), Capital account liberalization, free long-term capital flows, financial crises and economic development. Eastern Economic Journal, 29(2), 191-216.

Tsang, E.W., Yip, P.S. (2007), Economic distance and the survival of foreign direct investments. Academy of Management Journal, 50(5), 1156-1168.

Walkenhorst, P. (2004), Economic transition and the sectoral patterns of foreign direct investment. Emerging Markets Finance and Trade, 40(2), 5-26.

Witt, M.A., Lewin, A.Y. (2007), Outward foreign direct investment as escape response to home country institutional constraints. Journal of International Business Studies, 38(4), 579-594.

Yamane, T. (1967), Statistics: An Introductory Analysis. New York: Harper and Row.

Yamin, M., Sinkovics, R.R. (2009), Infrastructure or foreign direct investment: An examination of the implications of MNE strategy for economic development. Journal of World Business, 44(2), 144-157.