বাংলাদেশ অর্থনীতি সমিতি
Bangladesh Economic Association

Abul Barkat

Editor

Editorial Note

Bangladesh Journal of Political Economy is an intellectual accomplishment of Bangladesh Economic Association. This current volume based on rigorous research and careful outcomes ofappealing thoughts sets out clear guidance for designing a strongpolitico-economicand social framework of development. By making a leap across boundaries and scale of commendable opinions, thisjournal addresses broader issues and stabbing challenges relating to sustainable development and making a new Bangladesh adaptive to changing global economic order.

The glowing landscape of this journal covers ascopicrange of important topics like stock market, credit market, education inequality, carbon emissions and economic growth, private sector credit, micro finance, bank profitability, evolution of economic science, defense expenditure and economic growth, complexities of US foreign policy, WTO and ethical dimensions along with many other burning issues which oftentimes mope and touches our individual and social life.These havestrikinglyprofound impacts on poor and marginal community in our country who has always remained beyond inclusive development policies and programs.
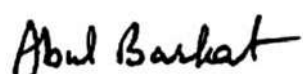
As a matter of fact, thoughts underlying the articles in thisslimvolume have ever-roused much controversies and heated discussions among the illuminati.Notwithstanding,the ideas are not loony and flaccid at all, rather appears universal; in fact, as diverse in its significance and connotations as bounty of itscontexts. These suggests thatpeople-oriented development does not depend on a single variable but rather on a complex policy-matrix that includes socio-economic dynamics and a variety of cultural, social and political factors; more importantly, political economy of mass development.

More recently, there has been a growing divide between proponents of development.In this regard, newperspectives and insights have challenged our conventionalwisdom. Moving through contemporary debates about how to best address the deep politico-economic and social

crisis, this journal emphasizes that its solution requires a long term, enlightened and inclusive approach.This intensively edited volume examines many long waited vital questions and provides anastute economic and ethical analysis on the difficulties and challenges Bangladesh has to confront in its future development process. In brief, this journal is unique in navigating inquisitive readers through the morass of often overlapping and competing approaches.As expected, this volume will also stimulate an active interest among students, researchers, scholars and policy makers to explore new,encouraging and contemplative ideas. All these demonstrates the urgency of reframing future policies around 'real practices' instead of 'fancied perceptions'.

At long last, I really feel contented to impart my heart-felt thanks and deep sense of gratitude to the respected authors, reviewers and Editorial Advisory Board for their invaluable contribution in publishing this issue. Thanks to the Editorial Board of the Journal,especially to Professor Subhash Kumar Sengupta for devoting his precious time and energy to ensure excellence of BJPE. Our true efforts will be more productive and spontaneous provided this volume is proved to beuseful to the enthusiastic and careful readers. This volume is reviewed by both internal and external reviewers and concurred by the Editorial Board for publication. We always appreciate constructive criticism and sound feedback for further improvement of the Journal.

The stakes are indeed high. We need to adopt a *layered approach*.It is mainlypolitical ecology and political economy that decides the range, pattern and quality of development.

Abul Barkat, *Ph.D.*
President, Bangladesh Economic Association
Editor, Bangladesh Journal of Political Economy

১। অর্থনীতির বিভিন্ন শাখায় তাত্ত্বিক এবং প্রায়োগিক বিষয়ে প্রবন্ধ প্রণয়নের জন্য প্রবন্ধকারদেরকে অনুরোধ জানানো হবে। ইংরেজী এবং বাংলা উভয় ভাষায় রচিত প্রবন্ধ জার্নালের জন্য গ্রহণ করা হবে।

২। Initial screening নির্বাহী সম্পাদকের এখতিয়ারভুক্ত থাকবে, তবে প্রয়োজনবোধে সম্পাদনা পরিষদের অন্য সদস্যদের সহায়তা তিনি নেবেন। নির্ধারিত format মোতাবেক সংশোধনের জন্য এই পর্যায়ে প্রাথমিকভাবে short-listed প্রবন্ধসমূহ প্রবন্ধকারের কাছে প্রেরণ করা হবে।

৩। অভ্যন্তরীণ reviewer সাধারণত সম্পাদনা পরিষদের সদস্যদের মধ্য থেকেই মনোনীত হবেন। বহিঃস্থ reviewer সম্পাদনা পরিষদের সিদ্ধান্তক্রমে প্রবন্ধের বিষয়ের ভিত্তিতে সম্পাদনা পরিষদের বাইরে থেকে মনোনীত হবেন, তবে তিনি দেশের অভ্যন্তরে বা বিদেশে অবস্থান করতে পারেন। সম্পাদনা উপদেষ্টা কমিটির সকল সদস্য reviewer হতে পারবেন। তৃতীয় reviewer প্রয়োজন হলে সম্পাদনা পরিষদের বাইরে থেকে মনোনীত করা হবে।

৪। ক) সমিতির দ্বিবার্ষিক সম্মেলনে উপস্থাপিত প্রবন্ধগুলো referral প্রক্রিয়ার মাধ্যমে জার্নালের জন্য বিবেচিত হবে।

　　খ) বিভিন্ন সময়ে সমিতি কর্তৃক আয়োজিত সেমিনারে পঠিত আমন্ত্রিত প্রবন্ধসমূহ জার্নালের সম্পাদনা পরিষদের অনুমোদনক্রমে জার্নালে প্রকাশ করা যেতে পারে।

৫। অর্থনীতি সমিতির সদস্য এবং সদস্য-বহির্ভূত যে কোন আগ্রহী প্রার্থী জার্নালের গ্রাহক হতে পারবেন। তবে সদস্যদের ক্ষেত্রে গ্রাহক ফি (subscription fee) পঞ্চাশ শতাংশ রেয়াত দেয়া হবে।

৬। জার্নালের footnoting এবং writing style এতদ্সঙ্গে সংযোজিত হলো (জার্নালের শেষাংশ)।

৭। দেশের অভ্যন্তরে অবস্থানকারী উপদেষ্টা কমিটির সদস্যদেরকে বছরে দু'বার সম্পাদনা পরিষদের সভায় আমন্ত্রণ জানানো হবে।

৮। ক) তিনটি কোটেশন সংগ্রহ করে সম্পাদনা পরিষদের সিদ্ধান্তক্রমে মুদ্রক প্রতিষ্ঠান নির্বাচন করা হবে।

　　খ) প্রথম proof প্রেস দেখবে, পরবর্তীতে softcopy তে প্রবন্ধকার ফাইনাল proof দেখে দেবেন।

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Contents

Stock Market and Economic Growth: Bangladesh Perspective

PRASHANTA KUMAR BANERJEE[*]

I.   Introduction

Economic development requires a safe and sound financial system to serve as a transmission mechanism that transfers funds from savers to entrepreneurs seeking capital for productive investments (Barth *et al.* 2006). A large body of literature supports the positive influence of the development of a country's financial sector on its economic growth. Empirical findings seem consistent with this argument (Schumpeter 1912; Levine and Sarah Zervos 1998; Arestis *et al.* 2001).

What are the transmission mechanisms of a safe and sound financial system that transfer funds from savers to entrepreneurs? Levine and Zervos (1998), Rajan and Zingales (1998), and Beck and Levine (2004) demonstrate the importance of both banks and equity markets for economic growth. Herring and Chatusripitak (2001) mentioned that the absence of a bond market may render an economy less efficient and significantly more vulnerable to financial crisis. Moreover, Domowotz *et al.* (2001) find that macroeconomic stability is highly and positively correlated with the development of bond markets.

Is there any predicament if financial system of a country is heavily dependent on a single source of finance particularly on bank-based finance? The financial turmoil that occurred in East Asia in mid-1997 taught policy makers, academics and practitioners that excessive reliance on banks as the vehicle through which savings are channeled to investment projects significantly exacerbates economic downturn when the banking sector suffers a crisis. Park and Oh (2006) point out that one of the root causes of the financial crisis in 1997-1998 was heavily

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*   Professor and Director (RD&C), Bangladesh Institute of Bank Management (BIBM)

dependent on banking systems to finance domestic investment. The latest financial crisis in Europe also puts finger on more dependency of economy on bank finance. Europe's economy is more dependent on banks than the capital markets. European banks account for around 75 per cent of corporate financing, compared with about 30 per cent in the US (European Banking Federation 2012). On the other hand, the experience of the United States securities market during financial crises – one resulting from the Latin American debt crisis in the 1980s, the other from the real estate crisis of 1990 and the latest sub-prime crisis that began in December 2007 ending in June 2009 – is a constructive and shining example and it showed how securities markets comprising of equity and debt securities can provide the corporate sector with alternative sources of financing. During these periods, the US banking sector suffered large losses that reduced its capital base drastically and severely curtailed its ability to lend. The ensuing liquidity crunch substantially reduced the bank credit to US corporations. The US domestic securities markets, to varying degrees, functioned as alternative sources of financing for corporations when the banking sector was under pressure. Greenspan (2000) stresses the importance of having multiple avenues of financial intermediation, which served the US well during the credit crunch of the late 1980s when debt markets substituted for the loss of bank financial intermediation in a banking crisis related to the real estate cycle.

Bangladesh economy distinctly depends on bank dominated financial system. Direct financing[1] through issuing shares is gradually increasing and the other direct financing mechanism through issuing corporate bonds here is almost nonexistent. The amount of industrial term loans disbursed by banks and financial institutions stood at TK.655.4 billion, many folds higher than the amount of TK. 4.3 billion raised by new capital issues through private placements and public offerings in the capital market in 2016 (BB *Annual Report 2015-2016*).

In the bank-based financing system of all economies, maturity mismatch between assets and liabilities is an inherent problem. Additionally, lack of expected efficiency of intermediation is also a cause of concern in Bangladesh. This is reflected in relatively high interest rate spread, high concentration of loan on a few sectors in a few geographical areas. Recent scams in a few banks have also augmented this concern. These limitations of the banking sector of Bangladesh, which may be common features in other developing countries, increase the

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[1] Direct financing here refers to financing mechanisms through issuing shares and bonds only. However, European Union at present permits direct financing with a view to lessening burden on banks under which insurance companies, pension funds authority and other surplus units can lend directly to the corporate sector

importance of having a sound and organized capital market comprising both equity and debt market for fulfilling the needs of financing business activities.

The capital market encourages specialization as well as acquisition and dissemination of information, thereby reducing the cost of mobilizing savings and facilitating investment (Greenwood and Smith 1997). But the Bangladesh equity market, to say the least, till today is not broad or deep enough. Of around 3400 public limited companies of the country, only 334 companies are listed with the DSE (BB *Monthly Economic Trend*, June 2017).

Corporate debt market is virtually non-existent in Bangladesh. Only 2 corporate bonds, 8 debentures and 221 Govt. bonds are listed with DSE which are almost non-traded in the market. However, bond markets are a prerequisite for a country to enter into a sustained phase of development driven by market-based capital allocation. At the same time, domestic bond markets markedly increase the resilience of a country's financial system by allowing corporate borrowers to choose from a broader range of financial instruments to finance their operations. In this perspective knowing the pattern of capital market consisting equity and bond market and determining its relationship with economic growth are important to make financial sector more diversified and efficient for facilitating sustainable and balanced economic growth of the country.

As corporate bond market almost nonexistence in Bangladesh, an anatomy of equity market is conducted here only. The objectives of this endeavor is to examine the status and pattern of equity finance in the economy of Bangladesh and investigate the relationship between stock market and economic growth by implementing standard econometric models applicable for time series data.

The remainder of the paper proceeds as follows: Section-II briefly reviews the related literature. Section-III states methodology, data sources and outlines framework for empirical analysis. Section-IV delineates status and patterns of equity finance in Bangladesh. Section-V shows interpretation of empirical evidences. Section-VI briefly discusses investors' role in equity market. Finally, section VII offers conclusions and remarks.

II. Literature Review

Several studies have been conducted to find the role of stock market on economic growth. The study conducted by Levine and Zervos in 1998 is considered as seminal one in this area. They empirically assess the impact of stock markets and banks on long-run economic growth using an endogenous growth model. After

examining data on 47 countries over a period of 1976 to 1993, the results show that both stock markets and banking development are positively and significantly related to economic growth and both are good predictors of economic growth.

Seetanah *et al.* (2012) examine the impact of stock market development on economic growth for a sample of least developed countries. They found an overall insignificant relationship between stock market development and economic growth for least developed countries. However, the results show that banking development and education are the main factors contributing towards growth of these economies. In particular, these results can be explained by the fact that these economies are mostly bank oriented and that their stock markets are relatively young.

Stock market plays an important role in any economy. A mature and sizeable stock market is perceived across the globe as an indicator of the economic health and prospect of a country as well as an index of the confidence of domestic and global investors. A significant correlation does exist between the development of stock markets and economic growth, which has also been documented in a number of studies.

Atje and Jovanic (1993) conclude that stock markets have long-run impacts on economic growth and it is also found that stock markets manipulate economic growth through a number of channels that are liquidity, risk diversifications, acquisition of information about firms, corporate governance and savings mobilization (Levine and Zervos 1993). Carporale *et al.* (2004) examine the causal linkage between stock market development, financial development and economic growth for a sample of seven countries. The result suggests that a well-developed stock market can foster economic growth in the long run. It also provides support to theories according to which well-functioning stock markets can promote economic development by fuelling the engine of growth through faster capital accumulation, and by tuning it through better resource allocation. Osei (2005) observes that stock markets are expected to increase economic growth by increasing the liquidity of financial assets, make global and domestic risk diversification possible, promote wiser investment decisions, and influence corporate governance. Adajaski and Biekpe (2005) find a considerable positive impact of stock market development on economic growth in countries of upper middle-income economies. Their findings are more strengthened by Bahadur and Neupane (2006), who conclude that stock markets fluctuations help predict the future growth of an economy. Capasso (2006) using a sample of 24 advanced OECD and some emerging economies investigates the linkage between stock

market development and economic growth covering the period 1988-2002. The finding shows a strong and positive correlation between stock market development and economic growth and later concludes that stock markets tend to emerge and develop only when economies reach a reasonable size and with high level of capital accumulation.

Antonios (2010) investigates the causal relationship between stock market development and economic growth for Germany for the period 1965-2007 using a Vector Error Correction Model (VECM). The results of the tests indicate that there is a unidirectional causality between stock market development and economic growth with direction from stock market development to economic growth. Shahbaz *et al.* (2008) argue that there is a long-run relationship between stock market development and economic growth in Pakistan. Their results are dynamic and robust and they indicate that stock market development is an important helm for economic growth. Nurudeen (2009) examines the relationship between stock market development and economic growth in Nigeria by employing the error-correction method and his results show that stock market development (market capitalization) contributes positively to economic growth.

Enisan and Olufisayo (2009) examine the long-term and causal relationship between stock market development and economic growth for seven countries in sub-Saharan Africa. Using the Autoregressive Distributed Lag (ARDL) bounds test, the study finds that the stock market development is co-integrated with the economic growth in Egypt and South Africa. Moreover, this test suggests that stock market development has a significantly positive long term impact on economic growth. Tang *et al.* (2007) investigate the relationship between stock markets and economic growth in twelve Asian countries from 1980 to 2004. Their results suggest that there is long run relationship between stock markets and economic growth in four countries namely, China, the Philippines, Singapore and Taiwan. The results of Granger causality test indicate that there is a bi-directional feedback relationship between stock markets and economic growth in China, Hong Kong, Indonesia, Malaysia and Thailand. Whereas in Japan and Korea, they find that there exists a unidirectional short run causal effect running from stock markets to economic growth. On the contrary, they found short run causal effect running from economic growth to stock markets in the case of India and Singapore. In addition, there is no evidence of causality among the variables under study in Sri Lanka. Above literature supports that stock market plays a significant role in the economic development of a country.

III.   Methodology, Data Sources and Framework for Empirical Analysis

a.   Methodology and Data Sources

In the present study, as stated previously, we have tried to understand the status and pattern of equity finance in Bangladesh and to find out the empirical relationship between stock market and economic growth. The study has been conducted based on the secondary data.

But, for the first objective, the researchers have utilized data sets spanning five years with some exception depending on availability and suitability. Secondary sources include annual reports of Bangladesh Securities and Exchange Commission (BSEC), and top companies included in DSE 30 index, Economic Trends and www.worldbank.org/ indicator/FS.AST.PRVT.GD.ZS. Statistical, financial and accounting tools have been applied in this section where appropriate.

To assess the empirical relationship between economic growth and stock market development in section 5, we first consider GDP at current prices as an indicator of economic growth. Then we consider stock data of market capitalization as an indicator of stock market development. Arestis *et al.* (2001) note that stock data are likely to have more time series property that makes it suitable for cointegration analysis. In addition, as outstanding amount represents rolling amount in the economy while flow data are transaction-based, the former set of data seems more closely linked with the economic growth of a country.

GDP is considered at current prices as the data on market capitalization are available at current prices only. Market capitalization, which equals the value of listed domestic shares on domestic exchanges, is contemplated here to measure equity market contribution considering the theory that a larger share market contributes more to a growing and large economy. In this regard, a country with a larger stock market tends to have a large and spurring economy. Levine and Zervos (1998) show that market capitalization is not a good predictor of economic growth. However, Beck and Levine (2004), and Tang (2006) subsequently use market capitalization in their studies. In addition, Arestis *et al.* (2001) highly recommend market capitalization for time series analysis.

Annual stock data from 1987-88 through 2015-16 has been used when econometric relationship is examined between economic growth and stock market development. Data are gleaned from the various issues of Annual Report of Bangladesh Bank and Economic Trends published by the Bangladesh Bank.

b.   Empirical Design

With a view to estimating the relationship between economic growth and stock market development, the equation is on GDP at current prices and market capitalization of stock exchanges in Bangladesh is followed.

$$LnY_t = a + y_1 Ln\ CAPI_t + e_t \tag{1}$$

Where Y = GDP of Bangladesh at current prices, and CAPI = Market capitalization in Dhaka Stock exchange[2]. Both variables are converted into natural logs for two causes. First, the coefficients of the cointegrating vector can be interpreted as long-term elasticity's if the variables are in logs. Second, if the variables are in logs, the first difference can be interpreted as growth rates. The expected signs of the parameters are: a> 0, and y_1> 0. The error-term (e) is assumed to be independently and identically distributed. The additional symbol (t) is used for time-subscript.

First, the time series property of each variable is investigated under a univariate analysis by implementing the ADF (Augmented Dicky–Fuller) for the unit root (nonstationarity) following (Dickey and Fuller 1981; Fuller 1996). The KPSS (Kwiatkowski, Philips, Schmidt and Shin) test for no unit root (stationarity) is applied as a counterpart of ADF following (Kwiatkowski *et al.* 1992). If these tests confirm stationarity in time series data of each variable, Equation-1 can be estimated appropriately by the Ordinary Least Square (OLS) method. Otherwise, its application leads to misleading inferences in presence of spurious correlation (Granger and Newbold 1974).

Second, in the event of nonstationarity of each variable, the co integrating relationship among variables is studied by the Johansen-Juselius procedure (Johansen 1991; Johansen and Juselius 1992, 1990) to overcome the associated problem of spurious correlation and misleading inferences. In this procedure, all the variables must have the same order of integration or depiction of I(d) behavior for cointegration. In the Johansen-Juselius procedure, λ_{max} test or λ_{trace} test or both may be conducted. The selection of the test is at the discretion of the researchers in view of their trade-offs for bias, inefficiency, local power, and sample size distortions.

[2.] There are two stock exchanges in Bangladesh namely, the Dhaka Stock Exchange (DSE) and the Chittagong Stock Exchange (CSE). Most of the companies listed on the DSE are also listed on the Chittagong stock exchange as a dual listing of companies is allowed in Bangladesh. DSE is the oldest stock exchange in the country. The size of the DSE, in terms of market capitalization and number of listed securities, is much bigger than the Chittagong stock exchange. So, for the purpose of this study, we concentrate on the DSE.

 Finally, on the evidence of cointegrating relationship, a Vector Error-Correction Model (VECM) is estimated for long-run causality and short-term dynamics. The appropriate lag-lengths are selected with the aid of the FPE (Final Prediction Error) criterion (Akaike 1969) to ensure that errors are white noise. This helps overcome the problem of over/under parameterization that may induce bias and inefficiency in the parametric estimates.

The VECM following Engle and Granger (1987) is specified as follows:

$$\Delta \ln Yt = \alpha + \lambda ECM_{t-1} + \sum_{i=1}^{n} bi \Delta \ln Y_{t-i} + \sum_{i=0}^{m} hi \Delta \ln CAPI_{t-i} + Ut \qquad (2)$$

A negative and statistically significant coefficient of ECM_{t-1} supports cointegration among the variables and long-run causality that springs from the independent variables. The short-term effects of the independent variables are inferred by the sizes and signs of b_is, and h_is as well as the statistical significance of the overall calculated F-statistic.

IV.   Status and Patterns of Equity Finance in Bangladesh

1.1.   Market capitalization and Economic Progress

A rational proportion of equity finance in a financial system is always positively and significantly linked with the sustainable economic development of a country. In Bangladesh, it is discernible from Figure 4.1 that our economic growth is positively related with the amount of market capitalization except a few ups and downs. The amount of market capitalization did not show more variation till 2004-2005, afterwards it demonstrated an upward trend. It reached highest

Figure 4.1: GDP and Market Capitalization
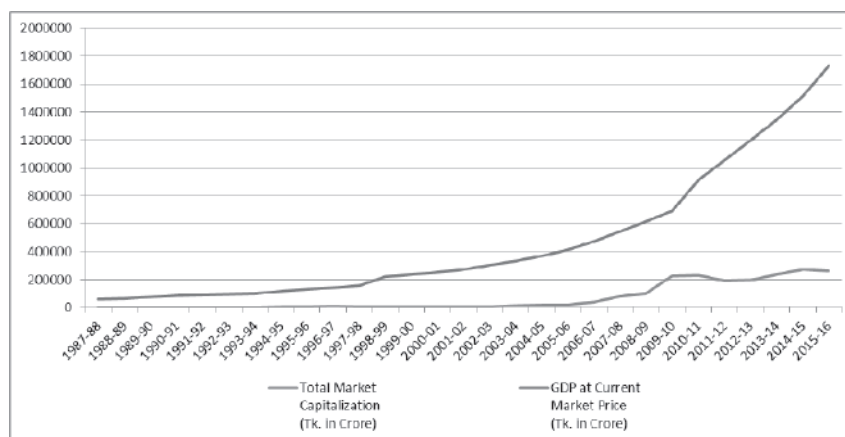
Source: Monthly Economic Trend, Bangladesh Bank.

amount in 2009-2010 and continued with the increased amount of market capitalization in subsequent years by maintaining relationship with the economic growth.

1.2. Market Capitalization to GDP of Some Asian Countries

The market capitalization to GDP in Bangladesh is lagging behind other Asian countries, as it is only 24.04 per cent in 2014-2015. This relative figure is comparable with only Pakistan (28.46%) and Sri Lanka (28.39%). The figures of other Asian countries are far ahead of Bangladesh. The Indian amount of market capitalization to GDP with 69.9 per cent is also well ahead of Bangladesh.

2.1. Initial Public Offerings (IPOs): Number

Table-4.2 shows number of IPOs of Bangladesh during 2014-2016 along with number of IPOs in Asian countries . A total number of 17 Bangladeshi companies raised funds through IPOs in 2014 which came down to 11 companies in 2015 and 2016 respectively. However, most of Asian countries except Malaysia and Philippines are ahead of Bangladesh in terms of raising funds through IPOs. For example, Vietnam accommodates 37 IPOs in 2014 followed by 72 and 38 IPOs in 2015 and 2016, respectively. Malaysia and Philippines did not display better picture as compared to Bangladesh.

Table 4.2: Number of IPOs in Asia: 2014-2016

Country	2014	2015	2016
Bangladesh	17	11	11
Indonesia	23	16	15
Malaysia	14	11	10
Philippines	6	4	3
Singapore	29	13	16
Thailand	40	38	24
Vietnam	37	72	38

Source: BSEC *Annual Report 2014-15* and Deloitte (2016), *Southeast Asia IPO Market*, p.2.

2.2. Initial Public Offerings (IPOs): Amount and % to GDP

In case of generating funds through IPO, Bangladesh is performing a good job. In 2011-2012, the total amount generated was Tk. 1020.592 crore. This amount increased to Tk. 6464.42 crore in 2013-14 but again decreased to TK. 1407.39 core in 2014-2015 with CAGR of 8.37 per cent during 2011-12 to 2014-15 (Table-4.3). However, in terms of relative figure, it is not as bright as absolute figure. The

Table 4.1: Market Capitalization to GDP of Some Asian Countries

Country	Bangladesh (DSE)	India (BSE)	Pakistan (Karachi 100)	Sri Lanka (Colombo SE)	Indonesia (SE)	Malaysia (Barsa)	Thailand (SE)	Taiwan (Se Corp.)	Phillipine (SE)	Japan (SE)	Hong Kong Exchange	Singapore Exchange
Market Capital to GDP (%)	24.04	69.9	28.46	28.39	44.33	137.61	109.98	174.15	88.19	118.87	1279.07	261.47

Source: BSEC *Annual Report 2014-15* and Deloitte (2016), *Southeast Asia IPO Market.*

highest percentage of IPO to GDP was 1.200 in 2012-13 which came down 0.092983 percent in 2014-15.   Here, our policy makers are required to be concerned. In terms of CAGR of IPO to GDP, with - 46.27 per cent it seems underperformer. More effective endeavors are, therefore, required to be undertaken to make equity market as an effective source of finance for enterprises.

Table 4.3: Equity Finance to Economy, 2011-12 to 2014-15 (% of GDP)

Year	2011-12	2012-13	2013-14	2014-15	CAGR
IPO (Crore Tk.)	1020.592	1246.017	6464.42	1407.39	8.37
IPO to GDP	1.115664	1.200417	0.47852	0.092983	-46.27

Source: Author's Calculation Based on BSEC Annual Reports, Various Issues

2.3. Initial Public Offerings (IPOs): Amount and % to GDP in Some Asian Countries

In making comparison between Bangladesh and other neighboring Asian countries, it is further restated that we are still behind all selected countries (Table 4.4.). The amount of IPO as percentage to GDP in 2014-2015 was only 0.092983 (Table 4.3). But this percentage is the highest for Thailand with 0.56 followed by China with 0.53 per cent, Malaysia with 0.48 per cent, etc. The lowest percentage held by Philippines of 0.07 percent is only lower than Bangladesh. It indicates, we still need to cross a long way to bring Bangladesh at par with Asian countries.

Table 4.4: Amount of IPOs and % to GDP in Asian Countries

Country	IPO Amount (Million USD)	IPOs to GDP (%)
China	58800	0.53
India	2000	0.12
Indonesia	820.43	0.13
Malaysia	1200.23	0.48
Philippines	110.04	0.07
Singapore	362.12	0.13
Thailand	1474.64	0.56
Vietnam	186.72	0.14

Source: Deloitte (2016), *Southeast Asia IPO Market.*

3.   Equity Finance: Sector Wise

Financing a variety of industries of an economy is also an indication of acceptability of any conduit of finance. Sector wise IPOs indicate a well-

Table 4.5: Equity Finance through IPO: Industry wise

(Taka in Crore)

Name of the Industry	2011-12		2012-13		2013-14		2014-15		CAGR
	Tk.	%	Tk.	%	Tk.	%	Tk.	%	
Textile & Garments	262.75	26	316.227	25	441.24	7	534.48	38	19.43
Pharmaceuticals & Chemicals	0.00	0	329	26	5091.03	79	0	0	293.37
Engineering	90.00	9	134	11	459.5	7	80.46	6	-2.76
Food and Allied	40.00	4	65	5	47	1	290.26	21	64.13
Insurance	30.00	3	30	2	0	0	44.25	3	13.68
Cement	0.00	0	105.45	8	0	0	0	0	
Services & Real Estate		0		0	55.89	1		0	
Travel & Leisure	256.00	25	0	0	113	2	0	0	-33.56
Financial Institutions	47.65	5	160.06	13		0		0	83.29
Telecom	118.51	12		0		0		0	
IT	41.95	4		0		0		0	0.00
Paper & Printing	0.00	0		0	66.4	1		0	0.00
Power and Fuel	51.00	5	106.28	9	126.86	2	329.94	23	59.48
Miscellaneous	82.74	8	0	0	63.5	1	128	9	15.49
Total	1020.59	100	1246.02	100	6464.42	100	1407.39	100	8.37

Source: BSEC, *Annual Report 2011*

diversified generation of funds from the market. Among the industries, Textile & Garments, Engineering, Food and Allied, and Power and Fuel sector almost regularly raised funds during 2011 -12 to 2014-15. The pharmaceutical and Chemicals industry also collected a substantial amount of funds in the year 2012-13 and 2013-14. The major raiser of funds was Textile and Garments industry followed by Power and Fuel, and Food and Allied in 2014-2015

4.   Equity Finance: Size of IPOs

In case of equity financing, it is observed that more than 90% of Initial Public Offerings (IPO) was above 100 crore during **2012-13 to 2014-15** indicating that major portion of the finance generated through IPO mostly goes to the large scale industry (Table 4.6). On contrast, only 8.86 per cent   IPO was issued for less TK. 100 crore in 2014-2015. It means that IPO is usually issued by large industries only.

Table 4.6: Equity Finance – Size of IPO Wise

(Taka in Crore)

Range of Financing	2011-12	2012-13	2013-14	2014-15	CAGR
Less than 100 Crore	383.33	95	232.79	124.71	-24.48
	(37.56)	(7.62)	(3.60)	(8.86)	
More than 100 crore	637.26	1151.02	6231.63	1282.68	19.11
	(62.44)	(92.38)	(96.40)	(91.14)	
Total	1020.59	1246.017	6464.42	1407.39	8.37
	(100)	(100)	(100)	(100)	

Source: BSEC, *Annual Report*

Note: 1. Figures in parentheses indicate percentage

5.   Foreign Investment: Foreign Portfolio Investment

Table-4.7 shows that ability of equity market of Bangladesh in enticing Foreign Portfolio Investment (FPI) is mix. In several years, flow of FPI is negative meaning outflow from investment is more than inflow in investment. However, amount of FPI is positive in some other years. For example, the figure of FPI in 2015-2016 is Tk. 3977.3 crore which is encouraging.

6.   Cost of Generating Funds

A borrower can take loan from banks with minimum costs ranging from 0.25% to 0.5% of the loan amounts mainly for processing fee for banks and consulting fees for preparation of project proposals. On the other hand, cost for generating funds

Table 4.7: Foreign Portfolio Investment

Year	Foreign Portfolio Investment (in Crore Tk.)
2001-02	-31.8
2002-03	5.6
2003-04	31.6
2004-05	0.3
2005-06	240.7
2006-07	727.7
2007-08	325.1
2008-09	-702.1
2009-10	-2029.5
2010-11	-6109.2
2011-12	4142.6
2012-13*	742.9
2013-14	-3019.9
2014-15	-4157.5
2015-16	3977.3

Source: BB *Monthly Economic Trend,* August 2017

through IPO lies between 3% and 4% depending on the size of IPO (Table-4.8).

Table-4.8: Cost of Generating Funds from Banks and through IPO, 2011

Particulars	Costs as % to Collected Funds
Bank Loan	0.25% -0.50%
IPO	3.98%

Source: Authors' Calculation

7.   **Costs of Funds**

Not surprisingly, the top priority for corporate units is to obtain lowest cost funding. The fact is that equity is much more expensive than debt.[3] Nemethy (2013) shows that costs of debt in Central Europe is around 8 per cent whereas the

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[3.] It is based on the principle that higher the risk, the higher the expected return. Moreover, interest expenses/ costs of debt is deducted from earnings before income tax are charged. However, this tax benefits is not applicable for costs of equity / dividend as dividend is paid after the payment of tax according to accounting principle.

costs of equity is 25 per cent or above. Damodaran (2013) takes 6177 companies across the world and figured out cost of debt, cost of equity and cost of capital at 2.77 per cent, 8.53 per cent and 6 .80 per cent, respectively. This type of calculation may not be available in Bangladesh. However, costs of debt here is obviously less than cost of equity like other countries. Additionally, chance of avoiding loan repayment, getting waiver of interest payment and availing of different refinancing schemes in some cases encourages corporate units to become more dependent on banks in place of equity market for generating funds.

8. Formalities Involved

Formalities involved in getting finance are an important determinant for the borrowers/issuers in choosing sources of finance. Table-4.9 shows that less formalities are required in getting finance from banks compared to generating funds from the equity market. In case of bank financing, influential borrowers even may get finance from banks very quickly with minimum formalities. However, in equity finance, stated formalities are required to be completed for generating funds irrespective of the clout of the borrowers. These formalities are considered as time consuming by many issuers.

Table-4.9: Bank Finance Vs. Equity Finance: Formalities Involved

Types of Finance	Formalities
Bank Finance	Loan Application, Appraisal, Report for Approval Authority, Verification, Approval/Rejection, Documentations and Disbursement.
Equity Finance	Before Obtaining the Consent from BSEC
	Selection of Advisors, Completion of Valuation and Restructuring, Selection of Bankers to the Issue and Underwriters, Collection of NOC from Lenders, Audit of Accounts, Credit Rating Report, Agreement with CDBL, Approval from Sponsors, Refund Warrant Guarantee, Draft Prospectus, Application Submission to BSEC and Consent from BSEC.
	After Obtaining the Consent from BSEC
	Submission of Prospectus, Announcement for the Investor, Provide full Prospectus, Application to Stock Exchanges for Listing and Approval of Listing.

9. Necessary Documents

Several documents are required to be prepared and submitted in order to get either source of finance (Table-4.10). These requirements are sometimes considered as troublesome by deficit units.

Table-4.10: Bank Finance Vs. Equity Finance: Necessary Documents

Types of Finance	Necessary Documents
Bank Finance	Loan Application Form, Project Profile including Appraisal Report, Bank Statement, Annual Report / Statement of Asset & Liability and Profit & Loss for last 3 years, Projected Income Statement and Balance Sheet, TIN Certificate, Trade License, Land Related Documents[4], Machinery Related[5]and Raw Materials Related[6] documents.
Equity	Prospectus, Financial Statements, Memorandum and Articles of Association, Certificate of Incorporation and Commencement, Minutes of Meeting of the Board of Directors for Raising Paid Up Capital, Consent of the Directors to Serve, Land Title, Loan Agreements, (If Any), Confirmation of a Separate Bank Account for Public Issue Purposes, Agreement and Due Diligence Certificate from the Manager to the Issue and from Underwriter(S), Letter of the Bankers' to the Issue, Particulars of Directors ,Bank Statement Showing Deposit of an Amount Equivalent to the Paid Up Capital/ Auditor's Certificate on it, Undertakings of the Issuer, Directors and Shareholders Holding 5 Percent or More Shares in the Paid Up Capital for Obtaining CIB Report from Bangladesh Bank, Valid License, Credit Rating Report and Application Fee.

V.   Stock Market and Economic Growth: Empirical Evidence

First, for each variable, the results of the ADF and KPSS tests with orders of integration are reported in Table 5.1. All variables are found to be non-stationary based on both the ADF and KPSS tests. The same order of integration was found on the first differencing i.e. *I(1)* for LnY and LnCAPI . Same order of integration justifies the implementation of Johansen-Juselius procedure. Accordingly, the

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[4.] Land related documents are : Copy of Title Deed, Mutation Record, Duplicate Carbon Receipt (DCR), Rent Paid Receipt, Khatian, Mouja Map / Site Plan / Layout Plan, Non-Encumbrance Certificate (NEC)

[5.] Machine   related documents are : Competitive Quotations / Proforma Invoice with Detailed Terms and Conditions, Terms and Conditions of the After Sale Services of the Machinery.

[6.] Raw materials related documents are: Raw Materials Quotations and Proforma Invoices.

study implements Johansen-Juselius procedure for searching co integration among the variables for equations 1.

Table 5.1: Augmented Dickey-Fuller (ADF) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) Test Results and Order of Integration: Annual Data

| Variables | ADF | | | KPSS | |
	Level	1st Difference	2nd Difference	Level	1st Difference
LnY	0.350881	-11.49792*		0.730481 *	
LnCAPI	-2.832063	-3.390571*		0.706510 *	

Source: Author's Calculation

Note: The Mackinnon (1996) critical values are –3.653730 and –2.957110 at 1% and 5% levels of significance, respectively. The KPSS critical values (Kwiatkowski et al., 1992, Table 1) are 0.73900 and 0.46300 at 1% and 5% levels of significance, respectively. Asterisk (*) indicates stationarity of the variables.

Second, The l_{trace} AND l_{max} test results calculated in Johansen and Juselius procedures are reported in Table-5.2. As observed in the table there is an evidence of co integration relationship between LnY and LnCAPI which are captured in equation 1 in terms of both l_{trace} AND l_{max} tests. As these variables are co integrated, this indicates a long-run relationship exists between economic growth and stock market development. In this case, the vector error correction model (VECM) as given in equation (2) – is estimated to capture the both short term and long term dynamics.

Table 5.2: Computed Value of λ_{trace} AND λ_{max} STATISTICS [a]

	Equation	0.05 Critical Value
	LnY= α + Ln CAPI + Ut	
Hypotheses	Computed Value of λ_{trace} Statistics	
None (H$_0$: r = 0)	17.50207	15.50
At most 1 (H$_0$: r ≤ 1)	1.104811	3.84
	Computed Value of λ_{max} Statistics	
None (H$_0$: r = 0)	16.39726	14.27
At most 1 (H$_0$: r ≤ 1)	1.104811	3.84

Source: Author's Calculation

Note: a. λ_{trace} test indicates cointegrating equations at the 0.05 level and λ_{max} test indicates co integrating equations at the 0.05 level. [b] Both Trace test and Max-eigenvalue test indicate 1 cointegrating eqn(s) at the 0.05 level

As long-run relationship exists between LnY and LnCAPI according to prior estimation of cointegrating relationship between these two variables, VER model is estimated (Table 5.3). The estimated coefficients of error correction term (-0.021299) are negative, but statistically insignificant. It means that long run unidirectional causal flows from stock market development to Bangladesh economic growth have been evident. However, this flow of relationship is weak as t value is less than 2. This evidence could be interpreted to mean that stock market is promoting long term economic growth of the country but this influence is not statistically robust. In terms of short term dynamic effect, subdued net positive effect is noticeable from LnCAPI to LnY as the respective sum of the lagged coefficients of variables is positive. Notably, significant effect on the economy is visible from the fourth lag i.e. fourth year of listing of the companies in the secondary market. In other words, after generating funds through IPOs, it takes four years to contribute to the economy. The adjusted R^2 (0.317637) discloses a significant explanatory power of the model. The F-statistic is also quite significant. The DW value (2.177231) shows near no-autocorrelation.

Table-5.3: Estimating Equation (7) for Vector Autoregressive Model (2, 4)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.187049	0.044013	4.249893	0.0007
ECM t-1	-0.021299	0.093536	-0.227708	0.8229
Δ LnY (-1)	-0.333183	0.221628	-1.503344	0.1535
Δ LnY (-2)	-0.344766	0.209301	-1.647226	0.1203
Δ (LnCAPI)	-0.036694	0.037300	-0.983753	0.3408
Δ LnCAPI(-1)	-0.054591	0.044751	-1.219886	0.2413
Δ LnCAPI (-2)	0.057898	0.043707	1.324692	0.2051
Δ LnCAPI -3)	0.040421	0.043612	0.926824	0.3687
Δ LnCAPI (-4)	0.089055	0.042972	2.072396	0.0559
Adjusted R-squared	0.317637	Akaike info criterion		-2.740410
F-statistic	2.338302	Durbin-Watson stat		2.177231
Prob(F-statistic)	0.074328			

Source: Author's Calculation

VI. Equity Market: Investors' Role

Investors' role is sine qua non for equity market development. In a matured share market, multiple investors like retail investors, institutional investors, mutual funds, pension funds, merchant banks and foreign portfolio investors participate

actively. Participation of various types investors is necessary for barring unscrupulous investors to take undue benefits from asymmetric market, public and private information. However, smooth operation of primary and secondary market, strong issuer base and multiple financial instruments are necessary to attract various types of investors in a share market.

6.1. Problems Faced in the Primary Market

Oversubscription indicates high demand for new securities in the primary market. Despite this enormous response to initial public offerings, investors feel uncomfortable for several reasons. These are insufficient and/or reliable information in prospectus, time consuming process and hassle, small size of IPO, excess premium, etc. Authority may take necessary steps to address these problems.

6.2. Problems Faced in the Secondary Market

The secondary market of Bangladesh sometimes experiences unreasonable ups and downs despite neither any change in macro-economic variables nor any earnings forecasts downshift by any leading companies. Investors make decisions based on rumors in most of the cases instead of analyzing company specific fundamentals. Small and new investors are pronouncedly affected by rumors. The BSEC, merchant bankers and brokerage houses can organize regular awareness program for investors to help them make rational investment decisions and to warn them against rumors to mitigate possible stock market overreactions/under-reactions. Additionally, ensuring transparency, minimizing insider trading, strengthening monitoring and supervision, rationalizing margin loan ratio and minimizing price volatility may induce investors to invest in secondary market.

6.3. Expansion of the Issuer Base

The market suffers from a dearth of quality securities. To overcome this problem, quality issuers need to be attracted. Bangladesh has the potential to do so. Profitable state-owned enterprises, multinational corporations and large home-grown private enterprises with clean and strong balance sheets should be listed. Issuance of SOE securities will include transparency in their operations besides multifold expansion of the equity market. The government can improve guidelines relating to the capital structure of SOEs making it similar to those for financial institutions and banks.

6.4. Innovative Financial Products

Apart from ordinary shares, preference and seasoned shares might be made available in the market. The introduction of zero-coupon bonds and fixed-coupon bonds merits due consideration. Bonds like treasury inflation – protected securities (TIPS), SUKUK Bond, High – Yield Bonds (HYB) and Deep Discount Bonds may also help to lay out the corporate bond market architecture in Bangladesh. The government may initially issue these types of bonds targeting their development projects. Corporations from various sectors may be encouraged to step in later.

6.5. Foreign Portfolio Investments

Foreign portfolio investments that are irregular and nearly absent in some years in Bangladesh stock market can be attracted by the creation of a favorable environment. This requires developed information infrastructure, selective deregulations, political stability, etc. Moreover, image building activities through seminars, symposium and fairs at home and abroad deserve due consideration.

VII. Conclusions and Remarks

The financial turmoil that occurred in East Asia in mid-1997 taught the world that excessive reliance on banks as the primary vehicle through which savings are channeled to investment projects significantly exacerbates economic downturn when the banking sector suffers a crisis. This increases the importance of having a sound and organized capital market for fulfilling the needs of financing business activities.

The Bangladesh equity market was extremely depressed due to mass exodus of investors from the stock exchanges after the share market disaster of 1996 and 2011. However, the market regained some of its momentum in the last couple of years. Introduction of automated trading through electronic registration and transfer of securities, guidelines for conversion from close- end mutual funds to open–end mutual funds, promulgation of Bangladesh Securities and Exchange Commission Rules (exchange traded funds) 2016, guideline for issuance of financial derivatives-2016, guidelines on corporate governance on compliance, conducting several financial literacy programs helped to regain such momentum.

In 2016, 11 companies raised funds of Tk. 849.3 with premium through IPOs. The volume of public offerings in 2016 was oversubscribed by more than 16 times indicating shortage new securities in the primary market. The amount of market

capitalization in DSE was TK. 3185 billion at the end of 2016. Turnover in value and volume in DSE is TK.1072.5 billion and 29 billion number respectively in 2016.However, performance shown by our equity market is still lagging behind other Asian countries.

Empirical analysis indicates moderate contribution of equity market to economic development. The findings from the empirical analysis indicate that stock market development has long term positive impact on economic growth. But this relationship is not statistically significant. However, a net positive short-term effect of stock market development on economic growth is found as sum of lagged coefficients of the independent variable is positive without statistical significance. The interesting findings are that stock market starts to contribute significantly to economic growth from the fourth year of generating funds through IPOs. This is hardly surprising as the share market is now traversing a period of correction and consolidation. It is seen from the number of listed companies of DSE; only 334 companies are listed out of 3400 public limited companies in the country. Moreover, thin issuer and high market investor base, near-absence of solid legal protection for investors, rumor-based trading, volatility in market, less margin loan ratio seem to act as barriers to mobilize adequate capital. Additionally, Bangladesh has been unable to entice foreign portfolio investment regularly.

Making equity market as regular sources of finance for the real economy is a must for sustainable economic development. A number of measures are required to be undertaken in this respect. Ensuring smooth operation of primary and secondary market, increasing financial literacy among investors, minimizing volatility of the market, expanding issuer base, creating both individual and institutional investors, enhancing efficiency of the brokerage house, adding innovative financial services, initiating knowledge based trading, rationalizing cost of generating funds and costs of funds, lessening formalities involved and required documents, introducing shelf registration system are suggested here to uplift equity market at expected level.

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Structure of Credit Markets and Government Budget Financing in Bangladesh

KHAN H. ZAHID[*]

Abstract: *The nexus between fiscal and monetary policy in emerging countries like Bangladesh has not been studied in depth. A key question is whether emerging market governments use money creation to finance their budget deficit ("print" money). Such temptations may exist because it allows political governments to make promises to the electorate and money creation is a way to fulfil those promises. However, "monetization" of the budget deficit can eventually lead to inflation.*

Unlike advanced countries, most emerging countries do not have well-developed financial markets, and, hence, often, monetization is not a choice but almost a routine activity.

This paper looks at the structure of financial markets in Bangladesh, particularly the credit side, the structure and instruments of government borrowing from the credit markets, and then considers the monetization issue. The results suggest that some degree of monetization does occur in the country, but its magnitude is not very large.

Introduction

The nexus between fiscal and monetary policy in emerging countries like Bangladesh has not been studied in depth. A key question is whether emerging market governments use money creation to finance their budget deficit ("print" money). Such temptations may exist because it allows political governments to make promises to the electorate and money creation is a way to fulfil those promises. However, "monetization" of the budget deficit can eventually lead to inflation. There is an extensive literature on the nexus between fiscal and

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[*] Department of Economics, Phillips School of Business, High Point University, High Point, NC 27268, USA, kzahid@highpoint.edu; kzahid@yahoo.com

monetary policy, deficit monetization and inflation. See for example, Hamburger, M. & Zwick, B. (1982), Gupta, K. (2006), Sikken, B. J. and de Haan, J. (1998), Zahid, K., (1985), and Zahid, K. (1988).

Financial markets, particularly the credit and debt capital market side, in Bangladesh are still not very well developed. The most developed part of this system is the commercial banking system. The government has encouraged the development of a non-bank debt capital market system but it is still in a nascent state.

In this paper we analyze the credit markets from a number of angles – demand, supply, the institutional structure of the credit market (i.e., financial intermediaries and the structure of credit), and whether the system is market-based or non-market based.

The Structure of Financial Markets in Bangladesh

Demand side of the credit market

On the demand side, there are two major sectors that borrow funds: the government and, the private business sector. Table 1 shows the types of loans available in Bangladesh credit markets. Consumers still form a small (but growing) segment on the demand side, but the bulk of the demand comes from government and businesses. Most of consumer credit consists of housing loans and credit card loans, both of which are supplied primarily by the commercial banks. We do not have data on the breakdown of debt between consumer and business, but Table 1, which shows the interest rates on various types of lending in Bangladesh by the banking sector, is indicative of the fact that consumer credit is not a big part of their lending: only two out of the nine categories of lending listed in Table 1 are consumer loans, the remaining seven being all business-related. Moreover, as the table shows, consumer (as well as other) lending rates are very high (reflecting the high credit risk of lending in a highly underdeveloped lending market), suggesting that the demand for consumer loans is not likely to be high.

Supply side

On the supply side, the main source of credit are savings from the household, business and government sectors. However, emerging countries like Bangladesh often have an extra source of savings – foreign grants and aid – that can also be a significant source of funds.

Financial institutions exist, of course, in order to intermediate between the ultimate savers and the borrowers. In Bangladesh, commercial banks and a limited number of non-bank financial institutions (NBFIs) form the main category of financial intermediaries in existence. NBFIs cannot create money, but banks can under the standard money multiplier process. According to Bangladesh Bank[3],

Banks in Bangladesh are primarily of two types:

- Scheduled Banks: The banks which get license to operate under Bank Company Act, 1991 (Amended up to 2013) are termed as Scheduled Banks.

- Non-Scheduled Banks: The banks which are established for special and definite objective and operate under the acts that are enacted for meeting up those objectives, are termed as Non-Scheduled Banks. These banks cannot perform all functions of scheduled banks.

  There are **58 scheduled banks** in Bangladesh who operate under full control and supervision of Bangladesh Bank which is empowered to do so through Bangladesh Bank Order, 1972 and Bank Company Act, 1991. Scheduled Banks are classified into following types:

- State Owned Commercial Banks (SOCBs): There are **6 SOCBs** which are fully or majority-owned by the Government of Bangladesh.

- Specialized Banks (SDBs): **3 specialized banks** are now operating which were established for specific objectives like agricultural or industrial development. These banks are also fully or majority-owned by the Government of Bangladesh.

- Private Commercial Banks (PCBs): There are **40 private commercial banks** which are majorly owned by the private entities. PCBs can be categorized into two groups:

- Conventional PCBs: **32 conventional PCBs** are now operating in the industry. They perform the banking functions in conventional fashion i.e. interest based operations.

- Islami Shariah based PCBs: There are **8 Islami Shariah based PCBs** in Bangladesh and they execute banking activities according to Islami Shariah based principles i.e. Profit-Loss Sharing (PLS) mode.

- Foreign Commercial Banks (FCBs): 9 **FCBs** are operating in Bangladesh as the branches of the banks which are incorporated in abroad.

There are now **5 non-scheduled banks** in Bangladesh:

- Ansar VDP Unnayan Bank,

- Karmashangosthan Bank,

- Grameen Bank,

- Jubilee Bank,

- Palli Sanchay Bank

Non-Bank FIs (NBFI)

Non-Bank Financial Institutions (NBFIs) are those types of financial institutions which are regulated under Financial Institution Act, 1993 and controlled by Bangladesh Bank. Now, **34 FIs** are operating in Bangladesh. Out of the total, 2 is fully government owned, 1 is the subsidiary of a SOCB, 15 were initiated by private domestic initiative and 15 were initiated by joint venture initiative.

The major difference between banks and NBFIs are as follows:

- FIs cannot issue cheques, pay-orders or demand drafts.

- FIs cannot receive demand deposits,

- FIs cannot be involved in foreign exchange financing. FIs can conduct their business operations with diversified financing modes like syndicated financing, bridge financing, lease financing, securitization instruments, private placement of equity etc.

Although Bangladesh Bank mentions securitization and other new forms of financing here, these are new innovations in Bangladesh credit markets in their infancy, and, in any case, data on them are not available.

According to a Bangladesh Bank-sponsored study

The main non-bank financial institutions operating in Bangladesh are the Industrial Development Bank of Bangladesh, Equity Participation Fund, Bangladesh Industrial Credit and Investment Trust Corporation, Investment Corporation of Bangladesh, National Investment Trust, the House Building Finance Corporation, United Leasing Co., Industrial Development and Leasing Company, Industrial Promotion and Development Company, Saudi-Bangladesh Industrial and Agricultural Investment Company, Phoenix Leasing Company, Union Capital, Uttara Finance and Investment, UAE-Bangladesh Investment Company, International Leasing and Financial Services, Prime Finance and

Investment, Bay Leasing and Investment, Delta-BRAC Housing Finance Corporation, Bangladesh Infrastructure Finance Fund Limited, Peoples Leasing and Financial Services, Infrastructural Development Company, Bangladesh Industrial Finance Company, National Housing Finance and Investment, MIDAS Financing, First Lease International, Agrani SME Financing Company Limited and Bangladesh Finance and Investment. These institutions conduct business in industrial, commercial and housing financing, and in the stock market activities. They are also granted permission by the Bangladesh Bank to participate in the inter-bank money market transactions.

The credit products offered by these NBFIs include:

- Financial/Capital Lease: Provide a long-term solution that allows customers to free up working capital

- Operational Lease: An operational lease entails the client renting an asset over a time period that is substantially less than the asset's economic life. It offers short-term flexibility, which may allow the customer to take advantage of off-balance sheet accounting treatment.

- Hire-purchase: A hire purchase is an alternative to a lending transaction for the equipment purchase. It is usually employed for retail or individual financing of smaller items, such as consumer products. However, hire purchase option is also suitable for business houses depending on tax practices.

- Sale & lease back: Ideal for customers looking to generate liquidity from their existing equipment and reinvest the proceeds back into the business.

- Home loan & real estate financing: House loan and real estate financing is extended for purchase of apartment and house, construction of residential house, purchase of chamber and office space for professionals, purchase of office space and display center, purchase and construction of commercial building, real estate developer for construction of apartment project. Mostly mid to long term in nature.

- Factoring of Accounts Receivables: Financing against invoices raised by the supplier after asking the delivery successfully. Major Features are evolving Short Term Facility, Permanent Assignment of Payment, Financing against invoices, Post-delivery financing

- Work-order Financing: Finance against the assignment of bill arising out of work orders on a revolving basis. The company shall take assignment of suitable work orders and / or invoices and finance the client against those.

- Syndication of large loan: Making available a large financing for a corporate client. Arrange syndicated financing in the mode of loan, lease, equity, working capital, or any combination thereof. Particularly useful for large projects requiring large scale investment and no single financier wants to take the whole risk. Example: Greenfield project.

- Advisory Services: Advisory services are comprehensive financial, economic and strategic advice to companies for growth, profitability, and sustainability. This includes providing wide range of services, such as corporate counselling, project counselling, capital restructuring, financial engineering, diagnosing financial problems.

- Securitization: Securitization is the issuance of financial instruments backed by assets and/or cash flows. This is one of the modern financial services, which solves specific type of financial needs of business organizations.

- Merchant Banking: Issue Management, underwriting, Portfolio Management & Corporate advising.

- Securities Services: Brokerage Services and as full service Depository Participant (DP) Apart from the brokerage services, securities services also provide the services like BO (Beneficial Owner accounts opening and maintenance, Dematerialization, Re-materialization, Transfers and multiple accounts movement, Lending and borrowing etc.

Bangladesh Bank credit is available only to financial institutions (banks and NBFIs) and the government, while for the general public (businesses or consumers), banks and NBFIs are the primary source of credit.

Structure of Credit

There are three major types of formal credit instruments in Bangladesh – government securities, Bangladesh Bank securities and direct loans from commercial banks. Government securities are issued mainly to finance government spending, while Bangladesh Bank securities are issued for monetary policy purposes. Besides these two items, almost the entire formal credit market consists of bank loans.

Finally, most of the commercial bank credit instruments, as they are loans to borrowers directly, are non-marketable. Only the government and BB securities are marketable, i.e., there exists a limited secondary market for these instruments among banks and a few other financial institutions.

Thus, the credit market is Bangladesh works mostly like this: whenever anyone other than the government needs funds to finance their excess spending (which is called dissaving), they will have to get a loan from a commercial bank. This is a direct loan to the borrower and it is non-marketable (i.e., the borrower has to hold it until maturity and pay off the whole loan itself). It is also non-marketable in the sense that the banks also cannot sell off this asset from their balance sheet in a secondary market. It must be said that Bangladesh, like many other emerging countries, is trying to develop its secondary markets to give it more depth and extent.

Table 2 shows the financial markets data on credit from the demand side (by the public and the private sector) and from the supply side (Banking sector, Non-Bank Depository Corporation and the National Savings Directorate). For the latest year of data available, in FY2018 (i.e., 2017-18), total domestic credit outstanding was Tk. 13,118,620 mill. (approx. $159,983 mill.). Out of this amount, the public sector totalled Tk. 3,295,210 mill. ($40,185 mill.; 26%), and the private sector accounted for Tk. 9,702,150 mill. ($118319 mill.; 74%). Government credit came from banking sector (29%), and for the total public sector, 31% came from the banking sector.

Two significant trends are evident in the period shown in Table 2:

(1) The share of the public sector has declined significantly as a percent of total credit outstanding, while the share of the private sector has increased significantly over the period. This is primarily due to the growth of the private sector in the country. This is shown in Chart 1.

(2) The second trend observable in Table 2 is the significant drop in the banking sector's share in total public sector credit over the period. Starting at 54% in FY2007, it reached a peak of 65% in FY2013 before dropping dramatically to 31% by FY2018. This is shown in Chart 2. This suggests that since FY2013, the government has significantly reduced its financing of the budget from the banking sector.

Structure of Government budget financing

The government borrows through the government securities market, using two types of financial instruments: (1) selling Treasury Bills (T-Bills) & Bonds to the *banking system*, including the central bank, and (2) selling various savings certificates/instruments to the *non-bank public* through the National Savings Directorate (NSD). These instruments include for example, Savings Certificates,

Post Office Savings Accounts, Wage Earners' Development Bonds, and US dollar bonds. There is a limited secondary market for T-bills and bonds, where the main participants are the commercial banks and BB. Most of the savings instruments for the non-bank public are non-marketable; interest is paid to the certificate holders by the government on a regular basis until maturity. Most of these savings instruments are either short- or medium-term (ranging from 3-month to 5 years).

According to Bangladesh Bank overview of the government securities market in Bangladesh

Government securities market of Bangladesh consists of tradable and non-tradable securities. Non-tradable securities include National Savings Certificates i.e. Sanchayapatras and Sanchayabonds which are only for retail investors. The tradable securities include Treasury Bills (T-Bills) of 91, 182 and 364 days maturities and Bangladesh Government Treasury Bonds (BGTB) of 2, 5, 10, 15 and 20 years maturities. T-Bills and BGTBs are issued through auctions. Only Primary Dealers (PD) can submit bids in the auctions. Other institutions and individuals can submit bids in auction but through the PDs. At present 20 banks are performing as Primary Dealer. T-Bills and BGTBs can be sold in the secondary market.

Non-resident individual and institutional investors are also eligible to buy BGTBs through a Non-Resident Foreign Currency Account and Non-Resident Investor's Taka Account maintained with commercial banks of Bangladesh.

Unlike most advanced countries, in emerging countries like Bangladesh, government financing of the budget also includes foreign financing. There is a certain amount of financing from foreign grants, which goes primarily into "poverty alleviation-type" expenditures (e.g., food aid). Second, the government also relies significantly on foreign aid. Another difference is in the non-bank financing category, where the reliance is mainly on non-marketable financing (e.g., savings bonds sold directly to the individual public at high interest rates). Lack of marketable credit instruments is mainly due to the lack of a developed financial market, and hence, a historical reliance on the banking system (including, the fact that many banks are state-owned or state-sponsored).

Table 3 provides data on government budget financing from FY2010 to FY2018. The dat show that financing from the banking sector is quite variable over the period, including some years where it was significantly negative (i.e., paying down the debt owed to the banking sector), while, in some years borrowing from the banking sector was very high.

Does the Government "print" money to finance its deficit?

We call this "direct monetization" of the deficit. When the government borrows from the central bank (Bangladesh Bank), or the commercial banks (by selling T-bills and bonds to the banking system), it increases the country's monetary base and hence money supply. Thus, direct monetization is the part borrowed directly from Bangladesh Bank and the commercial banks. From Table 3, we can see that on average, financing of the deficit from the banking sector was 9%. Borrowing from the non-bank public averaged 52%.

Indirect Monetization

But, there is also indirect monetization, which includes the standard money multiplier process plus foreign financing. We know from basic money and banking courses, both the central bank and the commercial banks are the only sectors in the economy that have the power to create money in their normal course of business.

When the government borrows from Bangladesh Bank or the commercial banks, the money creation process is known as the money multiplier process – which creates additional money in the economy. Foreign financing also leads to money creation because, all foreign exchange coming into the country, has to be surrendered to Bangladesh Bank by law. This also adds to the monetary base of the country's central bank and leads to money creation through the money multiplier process and hence is also part of indirect monetization. Table 3 shows that foreign financing was 38.7% of the total budget financing on average for the period covered.

Direct monetization has been small (9%) compared to the other sources of financing (91%) from non-bank sources and foreign financing.

Conclusion

Credit markets in Bangladesh are still underdeveloped and evolving. On the demand side, there are two major sectors that borrow funds: the government and, the private business sector. Consumers still form a small segment on the demand side, but the bulk of the demand comes from government and businesses.

On the supply side, the main source of credit are savings from households, businesses and government, supplied through financial intermediaries. However, emerging countries like Bangladesh often have an extra source of savings – foreign grants and aid – that has also been a significant source of funds.

In Bangladesh, commercial banks and a limited number of non-bank financial institutions (NBFIs) form the main category of financial intermediaries. NBFIs cannot create money, but banks can under the standard money multiplier process.

There are three major types of formal credit instruments in Bangladesh – government securities, Bangladesh Bank securities and direct loans from commercial banks. Government securities are issued mainly to finance government spending, while Bangladesh Bank securities are issued for monetary policy purposes. Besides these two items, almost the entire formal credit market consists of bank loans.

We found two observable trends in the country's credit markets: (1) The share of the public sector has declined while and the share of the private sector has increased significantly as a percent of total credit outstanding in recent years. (2) There has been a significant drop in the banking sector's share in total credit supplied to the public sector in recent years.

A look at the government budget financing data shows that, on average, financing of the deficit from the banking sector (Bangladesh bank plus the commercial banking system) was 9% in the last 10 years.

From a policy perspective, this speaks volumes for the independence of the country's central bank (Bangladesh Bank) – it has not been a check-writing entity for the government, but has used it independence in a judicial way; and, the government has been reducing its reliance on the banking system to finance its expenditures.

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Table 1 : Bank Wise Interest Rate Structure, August 2018[14]

BANK WISE ANNOUNCED INTEREST RATE STRUCTURE IN BANGLADESH (EXCEPT ISLAMIC BANKS), August 2018

Interest Rates on	State Owned Commercial Banks								Private Banks				
	Sonali	Agrani	Janata	Rupali	BASIC	BDBL	The City	UCBL	ABBL	IFIC	NBL	Uttara	Pubali
	1	2	3	4	5	6	9	10	11	12	13	14	15
Lending Rates:													
Agriculture													
Sub-Category-1	4.00-9.00	4.00-9.00	4.00-9.00	4.00-9.00	9.00	9.00	7.50	9.00	9.00	9.00	9.00	9.00	4.00-9.00
Sub-Category-2	-	-	-	-	-	-	-	-	-	9.00	-	-	-
Term Loan to Large & Medium Scale Industry													
Sub-Category-1	9.00	9.00	9.00	9.00	9.00	9.00	10.50-14.50	9.00-12.00	-	9.00	9.00	9.00-12.00	9.00-14.00
Sub-Category-2	-	-	-	-	-	-	-	14.00-17.00	-	9.00	-	-	-
Term Loan to Small Industry													
Sub-Category-1	9.00	9.00	9.00	9.00	9.00	9.00	17.00	12.50-15.50	-	9.00-12.00	12.00-15.00	9.00-12.00	13.50-14.00
Sub-Category-2	-	-	-	-	-	-	-	14.00-17.00	-	9.00-12.00	-	-	-
Working Capital to Industry													
i) Working Capital to Large & Medium Scale Industry													
Sub-Category-1	9.00	9.00	9.00	9.00	9.00	9.00	10.50	9.00-12.00	-	9.00	9.00	9.00	9.00
Sub-Category-2	-	-	-	-	-	-	-	14.00-17.00	-	9.00	-	9.00-12.00	-
ii) Working Capital to Small Industry													
Sub-Category-1	9.00	9.00	9.00	9.00	9.00	9.00	14.50	12.50-15.50	-	9.00-12.00	12.00-15.00	9.00	9.00
Sub-Category-2	-	-	-	-	-	-	-	14.00-17.00	-	-	-	11.00-14.00	-
Exports	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Trade Financing													
Sub-Category-1	9.00	12.00	9.00	9.00	9.00	9.00	14.00	9.00-12.00	9.00-15.50	9.00	12.00-15.00	11.00-14.00	13.50
Sub-Category-2	-	-	-	-	-	-	14.00	11.50-14.50	9.00-16.00	9.00	-	-	-
Housing Loan													
Sub-Category-1	9.00	10.00-11.00	-	9.00-10.00	9.00	9.00	13.50	9.50-15.50	12.00-15.00	9.50-12.50	12.00-15.00	9.00-12.00	12.50
Sub-Category-2	-	10.00-11.00	-	-	9.00	-	11.25	9.00-13.00	-	9.00-12.00	-	-	-
Consumer Credit													
Sub-Category-1	13.00	12.00	9.00	13.00	10.00-11.50	-	13.00	9.00-13.00	16.00-19.00	11.50-14.50	12.00-15.00	9.00-14.00	12.00-16.50
Sub-Category-2	-	-	-	-	-	12.00	14.00	7.50-14.50	9.00-10.00	11.50-14.50	-	-	-
Others													
Sub-Category-1	-	9.00-13.00	-	5.00-9.00	7.00-14.00	12.00	20.50	8.50-11.50	9.00-10.00	9.00	12.00-15.00	10.00-14.00	13.50
Sub-Category-2	9.00	-	-	-	-	-	10.50	18.50-21.50	14.00-17.00	-	-	-	-

Source : Banking Regulation & Policy Department, Bangladesh Bank

　- =Not applicable

Table 2: Structure of Credit in Bangladesh[15] (in Taka Crores)

End of Period	Domestic Credit							Private Sector	Total	Ratios	
	Public Sector										
	Government (Net)[1]			Other Sector		Total					
					Public						
	Banking Sector	Total (5+6+7)	Banking sector as % of govt. total	Banking Sector	Total (9+10)	Total Public Sector	Banking sector as % of Public sector total	Total	Total Domestic Credit (8+11+14)	Private Sector as % of Total Domestic Credit	Public sector as % of total Domestic Credit
	5	8	5/8	9	11	8+11	(5+9)/(8+11)	14	15	14/15	(8+11)/15
2006-07	35910	79579	45%	15760	15801	95379	54%	160284	255664	63%	37%
2007-08	46721	92944	50%	10114	10141	103085	55%	199242	302327	66%	34%
2008-09	57982	107829	54%	10884	10955	118785	58%	229115	347899	66%	34%
2009-10	54225	115782	47%	12763	12857	128639	52%	285393	414032	69%	31%
2010-11	73201	137012	53%	16901	17009	154021	58%	359510	513531	70%	30%
2011-12	91701	155824	59%	15284	15330	171154	63%	429486	600640	72%	28%
2012-13	110095	174978	63%	9377	9421	184399	65%	477442	661841	72%	28%
2013-14	117498	194107	61%	12613	12654	206760	63%	537771	744531	72%	28%
2014-15	110225	215482	51%	16449	16529	232011	55%	607143	839155	72%	28%
2015-16	114189	252863	45%	15573	15681	268544	48%	711423	979967	73%	27%
2016-17	97308	288378	34%	16744	16887	305264	37%	824384	1129648	73%	27%
2017-18	94868	329521	29%	11338	12126	341647	31%	970215	1311862	74%	26%
Period Average	83660	178691	47%	13650	13783	192474	51%	482617	675091	71%	29%

Table 3:[16]: Government borrowing (net) from the monetary (BB and banks) and non-monetary sector[17] (Tk. Crores)

Year	Net borrowing of the Govt. from the banking system[1]	Net non-bank borrowing of the Govt. from the public[2]	Total domestic financing	Net foreign financing[3]	Total financing	Direct Monetization (%)
1	2	3	4=(2+3)	5	6=(4+5)	7 = (2/6)
2009-10	-4376	12256	7880	10219	18099	-24.2%
2010-11	19176	3013	22189	7470	29659	64.7%
2011-12	18784	2241	21025	9714	30740	61.1%
2012-13	17873	7725	25598	15080	40678	43.9%
2013-14	6628	15352	21980	14224	36204	18.3%
2014-15	-7371	34724	27353	17068	44420	-16.6%
2015-16	4327	34167	38493	20214	58707	7.4%
2016-17	-17465	53685	36221	20863	57084	-30.6%
2017-18	-1127	47493	46366	41158	87523	-1.3%
Average	4050	23406	27456	17334	44790	9%

Figure 1: Share of Public and Private Sector in the Credit Markets, FY 2007 – FY 2018
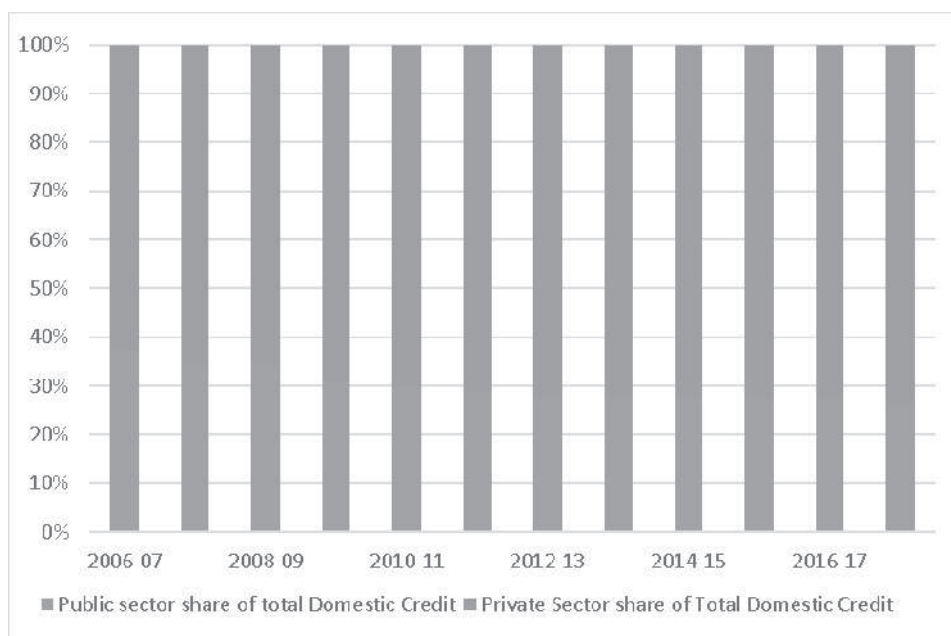
Figure 2: Banking vs. Non-bank sector share of Public Sector Credit, FY 2007-FY2018
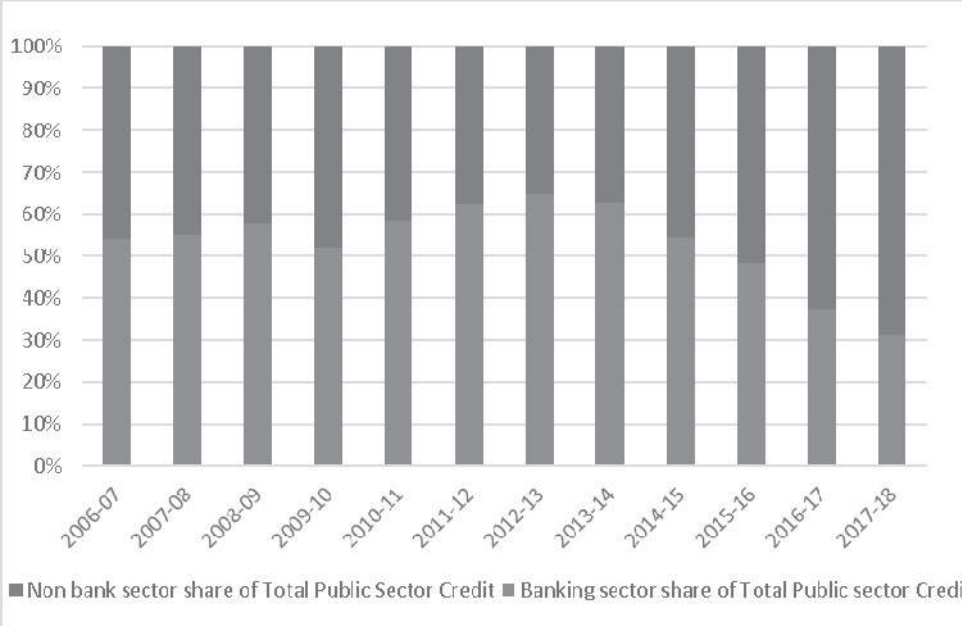
Endnotes

1.   Market-based means primarily if there exists a secondary market for the trading of credit instruments and if a derivatives market exist.

2.   In this paper, we focus on the bank credit market and the debt capital market side of the financial market system in Bangladesh. We do not look at the stock market, or equity capital market side of the financial system.

3.   Source: https://www.bb.org.bd/fnansys/bankfi.php.

4.   Source:http://www.assignmentpoint.com/business/banking/department-of-financial-institutions-and-markets-bangladesh-bank.html.

5.   Private sector debt instruments like corporate bills and bonds are almost non-existent.

6.   This discussion relates only to the lending or credit markets, not equity markets. Thus, businesses in Bangladesh can also raise funds in the equity market through IPOs, secondary offerings, etc. Issuance of marketable bonds by the private sector – which is a part of the credit markets – is still not a big item in Bangladesh.

7.   Non-Bank Depository Corporations (NBDCs) are not defined in this table, but presumably they are NBFIs.

8.   The local currency of Bangladesh is called Taka, abbreviated as 'Tk', and its value is around Tk82/dollar. 1 crore = 10 million. We use these figures to convert the Taka 'crores' data into $ million here.

9.   While we do not show the corresponding figures for earlier years, the public-private sector shares would have been more skewed towards the public sector due to the even smaller size of the private sector in formal credit markets in earlier years.

10.   Source: https://www.bb.org.bd/fnansys/govsecmrkt/index.php.

11.   Foreign grants are cash gifts that require no payback, while foreign aid is foreign loans that have to be paid back.

12.   The third channel, government borrowing from the non-bank public is not part of direct monetization because the non-bank public cannot create money (only the Bangladesh Bank and commercial banks can do so).

13.   However, indirect monetization may also exist and be significant. Further study is required to quantify the amount of direct and indirect monetization and its inflationary effects. This is currently work-in-progress by the author.

14.   Source: Data from the Bangladesh Bank Monthly Economic Trends publication, Statisticaltable.xlsx, https://www.bb.org.bd/econdata/index.php, T. XIII. The table is only partially reproduced here.

15.   Source: Data from the Bangladesh Bank Monthly Economic Trends publication, Statisticaltable.xlsx, https://www.bb.org.bd/econdata/index.php, T. IIE. The table is partially reproduced here.

16.   Source: Major Economic Indicators: Monthly Update, Volume 08/2018, p.23 Budget Financing Table. https://www.bb.org.bd/econdata/openpdf.php?i=6. 1Excludes interest. 2Includes treasury bills & bonds held by the non-bank financial institutions through secondary auctions, T. bills & bonds have been taken at face value. 3Total foreign aid disbursement less amortization payment.

17.   Unfortunately, we do not have data for earlier years. The Bangladesh Bank website shows only the latest monthly update (a pdf report) in the website mentioned above. It does not have data for previous years.

Socio-Economic Development of Bangladesh: Sustainability of BNF's Partner Organizations and Beneficiaries

Muhammad Mahboob Ali[*]

Abstract: *Sustainability of an organization is pursuing to device sustainability strategies which deliver them economic and cultural benefits attained through social obligations. As such socio-economic development of the country is greatly correlated with the effective and efficient contribution of the NGOs through their sustainability. The Government of the People's Republic of Bangladesh has established Bangladesh NGO Foundation (BNF) to support the NGOs, with a view to associating the small Non-Governmental Organizations and assigning to take up socio- economic development activities and poverty alleviation.*

BNF already disbursed more than 105.76 Crore taka through partner organizations out of which 36% is male while 64% is female beneficiary. In line with constitutional obligations and international commitments to human rights, Bangladesh Government wants to develop the country up to a level for which they have taken Vision 2021 and Vision 2041 which main motto is through socio-economic development with social justice, income inequality and creating purchasing power through economic development. Organizational sustainability is the ability of the organization to secure and manage sufficient financial resources to enable it to fulfill its vision and mission effectively and consistently over time period with goal oriented results but they want to do it without any excessive dependence on any single funding source. As such the study wants to examine Sustainability of BNF's partner organizations as well as beneficiaries to evaluate socio-economic development of the country. To evaluate sustainability of BNF partners we shall use following core factors: Has own land, Contribution in innovation and production, Fund collection system and regular source of income.

[*] Professor, Dhaka School of Economics, Dhaka, Bangladesh; Email:pipulbd@gmail.com

Time period of the study is 15th May 2016 to 15 December, 2016. The study has been conducted upon 23 different participants from 23 different NGOs of 12 Districts. Further from 23 NGOs, we received 526 beneficiaries' responses out of distributed 624 questionnaires based on another questionnaire.

In this study, 93.9% of the organizations give help to women entrepreneurs. Majority (69.6%) of the respondents strongly agreed that BNF's financing and capital formatting solve social problems. It has been seen that there was significant association between NGOs role for innovation and production and giving the right training/education. Through the binary logistic regression, we observed that 57.2% NGOs who received funds are sustainable without BNF fund. Sustainability of BNF's partner organizations will help Bangladesh to attain sustainable development goal (SDG) by 2030 as government of Bangladesh is very keen for socio –economic development. Result shows that if NGO help to the people who has own land than it has positive impact at 1% level of significance. If funding from NGO is sufficient then the NGO will be sustainable. If a NGO is involved in innovation and production then it will be sustainable at 5% level of significance as odds ratio of strongly agree and agree compare to strongly disagree is higher than 1.6. If a NGO collect its fund in installment rather than at a time has higher chance to sustain at 1% level of significance. Regular source of Income is required for NGO is significant at 1% level to sustain.

Further from the beneficiaries' point of view of BNF grant need more grants is significant at 1% level of significance. Grants taken from more than one NGO is also significant among the beneficiaries at 1% level of significance. Social development Project is significant at 5% level of significance. Awareness about primary education is significant at 1% level of significance. Grants inspired others, enough for need and Involved in innovation and production are significant at 1% level of significance. Need training is significant at 10% level of significance. Ultra-poor barrier for development and Collect fund are significant at 1% level of significance. Helping from NGO is right way is significant at 5% level of significance. Through partner organizations we observed that is 82.8% beneficiaries are sustaining through getting the fund which is very high. Based on the information, it can be claimed that the BNF grant model is appropriate.

BNF partner organizations must try to have better competitive advantages and mitigate social –economical-legal needs so that the grand utility curve can be tangent with social indifference curve. Author suggested that due to social networking households' behavior and family economics are improving which should be steadily accelerate through keeping BNF grant available.

BNF may set up a business incubator as well can organize training, counseling and financial support to prospective nano and small entrepreneurs in performing with the sustainability in the long run. This will in turn play vital role for the socio-economic development of the country for which community banking is necessary. Micro savings should be used as Micro investment through arranging community banking in the formal sector under structured rules and regulations.

Keywords: *BNF, Beneficiaries, Socio-economic development, Relation to social values, Sustainability, Income, Welfare and Poverty reduction, non-farm business activities, Finance in Rural economies, Community Banking*

JEL classifications Code*: A13, P36, R51, J 24*

"Micro-savings, not the micro-credit, can develop the fate of the country's under privileged people."

- Honorable PRIME Minister Sheikh Hasina, Bangladesh

1.1   Background of the Study and Introduction

Sustainability of an organization is pursuing to device sustainability strategies which deliver them economic and cultural benefits attained through social obligations. Sustainability of an organization must have adoption capability, creativeness, human welfare, service delivery, profit growth and competitive advantage. Long term vision and mission and focus oriented goal to enrich economic benefits not only clients but also the organization itself needs to be addressed. Strategic plan should be focused based for socio –economic development. An Organization's prerequisite is distinguished with its market and structural uniqueness. Capacity building of the NGO to sustain in the long run is very important. When the staff is capable and well esteemed in the arena, then the organization is more expected to be sustainable. Organization must have day to day transaction plan, operational plan, tactical plan and strategic plan and these plan should be properly implemented with financial budgeting. Organizational sustainability is the ability of the organization to secure and manage sufficient financial resources to enable it to fulfill its vision and mission effectively and consistently over time period with goal oriented results but without any excessive dependence on any single funding source.[1]

[1.] http://www2.pathfinder.org/site/DocServer/Fundamentals_of_NGO_Financial_Sustainability. pdf (viewed on 1st October, 2016).

The Government of the People's Republic of Bangladesh has established Bangladesh NGO Foundation (BNF) to support the NGOs, with a view to associating the Non-Governmental Organizations and mandated to take up socio-economic development activities and poverty alleviation initiatives through NGOs. The Government of the Peoples' Republic of Bangladesh has established Bangladesh NGO Foundation (BNF) to support the NGOs, with a view to associate the Non-Governmental Organizations in the process of achieving Millennium Development Goal. The BNF was established through a Resolution of the Government on 02 December 2004 that was published in the Bangladesh Gazette on 11 December 2004.

The BNF was then registered a non-profit association within the meaning of Section 28 of the Companies Act, 1994 and is established for financing Non-Governmental Organization (NGOs) and other voluntary organizations including Community Based Organizations (CBOs) duly registered under the relevant laws of Bangladesh and working in the country for providing basic social services such as education, nutrition and health, sanitation support, safe drinking water, environmental protection and any other services needed by the poor, the ultra poor, women and children and the ethnic minorities. The Organizations receiving funds from the BNF shall be known as Partner Organizations (POs).

BNF provides financial grants and need-based supports to develop their skills for stepping up such activities. With the support of BNF, Non-Governmental Organizations have been working at the root level countrywide and playing active role for sustainable development and making digital Bangladesh. Present Government of Bangladesh has set vision 2021 as a roadmap of development. In line with the constitutional obligations and international commitments to human rights, Bangladesh in 2021 shall be a country in which (i) every citizen has equal opportunities to achieve his/her fullest potential; (ii) all citizens enjoy a quality of life where basic health care and adequate nutrition are assured; (iii) all citizens have access to a modern, technical, and vocational education tailored to meet the human resources needs a technologically advancing/ advanced nation; (iv) sustainability of development is ensured through better protection from climate change and natural disasters; (v) there is respect for the principles of democracy, rule of law, and human rights; (vi) gender equality is assured; so are the rights of ethnic populations and of all other disadvantaged groups including persons with disability; and (vii) the diversity and creativity of all people are valued and nurtured.[2]

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[2] General Economics Division, Planning Commission, Government of the People's Republic of Bangladesh (2012): Perspective plan of Bangladesh 2010-2021: making vision 2021 a reality, April, page: 10-14.

To implement aforesaid initiatives successfully, as per creativities of government, BNF is sincerely trying to involve in the process. Hailey (2014) argued that in practical terms, a financially sustainable NGO is one which can continue with its core work and meet its mission, even if external donor funding is withdrawn.

The Father of the Nation, Bangabandhu Sheikh Mujibur Rahman, dreamt of a poverty free society called "Shonar Bangla" or Golden Bengal. It should be noted that the liberation war of 1971 was more than a political struggle, it was a primarily an economic and social struggle for the emancipation of the poor and downtrodden people of Bangladesh. Since assuming power in 2009, the government under the able leadership of Sheikh Hasina has worked relentlessly for ensuring that the dream of an economically emancipated Shonar Bangla is realized. To that end, the present government adopted the dream to make Bangladesh a middle income nation by the year 2021 (also referred to as Vision 2021), and a developed nation by the year 2041 (also known as Vision 2041). Pursuant to such targets, the present government, over the last five years adopted policies and strategies which support inclusive growth.[3] Government set vision 2021 and 2041 as a roadmap of development Vision 2021 into Vision 2041 is a long-term Perspective Plan of Bangladesh in the context of the present government led by Prime Minister Shiekh Hasina: 'Bangladesh marching ahead'. In implementing the Vision-2041, Bangladesh will be a peaceful, prosperous, happy and developed nation comparable with the developed world. Government's Vision 2021 to become a middle income country has been extended to Vision 2041, which is an ambition of where this nation needs to be in 2041. In implementing the Vision-2041, Bangladesh will be a peaceful, prosperous, happy and developed nation comparable with the developed world. Bangladesh is now ready to assume its rightful place in the Asian country , and lead the way by example for resource constrained, geographically vulnerability and climatically challenged least developed countries around the world towards sustainable development and long term prosperity.[3] To implement this initiative successfully, along with government, people from all walk of life including NGOs and civil society should work honestly with the inspiration of patriotism. Bangladesh economy getting strong as its per-capita income stood in 2016 at USD 1,466 (BBS, 2016). While attaining significant macroeconomic solidity, Bangladesh continues to face contests such as infrastructure shortages and energy deficiencies.

[3.] A seminar on Foreign Policy of Bangladesh: Roadmap for Realization of Vision 2041 held at National Defence College Auditorium, Mirpur Cantonment on 13 October 2016 (Viewed on 19 Novemebr,2016)

Bangladesh already became lower middle income country. Middle-income countries (MICs) are nations with a per-capita gross national income in 2012 between $1,036 and $12,615.MICs are a very diverse group by size, population and income level. The diverse nature of the 103 MICs means that the challenges facing many of them are quite different. For nations in the lower-middle-income category, the biggest issue may be providing its citizens with essential services such as water and electricity. For the economies in the upper-middle-income category, the biggest challenges may be curbing corruption, improving governance, etc. MICs are essential for continued global economic growth and stability. According to the World Bank, sustainable growth and development in MICs has positive spillovers to the rest of the world. Examples are poverty reduction, international financial stability and cross-border global issues including climate change, sustainable energy development, food and water security, and international trade.[4]

The Microcredit Regulatory Authority (MRA) has been established by the Government of the People's Republic of Bangladesh under the "Microcredit Regulatory Authority Act 2006" to promote and foster sustainable development of microfinance sector through creating an enabling environment for NGO-MFIs in Bangladesh. MRA is the central body to monitor and supervise microfinance operations of NGO-MFIs. License from the Authority is mandatory to operate microfinance operations in Bangladesh as an NGO.[5]

In recent times, roles of non-governmental organizations (NGOs) and government organizations are becoming debatable issues. These are also becoming subject matters for wider discussions and reviews in the developing country perspectives. Though BNF has been patronizing in various sectors through its partner organizations, they are also patronizing creative entrepreneurships among these sectors. BNF to support the NGOs, with a view to associate the Non-Governmental Organizations and mandated to take up socio- economic development activities and poverty alleviation initiatives through NGOs having previous experience of implementing similar programmes. BNF provides financial grants and need-based supports to develop their skills for stepping up such activities. BNF is under the Bank and Financial Institutions Division of Ministry of Finance, Govt. of Bangladesh.

With the support of BNF, Non-Governmental Organizations have been working at the root level countrywide and playing active role for sustainable development

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[4.] http://www.investopedia.com/terms/m/mic.asp(Viewed on 19 th Novemebr,2021)
[5.] http://www.mra.gov.bd/(Viewed on 19 th November)

and assisting to make digital Bangladesh Total grants distribution (including special projects) was TK 105.76 crore which is shown in Table: 1 of Appendix. In Figure: 2. We have shown year wise grant at different phases.
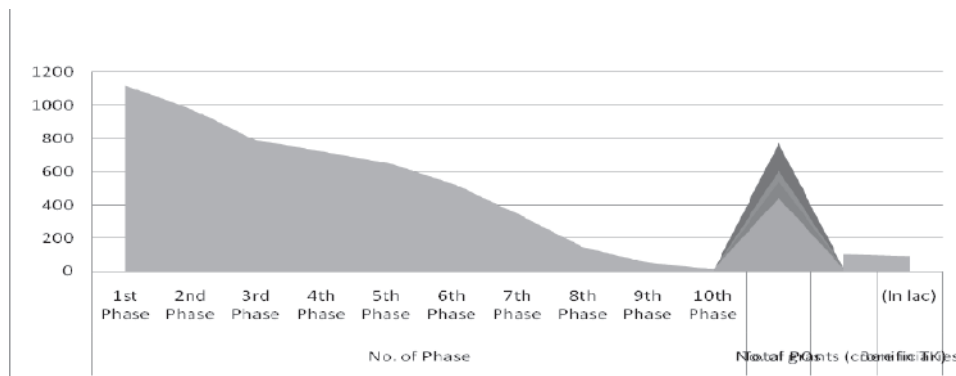
(Source: Author)

Total number of partner organizations of BNF is 1120 out of which around 1% organizations are working in the area of creative and artistic micro and small enterprises like folk song, folk dance etc. for arranging for better livelihood and social welfare. Details relating to programs implemented by partner NGOs/ Organizations for social betterment is given in Table: 2 at appendix.

Zoysa (2012) commented that the Peoples' sustainability treaties acknowledge that sustainable development dialogues must take place beyond the time and space of the UNCSD2012 and the 'Green economy' and 'Institutional framework' themes of the Rio+20 Summit, and must transcend into a broader sustainability discourse. It is important to ensure that the voices and visions of all citizens are brought to the attention of local, national, regional and international policy makers and all stakeholders. As the partners in sustainable development, these stakeholders worldwide need to engage in dialogue and policy making in a joint effort to ensure that the discourse of sustainability continues beyond the Rio+20 and Peoples' Summit Rio+20.

1.2   Vision of BNF

Improvement of social development and enhancement of capacity building of the local NGOs & CBOs.

1.3   Mission of BNF

BNF a non-profit organization, strives to enhance development of the poor and ultra poor of the country. Promoting capacity building of the partner organization.

The policy planning and action programming centre on human beings and focus on socio-economic development and environmental protection. The support and services provided relate to education, goat rearing, watsan, IGA, women empowerment, Social forestry, tree plantation and environmental development , Training on human rights, Development of low caste Hindu, indigenous and tribal families , Food and Nutrition, HIV/AIDS etc.

1.4   BNF's Objectives

- To Improve the well-being of the poor, the ultra poor, the impoverished, the disadvantaged and the vulnerable communities and/or persons in Bangladesh through finding the Partner Organizations.

- To finance the POs working for capacity building of the disadvantaged and other backward sections of the population.

- To provide funds to the POs that are working for the women, children, the ethnic minorities and the marginalized communities in order to integrate them with the mainstream of development activities by establishing an effective correlation between service/support structure and their communities.

- To appraise the proposals on social development activities submitted to the BNF by the POs for funding.

- To monitor the implementation and effectiveness of the activities and/or projects funded by the BNF as may be determined by the Governing Board of the BNF.

- To bring out reports, papers and publications in furtherance of the objectives of the BNF and to create and develop interests in social development activities in the country.

- In furtherance of the objectives of the BNF, to conduct and promote research, action research including field experimentations in Bangladesh.

- To organize local and/or national and/or international seminars, conferences, workshops and meetings in order to promote socio-economic development in the country.

- To develop indicators for social development as and when required by the BNF and to monitor the progress of social development in the country through the use of such indicators.

- To award prizes and medals and confer distinctions on persons/organizations, who, in the opinion of the BNF, have made commendable contributions in the field of poverty alleviation and socio-economic development.

- To obtain membership and to pay fees for the membership of any national and international bodies, institutions, Organizations and subscribe to their publications, if any, for furtherance of the objects of the BNF.

- To establish and maintain collaboration with government and development NGOs and with other Organizations, Institutions, bodies and societies in Bangladesh and abroad including, but not limited to, relevant international agencies.

- To establish or undertake to establish or administer, control of contribute to any provident, benevolent or charitable funds, to or from which gifts, grants, donations and advances may be made in order to further the objectives of the BNF.

- To promote, establish, manage, control, supervise or render gifts, grants, aid or other assistance to any person, company, co-operative society, corporate body or undertaking or associations of persons as may seem conducive and appropriate to the BNF in order to achieve or further any or all of its objectives and purposes.

- To undertake and execute any trusts which may seem to the BNF conducive and appropriate in furtherance of any oral of its objectives.

- To receive and accept gifts, grants, aids, donations or benefactions of any nature and kind whatsoever and to arrange, establish and maintain funds, properties and assets by lawful subscription and contribution and by receipt and acceptance of gifts, grants, aids, donations, beneficiations and other means, provided, however, that in the case of foreign gifts, donations etc. the provisions of laws governing the receipt of foreign donations by non-government sector shall always apply.

- To arrange and borrow funds required for realizing the objectives and purposes of the BNF with such securities as may be determined by its Governing Board.

- To improve, manage, administer, develop, turn to account, gift away, sell, lease, mortgage or otherwise dispose of or deal with all or any of the funds, properties and assets of the BNF in furtherance of any or all of the objectives of the BNF.

- To promote, organize and establish branches and offices of the BNF wherever considered necessary and to manage and/or control such branches and offices and to delegate powers and functions to branches and offices as may be considered necessary for the promotion of its objectives and purposes.

- To invest the money of the BNF not immediately required for its objects in or on such investments, securities or properly as may be thought fit, subject nevertheless to such conditions (if any) and such consents (if any) as may for the time being be imposed or required by law.

- To open and operate bank accounts and to sign and endorse any cheque, negotiable instruments, bills of exchange for on behalf of the BNF.

- To procure for the BNF registration or recognition of the Government or any other authority in the country or abroad, and to take all such steps as may be necessary or expedient for enabling the BNF to carry on with its functions properly.

- To arrange for suitable remuneration to any person, firm, association, organization or institution for services rendered or to be rendered in or about the promotion of objectives and purposes of the BNF.

- To enter into any arrangement or agreement with the Government or any other authority, local government, public or quasi-public bodies, NGOs or CBOs that may be seen conducive to the objectives and purpose of the BNF.

- To recruit, appoint, take on lien, deputation or on contract any employees, consultants, or experts for the BNF and its programs and projects or to enter into any other agreement in this regard or to discontinue and terminate the services as deemed proper by the BNF.

- To use the income of the BNF for advancement of its objectives in accordance with its memorandum.

- To do all other lawful things as the BNF may think conducive or incidental to the attainment of the above objectives or to any of them and to furthering the growth of the BNF.

1.5   Future work plan of BNF

The BNF will go on with its programs for development of the ultra poor and neglected people of the society. The BNF will take more innovative and effective

initiatives on the basis of experience gathered from monitoring and evaluation of field level activities of the POs. In future our programs will be more expanded and integrated. It is undeniable that the general public can now apprise themselves about the programs being implemented by POs with financial assistance from BNF. This has been possible due to displaying on information board by each PO full details about the programs under implementation. In addition to these the Annual Reports of the BNF and newsletter have succeeded in giving wider publicity about the said programs. Presently 1120 POs are now busy implementing 30 different programs of varied dimensions at grass roots level. The BNF must acquire financial capability for involving 300 to 400 more POs by giving them more grants in expansion of BNF sponsored programs in consonance with the development activities of the government. There is need for new livelihood support programs, especially aimed at making the ultra poor and marginal farmers of the erstwhile monga affected areas self-dependent. Emphasis will be laid on agriculture and livelihood programs. In future our POs should be well motivated and skilled for using most of the grants received from BNF for agriculture and livelihood development. Provided it gets special grant from the government BNF can, with the help of its POs, undertake and implement a program electrifying every house of remote char and haor areas. For exchange of information among all the POs and other concerned organizations e-governance will be installed. New and improved version of software with web interface will be made available for performing work in shorter time with less manpower. BNF will take all effective steps for implementing all programs taken up by the government relating to building a digital Bangladesh free from hunger and illiteracy, women empowerment, ensuring health care and education for all, development of creativity and skill, adjustment with adverse situations resulting from climate change, giving priority to disaster risk management and mitigation of disaster, protection of environment, development of information technology, development of disabled persons especially for autistic children. We hope that POs of BNF will come up with new programs and play a very significant and direct role through value addition in achieving Sustainable Development Goals (SDGs) like MDGs.

1.6 Research Question

The research question of the study is whether Socio-economic development of Bangladesh through BNF's partner organizations and beneficiaries can sustain in the long run without BNF's fund?

1.7   Present scenario of the Country

In recent times, roles of non-governmental organizations (NGOs) and government organizations are becoming collaborative approach. These are also becoming subject matters for wider discussions and reviews in the developing country perspectives. Bangladesh is a member of the world's least developed countries and able to become low group of middle income country but having increased population density. The country has also been facing massive challenges of feeding the rapidly increasing population or even to support their livelihood in a sustainable manner despite economic development is going on during present Govt. under the able leadership of Shiekh Hasina. The continuing pressure of urbanization with reduced cultivable land areas is creating pressures on the government and the entire economic set up because the traditional agricultural sector has failed to fully support the national economy. Agriculture is the single largest producing sector of economy since it comprises about 30% of the country's GDP and employing around 60% of the total labour force. The performance of this sector has an overwhelming impact on major macroeconomic objectives like employment generation, poverty alleviation, human resources development and food security.[6] Bangladesh has been constantly facing pressures due to its typical vulnerability to natural hazards. Increasing numbers of landless populations caused by river erosions is also adding pressure to the national economy. The government under the bold and visionary leadership by Prime Minister Sheikh Hasina has been progressing towards materializing the vision-2021 along with turning the country into a Digital Bangladesh. Only recently, Bangladesh achieved the status of lower middle income country. Sheikh Hasina's government revised and updated laws and regulations to cope with the unique challenges of this global evil. Bangladesh is also focusing on sustainable development, education, social mobilization and various de-radicalizations programmes to prevent and counter violent extremism.[7] However, the non-governmental organizations (NGOs) have been playing supportive roles with the government. In some cases, they are considered as more effective to get attached with the grass-root-level developmental initiatives. The roles and initiatives played by the NGOs in Bangladesh have been considered as having positive impacts on poverty alleviation among the rural poor income starta. In areas where the poverty situation remains intense, activities of the NGOs typically become

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[6.] http://www.discoverybangladesh.com/meetbangladesh/agriculture.html (Viewed on 15 October, 2016).

[7.] https://mygoldenbengal.wordpress.com/2016/10/13/visionary-leader-sheikh-hasina-uplifts-bangladesh-to-a-new-height (Viewed on 15 October, 2016).

more important. The target groups for these initiatives are mostly hard core poor who have very little access and opportunities for improving their living status and standards. Most of the rural people rarely own resources and capacities to fight against the poverty and get employment/employed. The very basic and important activities of the NGOs are to organize these peoples, to help to create awareness among them, inspiring them and through all of these efforts transforming them to become conversant with development.

The key factor behind its growth are more working age people, employment generation, export, infrastructure, control inflation, political stability, work with modern technology, foreign reserve, SME sector development and importantly increase participation of women in overall economic development along with men and women.

Since independence Bangladesh has made commendable progress in various macroeconomic and social development indicators which is reflected in various development indexes of World Bank and the United Nations. Increase in working-age population creates a greater opportunity for productive socio-economic activities in Bangladesh. This opportunity is known as "demographic dividend"

Table 1: Macroeconomic scenario of Bangladesh of the 7th Five year Plan
Macroeconomic Scenario of the Seventh Five Year Plan

Macro Indicator	Fy-16	Fy-17	Fy-18	Fy-19	Fy-20
Crowth Real |G|DP(%)	7.0	7.2	7.4	7.6	8.0
CPI Infla on (%)	6.2	6	5.8	5.7	5.5
Gross Dom estic Investment (as% of GDP)	30.1	31.0	31.8	32.7	34.4
Private invest ent (as% of GDP)	23.7	23.9	24.4	25.1	26.6
Public Investm ent (as % of GDP)	6.4	7.1	7.4	7.6	7.8
National Savings (as % of GDP)	29.1	29.7	30.2	30.7	32.1
Consumption (as % of GDP)	77.5	76.7	75.9	75.1	73.5

Source: Alam, Shamsul (2016). Development Planning in Bangladesh:7th Five Year Plan and SDG Implementation, General Economics Division, Planning Commission ,Government of the People's Republic of Bangladesh, June.

which is realized in 4 steps to economic growth and development (Source: Helal and Hossain,2013)

World Bank (Viewed on 27 November, 2016) described that Bangladesh aspires to be a middle-income country by 2021. This will require increasing GDP growth to 7.5 to 8 percent per year based on accelerated export and remittance growth. Both public and private investment will need to increase as well. The Bank also

Figure1: GDP growth rate from 2006 to 2016.

(Source: http://www.tradingeconomics.com/bangladesh/gdp-growth)
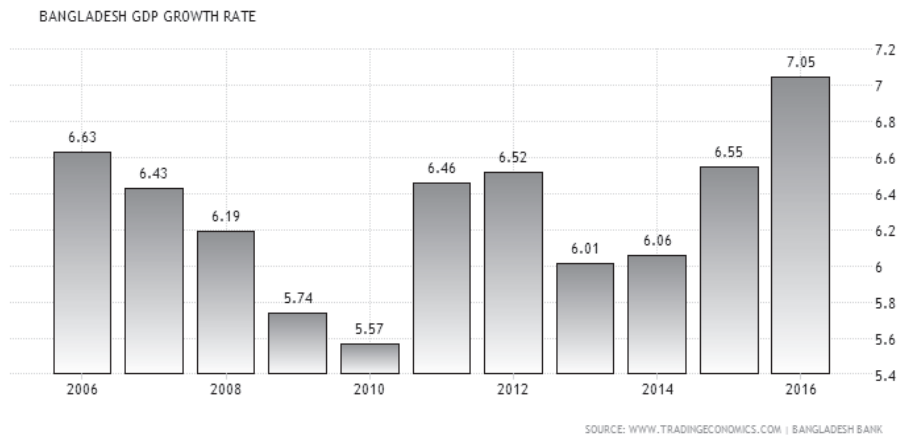
said that becoming a middle-income country will require substantial efforts on many fronts. These include maintaining macroeconomic stability; strengthening revenue mobilization; tackling energy and infrastructure deficits; deepening financial-sector and external trade reforms; improving labor skills, economic governance, and urban management; and adapting to climate change.[7]

Women of rural areas of Bangladesh are given equal access to rural credit and using this credit in productive activities they have raised their status, lessened their dependency on social capital,

Social business and social investment and improved their homes and nutritional standards of their children. 90% of women who were housewives and used to begging as a means of survival now have roof over their heads and can support themselves. Friedan (1981) supported the idea that society should make continuous effort to reduce the gender gap and to develop more human social system. To minimize gender inequalities, liberal feminist suggested a number of planned actions which include: mobilizing existing political and legal channels for change, developing equal economic opportunity, sharing responsibilities equally, monitoring the messages in the family, promoting education, and the mass media. Govt. of Bangladesh is now trying to reduce the gender gap, creating opportunity for employment and promoting education, sharing responsibilities. Govt. is trying to transform pauper to workable force. As such at both urban and

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[7] http://www.worldbank.org/en/country/bangladesh/overview (Viewed on Viewed on 27 November, 2016)

rural areas different types of self –employable projects and financial inclusion process have been taken for last eight years. Poverty rate was dropped by almost 20% for last eight years though still hard core people of the country is 11.5% while prevailing 22% is poor.

1.8   Training Programs of BNF

The BNF has always been laying stress on the ways in which the partner organizations can implement their programs at grassroots level and manage their offices efficiently and competently. It is a fact that majority of our partner organizations are small and lack of adequate experience. Considering this situation, BNF organizes training courses for developing skill of the chief executives, officials dealing with accounts and field workers entrusted with the taste of implementing programs at the grass root level which is shown in Appendix in Table:3 (Source: BNF). Total 2832 personnel got training from the BNF. For training purposes BNF is using 14 training institutes .But if they have own training institute then it will be more workable and will give effective and efficient result. In Figure: 3, we have shown number of Trainees who got trained below:

Figure 3: Number of Trainees

Training of manpower of partner organizations is an ongoing process. The task of imparting training is performed by 7 training institutions that belong to a panel of 14 enlisted institutions that have adequate work force and experience in conducting training courses and have relevant training modules. Recently, training coordinators and chief executives of these institutions met with the officials of the BNF in a workshop and examined the concerned modules and updated them. Besides these, BNF has started at its own expense imparting training to non-partner NGOs on number of issues. To make the training effective it should be linked with. The study has shown the list of surveyed NGOs below:

This table shows distribution of NGOs of 12 districts that were used in this study, out of 23 participants, one from management level of each of the NGOs participated in this study and gave their responses as well. Moreover, we shall also took interviews of beneficiaries of these 23 NGOs who enjoyed fund of BNF to understand effectiveness and efficiency of these NGOs.

Table 2: Surveyed NGOs

NGO
Artho Samajik o Poribesh Unnayan Songstha (SEADS)
Garidoho Notun Para Nari Kollan Somity
Community Development Organization
Organization of Rural Economic Development and Rehabilitation
Diganta Samaj Kallayan Somiti
Centre on Socio-economic Development
Organazation for Social Advancement
Multipurpose Socio-economic Development Association
Village Development Organization
Srijoni Somaj Kollan Songstha
Rupali Ideal Dustho Mohila Kollan Songstha
Grammo Unnoyan Prochestha
Gram Unnoyon Dhara
SOPAN
Development for Society
Manob Seba Unnoyon Sonstha
National Improvement Route
Vumihin Unnoyan Sangstha
Pabna Protishruti
Environment & Agricultural Development Association
Nokshikatha
Sikha Somaj Kollan Songstha
Agriculture and Rural Advancement

1.9 Monitoring Activities of BNF

A monitoring system has been set in motion to obtain clear picture about activities of the grant receiving NGOs and formulate future guidelines for them. During monitoring it becomes possible for BNF to give prompt advice to PO's on their organizational and project implementation issues with a view to making them (POs) more fast moving. This has also afforded clear idea about their progress in project implementations, their advantages, disadvantages and their organizational condition. During inspection our monitoring advisors are giving the POs on the spot advice/suggestions for improving their organizational capabilities. The monitoring process has become more important in facilitating decision making as regards continuation or increase of grant amount in favour of POs since no prior survey was made to ascertain their organizational set up or activities prior to the release of the first installment of grant. BNF is still working on preparing a panel of monitoring advisors from a list of retired Additional Secretaries, Joint Secretaries, Deputy Secretaries and Senior Assistant Secretaries to the government, University teachers and retired persons who have adequate experiences about field level work. So far 38 advisors have been enlisted in the panel who have submitted their reports after monitoring all relevant activities of 993 POs. Evaluation of POs' program implementation, keeping of accounts and records, has categorized performance of 300 (30%) POs as excellent, 218 (22%) as good, 88 (9%) as satisfactory and 84 (8%) as acceptable. The remaining 303 (31%) POs have performed poorly in one or more than one court of record & accounts keeping or implementation of program or misuse of fund in Figure: 3.

Figure:3 Fundamental of Evaluation
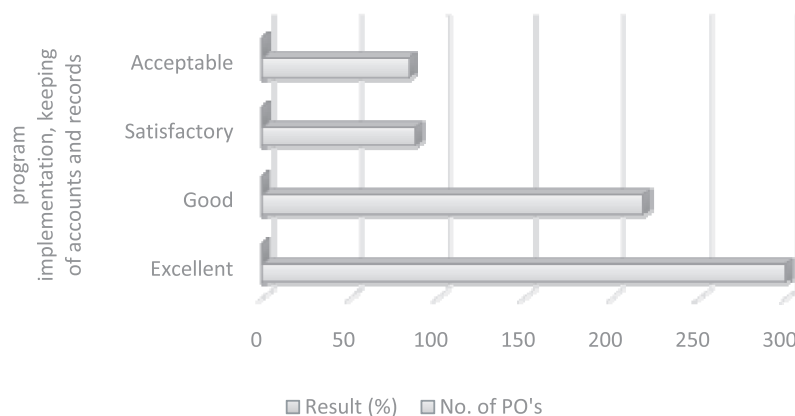
Reasons for 303 partner organizations poor performance should be identified and corrective measures need to be done so that they can play active role in socio-economic development of the country.

1.10 Procedure Followed Selection of NGOs for receiving in Grants

BNF follows specifically formulated principles in selection of NGOs for receiving grants. The following stages are involved in releasing grants.

Stage -1

BNF invites applications for grants in prescribed forms from registered NGOs through advertisements published in leading dailies like the Ittefaq, the ProthomAlo, the Janakantha and the Jugantor etc. Following that advertisement, the interested NGOs collect forms from BNF office and submit the same within the specified date. During the year 2005 and 2007 applications in prescribed forms were invited on two occasions. Later on 9, 10, 11 and 12 September, 2013 applications were invited from the intending NGOs through advertisements published in the dailies the ProthomAlo, the Jugantor, the Ittefaq and the Alokita Bangladesh. The interested NGOs collected forms by paying a fee of Tk 500. The last date for submission of applications being 10 October, 2013, a total number of 391 applications were received.

Stage -2

Eligibility for receiving Grants

An application for grant may be rejected for the following reasons:

- If applications are not submitted in BNF prescribed forms or the form is not annexed with the application.

- If the applying NGO has not been registered with the proper authority recognized by the government at least three years before submission of application.

- If the NGO does not have a budget of its own or there is discrepancy between the programs and bank account of the NGO.

- If the applicant fails to have audit done for at least 2 (two) years by a recognized and experienced audit firm.

- If president/ Chairman/ Chief executive and members of the executive committee are office bearers of any political party.

- If the NGO's activities are limited within Micro-credit programs.

- If the applicant does not affix photocopies of both pages of his/her National Identity (NID) card.

- If the applying NGO received grant from BNF in the past.

- In the application form 'not applicable' shall not be written in case of any information sought and no item of the form shall be left blank. They can write yes or no where necessary.

- If the applicant fails to furnish its approved constitution and the members list of its executive committee or if no general meeting or executive body has not been held as per guidelines of the approved constitution of the applicant.

- If applications are submitted from districts excluded from the list given in the advertisement.

- If the BNF finds the proposed project unacceptable.

- If the application is incomplete.

In matters of selection of NGOs from among the competent ones priority is given to those that have:

- Their projects in backward area.

- Their projects intended for tribal/indigenous people.

- Their target groups comprise women, children and disabled people.

- Their target groups comprise ultra-poor people.

- Their activities include such programs as the targets have that purport to leave far reaching impact by removing such menaces as arsenic in water etc.

- Their activities include programs for family planning and solar energy.

- Their activities include mass awareness raising programs about benefits of eating red rice and atta (flour) for control and eradication of diabetes, bad effects of eating food or fruits containing toxic chemical elements like formalin, calcium carbide etc.

- Their project areas are in districts or upzillas affected by natural disaster.

Grants will be distributed on recommendations of a selection committee consisting of members of the Governing Board. Release of grant money shall be

made, after consideration of the effectiveness of the applicants' program target. Monitoring of the use of the grant money and utility shall be undertaken thereof if required information relating to particular NGO shall be gathered through PKSF/FNB/NGO Network or any other organization.

Stage-3

Recommendation of the Selection Committee: Grant is distributed among selected NGOs through the selection committee consisting of member of the Governing Board on the basis of guidelines framed by BNF for this purpose.

Members of this committee submits their recommendations after short listing applications on the basis of the guidelines formulated by BNF for selecting any organization as its partner organization and release grant in its favor. Members of the committee sat in 16 meetings till June 30, 2015 and have given their primary recommendation for releasing grant to 75 NGOs. Scrutiny of the reaming applications is going on.

Stage-4 Sanction of Fund: After final selection Pos get fund for 1 year, then they give 2 reports annually Six Month Report and Year End Final Report. After receiving final report then monitoring activities are done. Pos get fund for 2 part (a) Program cost: used direct activities related matter (which is 80% of grants amount) (b) Administrative cost: used pos official expenditure (which is 20% of grants amount).
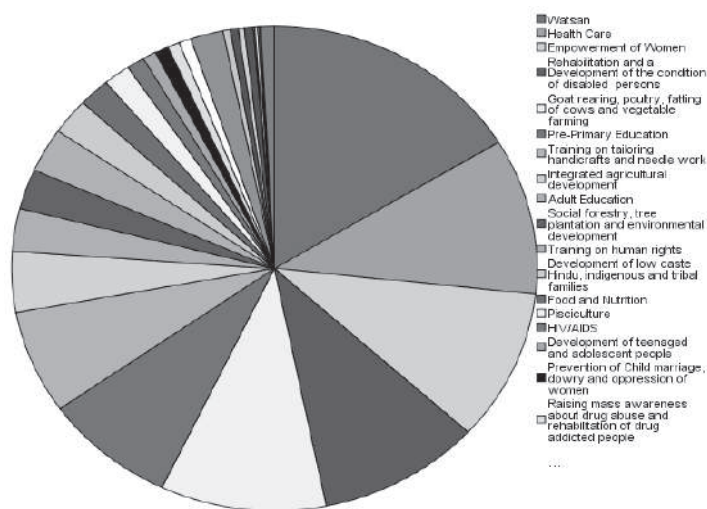
Figure 4: BNF's detail Grant Programs sector wise distribution

Now we have shown below in Figure: 4, BNF's detail Grant Programs sector wise distribution for the betterment of the economy.

1.11 Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs) define global sustainable development priorities and aspirations for 2030 and seek to mobilize global efforts around a common set of goals and targets. The SDGs call for worldwide action among governments, business and Civil Society to end poverty and create a life of dignity and opportunity for all, within the boundaries of the planet which is based on 17 goals and 169 targets. Goals are given below[9]:

Goal 1
End poverty in all its forms everywhere

Goal 2
End hunger, achieve food security and improve nutrition and promote sustainable agriculture.

Goal 3
Ensure healthy lives and promote well-being for all at all ages

Goal 4
Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

Goal 5
Achieve gender equality and empower all women and girls

Goal 6
Ensure availability and sustainable management of water and sanitation for all
Goal 7
Ensure access to affordable, reliable, sustainable and modern energy for all

Goal 8
Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

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[9.] https://www.globalreporting.org/resourcelibrary/gssb/Item%2029%20-%20SDG%20Compass.pdf (View on 1st October, 2016)

Goal 9

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Goal 10

Reduce inequality within and among countries

Goal 11

Make cities and human settlements inclusive, safe, resilient and sustainable

Goal 12

Ensure sustainable consumption and production patterns

Goal 13

Take urgent action to combat climate change and its impacts

Goal 14

Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Goal 15

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Goal 16

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Goal 17

Strengthen the means of implementation and revitalize the global partnership for sustainable development.

(Source: Alam, Shamsul (2016). Development Planning in Bangladesh:7th Five Year Plan and SDG Implementation, General Economics Division, Planning Commission, Government of the People's Republic of Bangladesh, June)

Out of these 17 goals, BNF is currently associated with 9 goals of implementing SDGs. BNF can play vital role as a government organization to fulfill SDGs target by 2030 of the country for which they may include other 8 goals of SDGs in addition to current goals. Human growth to reduce disparity and eliminate

Chart:1 Sustainable Development Goals

exciting poverty by providing both monetary and non-monetary facilities counting teaching and healthcare, training, handling climate alteration belongings, social capital creation, skill training, help in retrieving suitable technologies, marketplace information, and help in promotion of products may be ensured by BNF grant.

1.12 Plan of the Study

Current Chapter: 1 consisted of Background Information and Overview, This chapter includes 1 Background of the Study and Introduction; Vision of BNF; Mission of BNF; BNF's Objectives; Research Question; Present scenario of the Country; Training Programs of BNF; Monitoring Activities of BNF; Procedure Followed Selection of NGOs for receiving in Grants; Sustainable Development Goals (SDGs).

In the Chapter 2: we discussed Review of Literature and Research Gap.

Chapter 3: consists of Objectives, Methodology of the Study Hypothesis Testing and Gantt chart.

Chapter 4: discussed analysis of the Findings - Contribution of BNF Grant, Estimated Results of NGOs, and Assessed Results of Beneficiaries of NGOs .

Chapter 5: comprised of twenty three field visits and meet with beneficiaries of these NGOs and also provide some observations.

Chapter 6: deliberated a Proposed Model of BNF's Grant and its impact and also social networking model.

Chapter 7: included Discussions, Conclusions, Implications and further direction for research.

The study has given references. Besides aforesaid chapters and references, in appendix the study has given two set of questionnaires and some data on BNF and also Bio sketch of the researcher.

Review of the Literature and Research Gap

2.1   Literature Review

Exactly when Non-Government Organizations dedicated to Aid and Development were relatively unknown in Bengal, there was however a range of voluntary associations through which charitable and voluntary activities took place in Bengal. For example, the Muslim community has long used institutions of zakat and chanda for both social welfare and cooperative development of public infrastructure such as roads, madrassas and mosques (Hasan, 1993, p.93). Village Welfare Societies were sometimes organized by public Figurers (Hasan, 1993, p.88).

Foreign organisations were involved in social welfare in Bengal from before the colonial era, the Baptist Missionary Society active since 1794 (Hasan, 1993). In addition to religious activities, missionary organizations provided medical services and general education to the rural poor.

One of the earliest institutions for rural development in East Pakistan was the Academy for Rural Development, based in Comilla, from which emerged the so-called 'Comilla Model' for small farmer cooperatives. The success of cooperatives of farmers with relative small landholding inspired a national scaling up or roll-out of the model through the Bangladesh Rural Development Board (BRDB) with links to the Krishi (Agriculture) Bank after the emergence of Bangladesh.

The non-government organisation CARE initially distributed food parcels to survivors of World War II, mostly in Europe but according to CARE Bangladesh, also East Pakistan in 1949. In the 1950's CARE distributed food aid more widely to newly emerging countries using American agricultural surpluses.

In spite of working in an extended emergency environment, the organisations involved in relief and rehabilitation soon saw their mission in terms of development. After only one year working with returning refugees in the Sulla area of North-East Bangladesh (Begum, 2004, p.104), BRAC commenced a 'program of integrated community development' seeking to develop 'agriculture and horticulture, fisheries, adult education, health and family planning, vocational and other training programs' (Chen, 1986, p.3).

Hailey (1999) described that Integrated Rural Development had become the 'dominant methodology' for community development. So, it was natural that the NGO sector would adopt this approach, especially in the context of multi-sectoral needs of Bangladesh. An organization's credibility became tied to the comprehensive reach or 'holism' of its programme.

Major innovation in NGO philosophy and strategy was the extension of the community group structured by incorporating them into secondary associations and even tertiary federations in 'community based people's organizations' in the early 1990s (RDRS, 2005, p.7). This formulation of Community Based Organisations (CBO) shows its antecedents in the 'federation of the poor' proposed by BRAC in 1977.

Blair (1985) demonstrates how four successive regimes from Ayub Khan to Ershad had planned or initiated institutions for local participation along similar lines. Each of these regimes collapsed partly because the ruling elite sealed off the institutions preventing them from influencing elite politics. While there are inherent contradictions in participatory institutions which are not related to democratic government, Blair (1985, p.1240) argues collusion between the nation's ruling elites and local rural elites to channel patronage to the village ensures that pressure for change is kept in check.

The CBO approach (or federation of primary groups) has been adopted by many NGOs. However there appears to have been no examination of their impact nor their consequences for the communities and governance.

In 1983 the Grameen Bank was gazetted as a specialized financial institution. Although in a form of bank, but in actual practice it operates like an NGO, and is often counted among the major NGOs of Bangladesh. Grameen works on a 'social capital' model, still using the same model of a peer group with similar landless status.

A few Bangladesh NGOs grew very substantially in the early 1990s with the help of 'large-scale donor support' (Fernando & Devine, 2003, p230). At the same time

the number of NGOs registered to receive foreign donations has increased six-fold by 2006.

Lake and Huckfeldt (1998) argued that politically relevant social capital is generated in personal networks, that it is a by-product of the social interactions with a citizen's discussants, and that increasing levels of politically relevant social capital enhance the likelihood that a citizen will be engaged in politics. Further, the production of politically relevant social capital is a function of the political expertise within an individual's network of relations, the frequency of political interaction within the network, and the size or extensiveness of the network. The consequences of social relations within networks are not readily explained away on the basis of either human capital effects or the effects of organizational engagement.

Makoba(2002) argued that the phenomenal growth of nongovernmental organizations (NGOs) at both international and national levels is due to the changing attitude of donor agencies about development assistance and the increased demand for NGO services in Third World countries. NGOs are non-membership support organizations involved in relief, rehabilitation, or community development work in developed and, especially, developing or Third World countries; Considered part of the civil arena in society which also includes trade unions, people's associations and membership organizations, cooperatives and religious-based charities, NGOs provide a third approach to development between market-led and state-led strategies; In the post-Cold War era, governments in Third World countries are experiencing a steady decline in both fiscal support and public credibility; markets globally are on the ascent in terms of ideological and resource support, while those in the Third World are still nascent or in decline.

Nobusue (2002) and Ahmed (2001) suggest that the Bangladesh State failed to assist the poor and that NGOs grew into that gap. In the period following the emergence of independent Bangladesh, as has been noted above, the infrastructure was badly damaged, government services were severely disrupted by failure of many professionals who fled to India in the civil war (Novak, 1994, p.167) and destruction of facilities. Funds were available from the international community and so NGOs were able to form or get involved. Furthermore, Nobusue (2002, p.35) claims that 'the Bangladesh power elite' deliberately allowed Bangladesh to fail to develop and the state to remain weak, thereby giving them access to Overseas Development Assistance (ODA) funds and cheap labor. The self interest of the ruling elites sought to maximize opportunities for patronage through flows of aide.

Devine (2003) argued that in the context of Bangladesh, an accurate notion of sustainability rests more on social and political considerations than on economic ones. Fundamental tensions exist between social/political and economic considerations, and paradoxically, the relentless pursuit of one may undermine efforts to establish the other. The article therefore seeks to subject the logic and validity of efforts to promote sustainability among nongovernmental organizations in Bangladesh to theoretical and empirical scrutiny.

Association of Development Agencies in Bangladesh (ADAB) provided a forum for resolving differences between NGOs, going some way towards self-regulation (World Bank, 2006). ADAB functioned best on behalf of the whole NGO community during the periods when government oscillated in and out of military rule. (World Bank, 2006, p.35). An alternative Federation of NGOs in Bangladesh was formed in 2003 by NGOs who felt that ADAB had been active in party politics and partisan in voter education programmes for the 2001 election (Anon., 2003).

In 1978, the Foreign Donations (Voluntary Activities) Regulation Ordinance was promulgated to exercise some control over the burgeoning NGO sector by monitoring the use of foreign donations for voluntary activities ((Ahmad, 2001). The most significant increase in government regulation of NGOs commenced in 1990 when the NGO Affairs Bureau was created as the contact point between the State and all NGOs receiving foreign donations (Ahmad, 2001).

Viravaidya and Hayssen (2001) observed that successful NGOs already have most of the skills required for business, and their managers think in business terms more than we realize. The best NGOs are clearly as entrepreneurial as the best private companies, being able to make things happen and create something out of nothing. Like commercial marketers, these NGOs find under-served segments of the population and design products and services to meet the needs of those markets. Good NGOs are effective in hiring and training staff, planning and budgeting, strategic planning, purchasing, public relations and other areas of management.

Fernando & Devine (2003) expressed that in actual fact the poor of Bangladesh are adept and accustomed to managing enormous risk. Even the 'extortionist interest rates' charged by traditional informal credit sources can be seen as part of complex patron-client relationships through which they seek to mediate risk. The poor will assess the benefit from their relationship with an NGO on its welfare credentials in broader social and political terms. Part of their assessment includes the level of support which exists from the local elites. However, NGO analysis has

traditionally seen these same elites as the cause of the social immobility which entraps these same 'poor'.

Florida (2003) commented on the rise of a new social class whom he called as creative class which include scientists, engineers, architects, educators, writers, artists, and entertainers. He defined this class as those whose economic function is to create new ideas, new technology, and new creative content. In general, this group shares common characteristics, such as creativity, individuality, diversity, and merit. He examined reasons for value creativity more highly than ever and cultivates it more intensely.

Blair (2005), described that some NGOs such as CARE have always worked in partnership with Government through programmes such as food-for-work. Others like BRAC who adopted the conscientisation approach have not developed the kid of advocacy and mobilization role that might have been imagined. Instead, they focused on economic self-reliance and got involved in delivering some of the services needed to support that. The contracting of service delivery to NGOs by government has led to a semi official status for some NGOs. The efficient and effective delivery through NGOs acts as a spur to government, but the World Bank (2006) points out, as the leadership of NGOs undergoes succession from the first generation, the potential for collusive relationships to develop with the elite in the government system is increased.

 De Bruin (2005) described setting promotion of the creative industries in New Zealand against an overarching national context of the government's Growth and Innovation Framework. Buoyed by The Lord of the Rings – The Return of the King's Oscar success and other acclaim, the industry appears to be surfing high waves, making it an interesting case to examine in Film industry. Commencing with delineation of the nature of entrepreneurship in the creative sector, the discussion continues within an integrative multi-level entrepreneurship framework.

Davis, John K (2006) described that how NGO works after the liberation war and how they turned their efforts to longer term development in the absence of state capacity to deliver welfare. NGOs were also faced with many challenge and opportunity to render social services into the long term and became the champions of sustainable development.

Dollinger (2008) argued that marketing contributes to the entrepreneur's success in two ways: (1) It determines the manner in which the firm's resource advantages will be defined and communicated, and (2) it is a major factor in creating a sustainable competitive advantage.

Foord (2008) observed that the proliferation of designated creative places in recent years is testimony to policy practitioners' belief that almost regardless of local conditions they too can mobilize creativity to transform their economies and communities.

Hassan and Forhad (2013) depicted that NGOs have impacts on the sustainable development in the rural areas of the developing countries and explored the trends of current poverty situation of Bangladesh. They are considered as more effective to get attached with the grass-root -level development initiatives and having positive impacts on poverty alleviation among the rural poor population.

Phillips (2010) depicted that self-employment and contingent work may magnify the oversupply of artists but they do not explain why oversupply has been for such a long time a structural trait of artistic worlds. He also commented that there is no doubt that the development of the Internet has created the possibility that more artists can earn a living through their craft because their audience is potentially much larger.

Teece (2010) described that the essence of a business model is in defining the manner by which the enterprise delivers value to customers, entices customers to pay for value, and converts those payments to profit and reflects management's hypothesis about what customers want, how they want it, and how the enterprise can organize to best meet those needs, get paid for doing so, and make a profit.

Chambers and Vejle (2011) commented that a business incubator consists primarily of a development program and a range of business development services. These are basically advice and may be what constitutes a 'virtual incubator'. A full-flowered incubator, however, also offers a physical location and a geographical focal point for networking, collegiate nearness and specific area coverage. Incubators' mind map is given in the following Chart: 2

Müller et al. (2011) described that within the craft and trade sector active in the culture and creative industries, two specific areas can be identified that differ in essential respects: enterprises that specialize in fields of activity that can be described as contemporary (e.g. arts and crafts /applied arts, the built environment, design, creative services) and enterprises whose activities focus on historical buildings and objects and often help preserve traditional cultural skills.

Scherdin and Zander (2011) commented that art and artistic process offer a distinctive and from a research point of view fruitful arena of studying the issues of creativity, novelty and process of transformation where the new seeks to position itself alongside or replace the established and conventional.
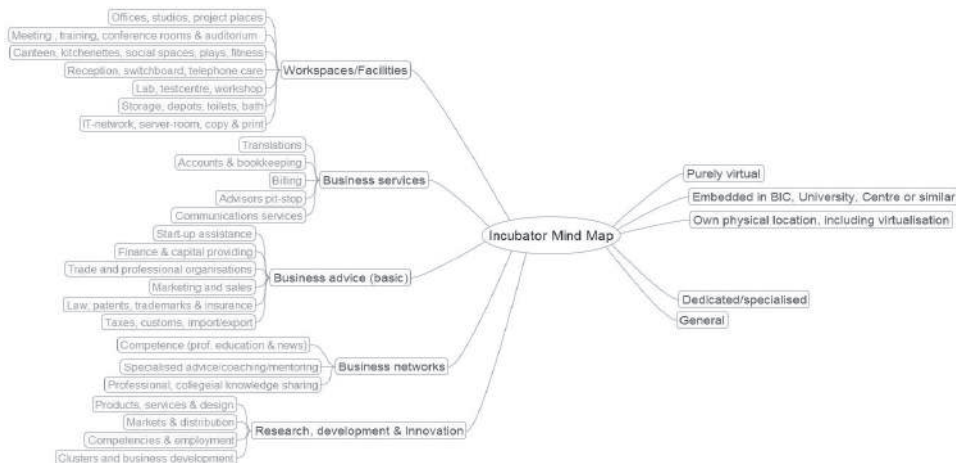
Source: Chambers and Vejle (2011)

Chart 2: Incubators' mind map

Islam, Mohajan, Datta(2012) described that at present GB is the largest microfinance bank in Bangladesh and probably the biggest micro credit organization in the world. It provides loans to asset less and landless poor people whom no commercial bank give loan. Microcredit is the most useful and popular financial system in the world to face financial crisis of the poor people. Grameen Bank loan distribution has risk of default and sometimes the loans are used even dowry which is crime against women right. The rate of interest in Grameen Bank is very high and due to high interest rate the poor women cannot use the loan in a high profitable business to bear this burden, so some of the borrowers lose lands and assets to pay the loan.

Arvidsson and Niessen (2015) observed that to become productive consumer culture has been an important theme for doing social research. Within neoliberal discourse, the link between consumer culture and new forms of immaterial production has been conceptualized as "creativity." Authors suggested that Bangkok's fashion markets manifest a kind of creativity where innovation is highly socialized, as opposed to being oriented around the notion of individual genius and individual intellectual property; where participation is popular as opposed to elite-based and where the ambiguous relation between creation and commercial success that is intrinsic to Western notions of creativity is replaced by an embrace of markets and commerce as vehicles for self-expression.

Marinova and Borza (2015) described that cultural and creative industries are a major sources of innovative ideas and thus contribute to an economy's innovative potential and the generation of new products and services.

Globally, support for NGOs is running high. Community support for campaigns such as Jubilee 2000 or/ and Make Poverty History is the evidence of this. The White Paper on the Australian Government's overseas aid program, released in 2006, is indicative of official aid agencies' willingness to channel international development assistance through NGOs. The Australian government will 'expand support for NGO involvement' (AusAID, 2006, p.64), with possibilities for international NGOs and NGOs in countries other than Australia to access funds. The challenge for the Development of NGOs and policies relating to NGOs is to ensure that the sustainable development of the poor and marginalized communities are realized rather than sustainability of NGOs who are simply accepted ipso facto as representing the poor.

Hailey (2014) commented that NGO's ability is/ should mean to anticipate and handle change; in particular adapting to changes in the external environment and the consequences of such changes on their income as well as aging or outdated systems and processes. Sustainable NGOs are those which are able to respond strategically and effectively to such external changes. They revise their mission and objectives accordingly, access new sources of income, and adapt their systems and processes to meet the new challenges.

Mir and Bala (2014) described that NGOs which depend on foreign funding spend more time and resources in fulfilling their upward hierarchical accountabilities compared to NGOs which are funded from their own sources. As a result, the accountability obligations of foreign-funded NGOs are not met as effectively as NGOs which are funded from their own sources.

Müller et al. (2011) described that within the craft and trade sectors, active in the culture and creative industries, two specific areas can be identified that differ in essential respects: enterprises that specialize in fields of activity that can be described as contemporary (e.g. arts and crafts/applied arts, the built environment, design, creative services) and enterprises whose activities focus on historical buildings and objects, and often help preserve traditional cultural skills.

Scherdin and Zander (2011) commented that art and artistic processes offer a distinctive, and from a research point of view, fruitful arena of studying the issues of creativity, novelty, and processes of transformation where the new seeks to position itself alongside or replace the established and conventional.

Haider (2013) described that the NGOs have been successful in raising the income level of their beneficiaries as well as providing, or educational services, other benefits derived by the beneficiaries include training on how to successfully

undertake various incomes generating activity, how to sign one's man, and how to take various health services. A majority of NGO beneficiaries indicate that their social status and prestige have improved in the eyes of their neighbor because of the undertaking of activities with the NGOs activity.

Arvidsson and Niessen (2015) observed that to become productive of consumer culture has been an important theme for doing social research. Within neoliberal discourse, the link between consumer culture and new forms of immaterial production has been conceptualized as "creativity." Authors suggested that Bangkok's fashion markets manifest a kind of creativity where innovation is highly socialized, as opposed to being oriented around the notion of individual genius and individual intellectual property; where participation is popular as opposed to elite-based and where the ambiguous relation between creation and commercial success that is intrinsic to Western notions of creativity which is replaced by an embrace of markets and commerce as vehicles for self-expression.

Ahmed (2016) argued that entrepreneurship is defined as the process or act of identifying opportunities in the marketplace, mobilizing resources required to pursue these opportunities for long term return. More explicitly, it is the process of creating an enterprise, adding value, devoting necessary time and effort, assuming risks of uncertainty, and detaining rewards of monetary and personal satisfaction and independence.

Hassan (2015) depicted that the sector is working for ensuring socio-economic development of poor and hard core poor people those are treated as the very negligible and marginalized by other two sectors i.e state and business working with political implications and profit maximization respectively whereas NGOs do for poor's in assurance of financial solvency, basic education, nutritional status, participation in decision making for women both inside and outside of family and good governance etc. After all their activities are on the ground of no generation of profit.

 Marinova and Borza (2015) described that cultural and creative industries are a major sources of innovative ideas and thus contribute to an economy's innovative potential and the generation of new products and services.

The World Bank Group (2015) argued that targeted, evidence-based policies and sound institutions help to determine progress on each of the MDGs. A decade of Global Monitoring Reports7 by the IMF and World Bank, provides compelling evidence that with the right policy and institutional reforms, ODA can be used more effectively to make progress towards MDGs. The cost of achieving any

development goal depends on the efficiency with which the objective is pursued, taking into account the quality of underlying policies and practices.

Ahmed (2016) argued that entrepreneurship is defined as the process or act of identifying opportunities in the marketplace, mobilizing resources required to pursue these opportunities for long term return. More explicitly, it is the process of creating an enterprise, adding value, devoting necessary time and effort, assuming risks of uncertainty, and detaining rewards of monetary and personal satisfaction and independence.

Avea et al. (2016) commented that influence of NGOs and development agencies facilitation on productivity improvement is a topical issue that has not been further explored in Africa, specifically in Ghana. NGOs and development agencies are involved in building farmers' capacities, assisting farmers to access inputs, markets and information, all geared towards poverty alleviation and increasing farming sustainability. This study, therefore, employed the stochastic frontier approach to estimate the production function and explore the influence of NGOs and development agencies, among other socio-economic factors, on technical efficiency.

Lewis, and Mark (2016) contended that the NGO category is "productively unstable." We argue that productive work lies ahead in charting similarities and differences within NGOs across aid and activism. This task mirrors an inherent messiness for both NGOs and for anthropologists as we grapple with dilemmas of engagement. Such a critically engaged anthropology of NGOs also stands poised to offer useful guidance to the discipline as it struggles over "relevance" in this new century.

Rodriguez et al. (2016)" evidenced of the resources applied by NGOs to implement programs that enhance the supply chain's social sustainability without creating trade-offs between social and economic outcomes. It has also identified the buying firm resources that complement the NGO in the process. Accordingly, based on our results managers will need to take into account the following while considering such partnerships. First, engage with partners who can connect the firm with a pool of resources that it cannot presently access. Second, resources will need adaptation to the local context before undertaking any supply management initiative with poor suppliers. Third, invest in knowledge transfer routines and logistical resources in order to successfully integrate poor suppliers. Finally, manage buyer–supplier relationships through relational mechanisms based on procedural fairness.

Though microcredit helps Bangladesh to reduce the possibility to drop out but sometime NGO's charge higher interest for the loan so it needs to decrease to support the education of Bangladesh. More educational materials should be providing. As Bangladesh is becoming middle income country, NGO can play an important role to encourage the guardian and create awareness among the people about the importance of education. Besides providing loan, some microcredit organizations established many primary schools. They teach the student totally free, and all educational materials also provide without any fee.

2.2   Research Gap

From the aforesaid literature review, we observed that there is no study on BNF's role on socio –economic development of the country .Further, there are various works on sustainability of NGOs but these did not include partner organizations of BNF. Though BNF is currently associated with 9 goals of SDG out of 17 goals their impact is not evaluated which are one of important factor for socio – economic development of the country. That is why, we have undertaken this research work to see whether BNF's partner organizations can sustain so that socio-economic development can be contributed by them. We also want to see the situation of the actual target group of the BNF i.e. beneficiaries who receives grant from their partner organizations. Moreover, whether BNF can play vital role to complement SDG's goal in the country needs to be analyzed along with role of socio- economic development of the country.

Objectives, Methodology of the Study, Hypothesis Testing and Gantt chart

3.0   Objectives of the Study

3.1   General Objective

To determine the factors associated with sustainability of BNF's Partner Organization for Socio- economic Development of Bangladesh

3.2 Specific Objectives

- To investigate whether BNF fund helps to sustain individual NGOs
- To determine NGOs role in socio economic development
- To investigate whether BNF fund generates income of the partner organization
- To find out impact on beneficiaries

3.3 Methodology of the Study

This study intended to find out socio-economic development of Bangladesh though sustainability of BNFs Partner Organizations. Following the typologies of research methodologies, this is often believed that the qualitative method is considered as traditional and this has been considered as having validity (Hair, et. al., 2011). Often regarded that the qualitative method is relatively well fit for studies that are based on human ideas with their activities and those tend to understand the existing psycho-sociological issues (Bryman and Bell, 2011).Out of 1120 NGOs who are currently working as BNF partner organizations, we choose 23 NGOs for conducting survey on 12 districts out of those which received 7th installment fund of BNF. Two self-administered questionnaires were used in the study to collect the data i.e. one for NGOs and another for beneficiaries. The study has been conducted between 23 different participants from 23 different NGOs. Further from 23 NGOs, we received 526 beneficiaries' responses from 624 distributed questionnaires based on another questionnaire. Beside this, we also used secondary sources to understand whether BNF grant fund will sustain in the long run or not. Sustainability of BNF grant will also be judged by secondary sources. The study also wants to examine whether social networking process was expedited due to BNF grant.

To determine sustainability of BNF partners for socio-economic development -we shall use core factors as follows:

a) Has own land
b) Contribution in innovation and production
c) Fund collecting system
d) Regular source of income is required.

Besides aforesaid core factors we want to use several supplementary and complementary factors to assess socio-economic development through sustainability of BNF's Partner organizations.

Statistical calculations such as mean, standard deviation, binary logistic regression and Chi-square test were performed by SPSS computer programme.

The descriptive and inferential statistics were also used accordingly.

Time period of the study is from 15 May 2016 to 15 December, 2016.

The study will also build a model for BNF Fund, social networking and their impact.

3.4   Hypothesis Testing

Alternative Hypothesis Ha: BNF fund helps to sustain individual NGOs for socio-economic development of the country.

Null hypothesis Ho: BNF fund doesn't help to sustain individual NGOs for socio-economic development of the country.

Alternative Hypothesis Ha: BNF fund generates income for partner organizations

Null hypothesis Ho: BNF fund does not generate income for partner organizations

Alternative Hypothesis Ha: BNF fund generates income for beneficiary's sustainability.

Null hypothesis Ho: BNF fund does not generate income for beneficiary's sustainability.

3.5   Gantt chart

Following Gantt chart of the research milestone can be shown below:

Chapter 4: Analyses of the Findings

4.1   Contribution of BNF Grant

Figurer 4 presents BNF's amount of fund distributed among beneficiaries for development of rural economic and social development from 2005 – 06 to 2015 – 2016. Number of beneficiaries is almost same from the beginning to till, however, the amount of fund for development of beneficiary has increased over the time from 1.7 crore to more than 10 crore.

	15 May – July,2016	August – September, 2016	August – mid October, 2016	Mid October,2016– 15 December, 2016
Literature review, development of web-based questionnaire, preparation of distribution list of respondents, deliverables	███			
Questionnaire administration		███		
Data entry, data analysis, deliverables			███	
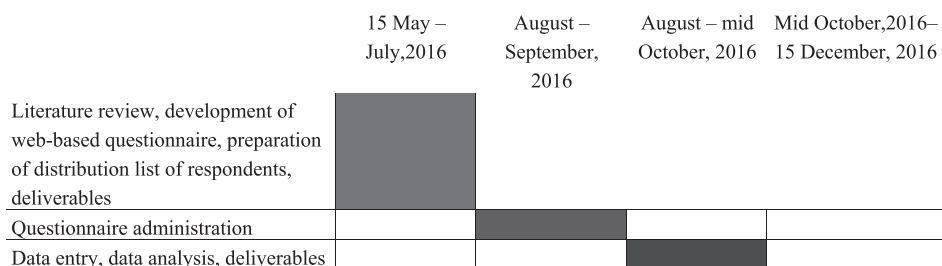
(Source: Prepared by the Author)

As the contribution in grant has increased among the beneficiaries and number of beneficiaries did not increase, currently beneficiaries are getting more benefit than previous. If any BNF or organization is able to increase facilities among its stakeholder it will be sustain longer. Therefore, we may conclude that BNF will be sustain in longer and perform different activity for development of economic and social status of rural area of Bangladesh.
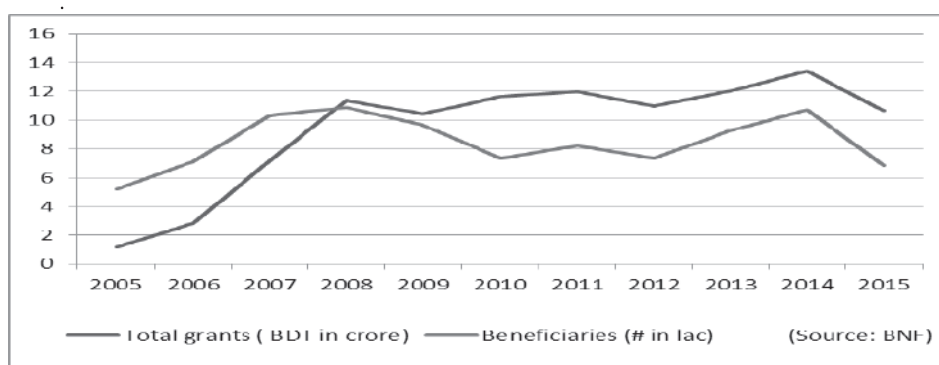
Figure 4: Contribution of BNF for rural development from 2005-06 to 2015-16

4.2 Estimated Results of NGOs

Monthly income of the partner organizations of BNF are presented in Table 2. According to monthly income, majority (21.7%) earned 1000-20000 every months, and also same percentage (21.7%) earned 300,000 monthly, 8.7% earned 61,000-80,000 every month. More than half (56.5%) of the NGOs stated that they obtained fund in an installment is lies between 200001 and 276001 which is followed by 17.3% got above 1000000 (Table 3).

Table 2: Monthly Income

Income	Frequency	Percent
1000-20000	5	21.7
21000-40000	3	13.0
41000-60000	3	13.0
61000-80000	2	8.7
81-120000	3	13.0
210000-300000	2	8.7
Above 300000	5	21.7
Total	23	100.0

However, while asked them whether any sort of additional cost has to be given to the BNF all NGOs denied.

Activities perform by partner NGOs for social and economic development is shown in Table 4. Around 22% of the NGOs (which are considered in the study)

Table 3: Amount in an installment received by a NGO

Amount	Frequency	Percent
0 – 200000	3	13.0
200001-276000	13	56.5
276001-450000	1	4.3
610000-1000000	2	8.7
Above 1000000	4	17.3
Total	23	100.0

are involved with pre-primary education which is followed by sanitation & nutrition (17.4%).

Table 4 shows projects in difference NGOs, slightly above one-fifth (21.7%) did the pre-primary education, followed by 17.4% did sanitation & nutrition project. This is shown in Figure. 5 below:

Table 4: Activities by the partner NGOs

Variables	Frequency	Percent
Pre-primary Education	5	21.7
Sanitation & Nutrition	4	17.4
Training for nursing of pregnant women's health,	1	4.3
Free of cost goat giving & agriculture related training	1	4.3
Health nursing of living near river side mother & babies	1	4.3
Planning for removing poverty via goat keeping	1	4.3
Safe drinking water, sanitation & tree plantation activities	2	8.7
Training on sewing & giving vegetable cultivation in home yard for poor women's income, goat keeping	1	4.3
Primary health care & drug giving	2	8.7
WATSAN	1	4.3
Reproductive health ,Sanitation, free drug giving	3	13.0
Women development and empowerment for education of life	1	4.3
Total	23	100.0

Figure 6 represents the percent of NGO has their own land or not. It is found that less than 35% NGOs has their own land and 65% NGOs do not has their own land.

Frequency
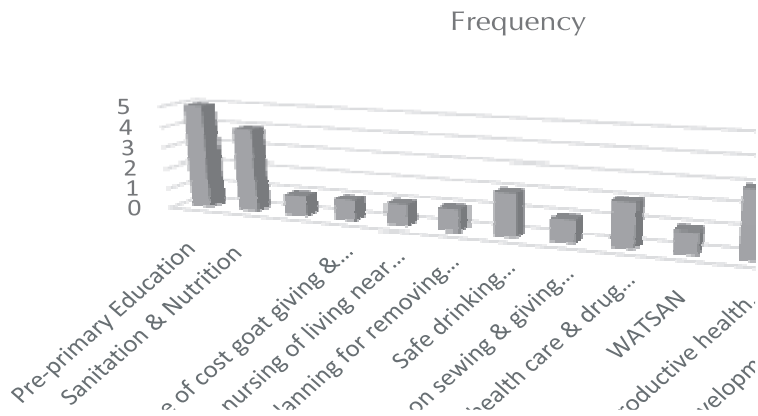
NGOS are contributing to develop women entrepreneur is shown in Figure7. More than nine-tenth (91.3%) of the NGOs are helping in developing women entrepreneur.
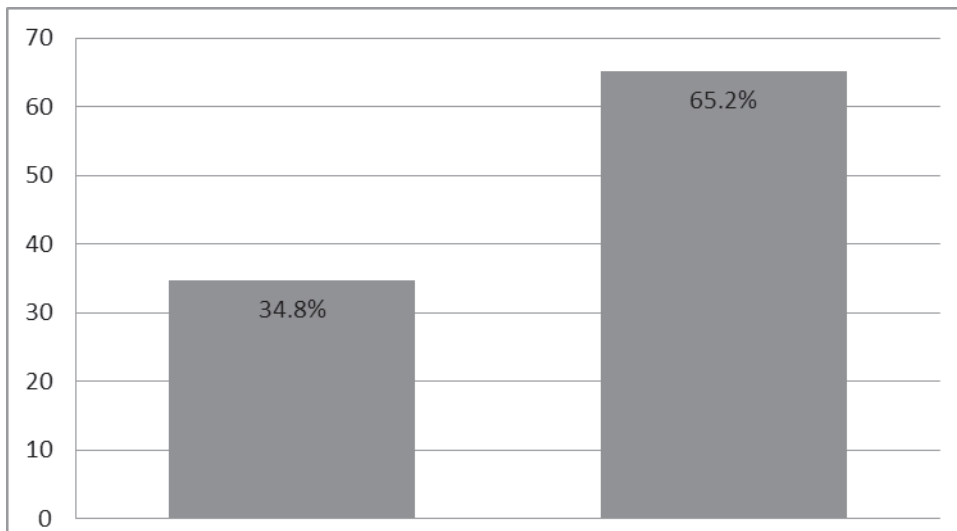
Slightly above two-third (69.6%) of the NGOs were owned by corporation the rest were cooperative society (Figure 8).

All the partner organization of BNF are agreed (13% are agreed and 87% are strongly agreed) that primary education play role for permanent education, however, more than 65% organizations are involved with pre-primary education and 35% are not involved (Table 5).
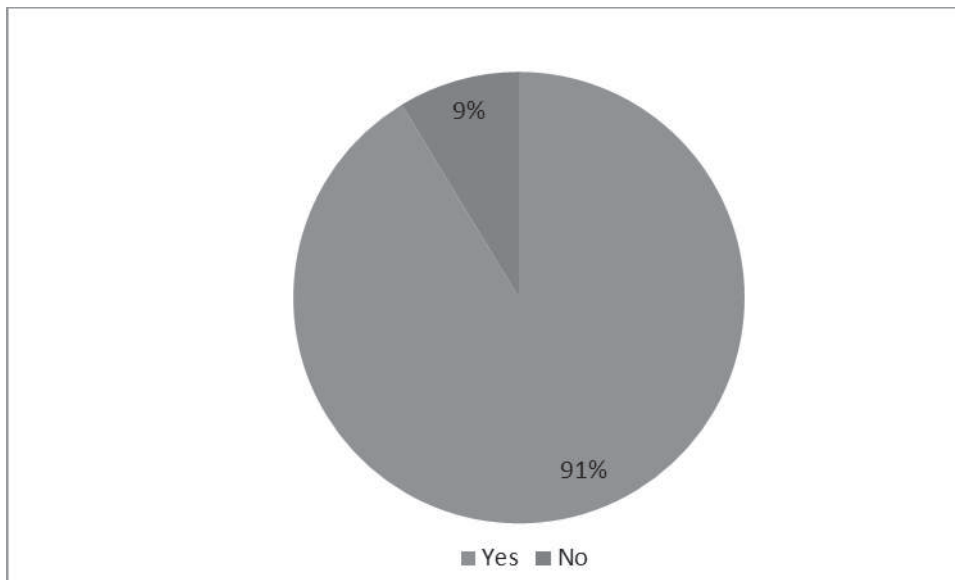
Figure7: NGOs are helping to develop women entrepreneur

78.3% of the participants mentioned that Unconsciousness is what they think BNF program will inspired or hampered in terms of public participation (Table 6).
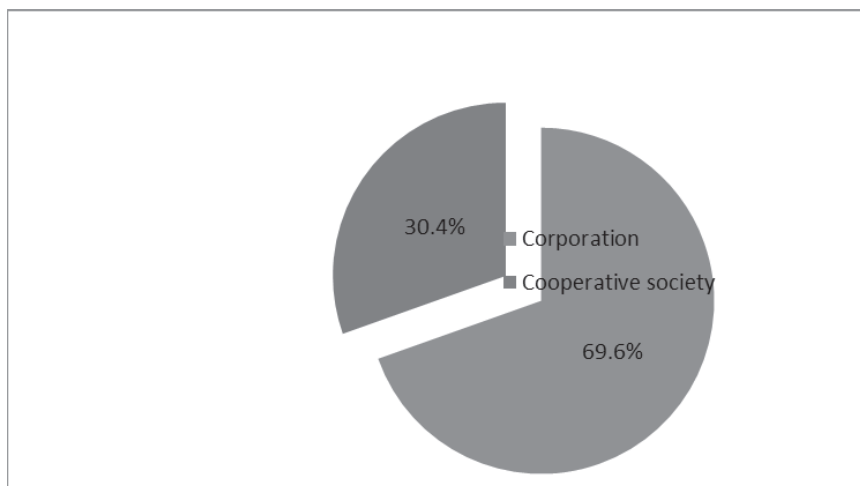
Figure 8: Ownership of NGOS

Slightly above four-fifth (82.6%) of the participants stated that their organizations were working directly to remove poverty (Table 7).

Slightly above One-fifth (21.7%) mentioned that there organizations were working directly to remove poverty through Giving Technology and vocational

Table 5: Opinion about and attachment with education of the partner organization

	Variables	Frequency	Percent
Primary education play role for permanent development	Agree	3	13.0
	Strongly agree	20	87.0
Organization Attached with pre-primary education	Yes	15	65.2
	No	8	34.8
Organization give computer training activities	Yes	12	52.2
	No	11	47.8
	Total	23	100.0

Figure 9: Opinion on Education

Table 6: BNF Program will inspired or Hampered publics participation

Variables	Frequency	Valid Percent
lack of education	5	21.7
Unconsciousness	18	78.3
Total	23	100.0

training for those people who is living with poverty (Table 8).This is also shown in Figure.10.

Table 7: Do your Organization working directly to remove poverty?

Variables	Frequency	Percent
Yes	19	82.6
No	4	17.4
Total	23	100.0

69.6% of the respondents mentioned that they are currently working in area for economic development (Table 9). Most of the partner NGOs are work in several union porishad whereas around 40% of them are worked in only a single union.

Table 8: Activities for removing poverty

Activity	Frequency	Percent
No	4	17.4
Built up trust with men & women together and give little amount of loan to remove poverty	2	8.7
Give goat free of cost	3	13.0
Free of cost treatment and drug given which is working to remove poverty	1	4.3
Education, training on Health & nutrition development ,safe drinking water, tree plantation, sanitation, production of green vegetables in home yard, hen & duck keeping	4	17.4
Give Technology and vocational training for those people who is living with poverty	5	21.7
Help for Women	1	4.3
Sewing training	1	4.3
Keeping domestic animal & sewing to remove poverty for that my organization is working	1	4.3
loan	1	4.3
Total	23	100.0

Above half (52.2%) responded that their organizations were giving computer training activities to their own workers (Table 10).

Regarding the participants opinion on how income will increase, majority (21.7%) stated that income will increase by giving sewing machine training, followed by 17.4% those that mentioned giving education will be the solution to increase in income.

None of the partner NGOs are disagree about multi role in economic development of men and women entrepreneur (Table 11).

65.2% of the respondents were strongly agreed that their organization play role for discovery and productivity.
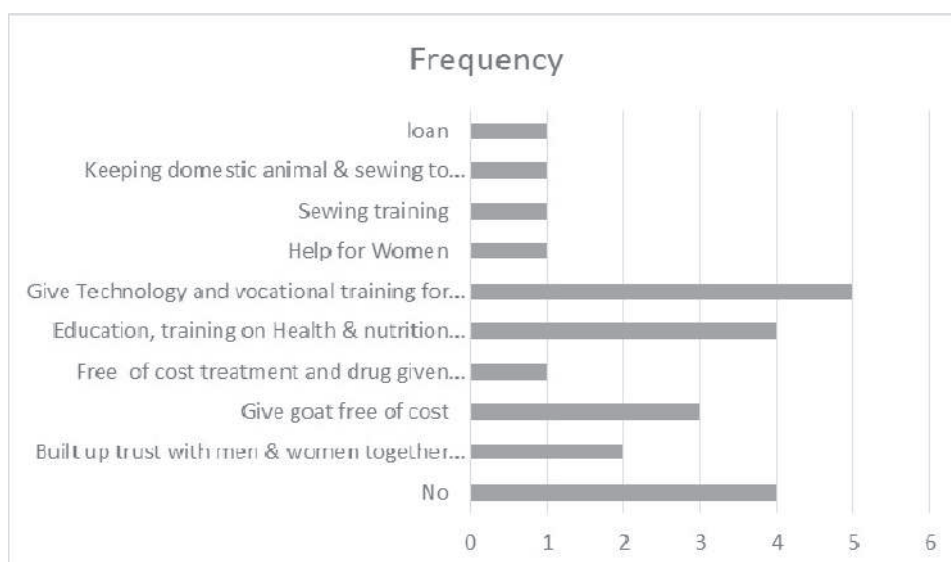
Figure 10: Activities for removing poverty

Table 9: Currently do you working in any area for economic development?

Variables	Frequency	Percent
Yes	16	69.6
No	7	30.4
Total	23	100.0

Table 10: How income can be increased?

	Frequency	Percent
Education	13	57.7
By given rickshaw & vehicles to strengthen rickshaw puller	1	4.3
Give sewing machine training	5	21.7
Give computer education	1	4.3
All	3	13.0
Total	23	100.0

Only 8.7% respondents are disagree about help from BNF can solve social problem. Majority (65.21%) of the respondents were strongly agreed that BNF's financing and capital formatting solve social problem (Table 13).

Table 11: Do you think Male & Female entrepreneur play multi role in Economic development?

Variables	Frequency	Percent
Agree	12	52.2
Strongly agree	11	47.8
Total	23	100.0

Table 12: Do this NGO play role for Innovation & Production

Variables	Frequency	Percent
Agree	8	34.8
strongly agree	15	65.2
Total	23	100.0

Table 13: Did BNF's Financing & Capital formatting solve social problem?

Variables	Frequency	Percent
Disagree	2	8.70
Agree	6	26.09
strongly agree	15	65.21
Total	23	100.0

Three-fourth (73.9%) were strongly agreed that their organizations give right training/education to its employee (Table 14).

Majority (69.6%) of the participants were strongly agreed that higher poverty rate hamper economic development.

Table 14: Do you Organization give right Training/Education?

Variables	Frequency	Percent
Disagree	1	4.35
Agree	5	21.74
strongly agree	17	73.91
Total	23	100.0

Table 15: Are higher poverty rate hamper economic development?

	Frequency	Percent
Agree	7	30.4
strongly agree	16	69.6
Total	23	100.0

Majority (39.1%) of the respondents stated that all (primary steps, organization, networking) play important role in socio-economic development.

Table 16: Which steps play important role in socio-economic development?

	Frequency	Percent
Primary steps	1	4.3
organization	2	8.7
networking	2	8.7
15	2	8.7
16	1	4.3
123	1	4.3
126	2	8.7
All	9	39.1
1256	3	13.0
Total	23	100.0

Around one third (30.3%) of the responded said that connect with others NGO, professional advisor and social networking are required for getting fund.

Table 17: What type of networking relation needed for getting grants?

	Frequency	Percent
contacts with other NGO	7	21.21
contacts with professional advisers	8	24.24
social networking media	8	24.24
All	10	30.30
Total	33	100.00

Slightly below three-fourth (73.9%) they used to collect their fund one payment installment.

Table 18: How to collect fund?

	Frequency	Percent
one payment installment	17	73.9
Installment	6	26.1
Total	23	100.0

Slightly above half (52.2%) stated that "very high" power of quality analysis of BNF and their helping organizations after basis on their quality.

Table 19: Power of quality analysis of BNF & their helping
Organization on the basis of their quality

	Frequency	Percent
Average	2	8.7
High	9	39.1
very high	12	52.2
Total	23	100.0

From Table: 20, it has been found that there was significant association between NGOs role for innovation & Production and giving the right training/education

Table 20: Relationship between Some Variables

Do this NGOs play role for innovation	Does your Organization give right training/Education		Total
	Agree	Strongly agree	
& Production			
Agree	4	4	8
Strongly agree	2	13	15
Total	6	17	23
X^2=3.638 P=0.050			
Organization built on their own land	Do this NGO play role for innovation & Production		Total
	Agree	Strongly agree	
Yes	2	6	13
No	6	9	20
Total	8	15	33
X^2=0.518 P=0.472			

(p=0.050). There was no significant association between organization situated in own land and NGOs play innovation & Production (p=0.472).

Logistic Regression

Table 21 shows the result of logistic regression where sustainability is dependent variable and socio-economic & opinion about NGOs facilities are independent.

Table 21: Logistic Regression

Classification Table[a]					
	Observed			Predicted	
			Sustainable		Percentage
			No	Yes	Correct
Step 1	Sustainable	No	3	5	37.5
		Yes	4	11	73.3
	Overall Percentage				57.2
a. The cut value is .500					

From Logistic regression equation we observed that 57.2 % Partner organizations are sustainable without BNF fund.

Table 22: Significantly influential variables for sustainability of NGOs

Independent Variables	Coefficient	S.E.	Wald	df	Sig.	Exp(B)
Has own land	-1.199	.338	12.557	1	.000	.301
Sufficient for necessary			23.769	4	.000	
Strongly agree	1.684	1.363	1.527	1	.217	5.387
Agree	1.046	.459	5.190	1	.023	2.848
Neutral	-1.980	.696	8.097	1	.004	.138
Disagree	-.519	.380	1.861	1	.173	.595
Contribution in innovation and production			17.282	4	.002	
Disagree	-1.679	1.182	2.018	1	.155	.187
Neutral	-1.069	1.081	.978	1	.323	.343
Agree	.526	1.184	.197	1	.657	1.692
Strongly agree	1.673	.468	12.767	1	.000	5.326
Fund collecting system	1.875	.353	28.203	1	.000	6.522
Constant	.347	.695	.249	1	.618	1.415
Regular source of Income	2.626	.512	31.423	1	.000	5.843
Constant	1.624	1.327	2.832	1	.423	.678

Note: only significant variables are shown in the table

In the Table 22 only the variables which have significant impact on sustainability are shown. If NGO help to the people those do not have land property will sustainability of the NGO. Has own land is significant at 1% level of significance. If funding from NGO is sufficient then the NGO will be sustainable (odds ratio for strongly agree and agree compare to strongly disagree is higher than 2). If a NGO is involved in innovation and production then it will be sustainable at 5% level of significance as odds ratio of strongly agree and agree compare to strongly disagree is higher than 1.6. If a NGO collect its fund in installment rather than at a time has higher chance to sustain at 1% level of significance. Regular source of Income is required for NGO is significant at 1% level to sustain.

4.3   Assessed Results of Beneficiaries of NGOs

From the beneficiary point of view, a NGO will be sustainable if it provide sufficient fund to beneficiary (he/she does not need to take support from other sources) which inspire others to take support from the NGO, projects of the NGO help in social development and increase awareness to ensure primary education and other factors of removing income inequality and creating social justice for all. Therefore, if and only if all the criteria as mentioned in the above definition is found in a NGO for beneficiaries' respond then the NGO is sustainable, otherwise not for the study.

From the beneficiary point of view, a NGO will be sustainable if it provide sufficient fund to beneficiary (he/she does not need to take support from other sources) which inspire others to take support from the NGO, projects of the NGO help in social development and increase awareness to ensure primary education for all. Therefore, if and only if all the criteria as mentioned in the above definition is found in a NGO for beneficiaries' respond then the NGO is sustainable, otherwise not for the study.

Table 23 presents descriptive statistics of monthly income and expenditure of the beneficiaries. It is found that beneficiary has minimum income 1500 BDT whereas minimum expenditure is mentioned 1900 BDT. Average income and expenditure is 9528.29 BDT and 8964.40 BDT respectively with variance 6790.46 and 6443.46. Maximum income of the respondents is found 6790.46 BDT whereas maximum expenditure is 6443.46 BDT in a month. Table 23:

Table 24 presents socio-economic status and opinion about NGOs of the respondent who are the beneficiaries. About two-third of the respondents have their own land who are also beneficiaries from NGOs. Though about 70% of the beneficiaries have opinion that NGOs are providing sufficient money to fulfill

Table 23: Descriptive statistics of monthly income
and expenditure of the beneficiaries

	Minimum	Maximum	Mean	Std. Deviation
Monthly income	1500	40000	9528.29	6790.46
Monthly expenditure	1900	35000	8964.4	6443.46

Fig:11 **Monthly income and expenditure of the beneficia**
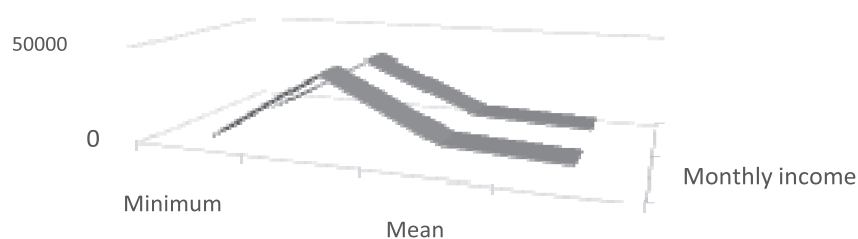
their needs however, around 25% of the respondents take loan from more than one NGOs. More than 99% of the respondents think that their development projects are environment friendly. About 22% of the respondents have opinion that there is gender discrimination in NGOs for distributing fund. About 98% of the respondents have opinion that they need training beside loan from NGOs.

Socio –Eco*n*omic factors of the beneficiaries are given at Figure 12.

More than 90% of the respondents are agreed that NGO have contribution for innovation and production. And funding from NGOs are also able to inspire non-beneficiaries by their activity as mentioned from 98% of the beneficiaries. More than 96% respondents think that their NGOs are in the right way of social and economic development for rural Bangladesh.

Out of 526 respondents, 478 respondents are agreed and strongly-agreed that ultra-poor status of a family affecting social development. To meet any future crisis or mitigate risk, 90% of the respondents want to save money.

Table 25 represents the association between sustainability and beneficiaries' socio-economic status using chi-square test. Need more grants, grants from more than one NGO, Social development project, awareness about primary education,

Figure:12 Soico Economic factors of the Beneficiar
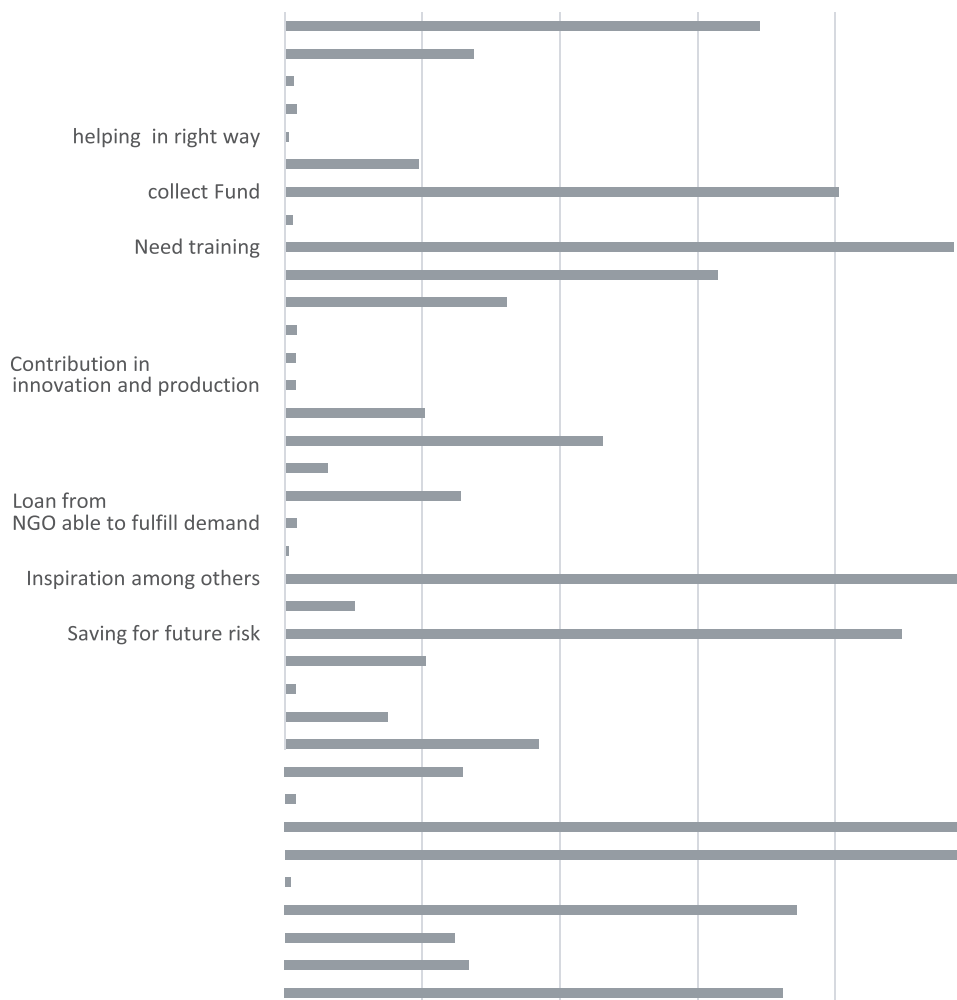
grants inspired non-beneficiaries, grants is enough for need, involved in innovation and production, beside grants need training, ultra-poor is a barrier for development, fund collecting system, NGO is in right way are significantly associated with sustainability of a NGO.

In the figure: 14 we have shown Beneficiaries view.

From Figure: 14 we observed that Giving Technology and vocational training is highest. Second is built up trust with man and woman together.

Table 24: Frequency distribution of socio-economic
factors and opinion about grants

Variables		Frequency	Percent	Valid Percent	Cumulative Percent
Land owner	Yes	381	72.4	72.4	72.4
	No	141	26.8	26.8	99.2
Loan from more than one NGO	Yes	130	24.7	24.8	24.8
	No	392	74.5	74.7	99.4
Environmental Friendly	No	4	0.8	0.8	0.8
	Yes	520	98.9	99.2	100
Aware about child education	Yes	515	97.9	98.5	98.5
	No	8	1.5	1.5	100
Gender Equality	Strongly disagree	136	25.9	25.9	25.9
	Disagree	194	36.9	37	62.9
	Neutral	79	15	15	77.9
	Agree	8	1.5	1.5	79.4
	Strongly agree	108	20.5	20.6	100
Saving for future risk	yes	472	89.7	89.9	89.9
	no	53	10.1	10.1	100
Inspiration among others	Yes	518	98.5	98.5	98.5
	No	3	0.6	0.6	99
Loan from NGO able to fulfill demand	Strongly disagree	9	1.7	1.7	1.7
	Disagree	134	25.5	25.5	27.2
	Neutral	33	6.3	6.3	33.5
	Agree	243	46.2	46.2	79.7
	Strongly agree	107	20.3	20.3	100
Contribution in innovation and production	Strongly disagree	8	1.5	1.5	1.5
	Disagree	8	1.5	1.5	3
	Neutral	9	1.7	1.7	4.8
	Agree	170	32.3	32.3	37.1
	Strongly agree	331	62.9	62.9	100
Need training	Yes	512	97.3	97.7	97.7
	No	6	1.1	1.1	98.9
collect Fund	At a time	424	80.6	80.6	80.6
	instalment	102	19.4	19.4	100
helping in right way	Strongly Disagree	3	0.6	0.6	0.6
	Disagree	9	1.7	1.7	2.3
	Neutral	7	1.3	1.3	3.6
	Agree	144	27.4	27.4	31
	Strongly Agree	363	69	69	100
Total		526	100	100	

From Table: 25 we observed that need more grants is significant at 1% level of significance. Grants from more than one NGO is also significant among the beneficiaries at 1% level of significance. Social development Project is significant

Fig:13Ultra -poor affecting social developm
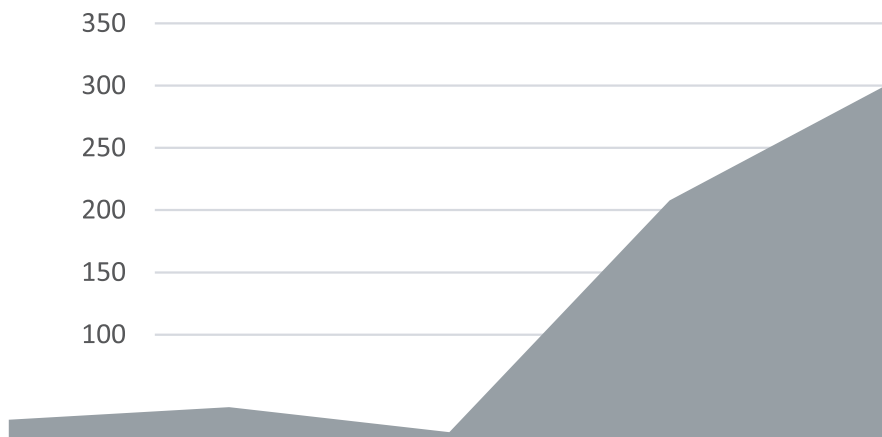
Figure14:Beneficiaries View
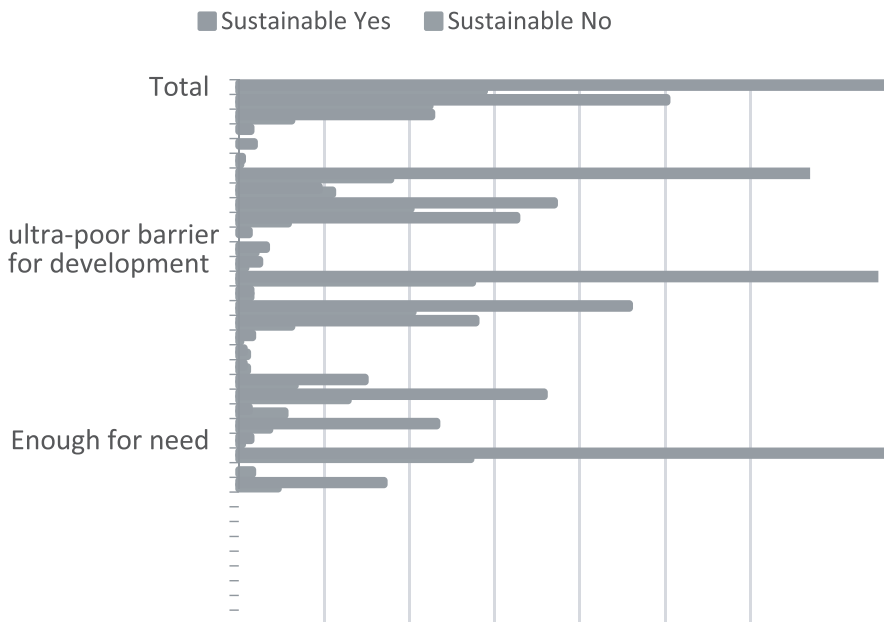
Table 25: Chi square test for association

Variable	Category	Sustainable		Total	Chi Square
		No	Yes		
Need more grants	No	76	69	145	63.12***
	Yes	68	313	381	
Grants from more than one NGO	No	10	382	392	476.986***
	Yes	134	0	134	
Social development Project	No	4	0	4	10.84**
	Yes	138	382	520	
Awareness about primary education	Disagree	62	132	194	29.80***
	Neutral	33	46	79	
	Agree	1	7	8	
	Strongly Agree	23	85	108	
Grants inspired others	No	8	0	8	21.55***
	Yes	136	382	518	
Enough for need	Strongly Disagree	2	7	9	63.197***
	Disagree	18	116	134	
	Neutral	27	6	33	
	Agree	64	179	243	
	Strongly Agree	33	74	107	
Involved in innovation and production	Strongly Disagree	5	3	8	20.24***
	Disagree	5	3	8	
	Neutral	1	8	9	
	Agree	31	139	170	
	Strongly Agree	102	229	331	
Need training	No	7	7	14	3.7*
	Yes	137	375	512	
ultra-poor barrier for development	Strongly Disagree	4	12	16	27.523***
	Disagree	10	16	26	
	Neutral	0	6	6	
	Agree	29	163	192	
	Strongly Agree	101	185	286	
Collect fund	At a time	55	47	102	44.85***
	in installment	89	335	424	
Helping from NGO is right way	Strongly Disagree	1	2	3	10.771**
	Disagree	0	9	9	
	Neutral	0	7	7	
	Agree	31	113	144	
	Strongly Agree	112	251	363	
Total		144	382	526	

***, ** and * indicate 1%, 5% and 10% level of significance

at 5% level of significance. Awareness about primary education is significant at 1% level of significance. Grants inspired others, enough for need and Involved in innovation and production are significant at 1% level of significance. Need training is significant at 10% level of significance. Ultra-poor barrier for development and Collect fund are significant at 1% level of significance. Helping from NGO is right way is significant at 5% level of significance.

As the sustainability is a dichotomous dependent variable to explain the influence of the independent variables, the logistic regression is appropriate.

Table 26 presents the classification table and overall percentage of correct prediction is 82.8% which is very high. Based the information, it can be claimed that the BNF model is appropriate for sustainable development of the poor folk.

Table 26: Classification Table of Logistic regression

Observed		Predicted		
		Sustainable		Percentage Correct
		No	Yes	
Sustainable	No	72	71	50.3
	Yes	19	361	95.0
Overall Percentage				82.8

5.   Field Visit

5.1   Field Report: The study has given a brief field report on twenty three NGOs on the basis of field visit

BHUMIHIN UNYAAN SONSTHA is a non-governmental organization which is located at Chatamohor in Pabna. Mr. K. M. Ataur Rahman Rana is the executive director of the NGO. The activities of this NGO are going on in many branches. The alleviation of poverty is the main target of the NGO. It ensures the proper use of the local properties and also develops the quality of life of the poor people. BHUMIHIN UYAAN SONSTHA is providing landless people with their services like giving lands i.e. khas jomi, seeds, fertilizer and chemicals. Even it also gives animals e.g. cows to the poor people in the occasion of Eid-ul Adha. For field trip purpose I visited 1st August to 5 th August, 2016.

Mr. N.S. Alom Bablu is the managing director of the non-governmental organization of MANOB SHEBA UYAAN SONSTHA. It is situated at Chatamohor railway station in Pabna. The performances of MANOB SHEBA

UYAAN SONSTHA are rather exceptional than any other NGOs because this institution works for the poor patients of Thalassemia by supplying blood and medicine as well as treatment cost.

PABNA PROTISHURITI is one of the most important non-governmental organizations that plays significant roles for the development of the local people. Mis Momota Chalokder is the managing director of PABNA PROTISHURITI. The behavior of the chairman of the NGO was really praiseworthy. PABNA PROTISHURITI provides the poor with standard sanitation facilities, animals, vans and training for income generating activities. Besides these, the organization gives computer training for poor people.

On the other side, DIGANTO SOMAJ KOLLAN SOMITI and SREJONI SOMAJ KOLLAN SONSTHA provide them with sewing machine, cotton, fabrics, microcredit, seeds and plants. Most of the NGOs in Pabna have been found similar in helping the poor to produce paddy, jute, wheat, sugarcane, oil seeds, onion, garlic, betel leaf, pulses and many other crops. Begom Samsur Nahar is the Executive Director of DIGANTO SOMAJ KOLLAN SOMITI and SREJONI SOMAJ KOLLAN SONSTHA is also a non-governmental organization whose Managing Director is Mr. Mohammod Niyaj Uddin.

AARA stands for agricultural & rural advancement. The head of AARA is Sheikh Abul Kalam Azad. The main activities of AARA are donating tube wells and filters. Another organization EADA is contributing through giving the poor house, foods, cloths and safe drinking water to sustain with the environment. The managing director of EADA is Mr. Akter Hossain.

In addition, NAKSHIKHATA is providing people with sanitation, animals, agricultural instruments and training for increasing skill and income generating activities. NAKSHIKHATA plays vital roles for the welfare of the poor women as well as common people. Dhremoti Chodrika Banargi is the Director of NAKSHIKHATA. All data and information have been collected from the Managing Director of the all non-governmental organizations (NGOs) and the beneficiaries. We have conducted the study in Pabna from 3rd August, 2016 to 9th August 2016, and in Sathkhira we conducted the study for seven days. It was 1st September, 2016 to 8th September, 2016.The beneficiaries told that the contributions of the NGO's were very helpful for them. They also want to get these types of opportunities for their economic & social advancement. In a nutshell, the behavior of both the executive directors and beneficiaries are really very well-mannered. BNF is one of the socio-economic development organization.

I visited to Gram Unnayan Prochesta which is situated in Dinajpur. The objective of this organization is to establish women's right & to provide vocational training for improving condition of women. Environment of the office was well and two people were found involved with the NGO as staff.

Another NGO- named- National Improvement Root (NIR) was situated nearby. They are working by WATSAN so that people can lead a sound life but the executive of this organization Mr. Ainul haque shah couldn't show me any evidence of their activities.

I went to Gram Unnayan Dhara (GUD) and MD.Hafizur Rahman is Executive of this organization. Their office environment was very neat and clean, all of their evidences were clear, behavior of staff was quite pretty and their working sector is quite large. They actually work with autistics children and provide poor women with cattle. Sometimes they work with WATSAN. I have really liked this organization more than other organizations.

Education is so important to improve human as well as to develop the country. Biren Das is the executive of SOPAN organization. He has taken responsibility to develop country and that is why, this organization provides primary education along with WATSAN.

Bangladesh is one of the populated country and most of the people live in rural area with poverty line. In those areas parents always try to get their children married before their maturity and so, female children do not have enough knowledge about family and pregnancy. Garidho Nuton Para Nari Kolneyan Shomity has taken responsibility to provide training to pregnant women about health and how to deliver new born baby in the world. This organization also provides training among farmer about agriculture as GDP of Bangladesh depends on agriculture.

I talked to Mr. Aminur Rahman- the Executive of Community Development Organization (CDO). Their main objective is to provide health services to mother and children.

I couldn't visit Rupaly Ideal Dustho Mohila Kolneyan Songstha physically because this area was flooded but I collected information over telephone conversation with Baby Akter who is the founder of the NGO. This NGO works with WATSAN and provides sewing training among poor women as well as conducts tree plantation in the area.

The NGO which I visited was Organization of Rural Economic Development and Rehabilitation. MD. Rezual Karim is the founder of this NGO. His behavior was

not so good and couldn't give me any evidence of his organization actually this organization provides training and distributes cattle among poor family so that they can improve their family condition.

I have really enjoyed the task and give thanks to BNF for standing with poor people. I wish BNF will be one of the best Socio-Economic Development organizations in Bangladesh as well as all over the world.

Artho-samajik O Poribesh Unnoyon Songstha is an NGO that is funded by Bangladesh NGOBNF which is situated at Manikgonj. It is a non-profitable organization. This NGO is working for the sustainable development of Bangladesh and for the betterment of the landless farmers of rural area. This NGO is working for increasing the income of people and the employment for the youth. The NGO is aiming to create employment, micro credit, health consciousness and preprimary education. The NGO is not situated on its own land. It mainly gives fund to the women and small enterprises.

Organization for Social Advancement, Norshingdi is a non-profitable organization is situated at Bilasdi, Norshingdi. It works with WATSON. To create the consciousness about health this NGO is giving sanitation facilities to the poor who are really needy. This NGO does not give money to the needy, they give the ingredients to the needy people. In this project they give the ingredients to maximum 25 people for setting up tube well and toilet. The real beneficiaries are more than 100. This works, at the Raypora area which lacks behind in modern facilities.

COSED (Central for Socio Economic Development) is situated at Domoria Chandpur, Comilla. This year the NGO is mainly working for poverty alleviation by the training of sewing and vegetables cultivation. Before they give sewing machine, they provide training program to the selected people. Basically they give training to the women. They not only give machines or provide training but also monitor the project whether the training is effective or not. This project is improving the livelihood of the selected women who do not have their own place to live.

Development for Society, Comilla, Chowddogram is aiming to provide safe water and sanitation to the needy people, this NGO is getting fund from BNF. They provide the ingredients to set up tube well and toilet and help to build this under their observation. So many people are getting benefited from this project. By this project, people do not have to use pond water and unhygienic sanitation. This ngo is also involved in other work like micro credit.

Shikha Samaj Kallayan Sangstha is at Nasirnagar, Brahmanbaria and working Area is Kunda Thana, Nasirnagar & Paksimul Thana. CEO'S Name is Begum Razia Sultana (Executive Director). I visited the organization for survey. It conducts various kinds of programmes to help the poor people with creating awareness on use of sanitary latrine and safe drinking water, education, health care, training on handicrafts & tailoring, goat rearing and cow fattening etc. The beneficiaries took help or support from the organization. Most of the beneficiaries are day laborers they cannot effort their family needs. Shikha Samaj Kallayan Sangstha helps them with money, training and other facilities for socio-economic development of Bangladesh.

Multipurpose Socio Economic Development Association (MSEDA) is at College Road Sreemangal- 3210, Mowlavibazar and working Area at Ashiddron Thana, Sreemongal. CEO is Mr. Mizanur Rahman (Chairman).This organization works for specially tea laborers' awareness creation on use of sanitary latrine and distribution of sanitary latrine (ring-slab). They have programs against Eve Teasing, and also have programs for Food and Nutrition Education, Awareness Creation among Women and Children and Safe Highway. Most of the poor people lead their life there in tea gardens. They survive their lives very simple manner. Some people want to become entrepreneur and they want to become more benefited by the BNF donation. Multipurpose Socio Economic Development Association (MSEDA) wants people lead there life by safe way and make sure their economic development.

Village Development Organization's address is Brahman Bazar and working area is Kulaura Thana.CEO'S Name is Mr. M.A.H Saheen (Executive Director).For filed study, I visited from 27th September to 30 th September, 2016. This NGO works on awareness creation on use of sanitary latrine and distribution of sanitary latrine to encourage people to use safe sanitary latrine. For family economic-development they provide small poultry farm establishing facilities. They also help people with medicines and other supports. They do their job with a sustainable way for their organization's goal. Village Development Organization basically works for the root level people.

5.2   Observations: Based on some comments on NGOs and Beneficiaries

i)   Though NGOs put emphasis on honesty of fund management of BNF but process of getting installment is lengthy and regarding monitoring system they do not relatively feel comfortable.

ii)   NGOs think that BNF grant will increase their goodwill to get fund from other NGOs.

iii) 5 NGOs commented that installment amount should be increased.

iv)   11 NGOs commented that they have multiple fund from different donor agencies which provides them fat amount of fund.

v)   NGOs think that more involvement of BNF fund importance on Digitization process and environment process.

vi)   Creating awareness of BNF from Head office has been suggested by two NGOs for which they suggested news /media /social networking process by the public relations officer.

vii) Some NGOs think that BNF should come forward with marketing strategy and setting up business incubator.

viii) NGOs request for more involvement of implementation of SDGs through BNF by the Govt.

ix)   While visiting different NGOs we found that though one NGOs address is Dhaka but it is working at another district.

x)   Beneficiaries sometimes mislead by Partner Organizations from which organization fund they are getting.

xi)   Fresh and pure water is more demanded by some beneficiaries.

xii) In the era of globalization, external linkage has been stressed by both NGOs and beneficiaries for selling their products.

xiii) Training at the grass root level were demanded by some beneficiaries as they think NGOs do not give them sufficient training.

xiv) Some beneficiaries suggested for more fund for doing creative entrepreneurship.

xv)   Another comment raised by beneficiaries that BNF can introduce keeping their small fund through partner organizations as a precautionary measures for themselves.

xvi) BNF's grant may be earmarked by the POs as it is own program of BNF so that partners cannot amalgamate them with their other source of NGOs fund and so that beneficiaries can easily understand where from they are getting the fund.

xvii) Some male beneficiaries expressed dissatisfaction that they are relatively in less favorable position than female beneficiaries to get donation from partner organizations.

xviii) Those who are working in the partner organizations especially mid-level and lower level their salary and other incentives are low in comparison to present govt. scale.

xix) Beneficiaries complain that they sometime faces problem to sell product outside the locality as they do not have supply chain management.

xx) Some artists who are entrepreneur complain that as they live in rural area so they do not get any publicity by the social media.

xxi) Now a days in banking system due to electronic banking cost of banking transaction is higher for nano and micro entrepreneurs for which they suggested community banking may be started.

xxii) Most of the beneficiaries argued that no additional fee is required for getting grant of BNF fund .But when we cross checked only two beneficiaries commented that they have to go several times to the NGO to get the grant which they thought as a harassment. To avoid this harassment they are ready to give speed money.

xx iii) Most interesting is that in some areas not beneficiaries but young generation especially male demanded donation of BNF fund to start with their permanent income.

xxiv) NGOs and Beneficiaries (those who know about the fund) argued that BNF grant fund is working in a realistic manner due to Present Govt. Leader Sheikh Hasina and Finance Minister.

xxv) Dimensions the women started to become more empowered than before involving in social networking .As such women empowerment occurred due to BNF grant.

A Proposed Model of BNF's Grant

6.1   BNF Grant Model

BNF was established through a resolution of the Government of Bangladesh on 02 December 2004 that was published in the Bangladesh Gazette on 11 December 2004. The BNF was then registered as a non-profit association within the meaning of Section 28 of the Companies Act, 1994 and was established for financing Non-Governmental Organization (NGOs) and other voluntary organizations including

Community Based Organizations (CBOs) duly registered under the relevant laws of Bangladesh and working in the country for providing basic social services such as education, nutrition and health, sanitation support, safe drinking water, environmental protection and any other services needed by the poor, the ultra-poor, women and children and the ethnic minorities. BNF already disbursed more than 105 crore taka. BNF is an organization with a good team who are working with enthusiasm. However, fund of BNF is based on govt. donation. And they do not take any profit, rather the amount received from the bank they are using as donation and operating cost. BNF has a land where they can build a 15 storied building for generating income. Without regular generating income sustainability of Grant of BNF will be in question. Further, BNF should take strategy to establish a training institute which should be commercially viable and income generating. For implementation of sustainable development program Govt. should give them larger amount of fund with specific works. Sheikh Hasina expressed her firm resolve to build a hunger-free, poverty-free, prosperous and peaceful "Sonar Bangla" (Golden Bengal) by 2021 as dreamt by father of the nation Bangabandhu Sheikh Mujibur Rahman. To realize that dream, she called upon fellow countrymen to work selflessly in the spirit of war of liberation. BNF is relentlessly working to fulfill the dream of the Prime Minister of the country.[10]

Though BNF's work is highly appreciable socially, economically and environmentally and though they have maintenance and good governance, yet to sustain in the long run they need grant matching fund to generate income. This also helps for social networking among the beneficiaries. Recently interest rate on deposit has been decreasing. As such grant fund is decreasing. BNF authority earlier wrote to 10 international organizations to provide them grant for BNF fund. But they did not receive it. They also requested eight big commercial concerns for financial assistance under the purview of Corporate Social responsibility. However, no sort of positive response received.

We are proposing a model of BNF Grant model at Chart: 2 below which indicates how they are working.

From aforesaid diagram we observed that how BNF grant is working to remove poverty. As a resultant factor socio-economic development of the country is occurred through BNF Fund both its partner organizations and beneficiaries which needs sustainability in long run.

Social Networking means social relations within networks on the basis of either

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10. http://www.newstoday.com.bd/index.php?option=details&news_id=2362200&date=2013-11-19

human capital effects or the effects of organizational engagement through social capital, social business, environment, efficiency and effectiveness and also use of social media.

Chart 2: BNF Grant model and its impact
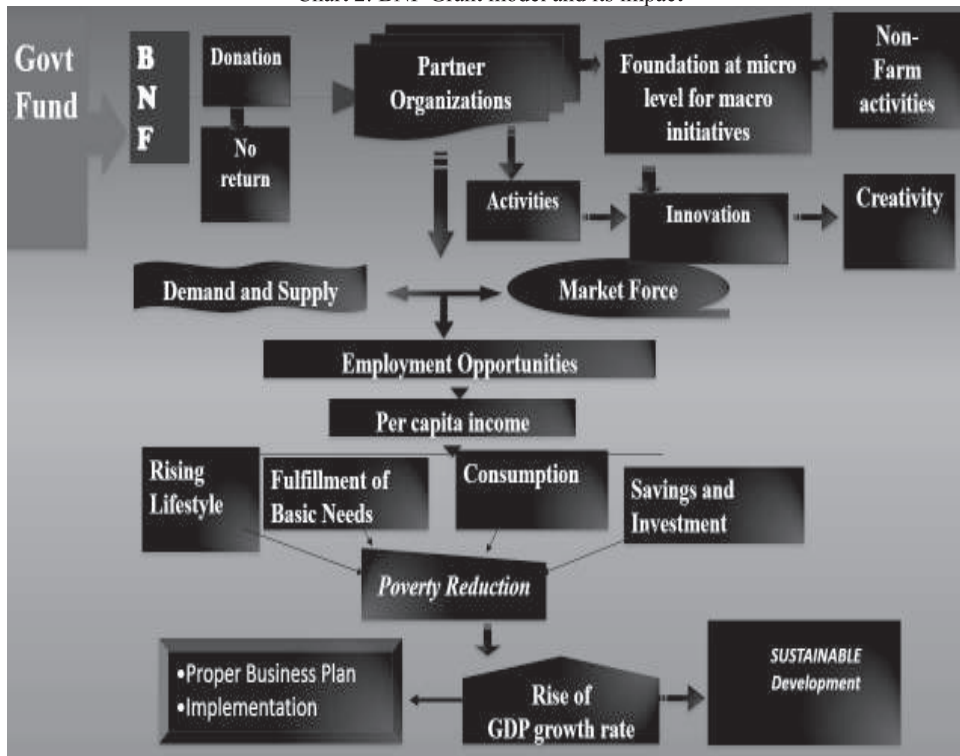
(Source: Author)

Alternative Framework of Microfinance

This alternative framework was an attempt to develop a theory on how social networking facilitates to empower people which were developed by Muhammad Mahboob Ali (2016) to test any country. The study will extensively tries to display an integral part regarding different dimensions of empowerment before involving in social networking and after involving in social capital, social along with business and social investment along with social intelligence, social enterprises along with micro savings transformed to micro investment. Social intelligence is also one of the key components to readdress to come out from poverty. In Current century a greater role is being played by social media for which interpersonal connectivity in vital. Environmental scanning for doing the business is vital especially to ease the business process and local economies.

Empowerment of people rises from decision making process when people do have purchasing power capability.

Technology, innovation and suitable regulations by the local level planning with local level law of the province are the key to deepening financial inclusion analysis where nano saving must be transformed to nano investment. Community banking will help to expedite the process of social networking and ultimately empowerment of people.

In Figure:15 we have seen a model as concept developed by Ali(2016) based on aforesaid discussion in this section as Social Networking Model and empowerment of people through transformation of Micro savings to micro investment with the help of community banking .Post office,Palli Sanchya bank and Kormosangtha Bank may arrange community banking under govt. rules and regulations for a particular area where cost of transaction will be very low and small savings will be accumulated and transformed as social capital which can have positive impact on small investment.

In the figure: 15 we observed that Social networking model process depends on: Micro savings, Social capital, social investment and environmental; Micro Investment, Competitive sustainability empowerment purchasing capability;
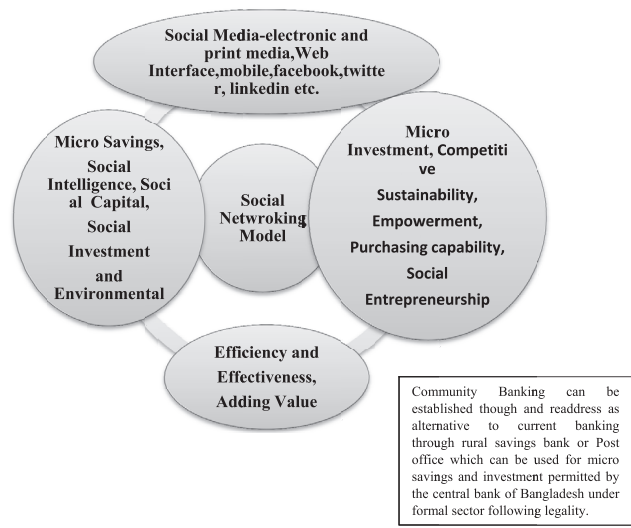
(Source: Concept of a model built by Muhammad Mahboob Ali, 2016)

Figure15: Social Networking Model and empowerment of people through transformation of Micro savings to micro investment with the help of community banking

Note: Aforesaid model may be tested by other researchers of various countries and inform to the author so that it can be scrutinized and further improvement of the model can be done, if necessary.

efficiency and effectiveness, adding value and also social media and web interface. Community banking should play vital role. Over all findings exposes that women who were involved in Social Networking had got better socio-economic condition than before. Furthermore, they were rushing towards women empowerment as their tendency to become self-sufficient had grown. But women empowerment depends highly on occupation, participation in household decision and perception about women rights and so on. From case study it had been found that though all the women were related with Rural credit and other types of Social Networking, they had low control over credit as most of the respondents social capital, social business and social investment and used to control that credit. Moreover, in case of women empowerment they had low access to various sectors of income generating activities, household decision making, social and political activities and mobility but they got relative access to control over credit, expenditure, income and savings with high access to group discussion. Social Networking had given rural credit acceptance to women as financial inclusion but lack of monitoring their empowerment had not been fully ensured yet. However, partial implementation is a good sign. Community banking should not be mismatched with agent banking or mobile banking or informal banking by the NGOs.

7.1 Discussions

From the binary logistic regression we observed that 57.2% NGOs who received funds are sustainable without BNF fund. This is eye opening as more NGOs should be chosen who are relatively poor. In Bangladesh, a scanty amount of money can help poor folk to come out from the low level equilibrium trap for example through setting up and doing business on Prevention of Child marriage, dowry and oppression of women, goat rearing, arts and handicrafts, folk songs, folk dance, skills development programs for youth living with disabilities, nursery and botanical garden, community theater, street theater and multimedia and creativity for creating awareness for stopping child marriage, women trafficking, violence against child and women. Inspiring innovation at micro and small scale empowers pauper and marginalized people of the society to fight against poverty and improving their livelihood with adding value through creating corner stone. BNF grant also helps for developing health consciousness. Cheerfulness with marvelous elevation may be created if properly innovative entrepreneurship at small scale can be established. Haider (2013) observaions that the NGOs have been successful in raising the income level of their beneficiaries as well as providing different deliverables which proves form our qualitative and quantitative analysis on BNF's partner organizations and beneficiaries.

Arvidsson and Niessen (2015) rightly observed that creativity is replaced by an embrace of markets and commerce as vehicles for self-expression. This also we observed in our analysis because creative entrepreneurs who are capable not only improve their life style but retain for expansion of creative business which has positive impact in the market and they engage in business activities gradually in a larger scale and sustain in the long run. This can only happen when a creative entrepreneur has competitive advantages among others and implements business formulation and strategy with efficiency and effectiveness. Creative business proliferation should be done in a greater extent so that social justice and income inequality can be removed. Hailey (2014) rightly observed that a financially sustainable NGO is one which can continue with its core work and meet its mission, even if external donor funding is withdrawn. This is also true in case of Partner organizations of BNF.

In this study, 93.9% of the organizations give help to women entrepreneurs. Majority (69.6%) of the respondents strongly agreed that BNF's financing and capital formatting solve social problems. It has been seen that there was significant association between NGOs role for discovery and productivity and giving the right training/education. Through the binary logistic regression, we observed that 57.2% NGOs who received funds are sustainable without BNF fund. Sustainability of BNF's partner organizations will help Bangladesh to attain sustainable development goal (SDG) by 2030 as government of Bangladesh is very keen for socio –economic development. Result shows that if NGO help to the people has own land is significant at 1% level of significance. If funding from NGO is sufficient then the NGO will be sustainable. If a NGO is involved in innovation and production then it will be sustainable at 5% level of significance as odds ratio of strongly agree and agree compare to strongly disagree is higher than 1.6. If a NGO collect its fund in installment rather than at a time has higher chance to sustain at 1% level of significance. Regular source of Income is required for NGO is significant at 1% level to sustain.

Further from the beneficiaries' point of view of BNF grant need more grants is significant at 1% level of significance. Grants from more than one NGO is also significant among the beneficiaries at 1% level of significance. Social development Project is significant at 5% level of significance. Awareness about primary education is significant at 1% level of significance. Grants inspired others, enough for need and Involved in innovation and production are significant at 1% level of significance. Need training is significant at 10% level of significance. Ultra-poor barrier for development and Collect fund are significant at 1% level of significance. Helping from NGO is right way is significant at 5% level of significance.

Through partner organizations we observed that is 82.8% beneficiaries are sustaining through getting the fund which is very high. Based on the information, it can be claimed that the BNF grant model is appropriate. Chambers and Vejle (2011) observation regarding business incubator which consists primarily of a development programmes and a range of business development services, which also lacks at the rural areas of the country. As such creative entrepreneurs don't have proper business development services and they suffer from supply chain management. From the analysis it is observed that most of the creative entrepreneurs as they are from poor income strata so they really need business incubator and also not only external linkage outside the country even need domestic linkage from one district to another district. BNF should come forward to set up business incubator and creating domestic and external linkages for creative entrepreneurs. The study observed that innovative business ideas among the poor people have been giving new dimension and varieties of product like arts and handicrafts, Social development through libraries and reading clubs, Development of low caste Hindu, indigenous and tribal families Computer training, Pisiculture ,Pre-Primary Education, adult education, Health care, folk songs, folk dance, Raising mass awareness about drug abuse and rehabilitation of drug addicted people, Skills development programs for youth living with disabilities, Community Theater, nursery and botanical garden, multimedia and creativity which is highly compatible and sustainable.

Social media does not still play positive role to encourage creative and artistic entrepreneurship. As such journalists/volunteers who are users of social media may take the initiatives to patronize cultural entrepreneurism through using such factors. Moreover, in the rural area those who work individually with creative entrepreneurship do not get any sort of recognition or award by the government or private sector. Not with standing, creative entrepreneurs are being motivated long cultural heritage, independence war, and historical background. Bangladesh has long outstanding cultural heritage which can be utilized through optimum utilization of resources of the cultural environment for which creative entrepreneurs may get more patronization. Further, it can be used against the cultural participations and generating income as well as hate against militancy and terrorism. Hassan's (2015) observation is right as we observed from this study.

From our study we found BNF fund helps to sustain individual NGOs which 43.8% is true. Our alternative hypothesis BNF fund generates income for partner organizations is true. We also agree on the basis of our quantitative analysis that BNF fund generates income for beneficiary's sustainability. But amount of installment for grant to the partner organizations need to be raised.

7.2   Conclusions

The government has established BNF to support the NGOs, with a view to associating the Non-Governmental Organizations and mandated to take up socio-economic development activities and poverty alleviation initiatives through NGOs having previous experience of implementing similar programmes. From the binary logistic regression we observed that 57.2% NGOs who received funds are sustainable without BNF fund.

The findings of this study reveals that more than nine-tenth (91.3%) of the NGOs are helping in developing women entrepreneurs. It has been seen that there was significant association between NGOs role for discovery and productivity and giving the right training/education.

The study observed that innovative business ideas among the poor people have been giving new dimension and varieties of product like arts and Handicrafts, trainng, folk songs, folk dance, Skills development programs for youth living with disabilities, farming, livestock, water and sanitation, Community Theater, nursery and botanical garden, Raising mass awareness about drug abuse and rehabilitation of drug addicted people, computer training, multimedia and creativity etc., which is highly compatible and sustainable. Currently BNF is keen on human improvement form by redesigning its practice to safeguard social self-esteem by dropping poverty and disparity. At household levels-who are beneficiaries of the BNF grant is being encouraged. Extra emphasis and synchronized synergies are desirable to grow free of extreme poverty inside sensible period for which BNF fund can work .However, the number of partner organizations are too many i.e.1120 though 300 partners are not currently working.So many partner organization in terms of full time staffing at BNF office is a challenging task.

BNF can launch youth development with a purpose to allow them through preparation to invention economic roles for themselves and discourse social evils. They can be turned to become entrepreneurs by generous them preparation and credit. BNF can train them and assistance them to discover employment at home and overseas. A big share of the country's inhabitants are young. Producing self-employment chances in the rural off-farm sector by endorsing credit programme for the countryside poor by giving grant of BNF .

Social media does not still play positive role to encourage creative and artistic entrepreneurship as well as creating awareness. As such journalists/volunteers who are users of social media may take the initiatives to patronize Nano and micro entrepreneurism through using social media. Moreover, in the rural area those

who work individually with creative entrepreneurship do not get any sort of recognition or award by the govt. or private sector.

It is evident that creative entrepreneurs are being motivated with long cultural heritage, war of independence and historical background. Bangladesh has a long outstanding cultural heritage which can be utilized through optimum utilization of resources of the cultural environment for which creative entrepreneurs may get more patronization. Moreover, creative entrepreneurship can be used against the cultural participations and generating income as well as hate against militancy and terrorism.

Nano and micro entrepreneurs should possess aptitude, attitude, skill, natural adoption capability to accept artistic entrepreneurship and networking especially women folk at rural areas. BNF is working as an angle investor though they are using government fund. In this study it has been seen that there was significant association between NGOs role for discovery and productivity and giving the right training for doing creative entrepreneurship at 10% level of significance. It has been observed that there is significant association between getting fund, amount of installment and giving proper amount of donation at 5% level of significance. There is no significant association between NGOs helped directly for marketing purpose or arranging program and NGOs helped for social networking. With the patronization of BNF, those NGOs are patronizing cultural activities to relate their products, services and events which act as creative design of meaningful practices and formation of the technique to generate income. Mapping different categories of opportunities to different types of nano and small providers fostering inherent skills built among the creative entrepreneurs must be exposed. Private business stimulus can occur through public business stimulus through providing fund among the artistic entrepreneurs. Their innovative ideas need to get patronization by both public-private and foreign collaborative effort.

Social value need to be characterized so that those who will be involved and put their input in the process of business must establish them in wealth based society. Market information should be collected by the artistic entrepreneurs so that they can improve their business process. Spillover effects occur as audiences get good moral messages and raises awareness against any wrong deed as some artistic entrepreneurs engaged in creation of awareness by Community Theater and folk song, prevention against violence,. Further income generating can improve life style changes due to other activities of the BNF grant. BNF fund increases involvement in the process of social networking. After involving in social capital, social business and social investment, the women started to participate in different

income generating activities *i. e.,* business, small business, buying cattle, fish cultivation, poultry rearing, handicrafts etc. As a result their income level was also rising gradually. Then, they also started to control over income, expenditure, credit and savings. They could then participate in household decision making more than before. Because of involving in Social Networking program the rate of participating in social and political activities among the women also increased. Their mobility outside home and exposure to media and communication was increased after involving in Social Networking. From the study, it was found the in dimensions of empowerment the women are now staying in higher position than before involving in Social Networking by BNF grant. Social Networking is playing a vital role for empowering women in rural Bangladesh and due to the process of social networking households' behavior and family economics are improving which should be steadily accelerated.

In the highly competitive situation only producing creative entrepreneurship is not sufficient but it should be accompanied by in search of excellence and attain competitive advantage through long run sustainability. Bangladesh Bureau of Statistics should have a database for fastest-growing companies in the nano and micro creative industries. Social value needs to be characterized so that those who will be involved and put their input in the process of business must establish them in wealth based society. Market information should be collected by the artistic entrepreneurs so that they can improve their business process. Spillover effects occur as audiences get good moral messages and raises awareness against any wrong deed as some artistic entrepreneurs engaged in creation of awareness by community theater, folk songs etc. Creative entrepreneur should possess aptitude, attitude, skill, natural adoption capability to accept artistic entrepreneurship and networking especially women folk at rural areas. BNF is working as an angle investor though they are using government fund. This implies that BNF grant fund has an impact on business process through the creative micro and small enterprises through tight form of training. Employment creation through non-farm activities are important. BNF is employed for domestic growth, children progress, cultural growth, health centers, and education facilities, workout, handling climate alteration effect, social capital and removing gender biasness.

However, BNF needs extra fund for which foreign Bangladeshi expatriates can give their donation to them which they can use for increasing their social activities and patronizing creative entrepreneurship. In the free market economy, when role of the government is gradually decreasing and private sector is gaining potentialities but in a country like Bangladesh still government ought to play role of facilitator so that people get space not only to become self-employed but also can create employment

opportunities and generate income. As BNF needs fund, so extra amount of fund can be generated by the well-wishers as they did not charge any interest or principal amount rather they give it as one time grant to partner organization. However, from our qualitative analysis and subjective judgment we observed that BNF fund has an impact on business process through the creative nano and micro enterprises. Rijnhout (viewed on 1st October 2016) argued that to be most effective the post--2015, sustainable development framework must include a focus on marginalized communities and groups (rural communities, women, indigenous people) enabling their agency and access to justice and progressive good governance. It also needs to emphasize the equitable access to a fair share of natural resources while at the same time building climate resilient livelihoods through low carbon development pathways. To mitigate the SDG need, government of Bangladesh can distribute fund through BNF for evolving an innovative model for inclusive development; vital achievements for attaining the SDGs; nano and micro business as a device of community expansion, from side to side corporate social responsibility to remove hard core poverty from the society. Social welfare can be done and micro foundation for macro stability can be achieved. BNF fund is helping to provide people with social justice by removing inequality, empowerment of community through ensuring development process, water and sanitation, purified water at costal area, skill enhancement. But most remarkable thing is that not only BNF partners, individuals who received the fund from the BNF have also been benefitted. BNF should choose more nano NGOs at par micro level than small NGOs. NGOs must come out from dependency syndrome so that they can act like independent manner towards social welfare and removing poverty and creating human empowerment. BNF can encourage partner organization to work as non-communal and terrorist movement free organization. BNF 's fulfill its objective is not to earn profit rather than to improve livelihood, to arrange social justice and reducing income inequality by arranging donation to the individual by transmitting fund through its partner organizations.

7.3 Implications

BNF partner organizations must try to have a better competitive advantages and mitigate social –economical-legal and political need so that grand utility curve can be tangent with social indifference curve.

BNF may set up a business incubator which can organize training, counseling and financial support to hopeful entrepreneurs in performing sustainably in the long run. BNF should set up its own training institute rather than depending on others training institute.

BNF's amount of installment of grant fund may be raised. Bangladesh Bank may request Banking sector to provide grant fund to BNF for accelerating socio-economic development of Bangladesh.

For more generation of grant fund they need to establish and encourage creative entrepreneurship so that poor downtrodden people can come out with innovative business process through financial inclusion process.

Creative enterprises should get patronization by NGOs and buyers through giving Fair Price.

For buyers public-private –foreign collaboration is required for both domestic and international trade and BNF can take the help of Mosques, temples, and churches to engage more rural people for converting innovative business process and coming out from poverty.

Foreign expatriates can give their donations directly at the bank account of BNF for which necessary steps should be required and this fund may give more strength to give access to the nano and micro enterprises of the poor people.

Reasons for 303 partner organizations poor performance should be identified and corrective measures need to be done so that they can play active role in socio-economic development of the country.

Product, service and event development may occur so that input can be processed as output in the creative industry.

Even in the rural area those who are involved in the process of nano and micro entrepreneurship must think about a business model comprising operational efficiency and cost effectiveness. Without profit no one should engage in any sort of entrepreneurship.

Training institute of BNF must be commercially viable so that it can generate more nano and micro entrepreneurs.

A strategic business plan and implementation regarding the creation of a niche in the artistic/creative industry with innovation are required as per the demand of the market in which BNF can play more catalyst role.

Policy makers of the country can think to set up community banking system in rural areas to provide services as cheap rate and encourage financial inclusion.

BNF can come forward with marketing strategy of their beneficiaries.

More male downtrodden people can get access to the donation of BNF grant fund.

BNF should give emphasis on Digitalization process and environmental awareness program.

This is required to form domestic and global joint ventures which may encourage visibility, promotion and network so that creative entrepreneurs can work with more zeal, enthusiasm, aptitude and skill which is very important for the sustainability of BNF and its partner organization.

Govt. may consider BNF as one of the suitable organizations through which sustainable goals can be achieved by 2030 for which they can be instructed by Ministry of Finance and Ministry of Planning, Govt. Of Bangladesh to include other 8 sustainable development goals execution among rural people.

Social Networking had given rural credit acceptance to women as a part of financial inclusion process but lack of monitoring their empowerment had not yet been fully ensured .

To sustain in the long run BNF partner organizations need to have own land, contribution in innovation and production process, good fund collection system and regular source of income.

Tightening the belt though evaluation and monitor needs to be eased;

To increase fund govt. may float Bond in the name of BNF;

BNF may invest their fund to the non-bank commercial financial which are financially sound and good in risk management and analysis so that their income can be raised;

BNF needs to appoint Public relations officer through assigning a dedicated officer so that news can be published in different print and electronic Medias.

Skill development of the Partner organizations and beneficiaries ought to give under more pro-service oriented program.

BNF's own building should be built for which additional amount of money may be donated not only by the govt. but also by the local and foreign private donors. In this case under negotiation with foreign donor agencies action plan for constructing building should be built and rent of some floors can be used in future as income generating of the BNF.

BNF may sign special MOU with Dhaka School of Economics for arranging their training program until they have any own institution.

BNF officials should attend the Post graduate diploma program on Enterprise development arranged by Dhaka School of Economics.

7.4 Future Research Direction

In future study may be done whether BNF can be sustain without govt. fund. Effectiveness and efficiency of monitoring process of BNF fund along with disbursement of fund through installment may be quantitatively measured. A separate study may be undertaken if BNF take marketing strategies of the beneficiaries whether it will be effective one or not. Moreover, another study can be undertaken to find out how socio -economic development works due to sustainability of BNF's grant fund among the Partner organizations and their beneficiaries. The theory which is in a process of development by Muhammad Mahboob Ali on Social networking and empowerment of people may be tested in different countries of the world and also at Bangladesh by various researchers to give a structural formation, cost-benefit analysis, shadow pricing, validation and reliability of the theory in the real life scenario both global and domestic perspectives with a request to inform the result to the author.

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Measuring Education Inequality:
Gini Coefficients of Education for Bangladesh

KHAN A. MATIN[*]

Abstract: *This paper employs an education Gini index to measure educational attainment. It presents both direct and indirect methods of calculating the education Gini index. Further the study attempts to explain the Bangladesh's educational reforms on access to educational opportunities by various groups such as male and female, rural and urban, and various regions. The data of 2011 Population Census and years of schooling for population 7+ were utilized. The average years of schooling was found to be higher for male while compared to female in rural, urban and regional levels. The education Gini coefficient was found to be higher for female while compared to male in rural, urban and regional levels. Average years of schooling were found to be negatively associated with education Gini coefficient. The standard deviation of years of schooling was also found to be negatively associated with gini coefficient. The average years of schooling and its standard deviation indicated a positive relationship implying an early stage of education Kuznets curve.*

Keywords. *Bangladesh. Educational inequality, average years of schooling, gini coefficient, Lorenz curve.*
JEL Classification code*: C43, D63, I32, J24, O11, O1*

Introduction

Equal access to education is among the basic human rights to which everyone is entitled. Yet, the educational gaps between various groups in many countries are staggering, as shown by many studies. In the era of economic reforms, as the foundations of education have changed, so has the distribution of illiteracy.

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[*]   Professor (formerly), Institute Statistical Research and Training (ISRT), University of Dhaka
      E-mail: kmatin@isrt.ac.bd/ kmatin_isrt@yahoo.com

Between rural and urban areas, male and female, inequality on education has risen substantially since the reforms began If people's abilities are normally distributed, then a skewed distribution of education opportunities represents large welfare losses. As with land and machinery, an equitable distribution of human capital (basic literacy and nutrition/health) constitutes a precondition for individual productivity and ability to rise above poverty. Furthermore, an equitable distribution of opportunities is preferable to a redistribution of existing assets or incomes. This is because education builds new assets and improves social welfare by its spillover effect, without making anyone worse off. Ensuring access to educational opportunities by attending to both the supply and demand sides is a win-win policy gaining support in industrial and developing countries. To support such an effort, an indicator that can be easily calculated and monitored over time would be useful. In order to find a measurement of this inequality, a new indicator for the distribution of human capital and welfare have come up with an education Gini index that also facilitates comparison of education inequality across countries and over time (Thomas et al, 2001, Appiah-Kubi, 2002, Digdowiseiso, 2010, Senadza 2012, Tomul, 2009). An unequal dispersion of human capital is expected to have a negative effect on economic growth through two channels. First, education inequality leads to an inefficient allocation of resources. Secondly, education inequality has a negative impact on the rate of human capital accumulation.

The goal 10 of Sustainable Development Goals (SDGs) says 'Reduce inequality within and among countries' (UNGA, 2015). The paper uses the education Gini coefficient, computed on the basis of years of schooling of individuals, to assess education inequality in Bangladesh.

Objectives

The main objective of the study is to investigate the inequality in education according to gender and spatial background in Bangladesh.

Data

The analysis has been carried out by using the years of schooling of population age 7+ of the Population Census 2011(BBS, 2012) and Household Income and Expenditure Surveys(BBS, 2012).

Methodology

For the purpose of estimating education inequality direct method has been applied

to obtain education Gini coefficient, average years of schooling, and standard deviations of education. In addition, Lorenz curve based on the cumulative proportion of population and that of schooling shall be presented in indirect method.

Direct Method

The direct method states that the education Gini is defined as "the ratio to the mean (average years of schooling) of half of the average over all pairs of the absolute deviations between all possible pairs of people" (Deaton 1997). Thomas et al *(*2001) developed Deaton's formula, which is shown in equation 1.

$$E_L = (\frac{1}{\mu}) \sum_{i=2}^{n} \sum_{j=1}^{i-1} p_i \left| y_i - y_j \right| p_j \qquad (1)$$

E_L is the education Gini based on educational attainment distribution, large population;

μ is the average years of schooling for the concerned population;

ρ_t and ρ_t stand for the proportions of population with certain levels of schooling;

γ_t and γ_t are the years of schooling at different educational attainment levels;

n is the number of levels/categories in attainment data, and n = 7 in this paper.

Barro and Lee (1991) divided the population into seven categories include no schooling or illiterate, partial primary, complete primary, partial secondary, complete secondary, partial tertiary, and complete tertiary. In the present study, population was divided into seven categories according to educational attainment: never been to school, partial primary school, complete primary school, partial secondary school, complete secondary school, complete higher secondary school and complete tertiary school or university.

The value of Gini is sensitive to population size N if the population size is too small. The sensitivity is reflected by a factor of [N/(N-1)]. The education Gini formula for a small population is shown in equation 2.

$$E = \left(\frac{N}{N-1}\right) * \left[(\frac{1}{\mu}) \sum_{i=2}^{n} \sum_{j=1}^{i-1} p_i \left| y_i - y_j \right| p_j \right] = \left(\frac{N}{N-1}\right) * E_L \quad (2)$$

Where,

E is the education Gini based on educational attainment distribution;

N is the number of individuals in the concerned population.

Multiplying equation (1) with a factor of [N/(N-1)] gives us the detailed summation process for the second education Gini formula of equation (2).

Theoretically, when population size N approaches infinite, [N/(N-1)] =1, and the second formula becomes the first formula. Practically, when population size is large enough, the first formula is good enough to achieve a high level of accuracy. The beauty of the first formula is that the exact number of the population size is irrelevant to the value of Gini as long as we know the concerned country has a large population.

AYS and Standard Deviation

The average years of schooling(AYS) and standard deviations of schooling can be calculated in formulae 3 and 4 respectively.

$$\mu = AYS = \sum_{i=1}^{n} p_i y_i \qquad (3)$$

$$\sigma = SDS = \sqrt{\sum_{i=1}^{n} p_i (y_i - \mu)^2} \qquad (4)$$

Expanding equation (1) we get the detailed summation process of the first education Gini formula, shown in equation (5).

$$E_L = (1/\mu) \, [p_2(y_2 - y_1)p_1$$
$$+ p_3 \, (y_3 - y_1) \, p_1 + p_3 \, (y_3 - y_2) \, p_2$$
$$+ \dots\dots\dots\dots\dots\dots$$
$$+ p_7(y_7 - y_1) \, p_1 + p_7(y_7 - y_2) \, p_2 + p_7(y_7 - y_3) \, p_3 + p_7 \, (y_7 - y_4) \, p_4$$
$$+ p_7 \, (y_7 - y_5) \, p_5 + p_7 \, (y_7 - y_6) \, p_6]$$

Where,

ρ_1, is the proportion of population with no schooling,

ρ_2 is the proportion of population with partial primary education;

ρ_7 is the proportion of population with complete tertiary education.

γ_1, is years of schooling for an individual with no schooling, =0;

γ_2 is years of schooling for an individual with partial primary education;

γ_7, is years of schooling for an individual with complete tertiary education.

The formula for calculating the years of schooling at the seven levels of education:

(5.1) Illiterate $y_1 = 0$

(5.2) Partial-Primary: $y_2 = y_1 + 0.5 \, C_p = 0.5 C_p$

(5.3) Complete-Primary: $y_3 = y_1 + C_p = C_p$

(5.4) Partial-Secondary: $y_4 = y_3 + 0.5 \, C_S = C_p + 0.5 C_S$

(5.5) Complete-Secondary: $y_5 = y_3 + C_S = C_p + C_S$

(5.6) Higher Secondary: $y_6 = y_5 + Chs = C_p + C_S \; + \; Chs$

(5.7) Tertiary: $y_7 = y_6 + C_t = C_p + C_s + Chs + Ct$

Where,

Cp is the cycle of the primary education = 5 years;

C_S is the cycle of the secondary education =5 years;

Chs is the cycle of the higher secondary education = 2 years;   and

Ct is the cycle of the tertiary education= 5 years.

The data on cycles of schooling (Cp , Cs , Chs Ct) is obtained from Population Census Reports of Bangladesh (BBS 2012). Secondary education is divided into two tiers- grade 6-8 comprises junior secondary certificate and grade 9-10 makes the secondary school certificate. People who receive partial education is assumed to get half of the schooling cycle in their years of schooling, shown in equation (5.2), and (5.4).

Findings

Average Years of Schooling: Gender and Regions

Although Bangladesh has a long history of census taking and collecting information on literacy, we have very scanty information on average years of schooling. However the 2001 Population census reports provides us with information regarding average years of schooling according to gender and residence background. Table 1. The average years of schooling for both sex was found to be 3.63, while that value for male was 4.09 and female had 3.13 years of schooling. At the national level there is a gender gap of 0.96 mean years of schooling. The average years of schooling in the urban area was 5.15 which was 2.01 years higher than the average years of schooling in rural area having its value

Table 1: Average Years of schooling for population 7 +
by sex and locality. Bangladesh 2001-11.

Census	National			Urban			Rural		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
2001	3.63	4.09	3.13	5.15	5.74	4.46	3.14	3.53	2.74
2011	4.34	4.69	4.00	6.10	6.61	5.54	3.79	4.05	3.55
Change	0.71	.60	0.87	0.95	0.87	1.08	0.65	0.52	0.81
Rate of change (%)/a	1.95	1.47	2.78	1.84	1.51	2.42	2.07	1.47	2.96

a/annual rate of change(Per cent). Author's computation. Source. BBS

as 3.14.The average years of schooling for the Population census data of 2011 computed in the present study was 4.34 for both sex, 4.69 for male and 4.00 for female. At the national level there is a gender gap of 0.60 years in the average years of schooling which is 0.36 years less than the gender gap of 0.96 obtained in 2001.

Gender ratio and rural-urban ratio in educational attainment

In all the administrative divisions the average years of schooling for male was higher for male while compared to female in both rural and urban areas. The gender ratio was found to be lowest- 81.5 per cent in Rangpur division and highest- 90.5 per cent for Barisal division. The overall national gender ratio was found to be 85.3 per cent. The average years of schooling were considerably higher in urban area while compared to rural area in all the administrative divisions. The lowest rural urban ratio of 57.8 per cent was observed for Dhaka division and the highest rural urban ratio was observed for Chittagong division followed by about 68 per cent for Barisal and Khulna division. The overall national value of rural urban ratio was found to be 62.1 per cent. It is mentionable here that a value of 100.0 for gender ratio and rural urban ratio would indicate gender and spatial parity in educational attainment. The various educational programmes adopted in Bangladesh has been successful in minimising gender ratio but more efforts are in order to reduce the rural urban ratio in educational attainment. The prevailing inequality in Bangladesh requires increased public

Table 2: Gender and Rural-urban ratio in Average years of schooling by Divisions.

Region/ Divisions	Female (A)	Male (B)	Rural (C)	Urban (D)	Gender ratio (A)/(B) Per cent	Rural-urban ratio (C)/(D) Per cent
Total	4.00	6.69	3.79	6.10	85.3	62.1
Barisal	4.39	4.85	4.28	6.26	90.5	68.3
Chittagong	4.21	4.71	4.02	5.76	89.4	72.9
Dhaka	4.19	5.03	3.70	6.43	83.3	57.5
Khulna	4.12	4.83	4.12	6.06	85.3	68.0
Rajshahi	3.70	4.41	3.66	5.83	83.9	62.8
Rangpur	3.49	4.28	3.60	5.67	81.5	63.5
Sylhet	3.32	3.79	3.23	5.32	87.6	60.7

Note. Author's computation. Source. BBS

attention and proper policy targeting towards improving educational facilities in rural areas and female schooling. Table2.

Table 3: Average Years of schooling for Bangladesh and South Asia.

Region	Average years of schooling(AYS)		Gender Ratio
South Asia (population 15+)	Female(A)	Male(B)	(A/B) Per cent
1950	0.41	1.54	26.6
1960	0.52	1.71	30.4
1970	0.88	2.32	37.7
1980	1.38	3.29	42.1
1990	2.28	4.51	50.7
2000	3.16	5.31	59.5
2010	4.29	6.25	68.6
Change: 2000-2010	1.13	0.94	9.1
Bangladesh (population 7+)			
2001	3.13	4.09	76.5
2011	4.00	4.69	85.3
Change 2001-2011	0.87	0.60	8.8

a/ For South Asia the AYS is for Population age 15+, for Bangladesh it is for population age 7+. South Asia included seven countries (Afghanistan, Bangladesh, India, Maldives, Nepal, Pakistan and Sri Lanka).

Barro, R. J. and J-W Lee. 2011 .A New Data Set of Educational Attainment in the World, 1950–2010.

With an aim to compare the performance of Bangladesh's efforts in enhancing the access to education we have presented some findings from Barro and Lee (2010) in table 3. The south Asian countries have improved 2.6 folds in the last six decades from 26.0 per cent in 1950 to 68.6 per cent in 2010. Although we do not have data   for previous census years, the gain in average years of schooling in Bangladesh has been 0.60 for male which is much lower than the corresponding gain of 0.94 in south Asian countries, while the gain of 0.87 in average years of schooling for female in Bangladesh is also much lower than the gain of 1.13 of south Asian countries. As a result improvement in gender ratio in Bangladesh and South Asia has been more less similar, about 9 per cent during the decade 2001-2011.

Gini Coefficient: Gender and Divisions

The Gini coefficient according to gender, rural-urban and regional locations are presented in table 5.

The national Gini ratio is 0.5255 and the Gini ratio for rural area is 0.5403 and for the urban area Gini ratio is found to be 0.4578 suggesting a concentration at the lower end of the years of schooling in rural areas while compared to urban area. The Gini coefficient for female has been all along higher while compared to the Gini coefficient for male suggesting intra-concentration of inequality for female

Table 4: Education Gini Coefficient by Sex, Division and Residence 2011

Region/		Total			Rural			Urban	
Division	Total	Male	Female	Total	Male	Female	Total	Male	Female
							Findings:		
Total	.5255	.5156	.5322	.5403	.5319	.5455	.4578	.4366	.4635
Barisal	.4572	.4602	.4515	.4612	.4656	.4558	.4064	.4037	.4054
Chittagong	.4981	.4954	.4984	.5076	.5069	.5080	.4491	.4413	.4534
Dhaka	.5258	.5128	.5369	.5525	.5431	.5596	.4448	.4277	.4620
Khulna	.5043	.4929	.5126	.5136	.5038	.5219	.4398	.4261	.4511
Rajshahi	.5531	.5441	.5610	.5677	.5580	.5756	.4677	.4553	.4760
Rangpur	.5658	.5453	.5837	.5737	.5542	.5914	.4882	.4675	.5070
Sylhet	.5548	.5434	.5643	.5626	.5509	.5724	.4782	.4631	.4912

Note. Author's computation. Source. BBS

Fig. 1 Education Gini Ratio by Gender and Divisions.

	Barisal	Chittagong	Dhaka	Khulna	Rajshahi	Rangpur	Sylhet
MALE	0.4602	0.4954	0.5128	0.4929	0.5441	0.5453	0.5434
FEMALE	0.4515	0.4984	0.5369	0.5126	0.561	0.5837	0.5643
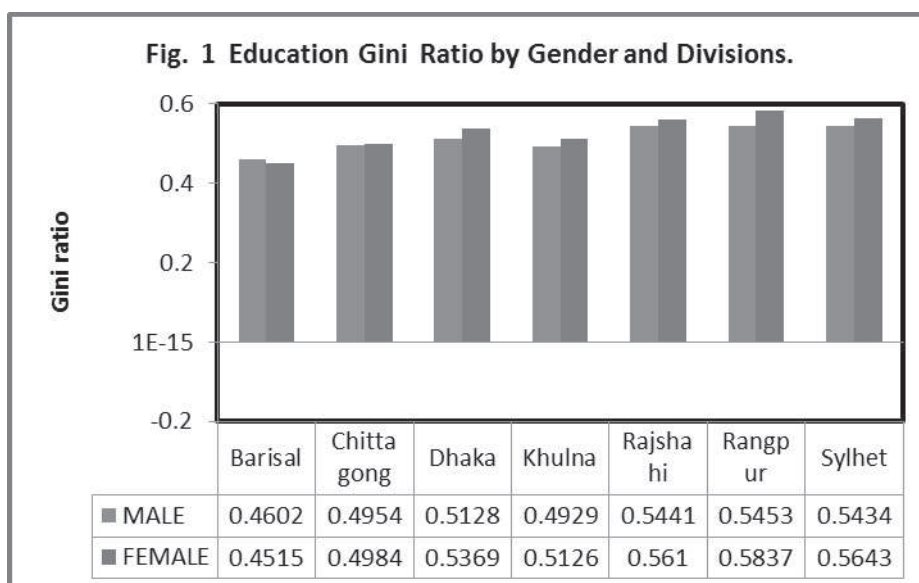
in all the locations. This pattern of differentials in Education Gini ratio is prevalent in all the divisions. Among the divisions Rajshahi, Rangpur and Sylhet had the higher value of Gini concentration ratio while Barisal, Chittagong and Khulna regions were on the lower value of Gini ratio. The Gini ratio of Dhaka division was in the mid way. Table 4 and Figure 1 and 2.

Fig. 2. Education Gini ratio by Residence and Divisions.

	Barisal	Chitta gong	Dhaka	Khuln a	Rajsha hi	Rangp ur	Sylhet
■ RURAL	0.4612	0.5076	0.5525	0.5136	0.5677	0.5737	0.5626
■ URBAN	0.4064	0.4491	0.4448	0.4398	0.4677	0.4882	0.4782
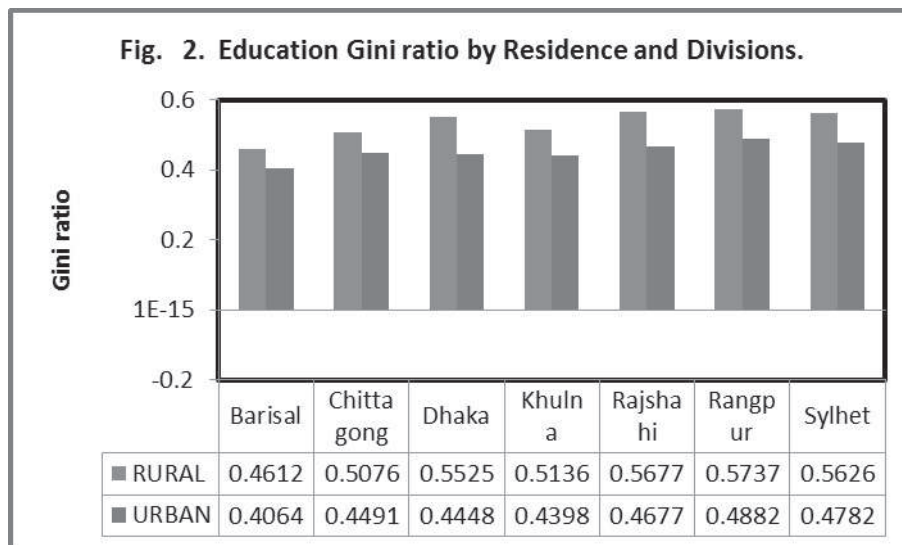
The Indirect Method through the Construction of Lorenz Curve

The indirect method first constructs the education Lorenz curve, with the cumulative percentage

of the schooling years on the vertical axis, and the cumulative percentage of the population on the horizontal axis. The forty-five degree line is the education egalitarian line for it represents a completely equality of schooling. The Gini coefficient is defined as the ratio of the area formed by the Lorenz curve and the egalitarian line to the area of the entire egalitarian triangle. Figure 3.

The Education Lorenz Curve

The education Lorenz curve in Figures 3 to 5 is constructed by putting the cumulative proportion of population on the horizontal axis, and by putting the cumulative proportion of schooling on vertical axis. The cumulative proportion of population at each level is as the following.
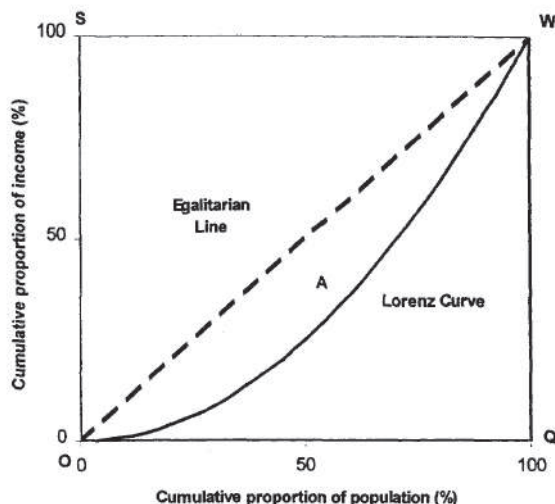
Fig 3: Education Lorenz Curve

$$GINI = \frac{\text{Area of A(between Egalitarian line and Lorenz Curve)}}{\text{Area of OWQ(Egalitarian Triange)}} \quad (6)$$

(6.1) Illiterate: $\qquad Q_1 = p_1$

(6.2) Partial-Primary: $\qquad Q_2 = p_1 + p_2$

(6.3) Complete-Primary: $Q_3 = p_1 + p_2 + p_3$

(6.7) Complete-Tertiary: $Q_7 = p_1 + p_2 + p_3 + p_4 + p_5 + p_6 + p_7 = 100\%$

The cumulative proportion of schooling at each level of schooling is as follows.

(7.1) Illiterate: $\qquad S_1 = (p_1 y_1)/\mu = 0$

(7.2) Partial-Primary: $\qquad S_2 = (p_1 y_1 + p_2 y_2)/\mu$

(7.3) Complete-Primary $S_3 = (p_1 y_1 + p_2 y_2 + p_3 y_3)/\mu$

(7.7) Complete-Tertiary: $S_7 = (p_1 y_1 + p_2 y_2 + p_3 y_3 + p_4 y_4 + p_5 y_5 + p_6 y_6 + p_7 y_7)/\mu$

The cumulative proportion of schooling at each level of schooling is as follows.

After constructing the education Lorenz curve, the calculation of education Gini is Straight forward based on equation (2).

The Education Lorenz curves generated following the above procedure are shown in Figures 4a to 4d. From the Figures 4a and 4b we observe that for female there is higher proportion of illiterate while compared to male. Similarly we see that

there are greater proportion illiterate persons in rural are while compared to urban population in Figures 4c and 4d.

Fig 4a. Education Lorenz curve:Male

Fig. 4b. Education Lorenz curve:Female

Fig 4c. Education Lorenz curve :Rural

Fig 4d. Education Lorenz curve:Urban
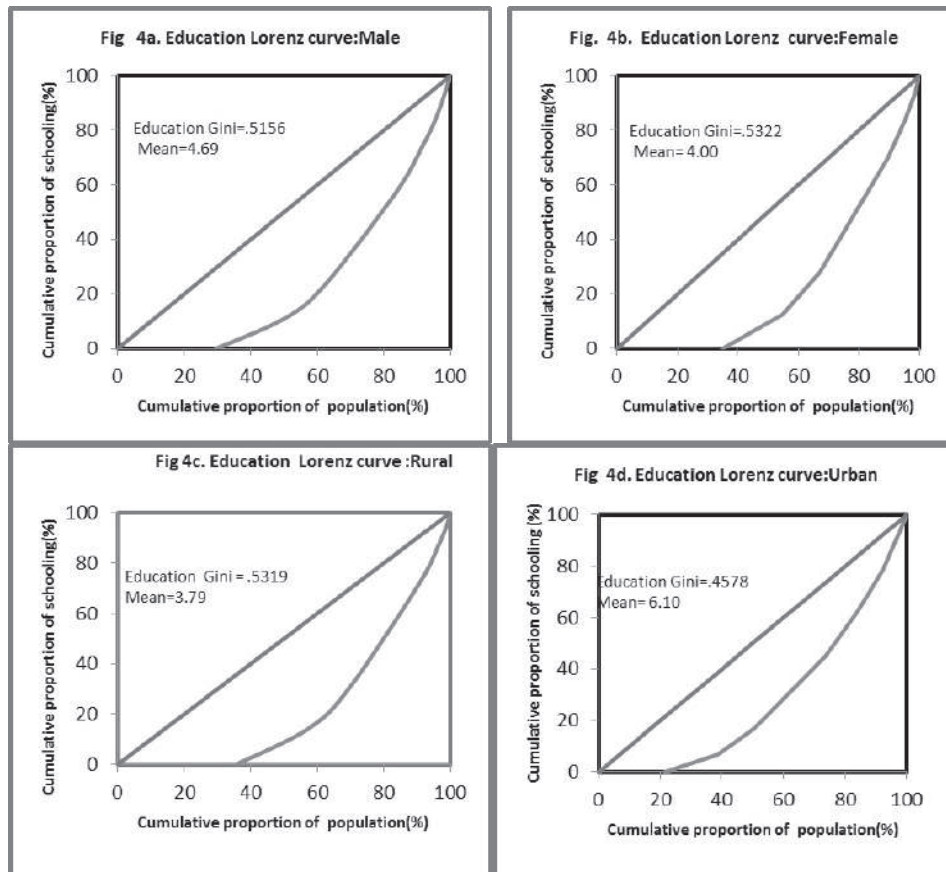
Relationship Among AYS, Standard Deviation of AYS and Education Gini

We have used the data points generated in table 4 and 5 obtained for different segments of the study population to explpore the following relationships of AYS and Education Gini, Education Gini and standard deviation of AYS, AYS and standard deviation of AYS.

Relationship between AYS and Education Gini

Here we find inverse relationship between average years of schooling and Education Gini. Similar relationships have been found in several other studies (Thomas et al. 2001, Digdowiseiso, 2010).This implies that the populations with higher average years of schooling are most likely to achieve a more equitable

education than those with a lower average years of schooling. This is similar to the finding in Castelló and Doménech (2002), who show a negative relationship between average education levels and human capital inequality for a wide group of countries using the Barro-Lee dataset (Barro and Lee, 2001). Figure 5.

Fig 5. Gini Ratio and Average Years of Schooling
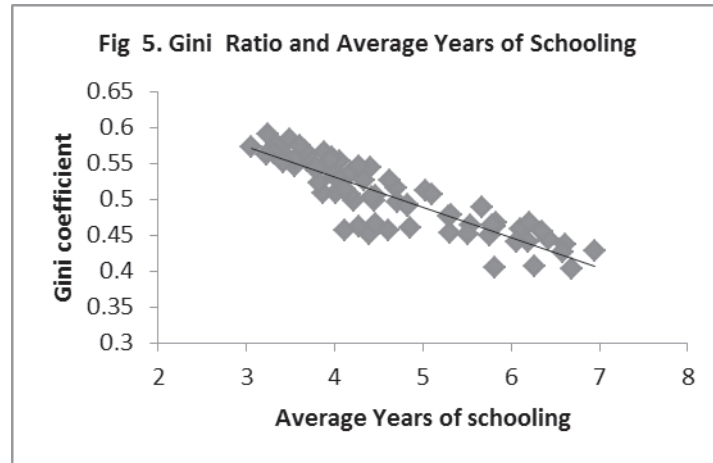
Gini and Standard deviation of AYS

The nature of relationship between Education Gini Coefficient and standard deviation of average years of schooling is also found to be inverse. Logically, if there is any improvement on Gini coefficient of education, education inequality will increase represented by the increasing in standard deviations of schooling. Of course, it is very contrast to the principle of equality distribution of education.

Fig. 6. Gini coefficient and standard deviation of AYS
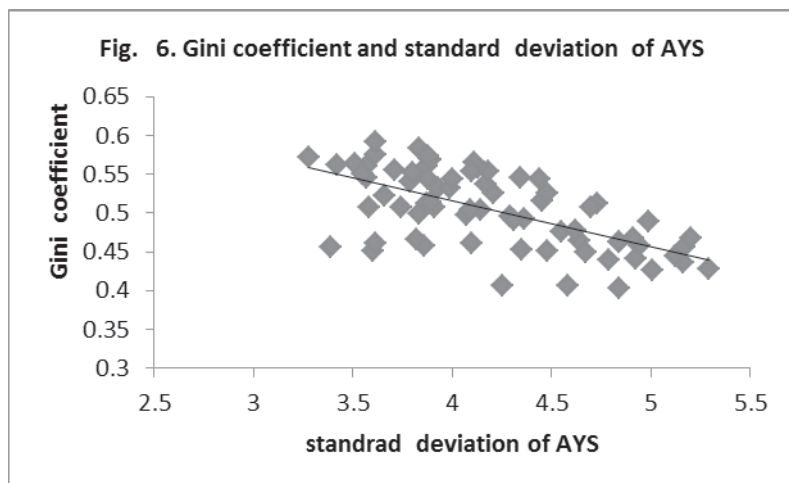
Intuitively, the standard deviation of schooling seems to be a more volatile, and sometimes misleading, indicator. It does not provide a consistent picture of whether the distribution of education in a country is improving or not. Therefore, standard deviation of schooling is not appropriate measure to describe educational equality (Thomas et al, 2001). Figure 6.

Relationship between AYS and Standard Deviation of Schooling. Education Kuznets Curve

The relationship between average years of schooling and standard deviation AYS has been found to be positive. Empirical findings in national and cross country analysis indicates that at the early stage of educational attainment the standard deviation of attainment increases with the increase in average attainment. But once the average attainment reaches a certain level, e.g. 7 years or so the standard deviation shall start decreasing suggesting a kind of relationship known as education Kuznets curve. Our study finds average years of educational attainment of 4.34 years for Bangladesh in 2011, so our inequality in education is expected to increase in some more coming years when we shall have a higher value of average years of attainment and experience a decline in the standard deviation of the average educational attainment. Table 5 and Figure 7.

Fig. 7. Standard deviation and AYS
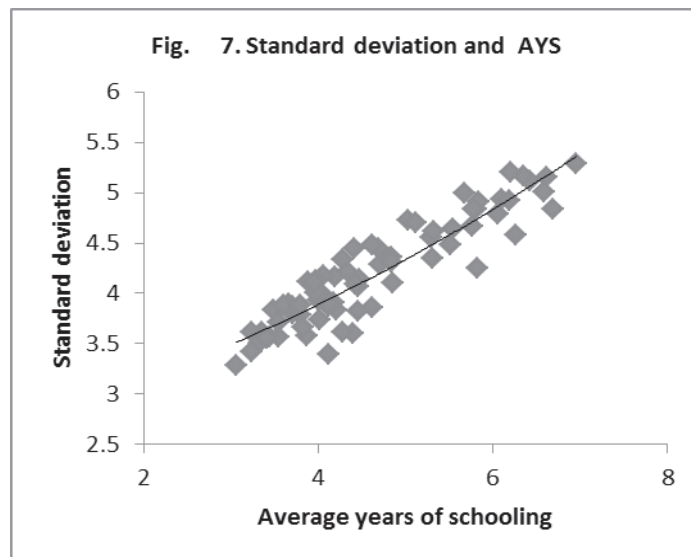
An inverted U-shape for the relationship between the standard deviation of schooling and the average years of schooling are reported in cross country studies (Ram, 1990; Thomas, Wang and Fan, 2000).

Poverty and Education Gini

The incidence of poverty(Head count rate: HCR) according to lower poverty line and Education Gini ratio according to administrative divisions and rural and urban breakdown are presented in table 6 and Figures 8 and 9. The estimates of HCR in 2010 using the lower poverty line show that Chittagong division has the lowest incidence of poverty of 13.1 percent followed by Khulna division at 15.4 percent and Dhaka division at 15.6 percent. The highest reduction of incidence of poverty using the lower poverty line in 2010 occurred in Khulna division which was 16.2 percentage points followed by Barisal division by 8.9 percentage points relative to 2005. On the other hand, poverty incidence in Sylhet division using the lower poverty line remained almost unchanged in 2010 and 2005 which were 20.7 percent and 20.8 percent respectively.

Table 6 .Incidence of Poverty(Head Count Rate) using
Lower Poverty Line:HIES 2010

Division	Incidence of Poverty			Education Gini		
	Total	Rural	Urban	Total	Rural	Urban
Total(National)	17.6	21.1	7.7	.5255	.5403	.4578
Barisal	26.7	27.3	24.2	.4572	.4612	.4064
Chittagong	13.1	16.2	4.0	.4981	.5076	.4491
Dhaka	15.6	23.5	3.8	.5258	.5525	.4448
Khulna	15.4	15.2	16.4	.5043	.5136	.4398
Rajshahi	16.8	17.7	13.2	.5531	.5677	.4677
Rangpur	30.1	30.8	24.0	.5658	.5737	.4882
Sylhet	20.7	23.5	5.5	.5548	.5626	.4782

Source: HIES 2010. Author's computation.

In all the administrative divisions, the value of Gini coefficient increased with the increase in the incidence of poverty except Barisal Division. Figure 9. In Barisal division the value of Gini coefficient was the lowest (0.4572) while the incidence of poverty was quite higher (26.7%). It is worth mentioning here that all the indicators of educational attainment such as literacy rate 7+, adult literacy rate have been found to be higher in Barisal division in comparison to other regions in other studies. The analysis of data points in table 6 yields a positive correlation coefficient between Education Gini and Poverty incidence (r=0.41, P = .048) but was statistically significant only at 10 per cent level.

Fig. 8. Poverty incidence and Gini ratio by divisions.

	Chittagong	Khulna	Dhaka	Rajshahi	Sylhet	Barisal	Rangpur
▪ POVERTY(%)	13.1	15.4	15.6	16.8	20.7	26.7	30.1
▪ GINI(%)	49.8	50.4	53.6	55.3	55.5	45.7	56.6

Fig 9. Education Gini and Poverty Incidence

♦ GINI ——— Linear (GINI)
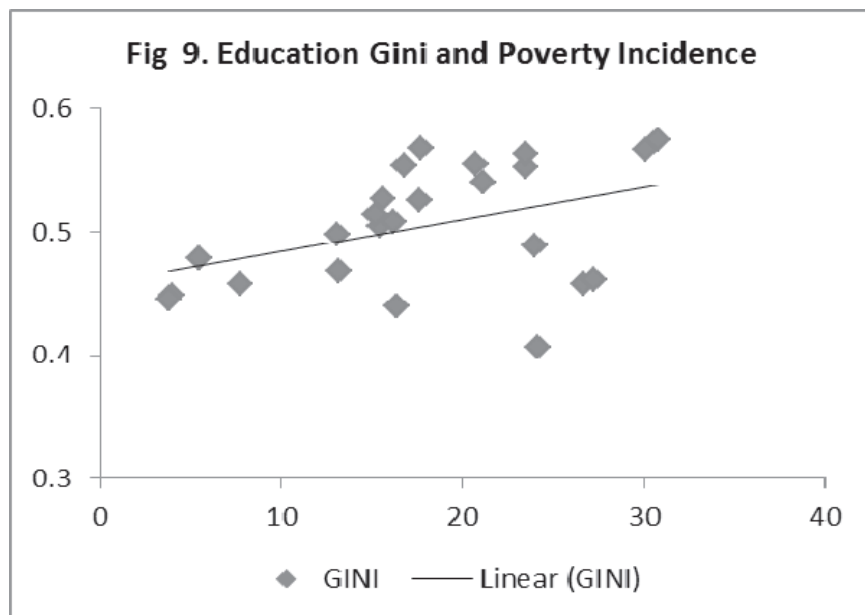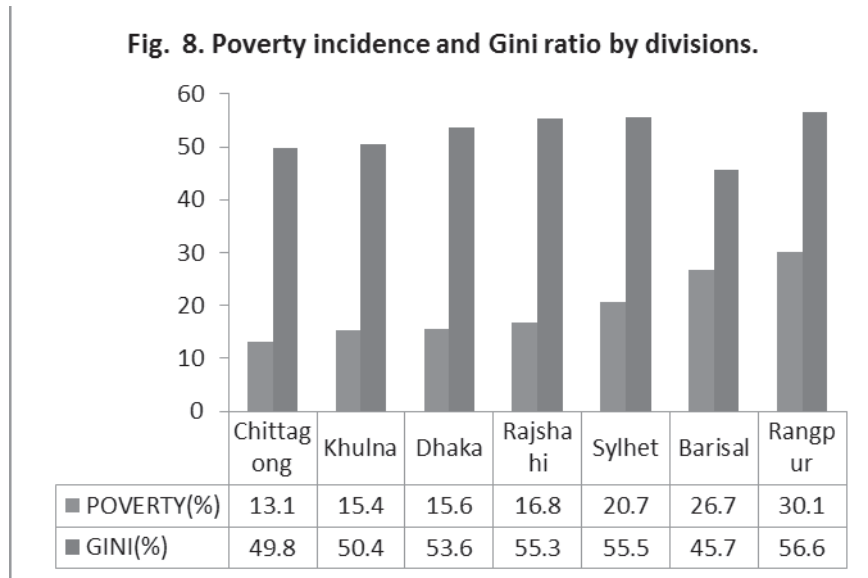
Conclusions

The findings on gender gap and regional disparities in educational attainments corroborate the similar findings in other developing countries. Lack of

comparable data on educational attainment served as a constrained to make any trend or comparative analysis on the average years of schooling and education Gini ratio. The purpose of the education gini index is to find a new additional indicator to measure the distributional dimension of human capital and welfare that facilitates cross countries comparisons and comparisons over time. Unlike the standard deviation, which had in the past been used as a measure of education inequality, but scarcely used these days due to its tendency to give misleading interpretation of inequality trends, education gini index reflects a more effective indicator for measuring the improvement in the equality of education across countries and over time. Together with other stock and quality variables they can give a better and complete picture on the educational development of a country and provide a better basis for developing better education programmes for targeting at the hitherto deprived.

The prevailing inequality in Bangladesh requires increased public attention and proper policy targeting towards improving educational facilities in rural area and female schooling.

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Economic Analysis of Nuclear Power Generation

MD. Ibrahim Khalil[*]
Sabuj Chandra Das[**]
M. A. Rashid Sarkar[***]

Abstract: *Nuclear power is an important option for energy demand mitigation without emitting carbon di-oxide, methane which are largely responsible for greenhouse effect. Nuclear power needs high cost for constructing the plant and relatively low cost to run. Nuclear energy is competitive with fossil fuels as a means of electricity generation. If the social, health and environmental costs of fossil fuels are taken into account, the economics of nuclear power is outstanding.*

Capital cost which is required for the construction of a nuclear power plant represents almost 60% of the total cost of nuclear electricity. Moreover operating cost helps to know the costing during operation of a nuclear power plant. Waste disposal and decommissioning cost should be taken into account to make proper management after the life of a power plant.

The Net Present Value (NPV) analysis of nuclear plant is very important because it gives us the current value of money that is invested in long-term projects. The positive NPV of a power plant is always desired. A positive NPV means that the return on an investment is higher than the required rate of return.

The analysis of levelized cost gives per unit electricity cost of nuclear power plant. This cost is equivalent to the average price that consumers will have to pay for the plant operators and investors to offset the expenditure and to

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[*]   Department of Mechanical Engineering, Bangladesh University of Engineering & Technology, Dhaka
[**]   Department of Mechanical Engineering, Bangladesh University of Engineering & Technology, Dhaka
[***] Professor, Department of Mechanical Engineering, Bangladesh University of Engineering & Technology, Dhaka

repay a proper amount of return. Annuity analysis provides income from a nuclear power plant over a year.

The sensitivity analysis of nuclear economics includes the factors that influences the costing of the nuclear power plant. The cost of a nuclear power plant is sensitive to different factors such as investment cost, emission pricing, interest rate, lifetime etc.

Moreover large capital costs for nuclear power, and the relatively long construction period, leading to a substantial period of uncertainty before the power plant is able to begin generating revenue. On the other hand competent project management can reduce costs through more efficient work sequences, higher productivity, shorter activity durations and the parallel reduction of accumulated interest during construction of nuclear power plants.

New nuclear power plants should now be regarded as good long-term investment prospects. Once the initial significant capital cost is overcome, nuclear power plants can offer electricity at reasonably low costs for 60 years of operating life. Investment in nuclear power plant should therefore be attractive to industrial companies who require significant base-load amounts of low cost power for their operations in the long run.

This paper reports the economic aspects of nuclear power generation in the present context.

KEY WORDS: Nuclear Power, Levelized Cost, Net Present Value, Annuity Analysis

Introduction

In recent year nuclear power has become one of the main sources for the energy satisfaction. Nuclear energy occurs through the fission process of atoms (when atoms split), which creates energy in the form of heat. Moreover it is considered the most carbon free source of energy and so it is considered as the most environmental friendly electricity production process.

According to World Nuclear Association (WNA) (2005) in most industrialized countries today, new nuclear power plants (NPPs) offer the most economical way to generate electricity, even without consideration of the geopolitical and environmental advantages.

According to International Atomic Energy Agency (IAEA) 30 countries worldwide are operating 438 nuclear reactors for electricity generation and 67 new nuclear plants are under construction in 15 countries. Moreover 96 more reactors are reported to IAEA as planned.

Objective

The objectives of this paper is to study about the cost analysis and the economics of nuclear power plant. Moreover this paper gives one the clear concept on the costing of nuclear power generation.

Capital Cost

Capital cost is one of the most important costing for the establishment of a nuclear power plant. It also include the cost of site preparation, construction, manufacture, commissioning and financing a nuclear power plant. Capital cost is the costing mainly required for the construction and financing of nuclear power plants. It takes huge percentage of the cost of nuclear electricity. In 2014, the US Energy Information Administration estimated that for new nuclear plants going online in 2019, capital costs will make up 74% of the levelized cost of electricity; higher than the capital percentages for fossil-fuel power plants (63% for coal, 22% for natural gas), and lower than the capital percentages for some other non-fossil fuel sources (80% for wind, 88% for solar PV). Many plants were also completed at a time of high general inflation, which dramatically exacerbated the impact of delays. With relatively few new nuclear plants constructed in the past decade, the amount of information on the costs of building modern nuclear plants is inevitably somewhat limited.

Relative Capital Cost Per Megawatt Electricity
- Hydro-Electric
- Geothermal
- Wind
- Nuclear
- Tidal
- Solar
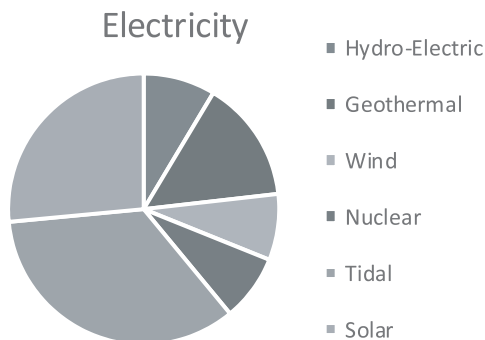
he pi-chart of relative capital cost of electricity generation from different sources is given in the next page

Operating Cost

The operating cost of a nuclear power plant includes cost for the operation, maintenance and fuel cost of a nuclear power plant. Fuel costs account for about

28% of a nuclear plant's operating expenses. Uranium is the main fuel for the operation of a nuclear power plant. Uranium, however, has to be processed, enriched and fabricated into fuel elements, and about half of the cost is due to enrichment and fabrication. In some cases operating cost can considered as production cost by including maintenance cost and fuel cost of the nuclear power plant. US figures for 2012 published by NEI show the general picture, with nuclear generating power at 2.40 c/kWh, compared with coal at 3.27 cents and gas at 3.40 cents. Moreover in the graph below the production cost in nuclear power at different years is shown.

U.S. Electricity Production Costs, 1995-2012
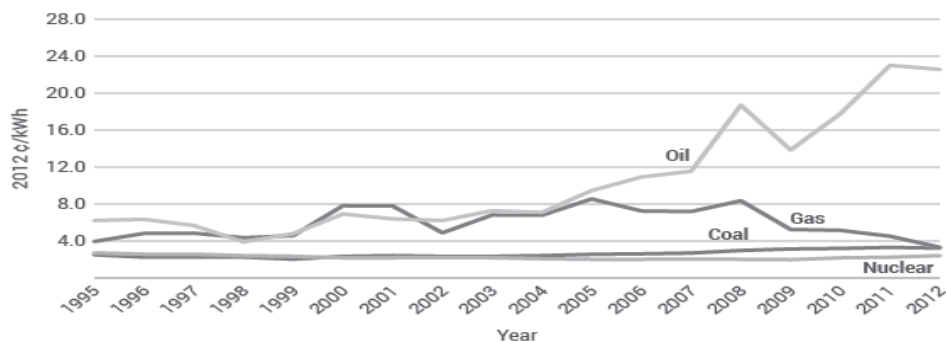
Production costs = operation & maintenance + fuel. (excludes indirect costs and capital)
Source: Ventyx Velocity Suite / NEI, May 2013

In most cases fuel used in nuclear power plant is Uranium (U_3O_8). So the costing for Uranium will influences the production cost of nuclear power plant. Doubling the uranium price (say from \$25 to \$50 per lb U_3O_8) takes the fuel cost up from 0.50 to 0.62 US cents per kWh, an increase of one quarter, and the expected cost of generation of the best US plants from 1.3 US cents per kWh to 1.42 cents per kWh (an increase of almost 10%). So while there is some impact, it is comparatively minor, especially by comparison with the impact of gas prices on the economics of gas generating plants. Now from the above discussion it known with increment of fuel cost the cost for electricity generation increases but it is too much small for the nuclear power plant electricity generation and relatively large for the other power generation plant. The impact of varying the uranium price in isolation is shown below in a worked example of a typical US plant, assuming no alteration in the tails assay at the enrichment plant.

The above figure shows the variation of fuel cost with the variation of Uranium price.

Effect of Uranium Price on Fuel Cost
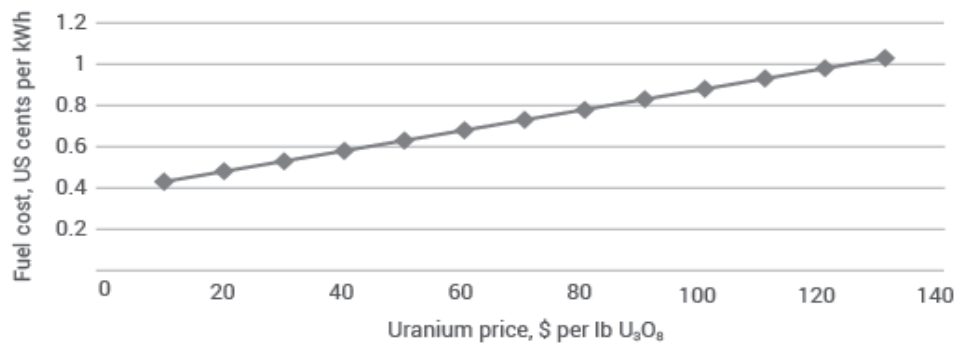
External Cost

External cost, in case of nuclear power plant, are not included in the building and operation of any power plant, and are not paid by the electricity consumer, but by the community generally. The external cost is directly related to health and weather which are quantifiable but not related to the cost of electricity production. The external costs used to calculate this indicator are based upon the sum of three components: climate change damage costs associated with emissions of CO2; damage costs (such as impacts on health, crops etc.) associated with other air pollutants (NOx, SO_2, NMVOCs, PM10, NH_3), and other non-environmental social costs for non-fossil electricity-generating technologies.

Any other electricity production power plant, other than wind running power plant, causes more cost than nuclear power plant. Nuclear energy averages 0.4 euro cents/kWh, much the same as hydro, coal is over 4.0 cents (4.1-7.3), gas ranges 1.3-2.3 cents and only wind shows up better than nuclear, at 0.1-0.2 cents/kWh average. At the time of electricity production by nuclear power plant there will be radiative emission which is responsible for global warming. External cost is also needed for the reduction and filtration of radiative emission during electricity production by nuclear power plant.

Levelized Cost

Levelized cost of electricity also known as levelized energy cost is the net present value of the unit-cost of electricity over the lifetime of a generating asset. Levelized cost includes three factors such as capital cost, operation & maintenance costs and the fuel costs. Levelized cost is equivalent to the average price that would have to be paid by consumers to repay exactly for capital cost,

operation & maintenance costs and the fuel costs with a proper discount rate. Typically the levelized cost is calculated over the design lifetime of a plant, which is usually 20 to 40 years, and given in the units of currency per kilowatt-hour or megawatt-day.

The levelized cost is that value for which an equal-valued fixed revenue delivered over the life of the asset's generating profile would cause the project to break even. This can be roughly calculated as the net present value of all costs over the lifetime of the asset divided by the total electrical energy output of the asset.

The levelized cost of electricity is given by: [1]

$$Levelized\ Cost = \frac{Sum\ of\ Costs\ Over\ The\ Lifetime}{Sum\ of\ Electrical\ Energy\ Produced\ in\ The\ Lifetime}$$

$$= \frac{\sum_{t=1}^{n} \frac{I_t + M_t + F_t}{(1+r)^t}}{\sum_{t=1}^{n} \frac{E_t}{(1+r)^t}}$$

Where ---

I_t : Investment expenditures in the year t

M_t : Operations and maintenance expenditures in the year t

F_t : Fuel expenditures in the year t

E_t : Electrical energy generated in the year t

r: Discount rate

t : Expected lifetime of system or power station

Net Present Value

Net Present Value (NPV) is a measurement of the profitability of an undertaking that is calculated by subtracting the present values (PV) of cash outflows (including initial cost) from the present values of cash inflows over a period of time.

The difference between incomes and expenses produces the net benefit. During the construction period there is no net income, and the investment produces a negative benefit, after start-up a positive profit is produced during the plant's

lifetime. This will produce a time dependent profit or net income that could be levelized using a discount rate. This levelized net income is also called Net Present Value (NPV). If the electricity price is constant and is equal to the levelized lifetime cost, the NPV is zero because at that discount rate, levelized income exactly equals the levelized expenses. Projects with NPV > 0 increases investors return and projects with NPV < 0 decreases investors return.

Given the (period, cash flow) pairs (t {\displaystyle t} t, R_tR t {\displaystyle R_{t}}), the net present value (NPV) N P V {\displaystyle \mathrm {NPV} } is given by —-

$$NPV \ (t, N) = \sum_{t=0}^{N} \frac{R_t}{(1 + i)^t}$$

Where ---

N: Total number of periods

t: The time of the cash flow

i: The discount rate

R_t R_t The net cash flow i.e. (cash inflow – cash outflow) at time t

Internal Rate of Return

The internal rate of return (*IRR*) is one of the most frequently-used method for assessing investment opportunities. It is an iterative procedure that determines the unknown discount rate that is needed to balance the stream of expenditures and income. The *IRR* is defined as the discount rate for which the *NPV* of a project is zero. The discount rate is sometimes taken at a somewhat higher value than IRR, with the argument presented that the rate of return must be above the cost of the funds or there would be no interest in the investment. In that case it needs to be taken as a necessary condition, but not as a sufficient one.

$$\sum_{t=0}^{N} \frac{R_t}{(1 + IRR)^t} = 0$$

By solving this equation numerically we can find the IRR. For the IRR, the decision rules are as follows :

If IRR > hurdle rate, accept the project

If IRR < hurdle rate, reject the project

Annuity Analysis

An annuity is a series of equal payments at regular intervals. It is a financial instrument designed to provide a more secure financial future. If the number of payments is known in advance, the annuity is an annuity certain or guaranteed annuity. Valuation of annuities certain may be calculated using formulas depending on the timing of payments.

Annuity is calculated by the given method:

$$AF\ (i,\ n) = \frac{i}{1-(1+i)^{-n}}$$

$$A = AF\ (i,\ n) \times I$$

$$A = \frac{i}{1-(1+i)^{-n}} \times I$$

Where ---

I = Investment

A = Equal annual payment = Annuity

i = Interest rate

n = Economic lifetime of the investment

AF (i, n) = Annuity factor for period of n years and annual interest rate of i

For an example, Investment *(I)* is 500 million, interest rate *(i) is 8 % and* economic life time of the investment is 40 years then,

$$AF\ (8\%,\ 40) = \frac{0.08}{1-(1+0.08)^{-40}} = 8.386\%$$

$A = AF\ (8\%,\ 40) \times 500 = 41.93$ *million*

Sensitivity Analysis

Sensitivity analysis is the study of how the uncertainty in the output of a mathematical model or system (numerical or otherwise) can be apportioned to different sources of uncertainty in its inputs. The sensitivity analysis of nuclear economics includes the factors that influence the costing of the nuclear power plant. The technical parameters sensitive to the costing of the nuclear power plant are the life of a reactor, tails assay, burn up, fuel cycle components price, discount rate, comparison of total fuel cycle cost, likely range total fuel cycle cost, emission price, investment cost, interest rate. The impact of changes in the input data on the generation costs of the various alternatives is calculated. The following input values are varied: investment costs, fuel costs, carbon dioxide

THE IMPACT OF EMISSION PRICE ON POWER GENERATION COSTS

THE IMPACT OF CHANGES IN FUEL COSTS ON POWER GENERATION COSTS

POWER GENERATION COSTS AS FUNCTION OF THE ANNUAL FULL-CAPACITY OPERATING HOURS

THE IMPACT OF INVESTMENT COSTS ON POWER GENERATION COSTS

THE IMPACT OF ECONOMIC LIFETIME ON POWER GERERATION COSTS

THE IMPACT OF REAL INTEREST RATE ON POWER GENERATION COSTS

emission price, real interest rate, economic lifetime and annual full-capacity operating time.

Waste Disposal Cost

All nuclear plants produce radioactive waste. The cost of storing, transporting and disposing these wastes in a permanent location is to be considered in the total waste disposal costing of nuclear power plant. Presently, waste is mainly stored at

individual reactor sites and there are over 430 locations around the world where radioactive material continues to accumulate. A centralized underground repositories which are well-managed, guarded, and monitored, would be a vast improvement for the waste disposal of nuclear power plant. In the current statistics there are no commercial scale purpose built underground repositories in operation. The Waste Isolation Pilot Plant (WIPP) in New Mexico has been taking nuclear waste since 1999 from production reactors, but as the name suggests is a research and development facility. A radiation leak at WIPP in 2014 brought renewed attention to the need for R&D on disposal or radioactive waste and spent fuel.

Decommissioning

If nuclear power plant is longer economically viable, nuclear reactors and uranium enrichment facilities are generally decommissioned, returning the facility and its parts to a safe enough level to be entrusted for other uses, such as green-field status. After a cooling-off period that may last decades, reactor core materials are dismantled and cut into small pieces to be packed in containers for interim storage or transmutation experiments. The process is expensive, time-consuming, dangerous for workers and potentially hazardous to the natural environment as it presents opportunities for human error, accidents or sabotage, but it is too small in comparison with facilities of production of electricity in nuclear power plant. Decommissioning costs are about 9-15% of the initial capital cost of a nuclear power plant. But when discounted, they contribute only a few percent to the investment cost and even less to the generation cost. In the USA
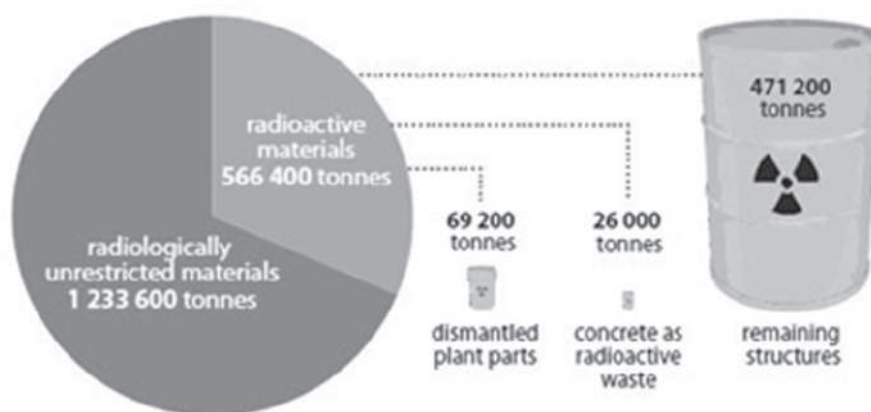
they account for 0.1-0.2 cent/kWh, which is no more than 5% of the cost of the electricity produced. As of January 2012, 138 civilian nuclear power reactors had been shut down in 19 countries, including 28 in Germany, 12 in France, 9 in Japan and 5 in Russian Federation. Decommissioning has only been completed for 17 of them, so far. Decommissioning of these nuclear power reactors are given below.

Load factor

In electrical engineering the load factor is defined as the average load divided by the peak load in a specified time period.

$$f_{load} = \frac{Average\ load}{Maximum\ load\ in\ given\ time\ period}$$

It is usually derived from the load profile of the specific device or system of devices. Its value is always less than one because maximum demand is always higher than average demand, since facilities likely never operate at full capacity for the duration of an entire 24-hour day. A high load factor means power usage is relatively constant. Low load factor shows that occasionally a high demand is set. To service that peak, capacity is sitting idle for long periods, thereby imposing higher costs on the system.

Capacity Factor

A percent indicates the utilized fraction of the plant's maximum capacity to produce electricity. The net capacity of a power plant is the ratio of its actual output over a period of time, to its potential output if it were possible for it to operate at full nameplate capacity continuously over the same period of time. In case of electricity production capacity factor is defined as the ratio of the total amount of electricity produced by the plant during a period of time and the amount of electricity would have produced at its full capacity.

$$Capacity\ Factor = \frac{electricity\ production\ over\ a\ period\ of\ time}{electricity\ production\ at\ full\ capacity}$$

Moreover capacity is mainly dependent of fuel which is used for electricity production and the design of the plant.

Conclusion

With an increasing appetite for the consumption of electricity, it is very important to implement Nuclear Power Plants for the generation of electricity. Electricity

generation costs of the nuclear power are stable. The growth of the uranium price causes only a slight increase in the nuclear electricity cost, whereas the gas alternative is sensitive to the changes of the fuel price. The increasing use of gas in Europe causes a risk for considerable growth of the gas price which would lead to higher generation cost of the gas power. The impact of investment cost is greatest for the nuclear power. However, even quite big increase of the investment cost does not change the competitiveness.

The sensitivity analysis reveals that the nuclear power maintains well its competitiveness compared to the other electricity generation forms. Some changes in the input data, such as the growth of fuel prices and emission prices, make the competitiveness of the nuclear power even better. Emission trading will increase the electricity generation costs of gas, coal and peat-based power plants – perhaps even remarkably. Consequently, the advantages of nuclear power will still be improved.

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Does Microcredit Reduce Household Vulnerability to Poverty? Empirical Evidence from Bangladesh

KHAN JAHIRUL ISLAM[*]

Abstract: *Household poverty is a dynamic phenomenon, and thus requires dynamic analyses rather than traditional static measurements. We argue that if we use dynamic measurements of poverty, microcredit does not reduce a household's poverty. Not only that, it may increase vulnerability to poverty for chronically poor households. These results contradict most of the existing literature that measures poverty with static methods. We analyzed our data both with static and dynamic measurements, and find the same results as the existing literature when using static measures. Thus, we argue that impact analyses of micro-credit need to incorporate the dynamic nature of poverty.*

Keywords: *Micro-credit; vulnerability to poverty; dynamics of poverty; FGLS.*

I.   Introduction

The availability of credit is important for the lives of poor rural households in the developing world. However, these households are mostly excluded from the formal banking system because they lack capital assets for collateral, and have low income levels. Micro-credit programs offer small loans to the poor to undertake projects that generate income to support themselves and their families; most of these loans do not require collateral.[1] The system has become a favourite of anti-poverty schemes, due in large part to its track record in the last 30 years helping the poor in countries such as Bangladesh or India. The popularity of micro-credit programs is evident in many developing countries. In Bangladesh alone, it effectively covers some 18.1 million households without overlapping,

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[*]   Lecturer, Economics, University of British Columbia, Canada, E-mail: khan.islam@ubc.ca
[1].   Source: http://www.grameenfoundation.com

with 62 percent of them are living below the poverty line (Microcredit Regulatory Authority, 2006).

Academics are still debating the actual effect of micro-credit in improving the wellbeing of the poor (Montgomery and Weiss, 2005). The literature shows that micro-credit programs have either a positive or limited impact on poverty reduction (Hulme & Mosley, 1996; Zeller & Meyer, 2003; Amin, Rai, & Topa, 2001). Nevertheless, these studies measure poverty the traditional way by looking at household observed expenditures or consumption levels, which tells us little about their future poverty prospects. Given the dynamic nature of poverty, there is a need to analyze the impact of micro-credit programs on the vulnerability to poverty of the poor. Access to micro-credit programs is supposed to help the poor through two channels that are related to a household's vulnerability to poverty: income generation and consumption smoothing (Chaudhuri, Jalan, & Suryahadi, 2002). This paper proposes to assess the impact of access to micro-credit programs on a household's vulnerability to poverty through a dynamic analysis of poverty.

The objective of this study is to answer the following questions: i) Does access to micro-credit programs reduce a household's vulnerability to poverty? ii) Does this effect differ among groups of vulnerable households with different characteristics?

This paper is divided into five sections. In Section II, we give an over-review of the empirical and theoretical literature that analyzes the effect of micro-credit on poverty. In Section III, we describe the sample data used in the empirical analysis of this study. In Section VI, we present the empirical models that use dynamic measurements of poverty. In Section V, we discuss our results, and compare the dynamic model and the static models. Finally, we conclude by outlining suggestions for future research.

II. Literature Review

Commonly used measures of poverty are either based on household current income-expenditure or calorie intake. Studies on consumption patterns of poor households, especially the core-poor, indicate that the poor first spend their loan on daily consumption before investing in production (Montgomery & Weiss, 2005). As a result, it is not surprising to find access to micro-credit programs having a positive impact on poverty reduction through these common measures of poverty. Poverty remains nevertheless a dynamic problem, both theoretically and in terms of its policy importance (Chaudhuri, Jalan, & Suryahadi, 2002). The

dynamic nature of poverty is that the household that is poor today may not be poor in the next period, or today's moderately poor household may become extremely poor next period. Therefore, the traditional static approaches to measure poverty fail to capture such dynamic properties.

Various studies suggest that a dynamic approach should be used in measuring households' vulnerability to poverty (Chaudhuri, Jalan, & Suryahadi, 2002; Amin, Rai, & Topa, 2001). Vulnerability to poverty measures the *ex ante* poverty; that is, it measures who is likely to be poor and how poor they are likely to be. By definition, vulnerability assessment is forward-looking. This is particularly important for policies that are designed to have long-term effects on poverty reduction, which currently rely on a temporal measurements of poverty. Although ideally we would use panel data to estimate vulnerability at the household level, Chaudhuri et al. (2002) argue that we can achieve the same through analysis using cross-sectional data by careful selection of variables. The validity of this method stems from how differences in vulnerability to poverty among households can be attributed to variations of certain household characteristics, such as gender, age, education and main occupations of the household heads. In their proposed method, vulnerability to poverty is measured as the probability that a household's expected consumption will fall below a predetermined level.

The merits of micro-credit programs are thought to be channeled either through consumption-smoothing mechanisms and/or income generating production. In either case, having access to micro-credit programs should improve a borrowing household's ability to cope with potential shocks, thus reduc its vulnerability to poverty (Morduch, 1999). Amin et al. (2001) showed that a poor household is more vulnerable than a richer one. However, within poor households, the cause of poverty and vulnerability may vary. Current work on the relationship between micro-credit and vulnerability to poverty is restricted to descriptive analysis of sub-groups of the population, but lacks empirical support due to data limitations (Zaman, 1999; Montgomery & Weiss, 2005). This paper contributes to the scarce empirical literature on this topic.

III. Data

One should ideally use panel data of sufficient length and richness to estimate vulnerability at the household level. However, such datasets are rare, especially for poor developing economies. Instead, we can use cross-sectional household surveys with detailed data on household characteristics such as consumption expenditures and income (Chaudhuri, Jalan, & Suryahadi, 2002). This study uses

data collected from rural northern Bangladesh using the "Structured Personal Interview" method. The data is collected through stratified random sampling. The dataset includes information on rural households' socio-economic conditions, such as income and expenditure, credit, education, land and asset holdings, as well as other community characteristics.

The data was collected from three villages in northern Bangladesh along the Surma basin.[2] The villages were chosen for the intensity of poverty and availability of the both borrower and non-borrower households. The majority of households generated income from agriculture and related activities. The researchers collected data from two types of households, borrowers and non-borrowers of micro-credit. The measurement unit of the target population was the household and 110 were surveyed. Out of those, more than 60 percent were borrowing from one or more micro-credit institutions. (Table 1) All of the borrower households have been borrowing for a minimum of one year and more than 80 percent have been borrowing for more than three years. The detail household characteristics are in Table 1 of Appendix.

Table 1: Distribution of Household by Borrowing Status

Category	Total
Microcredit Borrower	70
Microcredit Non-Borrower	40
Total	110

IV.   Methodology

Our analysis consists of the following steps: estimating expected consumption, evaluating vulnerability to poverty for each household, examining the relationship between access to micro-credit programs and household vulnerability to poverty, and finally comparison of the impact of access to microcredit programs on poverty reduction between dynamic and traditional static method. In order to measure vulnerability, we use the methods developed by Chaudhuri et al (2002), where a household's vulnerability level at time t is the probability of its expected consumption level to remain below the poverty line at time $t+1$. To assess the impact of a micro-credit loan on household vulnerability to poverty, we regress

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[2.] These three villages are: Enat Nogor, Khadirpur and Islampur. They are part of the South Sunamgonj thana of the Sunamgonj District.

the estimated vulnerability of individual household on a set of household characteristics. One of our main interests is to examine the dummy variable for access to micro-credit, and see if it has a significant effect on vulnerability to poverty.

i) Estimation of Household's Vulnerability to Poverty Using Expected Consumption

We define vulnerability as the expected poverty in the near future conditioned on a household's current characteristics. For a given household h, its vulnerability V_h at time t is the probability of the log of its expected consumption $ln\hat{c}_h$ to be below the log of the poverty line lnc at time $t+1$:

$$V_h = Pr(ln\hat{c}_h < ln\bar{c})$$

(1)

In order to compare the expected consumption and the poverty line, we first estimated expected household consumption using a set of household characteristics X_h in the following form:

$$lnc_h = X_h\beta + \varepsilon_h$$

(2)

where c_h stands for per capita consumption expenditure for household h; X_h represents a set of observable household characteristics; β is a vector of parameters, and ε_h is a mean-zero disturbance term. Consumption expenditure is assumed to be log normally distributed, as is the disturbance term X_h. We also assume that the variance of log consumption varies with the values of household characteristics, . This implies that the error variance of the equation (2) is assumed to be heteroscedastic. In order to obtain an efficient estimate of σ_h, and following Chaudhuri, Jalan and Suryahai (2002), we use the feasible generalized least square (FGLS) method to achieve a homoscedastic variance σ_h^2. First, we saved the OLS estimated residual from equation (2) and used its square to estimate the following using another OLS procedure:

$$\hat{\varepsilon}_h^2 = X_h\theta + \eta_h$$

(3)

Then we use the fitted value $X_h\hat{\theta}$ to transform equation (3) as follows:

$$\frac{\hat{\varepsilon}_{h,OLS}^2}{X_h\hat{\theta}_{OLS}} = \left(\frac{X_h}{X_h\hat{\theta}_{OLS}}\right)\square + \frac{\eta_h}{X_h\hat{\theta}_{OLS}}$$

(4)

The above transformed equation is estimated using OLS to obtain an asymptotically efficient estimate of standard error σ_h, which is expressed as:

$$\hat{\sigma}_h = \sqrt{X_h\square}$$

(5)

The set of household characteristics, X_h used in the estimation of equation (2) includes the age, gender, and years of education of the household head, the size of

the household, a dummy variable for the main occupation of the head of the household, dependency ratio, the size of the owned and leased land, and a dummy variable for ownership of income generating assets. Based on current literature, elderly male-headed households with higher levels of education are expected to have higher incomes; hence these households will have higher expected consumption levels. In a rural economy, such as Bangladesh, the bulk of a household's income comes from the main occupation of the household head. The dummy for the main occupation of the household-head takes on a value of one if the head works in agriculture and related industries, and zero otherwise. The dummy for ownership of income generating assets is equal to one if the household owns any, and zero otherwise. The size of leased and owned cultivable land and possession of income generating assets are expected be positively related to household income and consumption levels. Household size is expected to be significantly related to a household's consumption level, but the sign of the coefficient will depend on the number of earners in the household as well as income per earner. The dependency ratio is defined as the ratio of the number of dependents to the size of the household. A higher dependency ratio is expected to lower a household's consumption level by reducing their average consumption. In addition, we expect that the age of the household head, size of the household, and land holding (both leased and owned land) will have a non-linear relationship with consumption. Therefore, the model includes the squared terms of these variables.

In order to estimate a household's vulnerability to poverty c_h, we used the fitted value of log consumption $ln\ v_h$ and the efficient estimation of the standard error of the consumption function σ_h to transform equation (1) in the following way:

$$V_h = \overline{Pr}\ (ln\ \hat{c}_h < ln\ \bar{c}|\ X_h) = \Phi\left[\frac{ln\,\bar{c}-\hat{\beta}x_h}{\hat{\sigma}_h}\right]. \qquad (6)$$

The poverty line is calculated based on the Cost-of-Basic-Needs (CBN) approach. According to the CBN method, a household is defined as poor if its per capita consumption expenditure lies below a certain level.[3] The per capita expenditure of a household is the amount of money needed to buy an exogenous set of low-cost adequate food and other requirements. The function $\Phi\left[\frac{ln\,\bar{c}-\hat{\beta}x_h}{\hat{\sigma}_h}\right]$ denotes the cumulative density function of the standard normal distribution of the log consumption.

[3.] Bangladesh Bureau of Statistics (BBS) 2003, "Report of The Household Income & Expenditure Survey, 2000". Bureau of Statistics, Bangladesh. The poverty line we used here is equal to 11693 Bangladesh Taka.

ii)   Categorizing Households

Following Suryahadi and Sumarto (2003), we categorized the sample households into several groups based on their current consumption, estimated expected consumption, and estimated vulnerability level. (Table 2) Given that vulnerability to poverty is a probability, we use 0.5 as the vulnerability threshold. The existing literature supports this choice of threshold because it is where the expected log consumption coincides with the log of the poverty line (Chaudhuri, Jalan, & Suryahadi, 2002; Suryahadi & Sumarto, 2003). It is also reasonable to assume that a household is more vulnerable if it has a 50 percent or higher chance of falling into poverty in the near future.

Table 2: Categorization of Households

		Current Consumption			
		$c_h < \bar{c}^*$	$c_h \geq \bar{c}^*$		
Vulnerability to Poverty	$V_h \geq 0.5$	A	B	$\hat{c}_h < \bar{c}$	Estimated Expected Consumption
	$\hat{V}_h < 0.5$	C	D	$\hat{c}_h \geq \bar{c}$	

Poor = **A + C**

- Chronic Poor = A
- Transient Poor = C

Non-poor = B + D
- High Vulnerability Non-poor = B
- Low Vulnerability Non-poor = D
- High Vulnerability Group = A + B
- Low Vulnerability Group = D
- Total Vulnerable Group = A + B +C

A total of five groups of households emerge: the "poor", the "non-poor", the "high vulnerability group", the "low vulnerability group", and the "total vulnerable group". Based on current consumption levels, the population is divided into the "poor" and the "non-poor" groups. Those households whose current consumptions are equal to or below the poverty line are the "poor"; the rest are "non-poor". The poor households are composed of two distinct groups: the "chronic poor" and the "transient poor". The chronic poor are households who are

currently poor, have expected consumption level below the poverty line, and whose estimated vulnerability is higher than the threshold. These households are most likely to remain poor in the near future. In contrast, the transient poor households are currently poor, but their expected consumption is above the poverty line and their vulnerability is below the threshold point. The non-poor households are also separated into two groups: the "low vulnerability non-poor" and the "high vulnerability non-poor". The "high vulnerability non-poor" are those household whose current consumption is greater than the poverty line but whose expected consumption is lower than the poverty line, and whose vulnerability level is above the threshold.

For the purpose of this study, we focus the analysis on the "high vulnerability" group, which consists of both the chronic poor and high vulnerability non-poor. We also examined the "total vulnerable" group, which is the combination of both the "high vulnerability" group and the transient poor.

iii)   Evaluating the Impact of Micro-credit Programs on Vulnerability to Poverty

In order to study the determinants of vulnerability to poverty, we considered the following equation using the 2-stage least square method:

$$V_h = Z_h \alpha + \mu_h \tag{7}$$

where is the estimated vulnerability to poverty from equation (6); is a combination of household characteristics used in equation (2) plus a dummy of access to micro-credit programs, which takes the value of one if the household is a borrower and zero otherwise; is a vector of coefficients, and is the error term. The estimations are performed for two groups of the sample households, the "high vulnerability" group and the "total vulnerable" group.

In this model, the variable "access to micro-credit" is assumed to be correlated with some household's characteristics that are not included in our model. In order to solve the endogeneity problem, we used the dependency ratio as an instrumental variable (IV). The theoretical justification for using dependency ratio is that a household with more dependents is more likely to borrow microcredit due to financial needs. We used a Probit regression to determine the relationship between the dependency ratio and access to micro-credit. We found that the dependency ratio is not statistically significantly related with vulnerability to poverty but it significantly determines if a household is a borrower of micro-credit.

iv)　Static and Dynamic Approach

The static model measures poverty using current consumption levels. In order to compare our results with the static model, we estimate the following equation:

$$Poverty = \square_{\hat{n}} \delta + \epsilon_{\hat{n}} \tag{8}$$
$$Poverty = \begin{cases} 1 \ if \ poor \\ 0 \ if \ non-poor \end{cases}$$

where is some combination of household characteristics[4] plus a dummy variable for access to micro-credit, as in equation (7). A household is defined as poor if its current consumption levels lie below the poverty line, and as non-poor otherwise. Because the dependent variable is a dummy, an IV-Probit model is used to estimate equation (8). The dependency ratio is used as the IV in this case as well. The purpose for this comparison is to demonstrate how the impact of access to micro-credit on poverty reduction differs depending on how one measures poverty.

V.　Results and Discussion

Based on the grouping scheme of households illustrated in the previous section, we found that 70 out of 110 households took micro-credit loans. About half of the borrowers are "high vulnerability" households, and more than half of the 40 non-borrowers are highly vulnerable. Non-borrowers have a larger proportion of households belonging to the "total vulnerable" and "high vulnerability" groups; however we found the proportion differences between borrowers and non-borrowers to be statistically insignificant after using the Proportion test. (Table 3) This indicates that the proportional differences between borrowers and non-borrowers may stem from differences in sample size, and is not due to differences in household characteristics.

Table 3: Summary Statistics of the Categorization of Households and Proportion test

	Borrowers[1]	Non-borrowers[2]	Proportion Test p-value
Total Vulnerable Households	64%	75%	0.88
High Vulnerability	49%	55%	0.31
Low Vulnerability	51%	45%	0.78
Total	100%	100%	-

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[4] Excludes these variables from : gender of the household head, and income generating asset dummy.
[1.] In total, 70 household are borrowers of micro-credit.
[2.] In total, 40 households are non-borrower of micro-credit.

Based on the regression using a dynamic measurement of poverty, we found that being a borrower of micro-credit does not increase a household's vulnerability to poverty for the "total vulnerable" group. The coefficient estimation of the borrower dummy variable is positive, but statistically insignificant. Meanwhile, age, gender, years of schooling and main occupation of the household head are significant determinants of a household's vulnerability to poverty. A household's vulnerability to poverty is lower if the head is an elderly male. With increasing years of education of the head of the household, the household's vulnerability to poverty decreases. The size of leased land and ownership of income generating assets are also positively related to reduction of a household's vulnerability to poverty. We did not find land ownership to be a determinant of vulnerability to poverty since the majority of households in our sample own limited amounts of cultivable land and cannot reach a profitable production scale. Azam and Imai (2009) found that chronic poverty is widespread among households whose main income relies on agricultural production. Our findings support this claim; if the head of a household works in agriculture and related industries, the household will be more vulnerable to poverty than if their main income came from non-agricultural activities. The regression results for this group are presented in Table 2 of the Appendix.

When comparing dynamic and static measurements of poverty (vulnerability to poverty), the results tell a conflicting story. We found that being a borrower of micro-credit significantly reduces a household's poverty level, as measured by their current consumption. In fact, taking a micro-credit loan is the most deterministic factor in reducing poverty. In their survey of empirical studies on the effectiveness of micro-credit, Montgomery and Weiss (2005) found that micro-credit almost always has a positive poverty reduction effect on poor households if one measures poverty using current consumption. The static model regression results for the "total vulnerable" group are in the Table 3 of the Appendix.

We found that borrowing micro-credit will increase vulnerability to poverty for the "high vulnerability" group, and this relationship is statistically significant. This result is noteworthy, especially given that the static model shows that for this group of households, taking micro-credit loans should reduce their poverty levels significantly. For the "high vulnerability" group, we found that a female headed household will have lower vulnerability to poverty than a male-headed household. Other determinants of vulnerability are found to have a similar relationship as the findings for the "total vulnerable" group. The dynamic and static model regression results for this group of households are presented in the Table 4 and 5 of the Appendix.

The differences in household characteristics between the two focus groups may explain why micro-credit increases the vulnerability for one group while it has no effect on the other. Within the "total vulnerable" group, we found that a large proportion of households are transiently poor. These households are on their way to escape poverty. Although their current consumption levels are below the poverty line, their predictable consumption in the near future is going to be above it, and thus have lower vulnerability to poverty. On the contrary, within the highly vulnerable group, there are relatively larger proportions of households who are chronically poor. These households are likely to remain in poverty in the future, due to their low consumption levels now and in the near future. Subsequently, if these chronically poor households choose to take micro-credit loans, their priorities will be to increase spending on consumption to meet their basic needs. As a result, it is unlikely that they will invest in income generating production activities, especially given that the size of the credit is usually small. Hence, this group of households will be more vulnerable to poverty.

Although one of the merits of micro-credit is to smoothen consumption patterns for the poor, such an effect can only relax the squeeze of poverty temporarily. In the long-term, the poor need to increase their income to break away from the cycle of poverty. Within our sample of 70 borrower households, 44 percent of them reported that they borrowed to increase current consumption and only 33 percent indicated that the purpose of borrowing is to use the loan to generate additional income. Furthermore, only 16 percent of the borrower households were able to generate new self-employment through micro-credit. Researchers have shown that the success of NGO-led micro credit programs depends critically on monitoring how loans are allocated. Without monitoring, poor households do not always have the knowledge or skills to improve their wellbeing by making the right investment choices. However, we found that within our sample, 75 percent of borrowers had no guidance from the issuing agencies.

VI. Conclusion

Although arguably a helpful and important mechanism in the fight against chronic poverty, micro-credit falls short from being a miraculous cure. In this study we found that having access to micro-credit leads to an increase in vulnerability to poverty, especially for the groups of households that consisted of the more chronically poor. Poverty is a complex issue, and it is crucial to measure it appropriately when evaluating the effectiveness of micro-credit. As we have demonstrated, static measurements of poverty based on current consumption expenditures can lead to deceptive results. These measurements do not

incorporate a household's future state of poverty, and therefore fail to fully evaluate how effective micro-credit programs are in reducing poverty. Our findings show that we do not have the evidence to convincingly argue that micro-credit contributes to reductions in poverty.

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Appendix

Table 1: Summary Statistics for explanatory variables

Variables	Mean	Stander Deviation	
Household per capita expentiture	12120.6	4148.1	
Age of the household-head	40.1	11.9	
Household size	6.0	2.2	
Education of the household-head (years of schooling)	0.8	1.4	
Dependency Ratio	0.8	0.1	
Leased Land	2.6	7.4	
Owned cultivable land	1.4	4.0	
Variables	Category	Frequency	Percent age
Dummy, Income Generating Asset	Yes	54.0	49.1
	No	56.0	50.9
Dummy, Main occupation of the household-head	Agricultural	78.0	70.9
	Non-Agricultural	32.0	29.1
Dummy, Gender of the household-head	Male	96.0	87.3
	Female	14	12.7

Table 2: Regression Result for Determinants of Vulnerability,
the Total Vulnerable group

Number of obsservation=75

Wald chi2(13) = 616.53

Prob > chi2=0.00

R-squared=0.885

Root MSE=0.095

Vulnerability	Coef.	Std. Err.	Z	P>|z|
Dummy, Borrower	0.138	0.110	1.250	0.210
Age of Head of Household	-0.100	0.007	-14.870	0.000
Age^2	0.001	0.000	12.830	0.000
Gender of Head of Household	0.121	0.047	2.600	0.009
Household Size	0.060	0.032	1.850	0.065
Household Size^2	0.003	0.002	1.100	0.271
Years of education of Head of Household	-0.091	0.011	-8.610	0.000
Main Occupation of Head of Household	-0.345	0.027	-12.630	0.000
Leased land	0.037	0.008	4.900	0.000
Leasedland^2	-0.001	0.000	-5.420	0.000
Owned Cultivable land	0.022	0.019	1.200	0.229
Owned Cultivable land^2	-0.001	0.001	-1.170	0.240
Dummy, Income Generating Assets	0.146	0.029	5.100	0.000
Constant	2.331	0.145	16.080	0.000

Table 3: Static model, the Total Vulnerable group

Number of Observations=68

Wld Chi2(11) =94.42

Prob>chi2=0.00

Log likelihood=-48.56

Poverty	Coef.	Std. Err.	z	P>|z
Dummy, Borrower	-2.406	0.256	-9.410	0.00
Age of Head of Household	0.151	0.095	1.590	0.11
Age^2	-0.002	0.001	-1.640	0.10
Household Size	-0.621	0.629	-0.990	0.32
Household Size^2	0.060	0.053	1.130	0.25
Years of education of Head of Household	0.147	0.125	1.180	0.24
Main Occupation of Head of Household	0.251	0.348	0.720	0.47
Leased land	-0.158	0.079	-1.990	0.04
Leasedland^2	0.006	0.004	1.550	0.12
Owned Cultivable land	-0.411	0.153	-2.690	0.00
Owned Cultivable land^2	0.023	0.014	1.680	0.09
Constant	0.219	1.829	0.120	0.90

Table 4: Regression Result for Determinants of Vulnerability,
the High Vulnerability group

Number of observations =55

Wald chi2(13) =628.54

Prob > chi2 = 0.00

R-squared = 0.92

Root MSE = 0.04

Vulnerability	Coef.	Std. Err.	z	P>|z|
Dummy, Borrower	0.080	0.039	2.040	0.042
Age of Head of Household	-0.106	0.006	-18.740	0.000
Age^2	0.001	0.000	18.010	0.000
Gender of Head of Household	-0.044	0.033	-1.340	0.180
Household Size	0.150	0.025	6.010	0.000
Household Size^2	-0.003	0.002	-1.620	0.105
Years of education of Head of Household	-0.099	0.007	-14.860	0.000
Main Occupation of Head of Household	-0.347	0.021	-16.340	0.000
Leased land	0.031	0.005	6.820	0.000
Leasedland^2	-0.001	0.000	-6.180	0.000
Owned Cultivable land	0.016	0.008	2.040	0.042
Owned Cultivable land^2	-0.001	0.001	-1.400	0.162
Dummy, Income Generating Assets	0.104	0.019	5.570	0.000
Constant	2.409	0.117	20.510	0.000

Table 5: Static Model, the High Vulnerability group

Number of observation= 55
Wald chi2(11) =37.79
Prob > chi2 =0.0001
Log likelihood = -37.793001

Poverty	Coef.	Std.	Err.	z	P>|z|
Dummy, Borrower	-2.335	0.522	-4.480	0.000	-3.358
Age of Head of Household	0.117	0.146	0.800	0.423	-0.169
Age^2	-0.001	0.002	-0.650	0.513	-0.004
Household Size	0.020	1.088	0.020	0.985	-2.112
Household Size^2	0.034	0.092	0.380	0.707	-0.145
Years of education of Head of Household	0.265	0.238	1.120	0.265	-0.201
Main Occupation of Head of Household	0.065	0.498	0.130	0.897	-0.912
Leased land	-0.190	0.172	-1.110	0.269	-0.527
Leasedland^2	0.007	0.010	0.740	0.459	-0.012
Owned Cultivable land	-0.316	0.281	-1.120	0.261	-0.866
Owned Cultivable land^2	0.007	0.026	0.250	0.799	-0.044
Constant	-1.945	3.234	-0.600	0.548	-8.285

Nexus between Carbon Emissions and Manufacturing growth in Bangladesh

MOHAMMAD ABUL KASHEM[*]

Abstract: *The main objective of this study is to examine the empirical cointegration, long and short run dynamics and causal relationships between carbon emissions and industrial growth in Bangladesh over the period 1972 to 2015. For such, we applied the ARDL/Bounds Testing methodology developed by Pesaran and Shin (1999) and Pesaran et al. (2001) and the Toda-Yamamoto Procedure of Granger Causality in an augmented VAR framework. Using three variables growth of carbon emissions, energy consumption and per capita industrial production, the ARDL bounds tests as well as additional cross-checking test convincingly confirmed long run cointegration between growth of carbon emissions and growth of per capita industrial production (i.e. economic development in other sense) in Bangladesh. The estimated long and short-run results indicate that, growth in per capita industrial production has significant positive impact, both in the short and long-run, on growth of carbon emissions. The coefficient of the error correction term is statistically significant, has the expected negative sign, and signified a very strong and faster speed of adjustment to equilibrium (100%). Likewise, Granger causality analysis indicated a unidirectional causation both from growth in per capita industrial production and energy consumption to growth in carbon emissions i.e., the industrial development or economic development in Bangladesh is taking place at the cost of carbon emissions.*

1.0 Introduction

After its emergence in 1971 Bangladesh economy did not performed well until late eighties. However, after restoration of democracy in early 1990s, subsequent

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[*] Joint Director, Bangladesh Bank, Dhaka, Bangladesh, Email: kashem24bb@gmail.com

massive policy reforms and rapid growth of foreign remittance influx has accelerated the economic development remarkably. Looking at this amelioration of the recent socio-economic indicators the whole world is praising Bangladesh. But this development process is going on through the indiscriminate installation of industrial units particularly in the surrounding areas of capital city of Dhaka and port city of Chittagong which also causes unplanned urbanizations and environmental crisis in those areas. Due to this unsystematic growth of manufacturing sector, population density and environmental degradations are also taking place with a similar pace. There is ample theoretical and empirical evidence of correlation, cointegration and causality between economic development in the early stage occurring at the expense of adverse impact on environment. Bangladesh could not escape itself from this common maelstrom of developing countries. Due to staying in low level development stage and becoming one of the densely populated and the highest population growth rate country in the world Bangladesh has small capacity to pay attention in environmental development issues. That is why despite this ominous environmental catastrophe both the policy makers and researchers are ignoring the issue for about last two and half decades. This paper is an attempt just to fill up this existing literature gap. Against this backdrop, this study makes an effort to investigate the empirical cointegration, long and short-run dynamics, and causal relationships between economic development and environmental decadence in Bangladesh. The main objectives of the study are as follows:

1) To find out whether economic development threatens environmental condition of the country;
2) To unfold the long and short-run dynamics between economic development and environmental degradation in Bangladesh;
3) To assess the form of causal relationship (no direction, unidirectional or bi-directional/feedback) between economic development and environmental deterioration.

2.0 Environmental condition and economic development in Bangladesh: A Brief Overview

An anomaly in usual economic development phenomenon is set by Bangladesh which is that despite high population growth (about an average of 1.5 percent since 2000) per capita GDP growth in Bangladesh is about 5 percent since 2002. In such impressive development of people living standard is contributed mostly by rapid growth of manufacturing and service sectors of the economy. In developing countries usually growth of these two sectors stems from high

consumption of fissile fuels such as coal, crude oil, natural gas etc., and Bangladesh is not out of this trend. In absence of green energy crude and refined petroleum oil and natural gas are the prime input of transport sector, electricity producing and manufacturing plants of this country. There is a close relation between consumption of such energy inputs and carbon emissions regardless of the country. Further, low treatment of wastage by the backwardly linked industries of rapidly growing RMG sector is also providing stoke in this process. Figure 1 bellow is explicitly showing that there is a increasing and positive relationship among the per capita energy consumption, per capita GDP growth and per capita manufacturing production. The co-movements of these depicted variables is hinting that perhaps some positive relationship is existing among them. Accordingly, Environmental degradation and natural resources depletion in Bangladesh are major threats to sustainable economic growth (Faridul et. al. 2013).

Figure 1: Positive relationships of per capita energy consumption, GDP and Manufacturing production in Bangladesh.
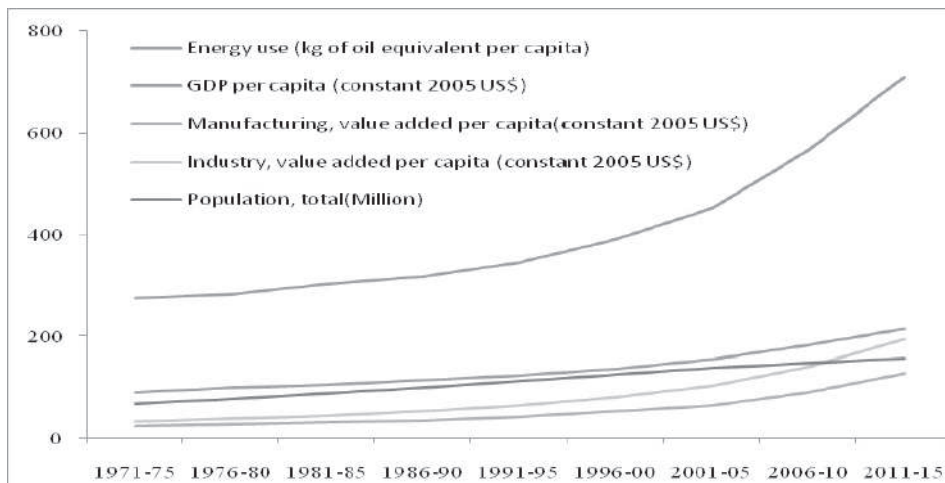
In general, Bangladesh suffers from the lack of environmental consciousness, all stakeholders like policy makers, researchers and ultimate impact bearers, which causes environmental degradation and emissions of Green House Gases to the environment. For such lack awareness and geographical position of Bangladesh is frequently affecting the country by the natural calamities such as cyclone, over rainfall, droughts, floods and tidal-surge.

The data as presented in Table 1 below shows that the five-year periodic averages of almost all the indicators of the economy and environment display mostly of

steady increasing trend, indicating the probable linkage among them over time is hold over this period.

Table 1: Trends in the Indicators of Financial Development
and Economic Growth in Bangladesh

	Energy use (kg of oil equivalent per capita)	GDP per capita (constant 2005 US$)	CO2 emissions (metric tons per capita)	Manufacturing, value added per capita(constant 2005 US$)	Industry, value added per capita (constant 2005 US$)	Manufacturing, value added (constant 2005 US$)	Industry, value added (constant 2005 Million US$)	Population, total(Million)
1971-75	90.68	273.76	0.05	22.81	32.57	1572.43	2241.78	68.75
1976-80	99.44	281.25	0.08	27.41	38.19	2115.88	2952.77	77.05
1981-85	104.82	300.52	0.10	29.93	44.08	2643.90	3896.37	88.24
1986-90	113.99	315.32	0.13	34.44	52.37	3473.40	5284.34	100.77
1991-95	123.76	344.59	0.16	42.00	63.25	4778.37	7194.22	113.46
1996-00	136.32	390.14	0.20	53.33	81.20	6736.62	10260.64	126.15
2001-05	153.91	451.07	0.26	64.65	101.99	8966.99	14146.45	138.48
2006-10	182.00	564.72	0.34	90.30	139.79	13404.68	20750.90	148.24
2011-15	213.19	707.22	0.37	127.36	193.56	20046.85	30465.22	157.18

Source: WDI, 2016 by WB.

We did not included all of the variables included in the Table 1 and Figure 1. As a surrogate of them we considered the level of carbon emissions (dependent variable), energy consumption and industrial production levels (in index form) as explanatory variables. All these three variables are displayed in figure 2 in growth form. Again, as can be seen from the Figure 2, the yearly growth of these concerned variables in Bangladesh also maintained synchronized co-movement, displaying a somewhat similar pattern in their progress and moving approximately together which can be helpful to infer that CO_2 emissions have a close association with industrial progress in Bangladesh.

In such backdrops, this study underpins to get a clear understanding of the nexus among the level of CO_2 emissions, energy consumptions and industrial growth in Bangladesh. The paper contributes to examine the dynamics and causal linkages among these variables for the period of 1972 to 2015. Applying ARDL cointegration bound testing approach and Granger causality testing method through taking care of the stochastic properties of the regarded data we have got very intuitive results. Many important policy implications can be inferred by the

Figure 2: Trends in the Economic Growth in Bangladesh
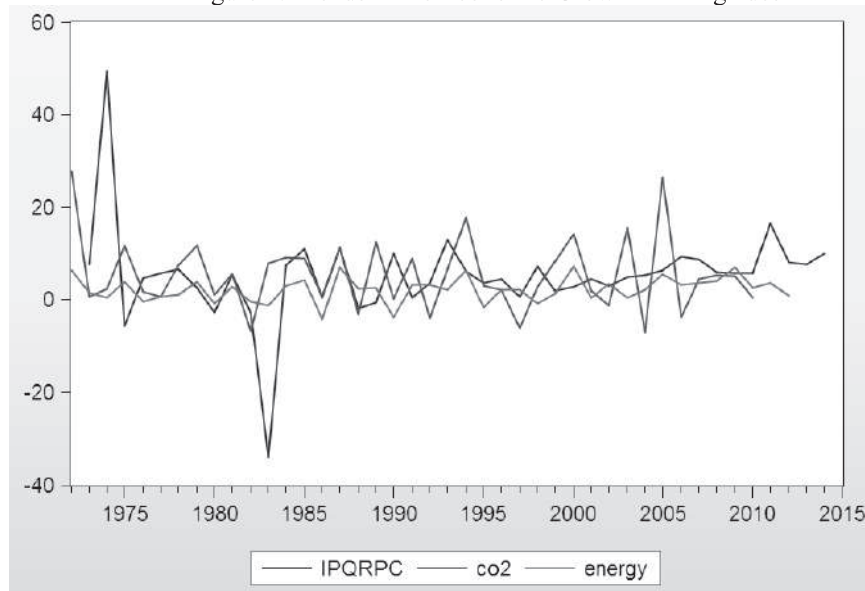
results of the study. The vast portion of literati of environmental economics in Bangladesh is absolutely unaware about the process and efficacy of the government environmental protection policy in Bangladesh. So, the paper is a big contribution in the fulfilling of existing literature gap regarding pursued environmental policy in case of Bangladesh as it is basically, to the best of our knowledge, one of the very few output of its kind. Besides the empirical result of this study will provide policymakers a better understanding of energy consumption, CO_2 emissions and economic growth nexus to formulate energy and climate policies to ameliorate the environment by minimizing its' pollution level.

3.0 Literature Review

The first empirical studies to investigate the economic growth and environmental degradation (or specifically CO_2 emissions) link is Kraft and Kraft's (1978) paper which uses data for United States from 1974 to 1974 and finds evidence of a Granger causality from output to energy consumption. After that seminal paper a wave has swept over the researchers across the world to find out empirical relationships in such variables. As a natural outcome of this prototype research and researchers growing interest on this issue, a vast amount of articles in the context of relationship between economic growth and environmental pollution have emerged which can be segregated in two groups: a single country and a

group of countries research works. The context of Bangladesh is not out of this flow as well. We have got three papers based on Bangladesh in this issue. First of all, Faridul et. al. (2012) gets positive results on energy consumption-CO_2 emissions and urbanization-CO_2 emissions relationships which presented a convincing evidence that existence in a preliminary stage of economic development, Bangladesh economic progress is causing environmental degradation. Using ARDL and Vector Error Correction Model (VECM) methods they have found the evidence of existence of Environmental Kuznet Curve (EKC) in case of Bangladesh. Almost a similar result is also found by Faridul et. al. (2013) where using the same techniques for the data used for 1971 to 2010 they have reached in the conclusion that along with energy consumption and urbanization, economic growth and openness (i.e. increasing international trade) too contributes in CO_2 emissions in Bangladesh. Same result was found in another paper by Alam et. al. (2012) where they used a group of data for the period of 1976-2006. Using Johansen (1990) cointegration test for energy consumption, economic growth and electricity consumption they have got uni-directional causality from energy consumption and economic growth both in short and long-run. However, bi-directional causality of electricity consumption and economic growth was also found by them in the same paper. Again, using ARDL procedure between CO_2 emissions and energy consumption they have got a uni-directional relationship between them in long-run but in short-run, unlike Faridul et. al. (2012), the result was opposite which conflict the well known EKC hypothesis.

In case of other country papers we have got some impressive and intuitive empirical findings. For the brevity of the paper we are going highlight here only some of them those we believe truly have important implications in environmental research all over the world. Keeping coherence with EKC concepts we have also focused the matter of similar development stages in country selection during make a choice of the paper to be mentioned in this article so that no contradiction of development stage with Bangladesh arises. As Bangladesh and India are in similar stage of development that is why perhaps the empirical relationships stemmed from the researchers are also same. Using various techniques like Johansen Cointegration (1990), Pesaran and Shin (2001) ARDL bound testing, VECM and VAR for the different sample periods Mohapatra et. al. (2015), Tiwari (2011), Tiwari (2012), Ozturk et. al. (2002) almost all of them have got positive relationships among CO_2 emissions, environmental degradation and GDP growth for India. Though there are some dissimilarities in their short-run and long-run relationships result of these papers reached in the decision that economic development in India surely causes environmental degradation over the last few

decades. Mahmud et. al. (2010) have got one to one relationship among, what they call E-E-E, energy, environment and economy. Using different econometric methods such as ARDL bound testing approach, VECM and Granger causality they have got both long-run and short-run relationships among carbon emissions, energy consumptions and economic development process. Getting no EKC relationship among these variables in case of Pakistan they have pointed out that if Pakistan does not take initiatives for using of green energy for economic development, it will fall serious environmental challenges in future. For the data period of 1971-2004 empirical and statistical finding for Tunisia, Chebbi et. al. (2008) pointed out that economic growth, energy consumption and carbon emissions are related in the long-run meaning that Tunisia may pursuing an inefficient energy policy. However, in short-run they did not get such relationships. Further, impulse response tests also did not confirmed the relationships they got for long-run. So, according to their findings using an energy policy which is environmental harmless for Tunisia may not hamper the economic development the country in short-run. For Turkey Buzkurt et. al. (2014) have got an opposite result that of Chebbi et. al. (2008) for Tunisia. Using yearly data of GDP, CO_2 emissions and energy consumptions for the period of 1960-2010, their research indicates that CO_2 emissions affects economic growth negatively while energy consumption affects it positively. According to this result they have decided that Turkey may have crossed the peak point of EKC and, hence, if it pursue a policy of sustainable economic development by less CO_2 emissions and less energy use its' economy will not suffer from any slow down.

Further, we have got several papers using various panel data techniques based on multiple countries data and some of them are truly noteworthy. Shahbaz et. al. (2016) have examined the tri-variable relationship among economic growth, energy consumption and CO_2 emissions for NEXT-11[1] countries which pact also includes Bangladesh. Applying time-varying Granger causality method for the period of 1972-2013 of these eleven countries they have detected economic growth is the cause of CO_2 emissions for Bangladesh and Egypt. Economic growth causes energy consumption in the Philippines, Turkey and Vietnam but the feedback affect exists between economic growth and energy consumption in South Korea. For Indonesia and Turkey they find the uni-directional time-varying Granger causality running form economic growth to CO_2 emissions which they thought the validity of EKC hypothesis for this couple of countries, also meaning

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[1.] Member of N-11 are Bangladesh, Egypt, Indonesia, Iran, Mexico, Nigeria, Pakistan, Philippines, Turkey, South Korea and Vietnam.

that economic growth for these two countries is achievable by decreasing the environmental degradation rate.

Lean et.al. (2013) has made an investigation for ASEAN countries using the annual data for the period of 1980-2006. Using panel cointegration and Granger causality techniques they have got positive association among economic growth, electricity consumption and CO_2 emissions. Though they have failed to get any long-run relationship among these three variables of the ASEAN area for their selected period, they have got uni-directional Granger causality running from electricity consumptions and CO_2 emissions to economic growth. Hamilton et. al. (2000) have analysed the sources of growth of CO_2 emissions for OECD countries over the period of 1982-1997. Employing decomposition formula they separated out the effects of changes in population growth, economic growth, energy intensity of output, primary energy use in final energy consumption, the share of fissile fuels and the carbon intensity of fissile fuel combustion. They have shown that the growth in emissions depends on how effectively energy use can be changed to offset the effects of economic growth. According to their empirical findings, across the OECD countries, growth in emissions has been mainly due to economic growth and an increase in primary energy required for final energy consumption. As per their results, besides of sharp differences between countries with population growth and energy source mix the overall and large fall of energy intensities in OECD countries over the 1982-1997 has been driven primarily by falling energy intensities in the services and industry sectors. Farhani et. al (2012) have applied the panel unit root test, panel cointegration and panel causality tests to investigate the relationship between energy consumption, GDP growth and CO_2 emissions for 15 MENA[2] countries covering the annual period 1973-2008. By taking care of the heterogeneity in countries and the endogeneity bias in regressors econometrically, the finding of their study reveals that there is no causal link between GDP growth and energy consumption growth; and between CO_2 emissions and energy consumption growth in the short run in those countries. However, in the long run, there is a uni-directional causality running from GDP growth and CO_2 emissions to energy consumption. We have also studied some papers which have made investigation based on panel of vast amount of countries like Saidi et. al. (2015) consisting 58 countries, Stolyarova (2010) on 93 countries, Maddison et. al. (2008) on 134 countries, Dinda et. al. (2001) for 88 countries across the world. In this list Stolyarova (2010) and Maddison et. al. (2008) papers included Bangladesh in their sample. Applying

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[2]. MENA means a group of Middle East and North African countries

annual data for different time periods the authors of these papers have sub-divided the sample among different countries to maintain homogeneity among them. Except Maddison et.al. (2008), all other authors have been confirmed about positive relation between the growth rate of GDP and CO_2 emissions. Saidi et. al. (2015) have got long-run and, Stolyarova (2010) and Dinda et. al. (2001) have got bi-directional or feedback relationship between GDP and CO_2 emissions growth rates.

According to the above investigation of papers except Hamilton et. al. (2000) all other papers have tried to get the relationship between GDP growth rate and CO_2 emissions growth rate. But in our understanding such analysis is not suitable for Bangladesh as more than 70 percent of GDP growth in Bangladesh (Figure 1) is driven by service and agricultural sectors, because being a developing country, which are basically less energy intensive sectors. That is why like Hamilton et. al. (2000) we have focused how industry sector can explain the CO_2 emissions and energy consumptions in Bangladesh.

Figure 1: Contribution of three sectors in GDP of 2014 & 2015
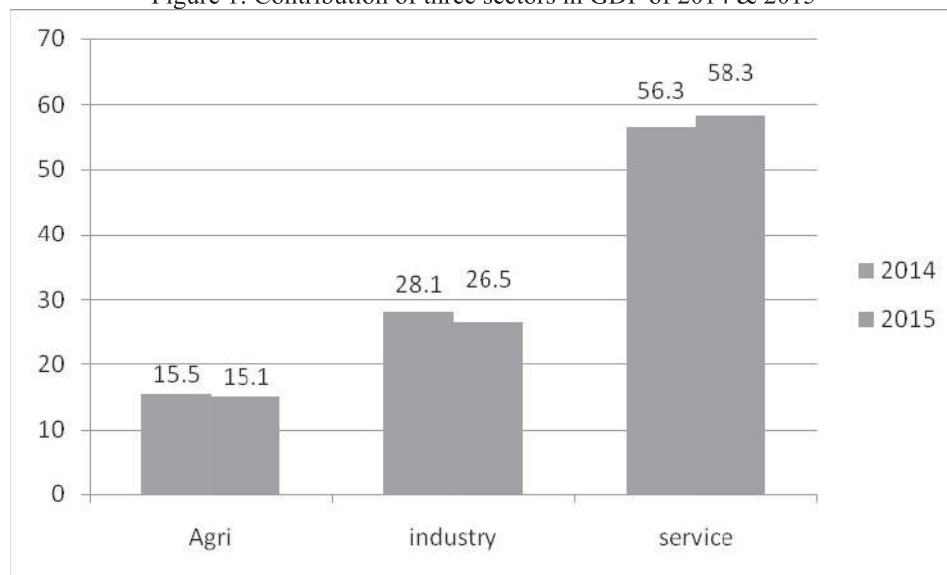
Source: Economic Trend, A monthly publication of Bangladesh Bank, Sept.-2016.

4.0   Data and Methodology

4.1.   Variables and Data

In order to gain valuable insights into the long-run and short-run dynamics as well as the causal relationships between industrial development and carbon emissions in Bangladesh, two variables have been used in the growth form. Using a variable in growth form conveys information regarding the direction of movements of the variable in the current period with respect to the previous period which reveals the dynamic relations among the concerned variables and can be used to gain valuable intuition regarding future movement of the variable as well. However, a variable in simple ratio form gives information on the variable for the current period only. Therefore, we can gain more information by using a variable in the growth form rather than using it in simple ratio form.

In this study, we are using growth of carbon emissions as dependent variable. Remaining two variables growth in energy consumption and growth per capita industrial production where the later one represents economic development in Bangladesh.

The description of all the variables is as follows-

CO_2 : Growth of Carbon Emissions
ENRG: Growth in Energy Consumption
IPQIPC: Growth in Per Capita Industrial Production Quantum Index

We have used the time series data of Bangladesh economy for the period of 1972 to 2015. The data source is the Word Development of Indicator (WDI), 2016 of World Bank and various issues of the Economic Trends (IPQI) of Bangladesh Bank, the central bank of Bangladesh. Keeping view with the prime objective of the study, the functional form of the model is as follows:

Carbon Emissions = f (Energy Consumption, Industrial Development)

The econometric form of the above model is as follows:

$$CO_{2t} = \ \alpha + \beta_1 ENRG_t + \beta_2 IPQIPC_t + \ \varepsilon_t$$

Where all the variables are same as described above, α is the intercept and β_1-β_2 are coefficients of explanatory variables.

4.2   Unit Root Testing

In general, the stationarity issue holds supreme importance in the econometric analysis of times series data, since a stationary series would have time invariant

mean and variance. Also, even in the absence of any meaningful relationship among the variables, non-stationary series containing unit root will result in a high co-efficient of determination (R^2), thereby leading to spurious regression (Granger and Newbold, 1974).

Although in ARDL approach of cointegration unit root pre-testing is not essential, the ARDL/Bounds Testing methodology of Pesaran and Shin (1999) and Pesaran *et al*. (2001) requires that no variable should be integrated of order 2 or I(2), as such data will invalidate the methodology. It is therefore, justified to test the stationarity of each variable before proceeding to the next level of analysis and inference. The Augmented Dickey-Fuller (ADF)and the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) unit root testing methods will be used for the Unit Roots Testing of the variables under study.

4.3   Cointegration Testing Using ARDL Bounds Testing Approach

The ARDL (Auto Regressive Distributed Lag) bound testing technique developed by Pesaran and Shin (1999) and Pesaran *et al*. (2001) will be employed to investigate the possible existence of cointegration among the variables under study or whether they possess long run equilibrium relationship as well as extracting both the long-run and short-run dynamics.

The ARDL / Bounds Testing methodology of Pesaran and Shin (1999) and Pesaran *et al*. (2001) has a number of advantages over traditional cointegration testing as enumerated below:

- It is very flexible and allows analysis with a mixture of I (0) and I (1) data.
- It involves just a single-equation set-up, making it simple to implement and interpret.
- Unlike the conventional method, different variables can be assigned different lag-lengths in the model.
- It is very much suitable for small samples.
- It provides unbiased estimation of long run relationship and long run parameters (Harris and Sollis, 2005).
- The endogeneity problem is adequately addressed. In this approach Pesaran and Shin (1999) maintain that modeling ARDL with the appropriate number of lags will address autocorrelation and endogeneity problems. According to Jalil *et al.* (2008), endogeneity is less of a problem if the estimated ARDL model is free of autocorrelation.

The basic form of an ARDL regression model used in this study is:

$$CO2_t = \alpha + \sum_{i=1}^{P} \beta_i CO2_{t-i} + \sum_{i=0}^{q} \gamma_i ENRG_{t-i} + \sum_{i=0}^{R} \delta_i IPQIPC_{t-i} + \varepsilon_{t1} \ldots \ldots \ldots (1)$$

where CO_2, ENRG, and IPQIPC are variables of the study and ε_{t1} is a "well-behaved" random "disturbance" term, i,e., ε_{t1} is serially independent, homoscadastic and normally distributed.

For bounds testing of cointegration, the above model is modified in the following manner:

$$\Delta CO2_t = \alpha + \sum_{i=1}^{P} \beta_i \Delta CO2_{t-i} + \sum_{i=0}^{q} \gamma_i \Delta ENRG_{t-i} + \sum_{i=0}^{R} \delta_i \Delta IPQIPC_{t-i}$$
$$+ \theta_0 CO2_{t-1} + \theta_1 ENRG_{t-1} + \theta_2 IPQIPC_{t-1} + \varepsilon_{t2} \ldots \ldots \ldots \ldots (2)$$

The model in equation (2) is a particular type of Error Correction Model (ECM), where the coefficients are not restricted. Pesaran et al. (2001) term it as a "conditional ECM".

The appropriate values for the maximum lags, p, q and q will be determined by using one or more of the "information criteria" - AIC, SC (BIC), HQ, etc.

Under the above equation the null and alternative hypotheses are as follows:

H_0 :No cointegration exist

H_1: cointegration exists.

The null hypothesis is tested by conducting F-test for the joint significance of the coefficients of the lagged levels of the variables. Thus

$H_0: \theta_0 = \theta_1 = \theta_2 = 0$
$H_1: \theta_0 \neq 0, \theta_1 \neq 0, \theta_2 \neq 0.$

The distribution of the test statistic is purely non-standard and exact critical values for the F-test are not available for an arbitrary mix of I(0) and I(1) variables. However, Pesaran et al. (2001) developed bounds on the critical values for the asymptotic distribution of the F-statistic. For various situations (*e.g.*, different numbers of variables, (k + 1)), they supply lower and upper bounds on the critical values. However, since the study is based on a relatively smaller sample size, we shall also compare the computed F-test value with the bounds critical value tables provided by Narayan (2005) as these are more suitable for small samples.

In each case, the lower bound is based on the assumption that all of the variables are I (0), and the upper bound is based on the assumption that all of the variables are I (1). If the computed F-statistic falls below the lower bound, the variables are I(0), so no cointegration is possible, by definition. If the F-statistic exceeds the upper bound, we conclude that we have cointegration. Finally, if the F-statistic falls between the bounds, the test is inconclusive and we will have to resort to other techniques of cointegration.

Following Giles, D. (2013), it is also necessary to conduct, as a cross-check, a "Bounds t-test" as stated below:

$$H_0 : \theta_0 = 0, \text{ against } H_1 : \theta_0 < 0.$$

The decision rule for this test is as follows:

If the t-statistic for CO_{2t-1} in equation (2) is greater than the "I (1) bound" tabulated by Pesaran et al. (2001; pp.303-304), this would support the conclusion that there is a long-run relationship between the variables. If the t-statistic is less than the "I(0) bound", we would conclude that the data are all stationary.

Short run parameters are estimated using the regular error correction mechanism (ECM) as depicted is equation (3) below:

$$\Delta CO2_t = \alpha + \sum_{i=1}^{P} \beta_i \Delta CO2_{t-i} + \sum_{i=0}^{q} \gamma_i \Delta ENRG_{t-i} + \sum_{i=0}^{R} \delta_i \Delta IPQIPC_{t-i} + \\ + \tau ECT_{t-1} + \varepsilon_{t_0} \ldots \ldots \ldots \ldots (3)$$

The error correction model results indicate the speed of adjustment back to long run equilibrium after a short run shocks. The ECM integrates the short-run coefficient with the long-run coefficient without losing long-run information. Under ECM technique, the long run causality is depicted by the negative and significant value of the error correction term (ECT) coefficient τ and the short run causality is shown by the significant value of other regressor variables.

4.4   Diagnostic Tests of the Model

One of the most important and crucial assumptions in the ARDL/Bounds Testing methodology of Pesaran et al. (2001) is that the errors of equation (2) must be serially independent and normally distributed. Therefore, both 'Q-Statistics' and 'Breusch-Godfrey Serial Correlation LM test' will be used for testing Serial Independence and 'Jarque-Bera' test will be used for testing Normality of the errors of the model. The heteroscedasticity will also be checked using 'Breusch-Pagan-Godfrey' test.

4.5   Stability Test of the Model

It is obligatory to ensure the 'dynamic stability' of any model having autoregressive structure. The stability of the model will be checked by using Recursive CUSUM and CUSUM of squares (Brown, Durbin, and Evans, 1975) estimates. These tests are also suggested by Pesaran and Pesaran (1997) for measuring the parameter stability.

4.6   Granger Causality Test using TY Method

First and foremost, Granger causality means in the case of two time-series variables, X and Y: "X is said to Granger-cause Y if Y can be better predicted using the histories of both X and Y than it can by using the history of Y alone". If two or more time-series are cointegrated, then there must be Granger causality between them - either one-way or in both directions. However, the converse is not true, (Dave Giles (2011). Again, according to Granger (1969), measuring the correlation between variables is not enough to construct a complete understanding about the relationship between two or more time series. This is because some correlations may be spurious and not useful, as there might be a hint of existence of a third variable that cannot be accounted for. Further, only correlation does not confirms causation between (/among) variables. That is, if we get our series are cointegrated, then we must need to cross-check on our causality results. This is the core idea of performing the Ganger causality test. We can test for the absence of Granger causality by estimating the following VAR model:

$$Y_t = g_0 + a_1 Y_{t-1} + ... + a_p Y_{t-p} + b_1 X_{t-1} + ... + b_p X_{t-p} + u_t \qquad (4)$$

$$X_t = h_0 + c_1 X_{t-1} + ... + c_p X_{t-p} + d_1 Y_{t-1} + ... + d_p Y_{t-p} + v_t \qquad (5)$$

Then, testing H_0: $b_1 = b_2 = ... = b_p = 0$, against H_A: X does not Granger cause Y. Similarly, testing H_0: $d_1 = d_2 = ... = d_p = 0$, against H_A: Y does not Granger cause X. In each case, a rejection of the null implies there is Granger causality. Note that X and Y series are in 'level' form which simply means that the data is not in 'difference' form where u_t and v_t are white noise error terms. In long run equilibrium these errors should zero. In these two equations, the series Y_t and X_t are co-integrated when at least one of the coefficients bi or di is statistically different from zero. If bi ≠ 0 and di = 0, then X_t will lead Y_t in the long run. The opposite will occur if di ≠ 0 and bi = 0. If both bi ≠ 0 and di ≠ 0, then feedback relationship exists between Y_t and X_t. But if both bi = 0 and di = 0, then no cointegration exists between Y_t and X_t such conflicting results (with prior result

of ARDL) can come out if the sample size is too small to satisfy the asymptotics that the cointegration and causality tests rely on (Dave Giles, 2011). The coefficients a_i's and c_i's represents the short run dynamics between Y_t and X_t. If a_i's are not all zero, movements in the X_t will lead to Y_t in the short run and conversely, if c_i's are not all zero, movements in the Y_t will lead to X_t in the short run.

Following Toda-Yamamoto (1995) procedure[3], the Granger Causality among the variables under an augmented Vector Autoregression (VAR) framework will be estimated. We will determine the appropriate maximum lag length for the variables in the VAR by using the usual methods. Specifically, basis the choice of lag length is on the usual information criteria, such as AIC. We will also ensure that VAR is well specified that is VAR does not contains serial correlation in the residuals.

5.0   Estimation, Analysis and Findings

The 'Unit Root Testing' of the variables, appropriate maximum lag lengths selection of the model &the ARDL model estimation, and Granger Causality along with all the diagnostics and stability testing of the model were done using E-Views 9.0 software. E-Views version 9.0 contains a full-functioning ARDL estimation option, together with bounds testing and an analysis of the long-run relationship between the variables being modeled.

5.1   Unit Root Testing

The Augmented Dickey-Fuller (ADF) and the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) unit root testing results are displayed in the following table:

It can be inferred from the above estimates that under ADF test all variables are stationary at levels and hence of order *I (0)*. However under KPSS test, ENRG is non-stationary at levels by taking both only intercept or intercept and Trend but attain stationarity after first differences and, therefore, is of order *I (1)*, while other variables are stationary at the levels by both ADF and KPSS. Therefore, the true order of integration of the variable ENRG is inconclusive. This mix and uncertain order of integration of the variables justifies using the ARDL approach of cointegration. However, as required by the ARDL bound testing technique developed by Pesaran and Shin (1999) and Pesaran *et al.* (2001), the results of the ADF and KPSS unit root testing confirm that no variable is I(2).

[3.] For a detailed discussion with example of the procedure, see Dave Giles (2011)

Table 2: Results of Unit Root Test

Variables	ADF H₀: Variable has a unit root LEVEL		KPSS H₀: Variable is Stationary LEVEL	
	Intercept	Intercept &Trend	Intercept	Intercept &Trend
1) CO2	-5.7516*** (0.0000)	-5.6936*** (0.0002)	0.5000**	0.5000***
2)ENRG	-8.1199*** (0.0000)	-8.9973*** (0.0000)	0.3392	0.1031
3) IPQIPC	-5.2637*** (0.0000)	-2.7334*** (0.0000)	0.7105**	0.2001**
	First Difference		First Difference	
1) CO2	-6.5768*** (0.0000)	-6.7681*** (0.0000)	0.2921	0.2239***
2)ENRG	-8.7532*** (0.0000)	-8.6068*** (0.0000)	0.2397*	0.2431***
3) IPQIPC	-0.4671 (0.8869)	-4.8770*** (0.0016)	0.5265**	0.1779**

*,**and***denotestatisticalsignificanceatthe10%,5%and1% levels
respectively; p-values in the parentheses (.))

5.2   ARDL model estimation

The 'Akaike Information Criterion (AIC)' has been used to determine the optimum lag length of the model. The selected model is ARDL (4,3,2). Therefore, the optimum lag lengths of the variables CO_2, ENRG, and IPQIPC are: p= 4, q= 3 and R = 2 respectively.

5.3   Diagnostic Tests of the Model

As far as the diagnostic checks are concerned, this model is good fit and it passes all the diagnostic tests. The R-squared is 0.6838 (Adj-R^2:0.4881), implying that almost 68 percent variations in the dependent variable are explained by the model and the rest by the error term. The DW statistics is 2.1751, which confirms that the model is not spurious. Moreover, the computed F-statistic = 3.4937 (Prob. 0.0054) clearly rejects the null hypothesis that the regressors have zero coefficients. As illustrated in the table below, the model passes the test regarding

serial correlation (Q-Statistics and Breusch-Godfrey Serial Correlation LM tests), Normality (Jarque-Bera test) and Heteroscedasticity ('Breusch-Pagan-Godfrey' test).

Table 3: Model Diagnostic Tests Results

Test	χ^2	Probability
Breusch-Godfrey Serial Correlation LM test	2.8069	0.2457
Breusch- Pagan-Godfrey Heteroskedasticity test	3.9068	0.6893
Jarque - Bera test	3.0450	0.2179

The Q-Statistics (E-Views output) in Figure 2 below also shows that all the spikes are within range in both the cases, therefore, re-affirming that the errors of the model is serially independent.

Figure 2: Q-Statistics result from E-Views 9.0

Date: 12/13/16 Time: 18:18
Sample: 1972 2015
Included observations: 35
Q-statistic probabilities adjusted for 4 dynamic regressors

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob*
		1	-0.156	-0.156	0.9293	0.335
		2	-0.019	-0.044	0.9432	0.624
		3	-0.103	-0.116	1.3756	0.711
		4	-0.137	-0.181	2.1598	0.706
		5	0.036	-0.031	2.2158	0.819
		6	-0.083	-0.119	2.5200	0.866
		7	-0.142	-0.238	3.4527	0.840
		8	0.029	-0.099	3.4936	0.900
		9	-0.021	-0.110	3.5166	0.940
		10	0.055	-0.087	3.6742	0.961
		11	0.120	0.029	4.4573	0.955
		12	-0.025	-0.043	4.4917	0.973
		13	-0.139	-0.237	5.6271	0.959
		14	0.042	-0.078	5.7383	0.973
		15	0.032	-0.011	5.8041	0.983
		16	0.083	-0.001	6.2743	0.985

*Probabilities may not be valid for this equation specification.

Figure 2: Q-Statistics Square Test result from E-Views 9.0

Date: 12/13/16   Time: 18:19
Sample: 1972 2015
Included observations: 35

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.132	0.132	0.6641	0.415
		2	0.224	0.211	2.6399	0.267
		3	-0.159	-0.224	3.6657	0.300
		4	-0.251	-0.280	6.3018	0.178
		5	0.061	0.255	6.4646	0.264
		6	0.047	0.153	6.5639	0.363
		7	0.092	-0.161	6.9584	0.433
		8	0.058	-0.037	7.1218	0.524
		9	-0.026	0.142	7.1567	0.621
		10	0.046	0.092	7.2646	0.700
		11	0.162	0.129	8.6755	0.652
		12	-0.071	-0.228	8.9603	0.706
		13	0.073	0.010	9.2754	0.752
		14	-0.215	-0.014	12.121	0.597
		15	-0.060	-0.001	12.358	0.652
		16	-0.017	-0.058	12.377	0.718

5.4   Fit of the Model

The Actual/Fitted/Residual plot of the unrestricted ECM of our model shows that the fit of model is good enough in terms of explaining the level of GR variable (Figure 3).

5.5   ARDL Bounds Test

Since the model passed all the diagnostics tests, we now move to the next level of analysis, i.e., bounds test for cointegration. The associated F-test obtained is as follows:

For k=2 (number of independent variables) the relevant critical values with unrestricted intercept and linear trend from table CI(v) on p.301 of *Pesaran et al. (2001)*, and for k=2, n≈45 the table for case (v) on p.1990 of *Narayan (2005)* is given below:

Figure 3: Actual/Fitted/Residual plot (E-Views 9.0 output)
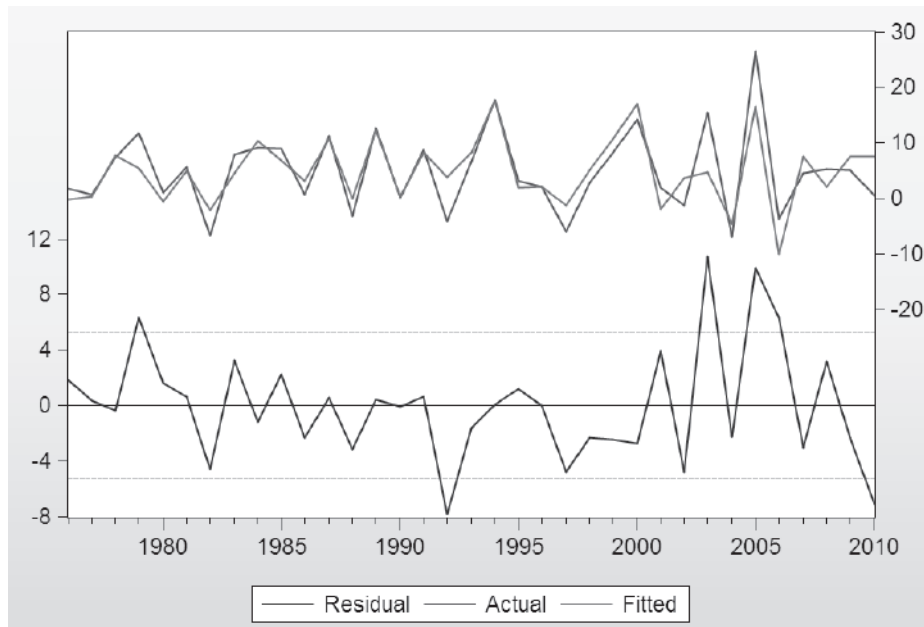
Table 4: Result of ARDL Bounds Testing

Variables	F-Statistics	Result
F(CO2/ENRG, IPQIPC)	14.0096***	Cointegration

(***significantat 1%significancelevel)

Table 5; Bounds Testing Critical Values from Pesaran and Narayan

Critical Values	Pesaran		Narayan	
	Lower Bound I(0)	Upper Bound I(1)	Lower Bound I(0)	Upper Bound I(1)
1%	6.34	7.52	7.317	8.720
5%	4.87	5.85	5.360	6.373
10%	4.19	5.06	4.437	5.377

As the value of the computed F-statistic exceeds the upper bound even at the 1% significance level in both the Pesaran and Narayan relevant table of critical values, we can conclude that there is evidence of a long-run relationship between the time-series of our model (at this level of significance or greater).

Cross Checking for cointegration

In addition, the t-statistic on CO_{2t-1} is -4.3113. When we look at Table CII (v) on p.304 of Pesaran *et al*. (2001), we find that the I(0) and I(1) bounds for the t-statistic at the 1%, 5%, and 10% significance levels are [-3.96,-4.53], [-3.41,-3.95], and [-3.13,-3.63] respectively. As seen, at the 5% significance level, the computed t-statistic on CO_{2t-1} exceeds the corresponding value for I(1), thus reinforcing our conclusion that there is a long-run relationship among the variables.

5.6   Long-Run and Short-Run Relationships

5.6.1 Long-Run Relationship

The long-run equilibrium relationship among the variables estimated using the ARDL approach is given in the table below:

Table 6: Estimated Long Run Coefficients using ARDL Approach

Variables	Coefficient	t-Statistic	Probability
CO2(-1)	-0.749188***	-4.311291	0.0003
CO2(-2)	-0.540585**	-2.779005	0.0112
CO2(-3)	-0.731191**	-3.755516	0.0012
CO2(-4)	-0.353844**	-2.436762	0.0238
ENRG	1.317242***	2.975545	0.0072
ENRG(-3)	1.011448*	2.064928	0.0515
IPQRPC(-3)	-30679017**	-2.204936	0.0387
C	17.42030***	3.798761	0.0011

(*,**and***denotestatisticalsignificanceatthe1%,5%and10% levels respectively)

The above result shows that the coefficients are significant for the variables CO_2 (Growth of ENRG) and IPQIPC (Growth of Per Capita Industrial Production Quantum Index). This indicates that energy consumption growth and Per capita Industrial Production growth has positive impact on the Carbon emissions growth in the long run which is confirmed by the sign and statistical significance of their coefficients as shown in the Table 6 above.

This result is similar to the result of Faridul et. al. (2012), Faridul et. al. (2013), Mahmud et. al. (2010) and Shahbaz et. al (2016). But it is in contrast to the result of Alam et. al. (2012), Buzkurt et. al. (2012), Farhani et. al. (2012), Lean et. al. (2013) and Saidi et. al (2015).

5.6.2 Short Run Dynamics

The following OLS equation is tested for the short run causality in ARDL (4,3,4) framework:

Table 7: Estimates from the Error Correction Mechanism

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(CO2(-1))	6.89E-14***	1.75E-14	-3.924415	0.0012
D(CO2(-2))	5.02E-14***	1.30E-14	-3.854824	0.0014
D(CO2(-3))	3.18E-14***	8.74E-15	-3.636930	0.0022
D(CO2(-4))	1.26E-14***	4.14E-15	-3.042259	0.0078
D(ENERGY)	1.668122***	8.89E-15	1.88E+14	0.0000
D(ENERGY(-1))	1.03E-13**	4.16E-14	2.485968	0.0244
D(ENERGY(-2))	7.51E-14**	3.14E-14	2.393821	0.0293
D(ENERGY(-3))	4.36E-14*	2.11E-14	2.063837	0.0556
D(ENERGY(-4))	1.47E-14	1.07E-14	1.373596	0.1885
D(IPQRPC)	364.7879***	2.30E-07	-1.59E+13	0.0000
D(IPQRPC(-1))	-4.30E-07*	2.47E-07	-1.741113	0.1009
D(IPQRPC(-2))	-2.48E-07	2.36E-07	-1.050454	0.3091
D(IPQRPC(-3))	-2.34E-07	2.28E-07	-1.026118	0.3201
CO2(-1)	1.0000***	2.15E-14	-4.65E+13	0.0000
ENERGY(-1)	1.668122***	5.33E-14	3.13E+13	0.0000
IPQRPC(-1)	311.7070***	7.97E-08	-4.58E+13	0.0000
C	6.7374***	1.21E-13	5.57E+13	0.0000
Coint.Eq(-1)	-1.0000***	4.07E-15	2.45E+14	0.0000

(*,**and***denote statistical significance at the 10%,5% and 1% levels respectively)

The results corresponding to equation (3) are shown by the Table 7 above. We conclude that short-run dynamics is in conjunction with the long-run relationships as shown by the value and sign of lagged error correction term (ECT) coefficient α[CointEq(-1)]. As required, ECT has a negative sign and it is very significant even at 1% level. This represents that there exists long-term relationship between the dependent variable and the regressors. In addition, the value of ECT coefficient is -1.00 which signifies strong and a faster speed of adjustment to equilibrium. Thus nearly 100% of the disequilibrium converges back to the long term equilibrium within one period (one year).

Lag period of CO_2, ENGR and IPQIPC has positive and significant impact on Carbon emissions in the short-run which is confirmed by the sign and statistical significance of the coefficients of its second, third and fourth lagged values in

the first differences. Therefore, we may conclude that the overall impact of both energy consumption growth and per capita industrial production growth is time invariant, i.e., having similar short-run and long-run impact on Carbon emissions growth.

This result is partially similar to the result of Alam et. al. (2012), Mohapatra et. al. (2015), Tiwari (2011), Tiwari (2012), Ozturk et. al. (2002), Stolyarova (2010) and Dinda et. al (2015). However, this result is opposite to the result of Chebbi et. al. (2008).

5.7   Stability of the Model

To ensure the robustness of our results we employ structural stability tests on the parameters of the long-run results based on the cumulative sum of recursive residuals (CUSUM) and cumulative sum of recursive residuals of squares (CUSUMSQ) tests as suggested by Pesaran and Pesaran (1997). A graphical representation of CUSUM and CUSUMSQ statistics are provided in Figure 4 and Figure 5 below. If the plots of the CUSUM and CUSUMSQ remain within the 5 per cent critical bound, it would signify the parameter constancy and the model stability. Both the plots indicate that almost none of the straight lines (drawn at the 5 percent level) are crossed by CUSUM and CUSUMSQ i.e., the plots of both the CUSUM and CUSUMSQ are within the boundaries (shown by the dotted red lines) where plots of the CUSUM has hovered around the zero line and CUSUMSQ line slightly crossed the lower bound for the tow data of 2001 and 2002, and therefore these statistics confirm the model stability and that there is no systematic change identified in the coefficients at 5% significance level over the study period.

5.8   Granger Causality Test

After examining the long-run relationship between the variables, we use the Granger causality test to determine the causality between the variables. As we found cointegration among the variables, we may expect uni or bidirectional causality among the series. We examine the causal relationships between energy consumption and carbon emissions growth in Bangladesh within an augmented VAR framework following Toda-Yamamoto (1995) procedure. The Table 8 and the arrow diagram for causal channels in Figure 6 below show the short-run Granger Causality among the variables.

We did not get the existence of a feedback/bidirectional relationship between carbon emissions growth with energy consumption growth and per capita

Figure 4: Plot of CUSUM Tests
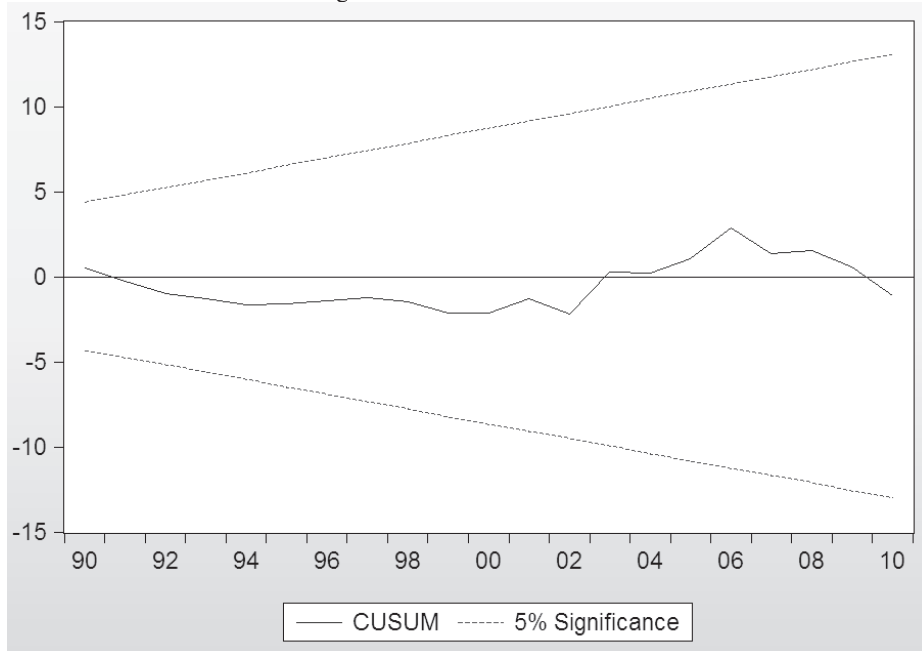
Figure 5: Plot of CUSUM of Squares Tests
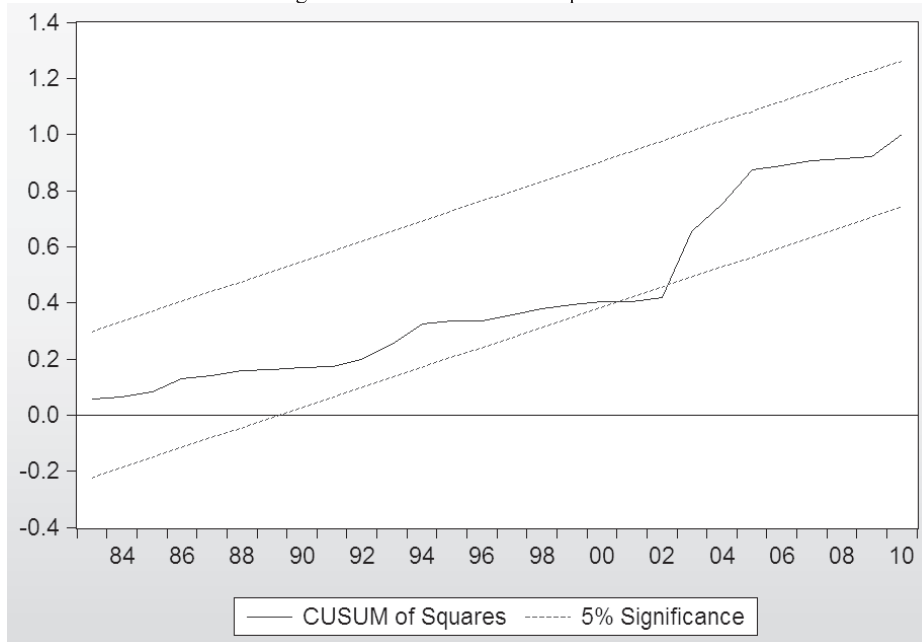
industrial production growth, and between the per capita industrial production growth and energy consumption growth i.e. the relationships stem from Granger Causality analysis is known in theoretical paradigms is the "supply-leading hypothesis" not the "demand-following hypothesis". While the 'supply-leading hypothesis' posits a unidirectional causation that runs from energy consumption to carbon emissions' and from industrial production to carbon emissions, the 'demand-following hypothesis' posits an opposite direction of causality (Balago, G.S., 2014).

Figure 6: Causal Channels
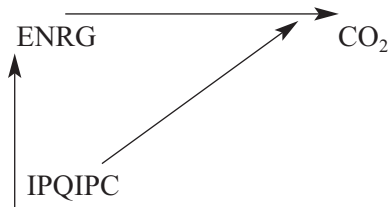
Table 8: Granger Causality/Block Exogeneity Wald Tests

	CO2	ENRG	IPQIPC	
	Direction of Causality			
CO2	- - -	0.0336	0.0407	----------------------
ENRG	8.1321***	- - -	1.5104	ENRG→CO2,
IPQIPC	2.9710**	3.5028**	- - -	IPQIPC→CO2;IPQIPC→ENRG

(*,**and***denotestatisticalsignificanceatthe10%,5%and1% levels respectively)

Rather, on the whole, there is evidence of strong uni-directional causality running from energy consumption and industrial production to CO_2 emissions growth in Bangladesh which favors the findings of aforementioned papers of Mahmud et. al. (2010), Shahbaz et. al. (2016) and Lean et. al. (2013). However, this result sharply declines the Farhani et. al. (2012) findings for 15 MENA countries.

In this sense, we may conclude that the industrialization and energy consumption in Bangladesh are the reasons of carbon emissions growth and both energy consumption and industrialization are taking place in inefficient energy consumption and production process and occurring at the cost environmental pollution. Bangladesh does not using up-to-date green technology in its' economic growth and fuel utilization process.

6.0   Conclusion and Policy Implications

This paper has examined the empirical cointegration, long and short-run dynamics and causal relationships among the growth of per capita industrial production, energy consumption and CO_2 emissions in case of Bangladesh over the period 1972 to 2015. Accordingly, we applied the ARDL/Bounds Testing methodology developed by Pesaran and Shin (1999) and Pesaran et al. (2001) to investigate cointegaration, Unrestricted Error Correction Model (UECM) of Pesaran and Shin (1999) and Pesaran et al. (2001) for long and short run dynamics and the Toda-Yamamoto Procedure of Granger Causality in a VAR framework.

The ARDL bounds tests as well as additional cross-checking confirmed both short and long-run cointegration between the growth of carbon emissions and per capita industrial production growth, carbon emissions and energy consumption, and per capita industrial production and energy consumption in Bangladesh. The coefficient of the error correction term is statistically significant at 1% levels of significance and has the expected negative sign with a value of (-1.00), which signifies a very strong and faster speed of adjustment to equilibrium. Thus nearly 100% of the disequilibrium convergence back to the long-term equilibrium within one year period. The estimated model passed all the diagnostics tests and was also found to be stable. The result was confirmed even by TY method of Granger causality test.

As the foregoing results imply, in Bangladesh industrial production growth is not indifferent to CO_2 emissions and energy consumption growth. Particularly its' industrial production is highly inefficient energy use and pollution dependent, and sudden shock to pollution and energy supply will lead the country to a adverse economic condition. As Bangladesh is an over populated country and presently existing in the early stage of development, the result of the study says that immediate reduction of CO_2 emissions and energy consumptions will seriously hamper the poverty and unemployment alleviation, and economic development process. The present development trends and techniques in Bangladesh are caused of grave water, soil, noise and air pollution as CO_2 emissions is increasing keeping up with economic progress. In this backdrop, immediate importing and installing of energy efficient technologies may cause social unrest. However, continuous environmental degradation through CO_2 emissions will incur an unsustainable development situation in the country in long-run too. In this dilemma government of Bangladesh should adopt very prudent policies to move through a sustainable development path. Efficient implementation of energy policies and environmental laws, exploring and shifting to environment friendly energy generating projects

and exploiting sources like water, wind, solar, nuclear and hydrogen-based energy, natural gas exploration and other low-carbon generating sources of energy and raising the productivity of the energy input. Crafting proper carbon taxation, subsidization and trading schemes, and encouraging existing and new investors for relying in efficient energy sources may help government to avoid financial and fiscal debacles towards its' policy reform for pollution free economic development. Moreover, switching from coal and petroleum and their derivatives-based energy generation, raising awareness of different sections of the society like local, multinational and foreign investors, labourers and service holders in production plants, and above all, common folk for green and renewable energy sources will help the country to come out from such health hazardous and bad ecological conditions.

Our econometric results are also shedding light in many other directions too. The looming environmental crisis for over and inefficient using of energy is hinting that the future of environmental condition in Bangladesh is very paled and gloomy. The country needs to take steps energy conservation and environmental protection policies to save the economy and public health of the country in long-run. It badly needs to contemplate in reducing CO_2 emissions and industrial pollution, and to struggle against energy waste and saving the energy intensive outputs without harming the economic development activities. The research and investment in clean energy should be the part and parcel of its energy policy to curb the CO_2 emissions and to find alternative and green sources energy. Technological improvement through R & D, switching in clean energy, and proper formulation and implementation of environmental laws and policies are the targetable future recourse of Bangladesh. The present "do nothing policy" will decrease its' citizen's life expectancy, minimizes social welfare, bring persistent decline in output growth through a negative environmental externality, increases national health expenditures, increase the stock of brine water in the southern coastal area's wetlands and escalation of countrywide desertification and deforestation. Last but not least, Bangladesh also should not response positively with other countries when they try to reach in an agreement of pollution trade. Only secure, clean, cost effective and sustainable energy trade with the neighboring or other countries can be the viable option for the sake of the environment and long-run sustainable development of the country.

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Does Private Sector Credit gear up Private Investment in Bangladesh?

MD. ABDUL KAYUM[*]
MD. ABDUL KARIM[*]
MD. OMOR FARUQ[**]
RUBANA HASSAN[***]

Abstract: *This paper examines whether private sector credit gears up private investment in Bangladesh or not by using the annual data from FY1976 to FY2016. It is found from the estimated result that the private sector credit variable is the most persuasive factor stimulating private investment in Bangladesh. It is therefore arguable that policy-makers in Bangladesh can capitalize on the private sector credit to influence private investment directly or indirectly. It is also found that public investment affects private investment positively. In other words, public investment crowds in private investment in the context of Bangladesh. This implies that public investment can enhance private investment in Bangladesh by increasing private returns through the provision of infrastructures (Communication, transports, energy, etc.).*

Introduction

In recent years, private sector has been given special emphasis to help boost economic growth and reduce poverty in developing countries. Such a move has been come forward as a result of the fact that public sector driven economy resulted in resource inefficiency, poor service delivery and involved in corrupt practices. In the context of Bangladesh, the country followed a public sector led

* Deputy General Manager, Bangladesh Bank
** Joint Director, Bangladesh Bank, E-mail: omar.faruq@bb.org.bd.
*** Joint Director, Bangladesh Bank

industrialization strategy in the early period of the independence. Government took over all industries occupied by Pakistani entrepreneurs and nationalized most of the industries and financial institutions. The performance of the economy under public sector led development strategy, however, was not satisfactory. All nationalizes industries and financial institutions have been turned into losing concerns. Consequently, the government had started to shift away from public sector led planned economy to private sector driven economy in late 1970s. The government has also adopted a comprehensive financial sector reform programs (FSRP) in 1990s.

The performance of Bangladesh under private sector led growth strategy has become very impressive uplifting its growth trajectory by roughly 1 percent in every decades. The economy maintained above 6 percent growth trajectory in the last decade. In FY15, Bangladesh graduated to the status of a lower middle income country from a low income country. In this backdrop, Bangladesh has designed its Seventh Five Year Plan for the period 2016-2020 aiming at uplifting GDP growth rate trajectory to 8 percent by 2020. To attain this higher growth trajectory, a gradual increase in investment will be required from existing 29.4 percent in FY16 to 34.4 percent of GDP by 2020. Since domestic private investment constitutes a large chunk (around 76.4 percent in FY15) of total investment, private sector investment will have to play a crucial role in attaining the targeted higher growth rate.

To boost up investment adequate financing facilities or access to credit, along with other economic and non-economic measures conducive to investment, are essential. Broadly there are two domestic sources of financing for capital formation; bank credit and financing from capital market. As capital market of Bangladesh is not so developed, most development activities are financed from bank credit. Private sector credit is instrumental in tapping the productive potentialities of the economy. Credit may be used in investment and productive purposes or it may be used for consumption purposes. If it is used in purchasing plant and machinery, seed, fertilizers, tractor, and pump set etc, then it directly augments investment. Even if it is used for consumption purposes still it contributes to investment indirectly by flourishing the economic activities of the economy. The private sector credit is particularly useful for the poor and rural people in the event of natural disaster such as flood, draught, disease or fire. However, if the excessive credit is provided for consumption purposes and unproductive sector, then there is a possibility of higher inflation and asset price bubble as aggregate demand surpasses aggregate demand. Therefore, the credit to

private sector should be provided which will be sufficient to support the desired investment and output growth but not fuelling the inflation in the country.

Given the stylized relationship between investment and credit, many authors tried to investigate the determinants of investment in developing countries. However, only few studies have been done on the behavior of investment in Bangladesh. Hassan and Salim (2011) estimated the determinants of investment in Bangladesh. E. Islam and N. Begum (2005) empirically analyzed the sensitivity of investment demand to interest rate. However, almost all the study mentioned above ignores the role of private sector credit on investment. This paper attempts to examine the empirical relationship between private investment (which constitutes major portion of investment) and private sector credit in Bangladesh. Dr. S. Younus (2010) examines relationship among output growth, private sector credit and inflation. She, however, found that private sector credit has no real effect on economic growth which is contrary to conventional belief. Moreover, there is a growing voice from many corners particularly from business men regarding higher credit ceiling for private sector to boost up recent stagnant private investment. However, there is no in-depth and updated study on the impacts of private sector credit on investment and economic growth. This persuades us to examine the relationship between private sector credit and private investment. The result of the study may be useful in designing monetary policy of Bangladesh Bank.

It is mentionable that though our primary objective is to explore the relationship between private sector credit and private investment, other important determinants of private investment are used for robustness and to avoid the problem of omitted bias of variable of estimated result. It is also noted that though there are micro finance institutions, credit co-operatives and NGOs provide credit to private sector. In recent time, private sector has also been allowed to borrow foreign sources. However, availability of time series data for those institutions and private foreign borrowing are very limited. Therefore, in this study, domestic private sector credit provided by only commercial banks, who distributed major portion of the credit, is taken into consideration.

The rest of the paper is structured as follows. The next section discusses the pattern of private investment and public investment in Bangladesh. Section three provides the status and trend of private sector credit in Bangladesh followed by literature review in section four. Section five describes the analytical framework, data sources and time series properties of data followed by the analysis of empirical results in section six. Concluding remarks and policy implications are presented in the final section.

Pattern of Private Investment and Public Investment in Bangladesh

Private Sector investment in Bangladesh increased steadily amid some fluctuations over the past years. A number of good policies including sound macroeconomic management, trade and investment deregulation, privatization, removal of quantitative restrictions, simplifying business registration process, relaxation of ownership restrictions, relaxation of rules regarding inflow of foreign investment and outflow of profits, reduction of trade tariffs, the establishment of Export Promotion Zones (EPZs), the expansion of infrastructure services, expansion of labor and quality improvements and allowing of foreign borrowing for private sector contributed to the significant increase in private sector investment in Bangladesh. Real private sector investment increased from a meager 6.9 percentage of GDP in FY1975, reached to 10.5 percent in FY1979 and climbed to 14.0 percent in FY1981. During the period 1982-1991, private investment fluctuated considerably between 10.9 and 20.9 percent of GDP. After that it showed continuous increase and reached to 24.5 percent in FY2012. However, real private sector investment showed some signs of stagnation at 24.5 to 24.8 percent of GDP in last five years. Real public investment also increased during that period started from 2.8 percent of GDP in FY1975, reached to 5.0 percent in FY1978. It remained almost constant over the period FY1979-FY2006. During the period FY2006 to FY2009, it witnessed a declining trend from 5.6 percent of GDP to 4.5 percent of GDP. After that, public sector investment increased gradually increased and reached to above 7.0 percent of GDP in FY2016 (figure 1).
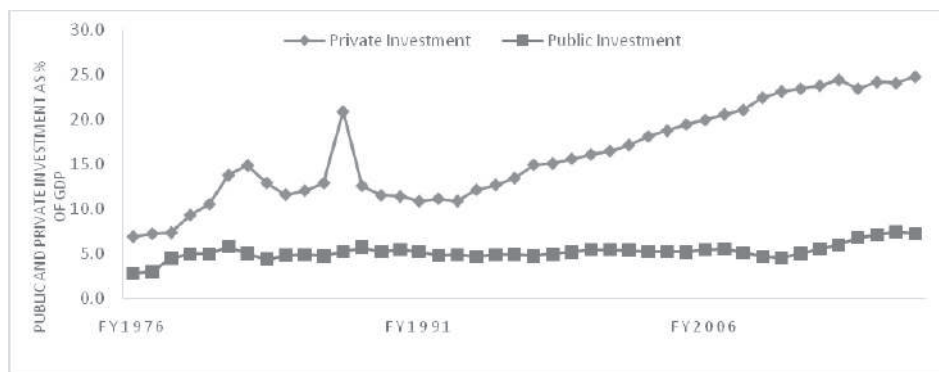
Status and Trend of Private Sector Credit in Bangladesh

The ratio of credit to private sector credit to nominal GDP in Bangladesh increased over the study period except few years. The ratio increased steadily to

17.9 percent in FY1986 from only 2.3 percent in FY1975.Then it exhibited a volatile trend during the period 1987-1992 and varies between 15.0 percent to 21.7 percent. After 1992, it increased gradually and reached 42.8 percent in FY2011. However, the ratio declined to 38.7 percent in FY12 and showed some sorts of stagnation in last four years (figure-2).

Figure 2: Private Sector Credit as % of GDP
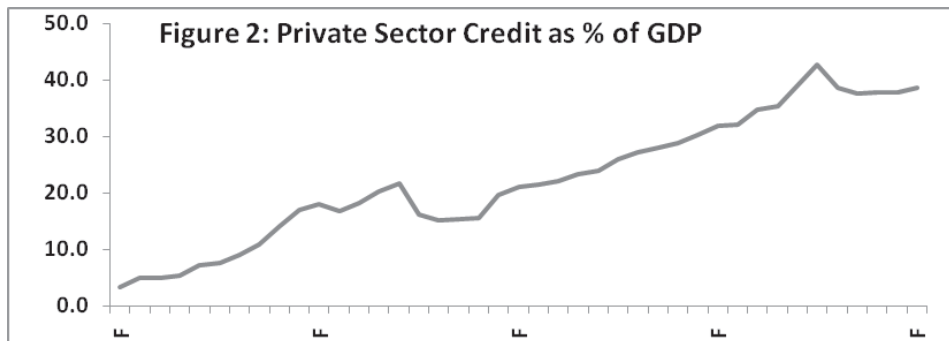
Before 1990s, the credit policy of Bangladesh was mostly directed to some specialized sectors with controlled and subsidized interest rate policy. The asset of banking sector was mostly concentrated the state owned banks and credit to private sector was very volatile. The banking industry had been transformed from a highly inefficient state-owned sector to a dynamic private sector after implementation of financial liberalization in 1990s. After financial liberalization, the credit growth to private sector was relatively stable which varied between 10.6-16.8 percent during FY1996 to FY2007. The private sector credit was remarkably high in FY2008, FY2010, FY11 and FY12 which increased to 24.9, 24.2, 25.8 and 19.7 percent respectively. After FY2011, the private sector credit growth exhibited a declining trend and fell to 10.9 percent in FY2013. In last four years the credit growth again showed an increasing trend and reached to 16.8 percent in FY2016.

Figure 3: Private Sector Credit growth (Y-o-Y)
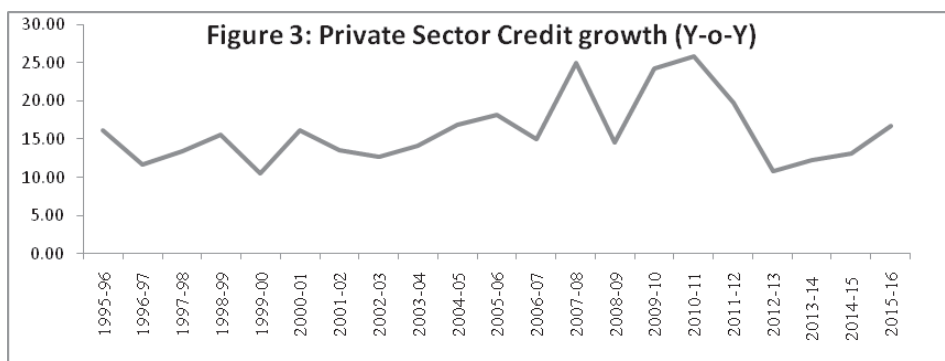
Figure 4: Share of Private Sector Advances by Economic Purposes (September 2016)
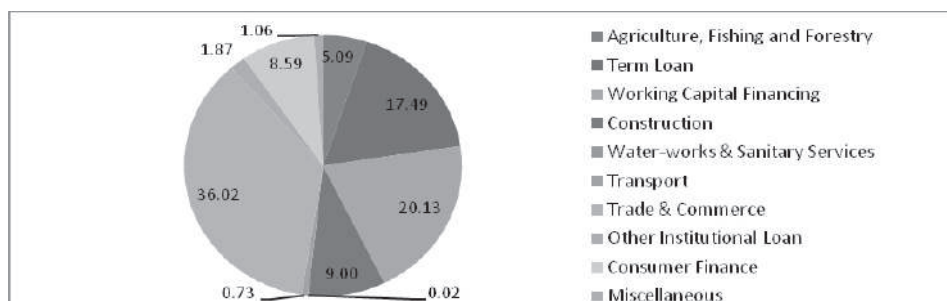
Secctor wise distribution of private sector credit showed that out of the total credit trade and commerce constituted highest 36.02 percent followed by working capital finance (20.13 percent), term loans (17.49 percent), construction (9.00 percent), consumer finance (8.59 percent), and agriculture, fishing and forestry (5.09 percent). It is clear from sector share of private sector credit that credit goes to consumer financing is very low (only 8.6 percent) and majority of credit to private sector used for investment and productive purposes. Another sticking figure is that though agriculture, fishing and forestry contribute roughly 15 percent of GDP in Bangladesh (National Account Statistics, BBS), whereas it has been provided only 5.09 percent of total private sector credit. The analysis of the private sector credit by economic purposes showed that there has been a significant increase in the credit to working capital finance, construction, transport, and trade & commerce while term loan and consumer financing decreased significantly in recent time (table-1) term loans (17.49 percent).

Table 1: Private Sector Credit by Economic Purposes

(Y-O-Y % changes)

Major Sectors	Jun.15	Sep.15	Dec.15	Mar.16	Jun.16	Sep.16[P]
Agriculture, Fishing and Forestry	9.4	21.5	21.3	8.8	21.8	9.5
Term Loan	20.9	30.4	30.9	32.8	10.3	12.7
Working Capital Financing	15.0	16.8	17.9	5.2	30.2	17.2
Construction	8.0	9.8	9.6	31.0	23.0	17.1
Transport	-23.4	-18.3	-18.7	22.7	16.1	7.4
Trade & Commerce	5.7	1.2	12.4	18.6	15.3	15.8
Consumer Finance	81.2	34.7	8.7	8.1	1.8	14.4

Source: Statistics Department, Bangladesh Bank. P=provisional.

Literature Review

Hassan Kamrul *et al* (2011) examined the determinants of private investment in Bangladesh using time series econometric analysis. They found that real interest rate is not statistically significant in determining private investment whereas national output is very much effective in the long run. Government expenditures crowd out private investment, however, the effect is minimal as the investment is not interest responsive. They also found that one percent increase in long-term loan increases private investment by 0.54 percent.

Elhiraika (2001) examined the role of the domestic financial system in Swaziland in supporting private investment in order to enhance economic growth and reduce the country's vulnerability to factors affecting foreign capital inflow. Using the co-integration, vector error correction model with annual series data over the period 1971-1998, the author found that the flow of domestic bank credit to the private sector has a positive and significant effect on private investment. After highlighting the potential and constraints of the domestic financial system, the paper emphasized the need for policies to enhance the availability of investment loans as well as non-credit support to domestic enterprises.

Okorie (2013) investigated the effect of private sector credit on private domestic investment. Using the Error Correction Model (ECM) with time series data, the author found that an increase in private sector credit though not statistically significant leads to increase in private domestic investment in the Nigerian economy.

The effect of credit to the private sector on private investment is expected to be positive. Private firms in developing countries rely heavily on bank credit as a source of financing. On the empirical level, although the vast majority of studies seem to ascertain the positive impact of increase in private sector credit on private investment there are cases where these credits do not appear to have any effect on it. For example, Oshikoya (1994) found that increase in credit to the private sector were not associated with increase in investment for Morocco, Tanzania and Zimbabwe.

The paper by Ouattara (2004) estimated the determinants of private investment in Senegal over the period of 1970-2000. It first tests the variables for unit root using two, relatively, new tests namely the Dicky-Fuller generalised least square de-trending test proposed by Elliot et al. (1996) and the Ng-Perron test following Ng and Perron (2001). The long-run private investment equation is derived using the Johansen co-integration techniques and bounds test approach. In both cases, the

results indicated that public investment, real income and foreign aid flows affect private investment positively, whilst the impact of credit sector and terms of trade is negative.

Neoclassical investment theory suggests that private investment is positively related to the growth of real GDP (Greene and Villanueva 1991, Fielding 1997). Similarly, it has also been hypothesised that private investment is affected positively by income level, as countries with higher income level would tend to dedicate more of their wealth to domestic savings which would then be used to finance investment (Greene and Villanueva 1991). Empirical studies by Chhiber and Van Wijnbergen (1988) reported a negative effect of public investment on private investment.

Ghura and Goodwin (2000) examined the determinants of private investment in Asia, Sub-Saharan Africa (SSA), and Latin America with panel data for the period 1975-1992. Econometric tests indicated a preference for the random effects estimation procedure over other alternatives. The result, with pooled data for all the 31 countries in the sample, confirmed that private investment was stimulated by increase in private sector credit in Asia and SSA, but not in Latin America. Also, real GDP growth stimulated private investment in Asia and Latin America but not in SSA. In addition, increase in credit to the government had significant adverse effects on private investment in SSA and Latin America.

Sakr (1993) investigated the determinants of private investment in Pakistan with special emphasis on the impact of government investment. Using the OLS estimation with annual data for the period 1973/74- 1991/92, it is estimated that private investment was positively correlated with GDP growth, with credit extended to private sector and with government investment. The paper argued that in promoting both infrastructural government investment and credit extended to the private sector, policymakers must give due consideration to maintaining macroeconomic stability.

1.   Data Source and Methodological Framework

This study used the annual data of private investment, public investment, private sector credit and lending rate from FY1976 to FY2016. The data were taken from various sources like; Bangladesh National Accounts Statistics (Bangladesh Bureau of Statistics), Bangladesh economic Review (Ministry of Finance) and Monthly Economic Trends (Bangladesh bank).

The study will test the short run as well long run impact of private sector credit on private investment using a modern time series co-integration based on the

Autoregressive Distributed Lag (ARDL) ''Bounds test'' approach developed by Pesaran, Shin, and Smith (2001), with annual time series data from 1974 to 2015 having 41 observations The use of the bounds technique is based on three validations. First, Pesaran *et al.* (2001) advocated the use of the ARDL model for the estimation of level relationships because the model suggests that once the order of the ARDL has been recognised, the relationship can be estimated by OLS. Second, the bounds test allows a mixture of I(1) and I(0) variables as regressors, that is, the order of integration of appropriate variables may not necessarily be the same. Therefore, the ARDL technique has the advantage of not requiring a specific identification of the order of the underlying data. Third, this technique is suitable for small or finite sample size (Pesaran *et al.*, 2001).

2.   **Model**

Neoclassical investment theory suggests that private investment is positively related to the growth of real GDP (Greene and Villanueva, 1991; Fielding, 1997). Similarly, it has also been hypothesized that private investment is affected positively by income level, as countries with higher income level would tend to dedicate more of their wealth to domestic savings which turns out to be used for financing investment (Greene and Villanueva, 1991).

Public sector investment has also been suggested to affect private investment, although its impact remains ambiguous. Public investment can boost private investment by increasing private returns through the provision of infrastructures (Communication, transports, energy, etc.). Complimentary relationship between public and private saving has been found by studies such as Blejar and Khan (1984), Aschauer (1989), and Greene and Villanueva (1991). Conversely, public investment may crowd out private investment if the additional investment is financed by a deficit, which leading to an increase in the interest rate, credit rationing, and a tax burden. Empirical studies by Chhiber and Van Wijnbergen (1988) and Rossiter (2002) report a negative effect of public investment on private investment.

The effect of credit to the private sector on private investment is expected to be positive. Private firms in developing countries rely heavily on bank credit as a source of financing. With financial markets being generally repressed, credit policies generally affect private sector investment via the stock of credit available to firms that have access to preferential interest rates. On the empirical level, although the vast majority of studies seem to ascertain the positive impact of increases in private sector credit on private investment there are cases where these credits do not appear to have any effect on it.

Terms of Trade (TOT) has negative effect on private investment. TOT has been frequently used to proxy the external shocks. TOT affects private investment in two ways either by increasing import price or by decreasing export price. Due to increase in import price, domestic price level will increase, which will increase demand for credit and interest rate, which in turn, will reduce private investment. Again, As a result of the reduction in export price, it deteriorates the TOT which will lead to the reduction in private investment in export sector of the economy. Empirical studies by Seruvatu and Jayaraman (2001) on Fiji and Ouattara, (2004) on Senegal find that terms of trade significantly affect private investment in those countries in recent decades.

Finally, lending rate is also considered the influential factor for private investment. According to the neoclassical investment model, lending rate is treated as a key component of the user cost of capital and therefore affects private investment negatively. This study assumes negative relationship between lending rate and private investment.

According to above discussion and evidence the empirical model is as follows:

PINV = f (PSC, GDP, PUBINV, TOT, LR)... (1)

Here,

PINV = Private Investment
PSC = Private Sector Credit
GDP = Gross Domestic Product
PUBINV = Public Investment
TOT = Terms of Trade
LR = Lending Rate

Log transformation of equation (1) is as follows:

$$\text{LogPINV}_t = \beta_0 + \beta_1 \text{LogPSC}_t + \beta_2 \text{LogGDP}_t + \beta_3 \text{LogPUBINV}_t + \beta_4 \text{Log TOT}_t + \beta_5 \text{LR}_t + U_t$$
$$\text{or} \qquad\qquad\qquad\qquad\qquad\qquad\qquad .... (2)$$
$$\text{LNPINV}_t = \beta_0 + \beta_1 \text{LNPSC}_t + \beta_2 \text{LNGDP}_t + \beta_3 \text{LNPUBINV}_t + \beta_4 \text{LNTOT}_t + \beta_5 \text{LR}_t + U$$

ARDL transformation of equation (2) is as follows:

$$\text{LNPINV}_t =$$
$$\beta_0 + \sum_{i=0}^{n}\beta_{1i}\Delta\text{LNPINV}_{t-1} + \sum_{i=0}^{n}\beta_{2i}\Delta\text{LNPSC}_{t-1} + \sum_{i=0}^{n}\beta_{3i}\Delta\text{LNGDP}_{t-1} +$$
$$\sum_{i=0}^{n}\beta_{4i}\Delta\text{LNPUBINV}_{t-1} + \sum_{i=0}^{n}\beta_{5i}\Delta\text{LNTOT}_{t-1} + \sum_{i=0}^{n}\beta_{6i}\Delta\text{LR}_{t-1} + \beta_7\,\text{LNPINV}_{t-1} +$$
$$\beta_8\,\text{LNPSC}_{t-1} + \beta_9\,\text{LNGDP}_{t-1} + \beta_{10}\text{LNPUBINV}_{t-1} + \beta_{11}\,\text{LNTOT}_{t-1} + \beta_{12}\Delta\text{LR}_{t-1} +$$
$$a_t \quad .... (3)$$

Model Estimation and Results

Stationarity and Co-integration Tests

Before estimating the model in equation 3, we have first tested for non-stationarity in all the variables using the Augmented Dickey-Fuller (ADF) test. This test helps us to ascertain the order of integration and the degree of differencing needed to make each time series stationary. All real variables are expressed in constant 2005-2006 price and natural logarithmic form, except lending rates.

The standard Augmented Dickey-Fuller (ADF) unit root test was exercised to check the order of integration of these variables. The results obtained are reported in Table 1. Based on the ADF test statistic, it was initiate that out of six variables, 5 have unit root i.e., LNPINV, LNGDP, LNPUBINV, LNTOT and LR, while LNPSC is I(0) variable. Noticeably, the mixture of both I(0) and I(1) variables would not be possible under the Johansen procedure. This gives a good justification for using the bounds test approach, or ARDL model, which was proposed by Pesaran *et al*. (2001).

Table 1: Unit Root Estimation (Augmented Dicky- Fuller Test)

Variables	Model	Level	First Difference	Integration
LNPINV	Intercept	-0.81[0.80]	-6.94[0.00]	I(1)
LNPSC	Intercept & Trend	-3.65[0.03]	………..	I(0)
LNGDP	Intercept & Trend	0.24[0.99]	-13.11[0.00]	I(1)
LNPUBINV	Intercept	-0.75[0.82]	-4.45[0.00]	I(1)
LNTOT	None	-0.51[0.87]	-5.47[0.00]	I(1)
LR	None	-0.20[0.60]	-4.44[0.00]	I(1)

Table-2 shown that the computed F-statistic based on Wald test is 4.93. The F-Statistic exceeded the all upper bounds value, suggested that the null hypothesis of no co-integrating relation is rejected for the investment function. Thus the analysis of data confirms that the presence of long-run relationship among the private investment, public investment, private sector credit, gross domestic product, terms of trade and lending rate. As the co-integration exists among the variables used in the model, therefore, the result presented for the long run are reliable.

Table 2: Co-integration Analysis (Bounds Test)

F-statistic = 4.93

Level of Significance	Lower Bound Value	Upper Bound Value
10%	2.08	3
5%	2.39	3.38
1%	3.06	4.15

Results and Discussions

The results in table 3 and 4 depict the relationship between private investment and the explanatory variables and P-values.

The results suggest that the private sector credit variable is the most potent factor stimulating private investment in Bangladesh in the long run. The coefficient of this variable is 0.31 and has been statistically robust. It is therefore arguable that policy-makers in Bangladesh can capitalize on the credit variable to influence private investment directly or indirectly. The lending rate has a negative and significant, but small, effect on private investment. This signifies the importance of the cost of capital for businesses. The terms of trade has also significant effect on private investment. The results indicate that public investment affects private investment positively but not significantly. Put differently, public investment crowds in private investment in the context of Bangladesh. This relation holds because public development expenditure, in many cases a strong linkage with private investment. This implies that public investment can enhance private investment in Bangladesh by increasing private returns through the provision of infrastructures (Communication, transports, energy, etc.).

The econometric estimates of the dynamic error correction model are displayed in table 3. The residuals from level regressions (**CointEq (-1)**) are included in a lag form in order to capture the process of adjustment. In general, the econometric results are significant and the diagnostic tests are good. The speed of adjustment implied by the **CointEq (-1)** is –0.66 per annum. The coefficients of the explanatory variables in the dynamic model are consistent with the long-run level regression in that, all the independent variables retained their signs. Moreover, the statistical significance of the private sector credit variable, terms of trade and lending rate remained intact.

The regression results indicate that the variables used to explain private investment in Bangladesh are generally significant either in the short-run or the long-run or both. In the long-run, credit to the private sector, has a strong

Table 3: Estimated ARDL Co-integrating Equation

Dependent Variable: LNPINV

Variable	Coefficient	P-value
D(LNPINV(-1))	0.22	0.13
D(LNPINV(-2))	0.34	0.01***
D(LNGDP)	0.21	0.57
D(LNPSC)	0.27	0.14
D(LNPSC(-1))	0.49	0.02**
D(LNPUBINV)	0.05	0.70
D(LNTOT)	-0.67	0.00***
D(LNTOT(-1))	0.66	0.00***
D(LR)	-0.07	0.00***
D(LR(-1))	0.05	0.03**
CointEq(-1)	-0.66	0.00***

***= Significant at 1%, ** = Significant at 5%, *= Significant at 10%.

stimulating influence on private investment, whereas, the lending rate and terms of trade have strong but adverse effects. The direction of the impact of the independent variables on private investment is always consistent.

Diagnostic Test

The validity of the estimated equations is confirmed by employing relevant diagnostic tests such as the Breusch–Godfrey serial correlation LM test, the Breusch-Pagan-Godfrey test for heteroscedasticity and stability tests such as the CUSUM and CUSUM of Squares test.

The ARDL model is found to be robust against residual autocorrelation (Appendix-1). The Breusch-Pagan-Godfrey test confirms that the residuals are

Name of the Test	F -Version[p-value]
Breusch-Godfrey Serial Correlation LM Test	0.42[0.67]
Heteroskedasticity Test: Breusch-Pagan-Godfrey	1.63[0.13]

homoscedastic. The CUSUM and CUSUM-SQ tests suggest that the parameters were stable over the sample period. The results of the CUSUM and CUSUM-SQ tests are presented in Appendix-1.

Conclusion and policy Recommendations

The empirical results suggest that bank credit to private sector have a positive and significant impact on private investment in both short and long run. Conventional wisdom suggested that private sector credit is positively related with private investment. However, the magnitude i.e. how much they are associated depends on the nature of the economy and use of credit. As Bangladesh is a developing country, its financial sector is weaker than required for project financing, foreign capital inflows received less than satisfactory, so credit to private sector be the key factor of private investment. Considering this fact Bangladesh Bank should pursue its monetary policy and ceiling of private sector credit may be enhanced to boost up private investment in Bangladesh with keen attention to the use of credit**.** The empirical results also imply that policy makers should also focus on long run policy to promote investment. In Bangladesh, commercial banks received mostly short and medium term deposit and they do not have sufficient fund for long term financing. Therefore, venture capital, pension fund, share issuing and other long-term source of financing should be developed for long run private investment. The outcomes also suggest that public investment also helps private investment (though not significantly), the government, therefore, should investment in infrastructure development and may undertake investment friendly environment for boosting private investment, thereby, growth and development.

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Appendix-1

Correlogram of Residuals

```
Date: 01/02/17   Time: 21:50
Sample: 1 42
Included observations: 38
Q-statistic probabilities adjusted for 3 dynamic regressors
```

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob*
		1	-0.145	-0.145	0.8584	0.354
		2	-0.004	-0.026	0.8591	0.651
		3	0.189	0.189	2.4166	0.491
		4	-0.154	-0.105	3.4712	0.482
		5	0.020	-0.015	3.4893	0.625
		6	-0.041	-0.079	3.5700	0.735
		7	0.037	0.075	3.6383	0.820
		8	-0.024	-0.029	3.6676	0.886
		9	0.061	0.082	3.8650	0.920
		10	-0.206	-0.248	6.1697	0.801
		11	-0.178	-0.230	7.9529	0.718
		12	-0.147	-0.289	9.2177	0.684
		13	0.022	0.085	9.2463	0.754
		14	-0.035	-0.014	9.3248	0.810
		15	-0.184	-0.196	11.566	0.712
		16	0.083	-0.162	12.042	0.741

*Probabilities may not be valid for this equation specification.

Sustainable Development: A Case Study of Four Villages in Bangladesh

Md. Azizur Rahman[*]

Abstract: *Environment pollution is a serious problem in Bangladesh. Due to lack of sustainability in the process of economic development the country has under-gone rapid change in negative direction. The massive use of chemical fertilizers and pesticides, unplanned construction of roads, building, embankments and cutting of plants have generated many indiscriminate problems like water pollution, air pollution, sound pollution, environment pollution, deforestation, desertification, shortage of earth water, arsenic, salinity, climate change, river-erosion, loss of biodiversity, ecological imbalance, etc. The study has made an enquire into social cost and benefit of the present development process in four rural villages of Bangladesh. The findings satisfied the statement that gains of the society is less than the losses. Benefits achieved were short-run and cost incurred were long-run. So the recommendation is that Bangladesh has to ensure sustainable development without any failure from now and on. Because we have already lost many of our valuable natural resources like freshwater fishes, fruits, birds, plants, rivers, pools, canals, etc. due to unsustainable development Education has a key role in understanding environment, and also in popularizing and implementing sustainable development.*

Introduction

In the globalised world danger seems to be increasing instead of becoming less. The national and social environment at the family, community, national, regional and global levels are gradually eroding over period of time. In this situation every country whether deveiopeu or developing is trying to attain sustainable

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[*]   Professor, Department of Economics, Notre Dame University Bangladesh, Dhaka

development lacking of sustainability is a great problem for the world today. Consequently environment pollution has become great thread.

Bangladesh is very seriously facing the problems like loss soil fertility, deforestation, pollution etc. due to lack of sustainable development. The per capita income along with agricultural productivity has increased. Eventhough there is a common saying among the people that the amenity specially the natural one has reduced to a greater extent.

This belief is due to many factors responsible for unsustainable development process. The whole country has been very seriously affected by environment pollution. The existing poor are the worst than they were before and many new families are continuously joining in the poverty due to river erosion.

<div align="center">

Inner peace

Total Peace

Social Peace   Peace with nature

</div>

1.1   Statement of Problem

Development is an on-going process in the world. Every country is on incessant process of development. Every economic unit as an entity of the national economy is on so. The rural economy has totally changed due to rapid modernization. The traditional cultivation with plough and yoke has been replaced by tractors. Dependence on rain-fall for seeding and plantation has been substituted by irrigation. The transport system of cart, palanquin, cavalcade, boat, etc has been replaced by mechanised vehicles. These changes have made life artificial and commercial. The society has become machine and chemical oriented. As a result sources of natural supply of amenities have reduced. Many fruits, fishes, birds, plants etc. have been reduced.

The proposed study area also has under gone a rapid changes in versatile aspects. From natural villages they have become mechanised ones. The economy, society, culture and -religion have gone under radical changes. The changes have brought many modern components and lost a lot of natural inputs. Due to lack of environment friendly process of development many natural inputs of life have been abolished. From the belief of net losses of the community there arises the question of sustainable development. The write-up will make an enquire into the matter and try to assess the real position of the society.

1.2   Rationale of the study

Sustainable development has become the most important needs of the time with the rise of the massive pollution of the environment. The existence of lives on the world has been threatened by environment pollution. Many animals, birds and plants have been ruined due to environment pollution. Climate is changing rapidly unfavorably.

Mismanagement of natural resources and lack of proper environment understanding are two of the most critical issues making the development process extremely challenging in Bangladesh and resulting in unsustainable growth rather than sustainable development. Consequently, problems like disafforestation, pollution, desertification, deriverization, shortage of surface water, arsenic, salinity, climate change, river erosion, land degradation, shortage of drinking water, loss of biodiversity, ecological imbalance etc. have accumulated. The poor are disfavourable and disproportionately affected by environmental degradation and lack of access to environment and natural resources. For instance in the past many social assets (khas forest, play grounds, canals, rivers, marsh, flood, swamp land, public lake) were free to access for the poor. Now-a-days these have been abolished. Drinking water was very much available in the past but at present it has become scarce and dearer. Thus amenities of social lives have increased at the cost of loss of many natural assets. From this profit- loss statement the question about net position of the society arises. The general belief is that the society is in net loss. Remembering this some cultural activists sing a song "Abar Firiya Dao Aranno" (give back forest life again).

The study is proposed to find a answer of the question by studying four villages in rural Bangladesh. It will make an in-depth insight into in the matter. It also examines how far education on and for sustainable development will help in solving the problem. This study asks where problems and opportunities are likely to arise, why the problems arise and how they can be solved at different levels. A news item published in the Prothom Alo April 28, 2009 stated that temperature in Dhaka was the highest within 22 years on Monday 27, 2009. It was 39.6 degree Celsius. The rain in this year (2009) was 62% less than the normal rate. A drought is going on. This report shows significance of this study.

1.3   Objectives

Mismanagement of natural resources, lack of proper environment understanding and massive use of chemical inputs are three of the most critical issues making the

development process extremely challenging in Bangladesh. How much this issues eroded the total environment of the study areas had been assessed. The study made an enquire into four selected villages on what happened due to application of modern techniques and inputs of production and what changes it brought out in social lives. What is the condition of sustainability in process?

It will make a comparison of socio-economic gains with losses. What has happened to community life by the application of modern development process. It will try to find out the way of environment friendly process of development. Also how education will remove mismanagement of natural resources and lacking of proper environment understanding.

2.0   Review of Literature

Jaijaidin, 30 April & 6 June and Somokal, 5 June 2007, stated that already 40 lac people of Bangladesh became a environmental refugee due to river erosion. The environmental scientists warns that it will be exceed 2 crore in future. In between 2030 sea might expanded 120 kilometer inside of Bangladesh, it means Cox's Bazzar sea beach might be lost. ESCAP reports that Bangladesh uses about 1800 tons insecticides per year for agriculture practice and sea water is being polluted.

The Daily Samokal 14 October, 2006 stated that more than 5000 villagers and labours have been affected in poisoned gases.

The daily Ittefaq, Mondy, 27 April, 2009 stated that within 14 years the highest temperature recorded in 2009. On Saturday, 25 April 2009 the highest temperature was 42.2 degree Celsius as recorded in Jessore and that was 38.7 degree Celsius in capital city of Dhaka. The same issue of news paper stated that the production of mango in Rajshahi region is adversely affected by long drought. The same news paper dated, Monday, April 13, 2009 stated that due to pollution and occupation the river Buriganga is about to dead. Its water has become unusable and even untouchable for massive pollution and stinkness.

The Daily Ittefaq, April 9, 2009 published that air pollution in six big cities namely Khulna, Rajshahi, Barishal, Sylhet and Dhaka has become so serious.

The daily Star, Sunday, April 12, 2009 stated, "Trees present us flowers, the most beautiful thing on earth. "They keep the atmosphere cool and bring down rain. Yet some people are so ungrateful that they recklessly cut down trees to draw quick profit. The little forest in Chittagong, Khulna, Dinajpur and Tangail areas are shrinking day by day.

The Environment and Sustainable Development Cluster is dedicated to playing a catalytic role to facilitate mainstreaming sustainable development in Bangladesh by integrating pro-poor environment in policies and development planning. The programmatic interventions of the Cluster fall into four nrnprnmme areas- CD Natural Resnnrrp Management and Biodiversity Conservation, (2) Sustainable Land and Water Management, (3) Improved and Cleaner Urban Environment Management and (4) Sustainable Development and Environmental Governance.

An article on the Interrelationship between poverty, Environment and Sustainable Development in Bangladesh : An Overview" jointly written by Mahbuba Nasreen, Khondokar Mokaddem and Debasish Kumar Kundu stated that "Bangladesh, like many other developing countries is advocating a high increase of GDP, but the number of landless people is increasing unfit for higher rate of GDP. According to GoB 57 percent of rural people are landless and live below poverty line". They put a table showing landless people of Bangladesh.

Table : The rate of landless people in Bangladesh

Year	Landless people
1947	14.30%
1970	19.80
1975	32.00
1984	46.00
2001	68.8

Source : Islam, 2005

The daily star, Tuesday April 28, 2009 under a news captioned "Wasa Water Poses danger" mentioned that "It fails to treat polluted river water, over 10,000 ended up in diarrhoea hospital. Gypsies top on the Turag near Tongi use this dark, pollutoed and smelly water daily which eventually spread various diseases among them. Wasa used to treat the water of the Buriganga and Shitalakshya rivers and supply the treated water to the city dwellers. Now the water of these two rivers have become so polluted that even after applying additional chemicals WASA cannot treat the water perfectly. The same news paper Monday, April 27, 2009 published a news report with picture of murky waters of the Buriganga. Whole sale dumping of industrial waste, sewage and garbage left the river, touched the lifeline of the capital, in this sorry state." The same daily on Sunday April 26, 2009 published headline news, "pollution gets to ground water; study finds Hazaribagh water most contaminated! The reporter Pinaki Roy stated. "River pollution around the capital has reached such a level that the groundwater system where the aquifers are recharged from the riverbeds is being contaminated, a recent study shows.

In the Six months idiom Venires to Aping, vniuaiiy nu water usual unify Stinky mucky liquid flows in the gradually narrowing rivers — the Furigana, Shitalakshya, Turing and Bale —as no governments could stop discharge of liquid waste into them.

A recent study jointly done by the World Bank and the Institute of Water Modelling (IWM) says: "The groundwater system is being contaminated in areas where aquifers are recharged from the riverbeds. The pollution is creeping towards the central part of the city with time."

The daily Prothom Alo on Monday April 24,2009 printed a news that Railway and Waterway should be used to prevent environment pollution. The report mentioned that with in one and half decades the green house gas had increased by 24% in the air.

The daily New Age on Saturday April 25, 2009 stated a news captioned, "Green activists rally against dust pollution". The report stated, "Dust pollution was posing thread to human health. Dust was an inevitable result of the increasing spate of construction of roads, building, other structures and digging the road, lanes and by-lanes by utility services."

The daily Ittefaq on Sunday, April 19, 2009 published a report on, "Sound pollution hindered mental development of babies. Dr. Manas conducted a research on 312 inhabitants of Dhaka. Among them he found only 72 with normal hearing capability, 33 have serious injuries in their hearing. Among them mostly driver, traffic police , hawker, road side shopkeepers and students are badly affected.

Year	Temperature (Dhaka city)
1987	39.5 ^o_c
1988	39.0 °c
1992	39.2 °c
1995	39.0 °c
2009	39.6 °c

The daily Prothom Alo April 28, 2009 stated that the country is facing drought. The highest temperature was 42.8 °c at Jessore. In Dhaka it was 39.6°c on April 27, 2009 which is highest within 22 years.

The above reviewed literatures shows the serious picture of environment pollution of Bangladesh. The whole country is on thread. Sustainable development is the most necessity of the time.

3.0   Methodology

The study was made in four villages which constitute a ward of a Union Parishad. The four villages were a unique integrated economic unit as well as social unit. The study was based on primary as well as secondary data. The data were available in secondary sources like population census, voter lists etc. The data, which were not available were collected through a questionnaire. The interviewees include all sections of people (old people, teachers, farmers, business class, social leaders, members, service holders, women, day-labourers, poor-rich). The information were collected through a questionnaire from 200 interviewees taking proportionately from each village.

For comparison two periods have been selected like pre-mechanised period and post mechanised period. The pre-mechanised period was up to 1965 when very little development took place and cultivation was fully nature - oriented. Farmers used to utilise only cow-dung as fertilizers and rain as source of water. The post mechanised period was from 1966 to onwards. In this period mechnised cultivation and massive use of fertilizers and pesticides had been started.
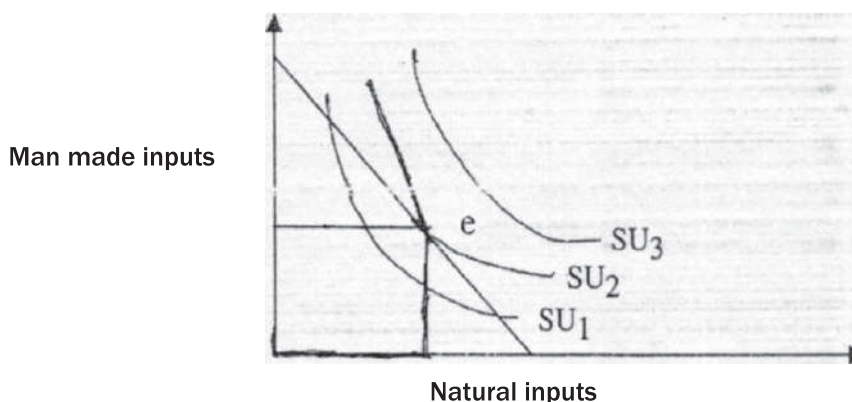
The study uses a development function : D=f (ni, Mmi),

D - development, Ni = natural inputs, Mmi = Man made inputs, f = functional relation. Here D is dependable, Ni and Mmi are independable variables. Ni =natural inputs (water, soil, sun, moon, rainfall, seeds, climate, labour, other natural inputs).Mmi =man made inputs (capital, entrepreneur ship, machine, planning, social organisation, other man-made resources).

Every development efforts needs both natural and man-made inputs. When both the inputs are mixed together and under go a process it produces output which we

call development. The quality of development will rely upon the quality of inputs and also on efficiency of the process. For development equation $D = a Ni + bMmi$ where a and b are parameters which will influence the value of D. For the optimum value of D, a and b will have a optimum value. This optimum value of a and b will indicate the best use of inputs. The sustainable development technique will be the most competent for the society if we can find out the best combination of the inputs will maximise social benefit without imposing any heavy cost on the society.

It uses cardinal and ordinal measurement. When quantitives way <s not possible the ordinal qualification is used in the form of indifference mapping. The diagram - 01 shows how a good combination of man made inputs and natural inputs will optimize social utility

Here social utility curve indicates higher utility from below to above (sui> su2). Net benefit of the society = social benefit - social cost. The optimum situation will be there where the positive distance between them will be maximum.
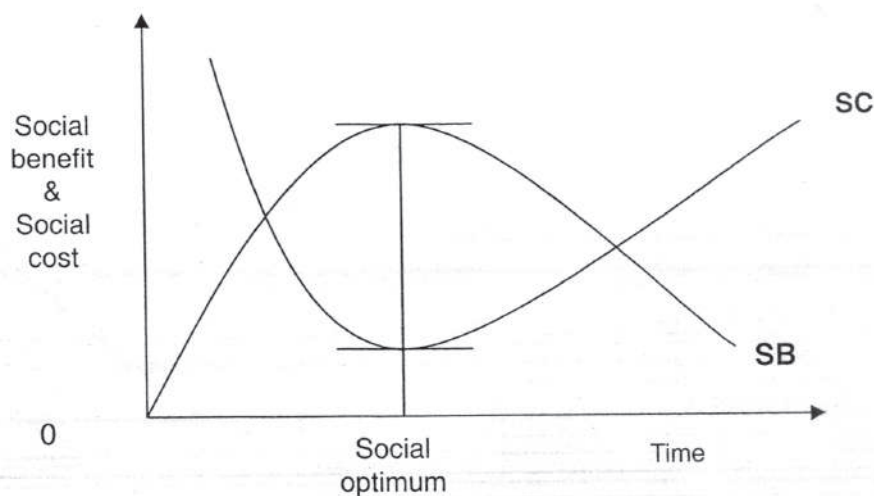
Social Time optimum

Instead of using primary and secondary data the study relies on personal observation, sight visits, sharing views with villagers specially old men and women who permanently **live** in the villages and have observed both the periods very sharply.
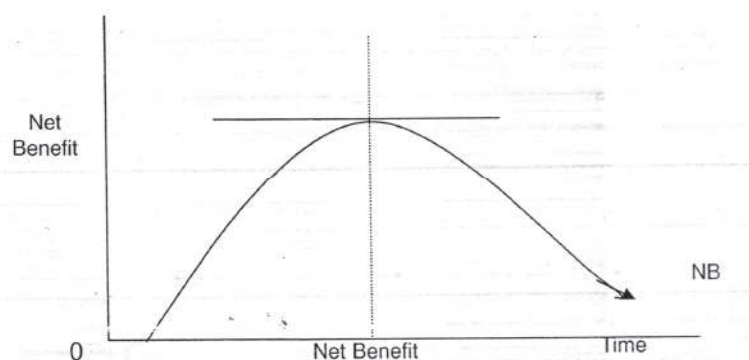
Description of the villages: The study is conducted in four villages namely Kha Khanda Nazirpur (Mirdha Kanda), Pukhuria, Brahmankanda and Nazirpur which together constitutes ward no-1 of Manikdah Union Parishad of Bhanga Upazila in the district of Faridpur in Bangladesh.

The total population of the villages are given in table :1

Table 1:

Name of village	Total population		Nos of voters 2009
	1965	2009	2009
Kha Khanda	634	1782	867
Pukhuria	790	2035	1342
Brahman Kanda	540	1455	983
Nazipur	545	1473	792
Total	2509	6745	3984

Source : Local Union Parishad.

The villages under study are about 33 kilometers from the district headquarter of Faridpur and about 8 kilometers from Bhanga Upazila centre. There are Gagotia river in west-north side, Fukurhati river in the south and high way bus stand in the west named Pukhuria. The Khulna - Jessor - Faridpur - Barisal high way passes beside the area. From this road the Pukhuria-Bishwa Jakir Monjil - Sadarpur Upazila road passes through this area. In this area there are a twice-weekly market named Pukhuria hat and a daily bazar named bus stand bazaar. There are unmetalled (Kancha) roads among the areas.

The literacy rate is 40% in the area which is below the national rate. There are three govt, primary schools, one high school and one college in this area. There

are four Ebtedayee Madrashas in the area. The number of higher educated people in the area is very few. There are some workers abroad who send remittance to their family. The main profession of people is cultivation, there are few fishermen in this area. Muslim are majority and Hindus are minority. There are some business men and officials in the area. There are very few small enterprises like rice/wheat miles. Among agricultural commodities rice, wheat and jute are main crops. From economic point of view people living in poverty are 70%. People living in absolute poverty <u>will be</u> 40%. Of the rest 24% will be in lower income group, 5% in middle income and 1% in upper middle income group. The upper middle income group lives in urban area. Occasionally these people come in the village

4.0   Analysis of Data

Changes in two periods: The study will try to find changes in different aspects between two periods 1947 to 1965 and 1966 - 2009. However it will show data at the two points of time 1965 and 2009. Agricultural change : In agricultural sector the changes found has been shown in the table : 2

Table 2: Changes in agriculture

Items	1965	2009
Crops	Jute, rice, spring harvests, vegetables	rice wheat, jute
Jute	Major	non-major
Rice	Second in position	First in position
Wheat	No wheat cultivation	Third in position
Spring harvest	About 15 types of spring harvest	Almost absent in spring harvest
Vegetables	Lot of vegetables cultivation	Negligible vegetables cultivation
Lost of items	No item lost	Many items lost

From the table 2 we can see that there is a great change between two periods. At present crops diversity has reduced. Cultivation of spring harvests is almost abolished. Cultivation of vegetables also reduces to greater extend.

Changing Method of Cultivation: Plough yoke and bulls were the means of cultivation in period from 1947 to 1965. In present days tractors have replaced that system. At present the cultivation system have been mechanised.

In the past year (1947-65) there was no use of insecticides and chemical fertilizers. Only cow-dung and hyacinth were used at a very low rate for fertility. Lands were naturally fertile. Flood water works as means reviver of fertility.

Change in Plantation and forest: The area underwent a great change in plantation and forest land. Every house in the area had lot of fruit trees in the past.

Table 3: Change in fruit production

Item	1965	2009
Mango	1000 times	One time
Date tree	Lot of Date trees and their juice	Almost abolished
Palm tree	Lot of	Very few
Boroi	Lot of	Very few
Black Berry	Lot of	Very few
Gab	Lot of	Almost nil
Belati Gab	Lot of	Almost nil
Amloki	Available	Nil
Litchi	Lot of	Almost nil
Horretoki	Available	Nil
Jack fruit	Lot of	Very few
Dunkur	Lot of	Nil
Amjum	Lot of	Nil
Water chestnut	Lot of	Nil
Khude Jam	Lot of	Nil
Kaw	Lot of	Nil

Table 3: (continued)

English name	Local name	Scientific name	1965	2009
Banana	Kala	Musa sapientum	Lot	Very few
Jackfruit	Kathal	Artocarpus heterophyllus	Lot	few
Hog Plum	Amra	Spondias dulcis	Lot	few
Papaya	Papaya	Carica papaya	Lot	very few
Coconut	Narikel	Cocos nucifera	Lot	few
Guava Oiui Apple	Payara jamrul	Psidium guajava Syzygium samarengense	Lot-Lot	few Nil
Grape Fruit	Jambura	Citrus grandis	Lot	Nil
Indian Apple	Bel	Aegle marmelos	Lot	few
Wood Apple	Kathbel	Feronia limonia	Lot	few
Custard Apple	Ata	Anona squamosa	Lot	few
Sapodilla	Sofeda	Manilkara achras	Lot	few
Indian Goose Berry	Amloki	Phylianthus embelica	Lot	very few
Pomegranate	Dalim	Puncia granatum	Lot	very few
Elephant Apple	Chalta	Dillenia indica	Lot	very few
Carambola	Kamranga	Averrhoa carambola	Lot	few-
Watermelon	Tarmuj	Cucumis melo	Lot	Nil
Lemon	Lebu	Citrus Iimon	Lot	few

Among these : mango, jack fruit, black burry, Kul, boroi, gab, water berry, black berry, dunkur, benana, coconut, date, palm, water fruit, litchi, hog-plum, amjum, cane fruit, murmurhi, royel, etc. were prominent. The production of fruits has drastically reduced at present. The old people give a idea of reduction of fruits production which is shown in table : 3

Table 3: Change in fruit production

Item	1965	2009
Mango	1000 times	One time
Date tree	Lot of Date trees and their juice	Almost abolished
Palm tree	Lot of	Very few
Boroi	Lot of	Very few
Black Berry	Lot of	Very few
Gab	Lot of	Almost nil
Belati Gab	Lot of	Almost nil
Amloki	Available	Nil
Litchi	Lot of	Almost nil
Horretoki	Available	Nil
Jack fruit	Lot of	Very few
Dunkur	Lot of	Nil
Amjum	Lot of	Nil
Water chestnut	Lot of	Nil
Khude Jam	Lot of	Nil
Kaw	Lot of	Nil

Table 3: (continued)

English name	Local name	Scientific name	1965	2009
Banana	Kala	Musa sapientum	Lot	Very few
Jackfruit	Kathal	Artocarpus heterophyllus	Lot	few
Hog Plum	Amra	Spondias dulcis	Lot	few
Papaya	Papaya	Carica papaya	Lot	very few
Coconut	Narikel	Cocos nucifera	Lot	few
Guava dlttf r\ppic	Payara jamrul	Psidium guajava Syzygium samarengense	Lot-Lot i	few Nil Mil
orapc n UIL	Jambura Bel	Citrus grandis Aegle marmelos	Lot	IN 11
Indian Apple			Lot	few
Wood Apple	Kathbel	Feronia limonia	Lot	few
Custard Apple	Ata	Anona squamosa Manilkara	Lot Lot Lot	few few
Sapodilla	Sofeda	achras Phylianthus embelica		very lew
Indian Goose Berry	Amloki			
Pomegranate Elephant	Dalim Chalta	Puncia granatum Dillenia	Lot Lot Lot	very few
Apple Carambola	Kamranga	indica Averrhoa carambola		very few few
Watermelon	Tarmuj	Cucumis melo	Lot	Nil
Lemon	Lebu	Citrus limon	Lot few	

The table 3 shows that the production of fruits in the area has reduced very drastically. A good number of fruits were plenty in area in the past time but many of them have been lost.

Some old peoples of this area stated that there were very, very big trees of fruits. The fruits of this big trees were quasi public goods. Anybody could eat this fruits. They mentioned an example that there were some very big mango trees in each village. At present all mango trees together of a village will not be equal to one big tree of that village of past. In case of production the same is true. They mentioned that there is a Amjum tree in Mollah Kanda in the village of the Khan Kanda Nazirpur that was not seen anywhere. Usually this tree gets a height of 4 feet at beast. A man can collect fruits from this tree from ground. But the mentioned tree was 15 feet high and very thick. Three men at a time could climb the tree to collect fruits.

In the past almost every tree including the fruit trees were very big. At present the trees (including fruit trees) are very small. The number of fruit trees also reduced at present. The number of unwanted wild plants has increased than fruit trees.

In the past time every big house has a forest land attached to it. Except these there were some common forests in each village. These forests consist of both fruit and non-fruit plants, bamboo, cane, and other varieties of trees.

Versatile of wild animals and birds lived in the forests. These birds were used to yodeling at night. These forest were full of bees, hornets, and medicinal plants. Many people lived on these. All these forests were destroyed. With the destruction of these forests many trees, birds, and animals disappeared from earth. The old peoples informed that there were many varieties of the same fruits. They mentioned that there were about 100 varieties of mango in this area. At present there are only 20 varieties in the area. Many varieties have lost. There were many fruits which have no English name, like chalita Amjum HnnWur Ashtail, Khude jam, loha jam, cane fruit (betul) etc. The gab fruits have about 20 verities in this area. This fruit is almost vanished.

Domestic animals

Domestic animals have drastically reduced in the area. The table 4 shows the situation of domestic animals and milk production in the area.

Table 4 shows that production of domestic animals which have reduced very drastically. In the past no baby drank powered milk. Usually they drank breast milk and milk of cows and she-goats. Reduction in posture lands and change of

crops pattern are responsible for reduction of domestic animals. In the past days there were about 100 pieces of posture lands of different sizes. Excepting this, Khas lands (govt, land), halot (passage for common use), river's banks, canals' bank were used for posture. In these area there were two big fields for cow-race and horse-race. In the spring the whole green fields were used for posture.

The table 5 shows the position of posturing facilities and play grounds:

Table 4: The change in production of domestic animals

1965		2009
Cattle (without milk cow)	5,000 numbers	500 numbers
Milk cow	1000 numbers	50 numbers
Milk production of cow	1000 kgs	150 kgs
Castrated goats	2000 numbers	100 numbers
She-goats	1000 numbers	25 numbers
He-goats	5 numbers	Nil

Table 5: The posluring facilities

Item	1965 (nos.)	2009 (nos.)
Posture lands	100	Nil
Khas lands	50	Nil
Halat	50	**Nil**
Play grounds	20	02
River and canal banks	10	Nil
Field for cow race	01	Nil
Field for horse race	01	Nil

Table 6: This table shows the sources of water

Item	1965 (nos.)	2009 (nos.)
Rivers	02	01
Canals	07	03
Tanks	400	100
Long pools	6	Nil
dikes	200	50
Shallow Tube well	200	300
Deep Tube well	Nil	16
Flood water	The whole area	No area
L,aKe	03	Nil

The table 5 shows that pasture land has reduced drastically. In the past time upbringing of domestics animals was almost free of cost due to presence of free grazing land. At present there is no free food facility for domestic animals. So the cost of rearing is very high. The play grounds and halats have reduced seriously. The playing facilities of boys and girls have disappeared.

Change in supply of Water

In the past every year the area had flood and sufficient rain falls. Now a days there is no flood at all. Many water resources like fishes, other aquatic animals, water-lily lotus, conch-shell, bivalve, acquatic plant and fruits have been vanished. In the past the extent of flood was at the tolerate level. So its benefit was much. It was a blessing for the earth. The flood water including the rainfall was the adequate source of water. The rivers, canals, tanks, ponds, long pools, sinks, caves and lake became over inundated by water. In the winter, spring and summer seasons they remained almost fulfilled. Lot of freshwater fishes lived in there. A good number of shallow tubes was sunk in the area. There was no arsenic problem. In the present time there is no flood. In the rainy season required water for human use and necessary for cultivation are not found. Table : 06 shows the change in water supply in two periods.

Table 7: Fresh water fish production

Item	1965	2009
Variety fishes	100	20
Fish production	1000 level	1 level

Many ponds, tanks, canals, long pools, dikes and rivers have been mud flats.

The table shows that the sources of water have reduced to greater extent. The number of shallow tube wells has increased. But all these tube wells are arsenic attacked. The only sources of drinking water are deep tube well at present. Most of the villagers have to collect drinking water from the deep tubes of rich men.

Reduction in freshwater fish

The rapid change in supply of fresh water fishes was remarkable in the area. Fresh water fishes were abundant in the area in the past. The rivers, tanks, long pools, canals, dikes, lakes etc were remained fulfilled through out the whole year by fishes.

There were about 100 variety of fishes in the past and at present there are at least 20 varieties. The production of fish was one thousand times more than that in the present. The poor people used to catch fishes from the public tanks, pools, rivers, canals. They needed not to purchase fish at all. Even the fishes of ponds and tanks of rich people of the villages were free to catch for them.

The economic condition of the poor: The economic condition of the poor of these villages was better in the past than that in the present. Their real income, dwelling condition, food etc were better than those at present. They had enough facilities to catch fresh - water fishes from public and private owned pounds, tanks, rivers, canals, long pools and to collect honey, fruits, and vegetables from forests. They could bring cattle, goats, hens and cocks without having cost involvement in the past. At present these facilities are completely absent. In the present they could collect date and palm juice, cow milk and palm, banana, green and ripped coconut from the houses of the rich at free of cost. In the said long period about 100 poor families have sold completely and partially their house-lands. So poverty has been acute in present time than that in past. Many middle income families have sold land properties and living house and have joined to the poor.

Play grounds and other game facilities

The play grounds and other game facilities have been reduced to greater extent: The table : 08 shows the position of play grounds and other game facilities:

From the table 8 we can see that the number of play grounds reduced from 20 to 2 only. A good number games have been lost in the flow of time.

Table 8: Play grounds and games

Item	1965 (nos.)	2009 (nos.)
Play grounds	20 numbers	02 numbers
Hadudu	lot	None
Daribandha	lot	None
Bouchhi	lot	None
Kulubari	lot	None
Budhi Montor	lot	None
Foot ball	lot	Less
Holdub	Lot in rainy season	None
Gechho Mechho	lot	None

Ecological imbalance

In the past many big and old trees were available everywhere in the four villages. At present they are completely non-existent. In the past there was ecological balance in the nature.

Many forest areas have been converted into cultivable and house hold lands. As a result forest resources have been vanished. At present the government has been encouraging plantation. Due to this encouragement many wood trees have been planted. As a result the rapid increase of numbers of wood trees have created imbalance in the nature. Number of fruit trees was prominent in the past but at present they have lost their importance. In the past fruits met the need of food to a large extent. But fruits have become almost non-visible at present in the area.

Uusage of chemical leruhzers and ptauciucb

The social cost of modern development process have become far more than social benefit because of many reasons. Among them the massive usage of pesticides and chemical fertilizers are dominant at present. The use of dung and water-hyacinth was only means of soil fertility in the past. No pesticide was used in the past. There was no use chemical fertilizer. At present the uses of chemical fertilizers and pesticides are very massive. Agricultural production cannot be think of without chemical fertilizers and pesticides. The result of these massive use is very serious. The production of fishes has reduced from 1000 times in past to one time at present. A good number of fish varieties have been vanished. Besides the taste of all agricultural food items, fishes including fruits have changed. The fishes of fresh water those grow up naturally in the past have become rare and dear. Many birds have become non-existent. Massive health hazards with breaking out of many new fatal diseases have become great problem of the society.

The other valuable missing in village life

Social bondage have been loosened in the present than that was in past. Many Hindus have left the country. Relative connectivity in past was better than that in present. There were many festival like mango-milk festival in Baishakh, Fazli mango-jack fruit festival in Jeishtha - Ashar, "Nairo-festival" in Ashin. These were very famous in the area. Excepting these there were many religious festivals for every religion. Fateha Awasdahan, Fateha Dowasdahan, Eid-ul-Fatre, Eid-ul-Ahzah, Eid-e-Malidun Nabi were main religious festivals for the Muslim. Durga Puja, Kali Puja, and Laxmi Puja were the main festivals for the Hindus. These are

no more in practice in present time. There were communial friendly relationship in the area in past. During the time independence of 1971 and separation of Pakistan and India in 1947 the minorities in these areas were living very peacefully. But due to bad demonstration effects of other areas almost all Hindus left these areas and went to India.

In the past four rich family had Kachari Ghar (Court house) in their houses. In these houses all social arbitrations were met. The arbitrations judgement was based on perfect fairness. These court houses are no more available in area at present. The rich people's houses possessed Musaphir Khana (Sarai) where strangers had the facility to stay with food. These are no more available in the area at present.

There were about 150 weaver families in the area who produced lungi, sharhee and gamchha. At present there is no single weaver family. Festivals like Mejbani (hospitality), Jiyafat (feast), Fayta, Mowlud etc. are not existent at present. The cultural events like Jari(folksong), Sari, Sama Prashadi, Glorification, Kabi, Jatra, Bichar etc. are also on the eve of departure. Joint family system was a valuable assest of the society. At present it is not available in the area. The potters, smiths, goldsmiths and thatchers were doing their jobs nicely in the past. At present they are disappeared. The number of fishermen has reduced drastically. The rich people were bountiful in the past but not in the present. Enamel and plastic made crockery have substituted the massive use of mud utensils in the past. Boat race, cow-race, arong (village fair) and horse race were popular festivals in the area. They are now totally absent.

Findings

- The study area under went drastic changes due to development process. The changes have taken place in respect socio-eco-cultural-political and natural aspects.
- Almost all these changes have very adversely affect the nature, animals, aquatic creatures, plants and environment.
- Human life have become mechanised and commercialised. Material peace of life has increased to some extent by the rise of production of rice and wheat at the cost of reduction of production of spring harvests and diversity of crops.
- The ecological imbalances have been acute. New imbalance among plants have been generated due to rise of non-fruits plants and decline of fruit trees.

- The production of fruits and varieties of soame fruits have declined very drastically.
- Many fruits have made non-existent.
- A good number of plants, birds, domestic animals and fruits have vanished.
- Production of fresh water fishes have reduced very drastically.
- The variety of fresh water-fish declined from 100 to 20 numbers.
- Massive uses of chemical fertilizers and pesticides have been the main responsible factors for environment pollution and reduction of fish variety and production.
- Production of domestic animals hen, cock, honey, forest fruits (Amjum, gab, cane-fruit, dunkur, murhmurhi) have reduced to about zero.
- Poverty has increased. Their access facilities to public resources have been stopped. Their hardship of life has risen.
- The sports and game facilities have declined and many games have been disappeared
- Air pollution, water pollution and environment pollution have become very acute.
- The pattern of consumption of life have changed from natural food to chemical food.
- Life have become victim to many new fatal diseases.
- The weaver families were existent in the past but at present they are non-existent
- Many Hindu families had left the area and went to India for demonstration effects of other areas of the country.
- The social cost of development process due to their unsustainable nature is very high than social benefit. As a result the society is in net loss.
- Disafforestation, natural imbalance, adverse distribution of fruit trees and wild plants, air pollution, water pollution and environment pollution have generated health hazards and many fatal diseases.
- The massive uses of chemical fertilizers and pesticides have adversely affected the society. In addition to that unplanned embankment, roads and high ways, massive cutting of trees, destruction of forest and pasture lands have very negatively affected all living creatures. As a result the consumption of natural amenities of human being have reduced to greater extent. The community went down to lower social utility level as shown in the diagram 9.
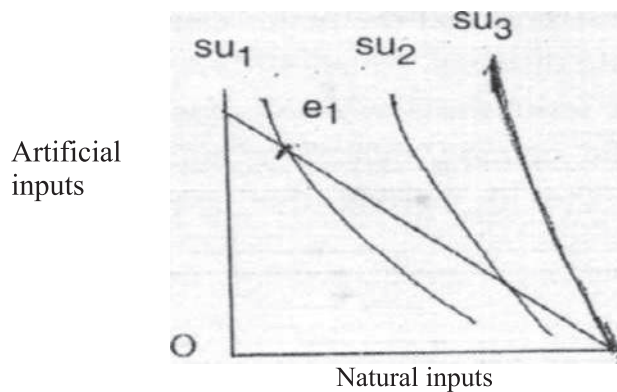
Diagram 9: The level of utility of the community reduced.

The diagram shows that the community is in equilibrium at point e_i by using more artificial inputs. If it can reduce artificial inputs to point eo the utility of the community will rise by shifting from SU_j to SU_3 and so on.

How education can solve the problem

Education is the pivot to human resource development. Education is a life long process for human development. It can be divided into formal, non-formal, natural segmentations, ihe formal education is related with institutions. Non-formal education is related to parents, family, friends, society and nation. Natural education comes from nature and creators. The first one ends up after completion of schooling. But the next two goes throughout the whole life. Formal education consists of two techniques : one is simple learning which necessary condition for human resource development. The other is training which is considered as sufficient condition for human resource development.

Through learning and training the pattern of thinking, behavior and doing of human being can be changed. By virtue of nature human being are individualistic, commercial and consumptionist. For this reason human prefers present than future. Present consumption is always better to him than future consumption. This same behavior makes a man to believe in short-run production function. Short run production function always gives output in a very short period of time without considering the future. It eats up every plants without keeping any seed for future plantation. It utilizes all the fertility of soil in one season without keeping any thing for future use. It pushes growth at the apex without stability. Thus short-run production is very unsustainable.

Understanding of environment and ecological balance and their necessity for survival of human being can prevent environment pollution. Education and only education can make this understanding. In September 2000 UN in its general assembly adopted Millennium Declaration to reduce naives or hard core poverty and hunger to ensure sustainable environment. On June 14, 2007, WHO report says that the major causes of 24% diseases is environment pollution and it is 33% for child diseases. About 40 lacs life could be saved by ensuring environment keep and clean. This seriousness of environment pollution should be brought in the notice of the public. Public opinion should be built through educational campaign. All educational curriculums should include the necessity of sustainable development.

Recommendations

The paper have lot of limitations. Though the study area includes only four of 68 thousand villages of Bangladesh it may assume that more or less the same picture is visible throughout the whole country. From the analysis it is very clear that Bangladesh at present has been facing severe challenge of environment pollution. This is the creation of unsustainable development process of the nation. Our people, animal and biodiversity are at thread. We have to give top priority to this issue.

The nation is at net loss due to past development programs. There created a gap between social benefit and social cost. This blank must be filled up by schemes of sustainable activities. Subsequently the present development process should be made free from unsustainable comnonents including environment nollution. At present all develonment process should be environment friendly and nature oriented.

The fresh water fish resource was precious diamond mine of Bangladesh. It is on the eve of departure. We must have to save them by preventing water pollution and by creation at least one save lake in every village of the country. Fish fries must be produced at a large scale at the govt, initiative and be freed in fresh water of all rivers. In green programs fruit plantation should be given top priority. Medicinal plants will second priority in campaign.

Immediately action should be taken to remove all pollution from the waters of all rivers including Buriganga, Shitalakshya, Turag and Balu in one year.

All mud flat rivers, canals, lakes, pools etc. should be redigged immediately. Use of natural fertilizers and pesticides should be encouraged.

Education curriculum and training programs should have sufficient contains on sustainable development including adverse effect of massive use of pesticides and chemical fertilizers. Their natural substitute should be evolved. Necessity for ecological balance, plantation of fruit trees should publicized at government and NGOs level.

Conclusion

The water of all rivers around Dhaka and almost of all rivers, lake and ponds of the country has become polluted. Ten years back this water was transparent and drinkable. This small instance is enough to imagine that all creatures living in Bangladesh are on great thread due to massive environment pollution. The unsustainable development measures have already destroyed many of our potential resources. From now and on we have to very seriously give attention to the issue of sustainable development.

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Effect of Microfinance on the Development of Micro-entrepreneurs in Rural Areas in Khulna, Bangladesh

MD. REAZ UDDIN[*]
MD. SOLAIMAN CHOWDHURY[**]
SOURAV PAUL CHOWDHURY[***]
AJIT KUMAR GHOSE[****]

Abstract: *This paper aims to examine the impacts of micro finance on the development of micro- entrepreneurs in rural area. With this intention in mind, data have collected from entrepreneurs operating in rural areas applying structured questionnaire developed to capture their opinions on economic, social and psychological development before and after taking small loan from NGOs or Banks. Entrepreneurs were selected adopting convenience sampling strategy who were interviewed using close ended questionnaire. Paired sample t test is applied to identify the impacts of microfinance on the development of entrepreneurs. This study identifies that microfinance has contributed for the personal, social and business changes of micro-entrepreneurs.*

Keywords: *Microfinance, Entrepreneurs, Dependent Sample t-test*

[*]   Associate Professor, Business Administration Discipline, Khulna University, Khulna, Bangladesh. Email: mruddin_bd@yahoo.com
[**] Assistant Professor, Department of Management Studies, University of Rajshahi, Rajshahi, Bangladesh Email: schowdhury@ru.ac.bd
[***] Assistant Professor, Department of Management, Hajee Mohammad Danesh Science and Technology, Dinajpur, Bangladesh, Email: george.mgt.ru@gmail.com
[****]MBA Graduate, Department of Finance, University of Rajshahi, Rajshahi, Bangladesh Email: ajitrubba@gmail.com

Introduction

Bangladesh is one of the underdeveloped countries of the third world. It has a population of about 147.9 million (Economic survey, 2011) which has made this country high densely populated. More than 80 percent of population live in rural areas where poverty is deep rooted and widespread. In this country almost half of the populations live on less than one dollar a day. Bangladesh has an agrarian economy but mere agriculture is not sufficient to meet all needs. Therefore, this country is trying to diversify economy. Industrial development is being given priority. Micro entrepreneurs have good contribution for improving business in the rural areas. A positive relationship between entrepreneurship and economic growth has been widely agreed upon (Carree et al, 2002). The entrepreneurship sector contributes towards the economic development of a country in several ways especially by creating employment and service provision (Hussain, Yaqub, 2010). In spite of its major contributions towards economic development, the rural-based micro entrepreneurs in Bangladesh suffer from lack in working capital, institutional credit facilities and poor management (Alam, Muhammed Nurul, 2009). Formal financing institutions like government and privately owned commercial banks normally give loans to large and medium scale industries (Alam, 2002). Cooperative banks in the country although gives loans to the rural-based micro enterprises, they confine their credit giving activities mainly to the members of the bank (BIDS 1981, 1988, 1989, 1990). One of the specialized and well known micro-credit giving organizations in Bangladesh called 'Grameen Bank' (Yunus, 1993, Nabi, 1996) also gives micro credit to the rural-based micro entrepreneurs especially the rural poor women.

About 90 percent of the people in developing countries lack access to financial services from institutions, either for credit or savings (Robinson, 2002). Micro entrepreneurs suffer for the acute shortage of capital most of the time after starting their businesses. This inhibits them to start new ventures as well as expansion. International Finance Corporation reported that more than 500 million poor people across the world run profitable microenterprises and often cite credit as the primary constraint to Business growth (IFC, 2002). Amartya Sen (1999) also found availability of finance as one of the important factor for development and mentioned that being financially more secure can help an entrepreneur become more successful, as it limits or reduces the various unfreedom which comes with poverty. Microfinance can serve as means to make micro entrepreneurs more capable financially and assist their growth and development. In this backdrop, this study has intended to study how microfinance entrepreneurs receive mainly from the NGOs contributes their developments.

Objectives of the Study

- To examine whether micro finance contributes economic development of micro entrepreneurs.
- To investigate whether micro finance helps in social development of micro entrepreneurs.
- To examine whether micro finance contributes in psychological development of micro entrepreneurs.

Literature Review

Microfinance includes a range of financial services such as savings, credit and insurance for the poor. Asian Development bank defines Microfinance as the provision of a broad range of financial services such as deposits, loans, payment services, money transfers, and insurance to poor and low-income households and, their microenterprises (ADB, 2000). Ledgerwood (1998) defines microfinance as the provision of financial services (like savings, credit, insurance and payment services) to low-income clients (the poor), including the self-employed.

Entrepreneurs are individuals who instantiate and owns a business. They bear the risk of running the business. Micro entrepreneur is a special class of entrepreneurs who usually does business in rural areas. Their capital and manpower is limited. According to Credit and Development Forum (CDF), businesses with less than 10 thousand Taka capital investment can be considered as petty trades where micro enterprises are those which require more than 10 thousand up to 1 million Bangladeshi Taka (Alam and Miyagi, 2004). Basically, the owners of micro enterprises are micro entrepreneurs. Examples are bakeries, beauty parlors, child care facilities, repair shops, arts and crafts shops, painting businesses, contracting businesses, family-owned shops, auto body shops, small-scale restaurants, and small-inventory trading businesses.

A number of studies have been conducted focusing on microfinance. Ahmed et al (2011) describes the contribution of microcredit to the socio-economic development among rural women. They concluded women with micro credit contribute more to the family income than those without microcredit. Afrin et al (2008) identified that financial management skills and the group identity of women borrowers have significant relationship with the development of rural women entrepreneurship in Bangladesh. Hossain et al (2012) worked on the factors affected the development of entrepreneurship among members of microcredit fund. They found economic factors that have effect on entrepreneurship development. They also identified social and psychological factors are positively correlated with entrepreneurship development.

Alam et al (2008) worked on non-institutional barriers of micro entrepreneurship in Bangladesh. They concluded the barriers are political, social, cultural, technological, natural and personal. They believe that barriers mush be removed for long run entrepreneurship development. Mcelwee (2006) explored the situation faced by micro entrepreneurs and found that entrepreneurs go through significant difficulties in accessing capital, distribution channel, and relevant business supports.

Hossain and Yaqub (2010) investigated motivation challenges and successful factors of micro entrepreneurs. They found customer service and relative business experiences are the key success factors. They commented accessing capital, bureaucratic hurdles and environmental uncertainty are major challenges. Some other studies have identified challenges including lack of supportive policies for micro small enterprise development (Mccromick, 1997a, 1998), intense competition with replication of micro-business (Manning and Mashego, 1993); unavailability of fund (World Bank, 1993); manager characteristics including lack of skills, experience and culture (Katwalo and Madichie 2008; Ray, 1993); marketing techniques used including quality of service and market served (Blankson et al, 2006).

Micro and small enterprises have been recognized as a major source of employment and income in many countries of the Third World (Mead and Liedholm, 1998). The Inter-American Development Bank (1997) reported that MEs makes a major contribution to aggregate employment, production, and national income in Latin America and the Caribbean. MEs provide income and employment for significant workers in rural and urban areas by producing basic goods and services such as made traditional foods, tailoring, barber shop and hawkers for the need of rapidly growing populations (Nawai and Shariff, 2011).

Most of the studies on microfinance have been conducted focusing on poverty alleviation, socio economic development. Some studies on micro entrepreneurs or micro enterprises have attempted to identify success factors and challenges. But empirical studies on impact of microfinance in developing micro entrepreneurs in rural areas of Bangladesh are almost absent thus the underlying situation necessitates this study.

Methodology

This study has been conducted with the intention of examining whether microfinance facilities development of entrepreneurs. Considering the nature of the research question the study focuses, causal comparative designed has been

Table 2: Respondents Profiles

Gender	Frequency	Percent
Male	84	84
Female	16	16
Total	100	100
Age of respondents	**Frequency**	**Percent**
15-25	16	16
26-35	62	62
36-45	19	19
Above 45	3	3
Total	100	100
Education	**Frequency**	**Percent**
Primary	38	38
Secondary/High School	62	62
Total	100	100
Family member	Frequency	Percent
4-Jan	26	26
9-May	71	71
10- above	3	3
Total	100	100
Organization offers loan	Frequency	Percent
ASA	24	24
Proshika	27	27
Grameen Bank	24	24
Brac	25	25
Total	100	100
Duration of receiving loan	Frequency	Percent
0-3	79	79
6-Mar	19	19
9-Jun	1	1
Above 10	1	1
Total	100	100
Duration of businesses	Frequency	Percent
0-5	70	70
6-10	24	24
11-15	5	5
Above 15	1	1
Total	100	100

selected to find the answer. Data have collected from the Southern part of Bangladesh from the entrepreneurs doing business at micro level who were found conveniently available using structured close ended questionnaire. A total 100 entrepreneurs were participated in the survey who was interviewed based on questionnaire meeting them physically. Questionnaire was developed in the light of previous literature to capture opinions of entrepreneurs regarding economic, psychological and social development. Five point Likert scale has been used to measure opinions of respondents on specific issues. Descriptive and causal (paired sample t-test) statistical tools have been applied for the analysis of collected data with SPSS.

The total number of respondents is categorized in term of their gender and it is found that 84% of them are male and only16% are female thus micro entrepreneurs participated in the survey are male. The age of 100 respondents are categorized with a class interval of 10 years. It is found that maximum number of respondents is within 26-35 years' age group and respondents with age of above45are minimum in number. All of the respondents are categorized in two segments in term of education level, those are respondents having primary education only and respondents having secondary/high school education. It reveals that 38% of the total respondents have only primary education, whereas 62% of the total respondents do have their secondary education. It is also seen that respondents are facilitated with micro finance by four well-known and reputed micro financing institutions which are ASA, PROSHIKA, GRAMEEN BANK and BRAC. We have found that 27% of our respondents has been financed by PROSHIKA and BRAC has financed to 25% of the respondents, whereas both ASA and GRAMEEN BANK have financed to 24% of the respondents each. In this study, respondents are categorized by the total number of family members or their family size. It is found that most of the respondents have a family size of 5-9 members and it is 71%, whereas we have found minimum number of respondents having a family size of 10 members or above which is 3% only. Respondents are also categorized in term of the duration of receiving loan with the class interval of 3 years. It is found that maximum number of the loans is with tenure of only 0-3 years and it is 79%, whereas only 1% of the loans are found to have tenure of above 10 years with a minimum percentage. The total number of respondents is categorized by the duration of their business with the class interval of 5 years. It is found that the maximum numbers of respondents who have been facilitated with micro financing have business duration in between 0-5 years and it is 70%, whereas only 1% of the respondents were facilitated with micro finance having business duration of above 15 years.

Data Analysis and Interpretation

It revels from the test that there is a difference of between the situations of micro-entrepreneurs without and with microfinance. This signifies that micro-finance contributes personal development of micro-entrepreneurs including better confidence, morale, ability of taking more initiatives and risk taking propensity.

Table 5: Personal change before and after microfinance

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		Mean	Std. Deviation	Std. Error Mean
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Pair 1	Personal Change before - Personal Change after	-1.22433	.31940	.03194	-1.28771	-1.16096	-38.332	99	.000

Table 6: Social change before and after microfinance

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		Mean	Std. Deviation	Std. Error Mean
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Pair 1	Social Change before - Social Change after	-1.14000	.37227	.03723	-1.21387	-1.06613	-30.623	99	.000

It reveals from the above table that there is a difference between the social situations of micro-entrepreneurs when they operate businesses without and with micro-credit and this difference is statistically significance (p<.000). The findings indicate that micro-finance plays positives for the social development of micro-entrepreneurs. Such development includes enhancing relationships with social members, more participation in social decision making and more influence on social functioning.

Table 7: Business change before and after microfinance

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		Mean	Std. Deviation	Std. Error Mean
	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Pair 1 Business Change before - Business Change after	-1.55500	.41981	.04198	-1.63830	-1.47170	-37.041	99	.000

Table 7 shows that the difference between the situations of micro-entrepreneurs is evident when entrepreneurs operate business with and without taking micro-finance. This difference is statistically significant (p < 000). It can be concluded that micro-finance contributes positively for enhancement of business capital, cash flow, and business scope.

Conclusion

This study has examined the impacts of micro-finance on the entrepreneurs' social, economic and psychological conditions with the help of paired sample t-test using primary data. This study reveals that micro-credit has a positive relation with the social, economic and psychological development of micro-entrepreneurs. This study has significant implication for the micro-entrepreneurs on rustic areas in Bangladesh. The micro-entrepreneurs can go far for micro-finance as it will help them developing their socio- economic condition. Despite having important implications, this paper also has limitations. This study is done on a single division data only. So, the results might not be applicable for other division. Another limitation is that this study ignores the other factors which might be helpful for micro-entrepreneurs' development. More researches should be done on this topic in future since it is inconclusive issue. Suggestion for the future researchers is that they should carry out the research on the total country data and they should control the other variable which might be factors for the development of the small entrepreneurs.

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Micro Enterprise Financing in an Islamic Economic Framework: Bangladesh Perspective

Mohammad Abdul Mannan Chowdhury[*]
Abu Jafar Mohammed Farooque[**]

Abstract: *The paper studies the deficiency of the neo liberal policy agenda that aims to transform non-governmental organization (NGOs) engaged in poverty alleviation into formal financial institutions seeking access to capital market and performing on a commercial basis. It propounds that poverty focused credit programs aimedat distributive equity are logically inconsistent with an ethically neutral liberal market order. In comparison, it is inferred in the paper that Islamic economic principle affirm the logical consistency and adequacy to reality of Islamic financial program and poverty focused credit programs. These programs, as indicated by the welfare banking of Islamic Banks in Bangladesh, seek access to financial markets, which are characterized by the presence of Shariah instrument prohibiting interest and profiteering and promoting charity.*

I. Introduction

A number of NGOs have pioneered credit delivery mechanism for the poor in Bangladesh and abroad that consisted of small amounts of collateral free loansknown as microcredit, for microenterprise financing. There are several hundred NGOs registered in Bangladesh, of which about 150 NGOs have reasonably large micro credit programs (Alamgir1998). A significant aspect of microcredit is the dependence of NGOs on foreign grants, especially from IDA, USAID, OXFAM and to certain extent from Government of Bangladesh (Alamgir 98).

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[*] Professor of Economics, Chittagong University, Bangladesh.
[**] Associate Professor of Economics, Chittagong University, Bangladesh.

There were however, not many agenciesready to provide funds for locally based NGOs; neither was there a guarantee about that continuation of donor assistance. Microcredit programs needed sources of funds that could be accessed regularly (Alamgir 98). Mobilization of resources is, therefore, critical for expansion of outreach of these programs.

A change in the policy is emerging that aims at transforming NGOs from grant - dependent organization to large profitable institutions providing banking services to the poor. This, as it is pointed out by the neo-liberal agenda, is the only way to reach millions of poor who still do not have access to credit (Sharif 1997). Of late, policies adopted by BRAC in floating a company seeking deposits in the commercial market and a few NGOs, including Grameen Bank, turning into specialized banks and borrowing from commercial money market expresses this shift in policy (DBH 2000, Hashemi & Morshed 97). The process involves a two-stage program. NGOs are to become profitable and graduate into the formal financial sector. The improved financial position of the NGOs will facilitate their access to the commercial capital market by attracting savings deposits or by investment of funds obtained through securities (Sharif 97). The shift in policy represents a return to the neo classical liberal market order (Wood & Sharif 97). It, however, leads to a contradiction that characterizes the NGOs who have the objectives of poverty reduction, which is partly an altruistic scheme and also of financial graduation which is a purely utilitarian goal. The process of transforming NGOs into formal financial institutions, therefore, creates an internal tension between compassion and capitalism (Greeley 97). The ability of a liberal market order premised on efficiency to generate funds for programs that are basically altruistic in nature needs closer scrutiny. This paper examines the logical consistency of this new policy agenda focusing mainly on the aspect relating to NGOs accessing capital market for on-lending to the poor.

A different approach has been adopted by Islamic schemes of micro enterprise financing which stand apart from the above neo -liberal framework of financing. A number of Islamic Banks and NGOs, which function in accordance with Islamic economics principles, have mobilized resources for entitlement formation by the poor on the basis of *Shariah* principles and profit - loss sharing (Sarkar 98; Athar & Loqman 98). In an Islamic frame work, the lender or investor is placed in the context of norms dictated by the *Shariah* (Islamic Law) and maximizes within this context (Chowdhury 91). These norms tend to strike a balance between individual interest and regard for others. As a result, the conflicts between the forces of efficiency and equity are mitigated by the sanctions in an Islamic economic system.

In this paper, following an introductory part, part 2 of the paper gives the objectives and methodology of the study. Part 3 examines the logical consistency ofthe new policy agenda aiming to transform NGOs into formal financial institutionsin a liberal market order. Part 4 studies the logical consistency of Islamic economic principles and the *Shariah* as a basis for Islamic banking and poverty -focused credit programs. In part 5, adequacy to reality of *Shariah* principles as a basis for banking and micro credit programs is examined in the light of actual experience of Islamic banking and microcredit programs, particularly in Bangladesh. Part 6 summarizes the findings and conclusions of the study.

2.   Objectives and Methodology

The objectives of the paper are as follows:

- a) To evaluate the logical consistency and validity of the modern approach that envisages NGOs to graduate into formal financial sector providing credit with funds from the commercial market.
- b) To assess, as an alternative, the logical consistency and adequacy to reality of Islamic system of banking and micro enterprise financing with special reference to Bangladesh.

Methodology

The study is based on secondary data. Data on micro enterprise financing by Islamic Bank Bangladesh Ltd (IBBL) were obtained from monthly statement of the bank. Data on private bank and Islamic bank resource or deposit mobilization was obtained from Scheduled bank statistics of Bangladesh Bank.

3.   NGOs and the Market Order

A new trend which is emerging aims at transforming the NGOs from grant-dependent organization into sound financial institutions with access to the capital market for funds (Schmidt & Zeitinger 98, Sharif 97). The largest institution, the Grameen Bank, has turned into a specialised bank and a profit making institutionwith funds partly from commercial market. Policy of BRAC, another leading NGO, also reveals a similar shift towards dependence on the capital market for funds (Hashemi & Morshed 97, Yunus 99, DBH 2000).

The graduation of the NGOs into formal financial sector by linking commercial capital market to the interest of the poor represent apolicy agenda based on utilitarian and neoclassical principles and a market order that consists of rational

decision makers (Wood and Sharif 97, Chowdhury 98). The postulate of rationality states that decision maker in the market maximizes purely economic gains. Ethical aspects in decision, making do not appear as important consumption bundles to be maximized (Chowdhury 86). These principles are distinct from and stand somewhat in contrast to altruistic motive, that initially guided the formation of the NGOs. The distinction between purely economic or egoistic andethical or altruistic motive threatens the premises of utilitarianism, which remains the basis of rational market order (Myrdal 65).

A brief appraisal of the utilitarian theory illustrates the contradiction that arises between compassion and capitalism,as some scholars have noted, in the process of turning the NGOs from organizations promoting welfare into fully commercial enterprises.

The logical premise of utilitarianism is hedonistic psychology and economic behavior is expressed as a calculus of pleasure and pain. As long as no obstacles are created, everyone by acting on his own interest promotes the happiness of all (Myrdal 65, 43). The early utilitarians sought religious sanction to support the proposition. To these theological utilitarians human behavior, in addition to egoistic calculus, is also subject to ethical considerations and moral goal of promoting general interest, in accordance with religious precepts. But this and similar other attempts emphasized the distinction between egoistic and altruistic motives (Myrdal 65). Referring to the contradiction Myrdal claimed.

"As soon as altruism was introduced into the discussion, one was tempted to see the criterion of moral conduct in the good or the virtuous feeling which prompts the goodwill. Utilitarianism was thus abandoned, for it stands and falls by the thesis that an action is good by virtue of its consequences and not by virtue of the will which motivates it." (Myrdal 65).

Altruism was therefore abandoned. Theological utilitarians lost importance after Bentham. By rejecting theological sanctions, the later utiliarians create a gap between the empirical fact of pleasure and pain and the binding nature of morality. They then bridge-up the gap by the doctrine of harmony. Harmony of interest based on 'purely egoistic' and 'purely economic interest' has become the central notion of utilitarianism and liberal market order (Myrdal 65).

For NGOs to graduate into commercial enterprises or Micro Finance Institutions (MFIs) require that they meet an 'economically efficient' market order. This uttrilitarian approach imply that market outcome depend on rational individuals as maximizing agent, pursuing 'purely egoistic' and 'purely economic interest'

optimizing utilities based on consumption bundles (Chowdhury 86). The precept of rationality is based on purely liberal foundations, wherein there is no scope for forming social preferences through the mechanism of collective preferences or religious conventions; individual preferences and consumer sovereignty reign supreme.

Intertemporal rationality on the part of the lenders or savers in the money market provides the basis of capital availability dictated by market forces. This signifies policies that rely on interest – based financing. Ethics or altruism do not enter as important consumption bundles or as resource, benefit and cost in this rational framework. In the utilitarian and neoclassical market order rate of interest rations out scarce supply of capital into the uses with highest net productivity; capital, in other words' is auctioned off in the market for the highest rate of interest or dividend it can fetch (Samuelson 73). The neoclassical perspective implies intensifying competition as opposed to cooperation; NGOs aiming to graduate into formal financial sector would be acting as maximizing agents seeing profit and competing for funds in the commercial market (Sharif 97). The process leads to a competitive game between capital and labor (Chowdhury 98). In this competitive milieu poorer borrowers, lacking other sources of income, are frequently left with the option to repay their loans obtained at competitive rate, selling asset or defaulting. It prompts poor clients to become part of self - exclusionary process, as is evident from the increasing rate of dropout of poorer borrowers from credit programs. Therefore, institutions trying to graduate into formal financial sector in the neoclassical market order might be doing so at the expense of poor borrowers by focusing mainly on a wealthier clientele (Sharif 97) Further, in case of NGOs, the interest mechanism which is an expression of this rationality is contrary to 'equity' principle as it is burdensome for the poor who borrow money, because if they fall they are to pay the principal along with interest (Akhtar 98).

The utilitarian market order being based on 'efficiency' with individuals maximizing purely economic gains, poverty focused credit programs aimed at distributive equity are, therefore, logically inconsistent with markets in a liberal framework characterized by lender's 'rationality' and interest-based financing. The neo-liberal policy agenda that envisages NGOs graduation into formal financial sector in order to access commercial funds reveal the internal tension between compassion and capitalism. The dilemma is evident as a scholar poses the question: "-can social development fund be raised from the capital market?" (Sharif & Wood 97).

4.   NGOs in an Islamic Economic Framework: Logical Consistency

In the preceding sections, the limitations of utilitarian polices, as they relate to NGOs, were discussed. There is no scope in this system for forming preferences based on collective preferences; consumer sovereignty and individual preferences reign supreme. Ethics or altruism-essential elements of poverty focused programs – do not figure as important bundles in this rational framework. The Islamic economic framework departs from these principles and behavior, replacing purely individual preference by commitment or loyalty to Shariah or Islamic Law.

The concept of rationality for *Shariah* is not based on the primacy of the individual will acting alone, but acting in the milieu of preferences formed in conformity with Islamic Law (Chowdhury 91). Compliance with the Sharia establishes the principle of the unity of God and of human individual as His vice-regent. Acts of consumption, production and distribution are treated in relation to humanity's felicity attained therefrom. Therefore, these acts are regarded as forms or part of worship. Consumer sovereignty is relegated to these tenets in an Islamic economic order (Chowdhury 91).

In this Islamic economic framework, an ethical aspect in decision making represents important consumption bundles which might be termed as 'imponderables'. In this context, individuals by maximizing his or her utility are really doing so by dispensing altruism to other. The welfare gained by each individual is shown to depend not only on his own utility index and those of others, but also on his contribution to the utilities of others (Chowdhury 86).

Investors Choice in an Islamic Framework

The technique of cost-benefit analysis is being utilized presently as criteria for investment or project choice. An investment or expenditure is undertaken only if the estimated benefits exceed the total cost (Weiss 67). In an Islamic economic framework the idea of cost and benefit in an investment alternative will be different from the conventional form.

Cost in Islamic economics is one of total cost, i.e. the pure economic cost plus 'non-economic' cost component: Total benefit is the sum of pure economic benefit component and pure 'non-economic' component of benefit.

In an investment undertaking of the firmthe economic cost may denote the outlay in investment based on the firm's profit maximization motives. Now economic costwould denote the Islamic individuals or firms altruistic expenditure. Therefore, pure economic benefit would denote the benefit derived as a result of

the outlay of economic cost and no economic benefit would denote the benefit from non-economic cost. Although the Muslim's motivation to incur non-economic cost is based purely on his or her Islamic belief or obligation, and the resulting benefit, represents his or her reward in the *akhira*, the worldly equivalents of these forms of pure 'noneconomic' elements of Islamic belief appear in the form of increased labour productivity, higher levels of employment and earning of the beneficiaries of altruistic expenditures which augment pure economic quantities. Non-economic benefit component thus becomes quantifiable and plays an important role in decision making in the altruistic sector of Islamic economy (Chowdhury 86).

The point to note in this formulation of Islamic decision making and preferences is that Islamic 'imponderables' or ethical aspects enter the utilitarian plane as well as the income and resource constraints as essential variable (Chowdhury 86). This stands in contrast to the internal contradiction generated by later utilitarians and neoclassical order within which the NGOs are planning to function (part 3). Referring to this conflict in neoclassical liberal order between the forces of economic efficiency and distributive equity, a scholar remarks:

"The root of this structural efficiency-equity conflict in Western politico economic order lies in the intrinsic competitive nature of an ethical neutrality of Western economic reasoning. Western social and economic institutions that rely on these philosophical foundations must then necessarily reflect the underlying conflicting type of social choices" (Chowdhury 91).

In the Islamic framework ethical aspects in decision making represent important consumption bundles.Individuals by maximizing his or her utility is really doing so by dispensing altruism to others. In this framework the presence of 'neoeconomic' and ethical values in the consumption menu of each individual narrows the gap between individual's preferences based on 'pleasure principle' and the binding nature of morality that the later utilitarian have created by rejecting the theological sanctions (part 3). As a result, the conflicts between the forces of efficiency and equity are mitigated by the sanctions within an Islamic economic system.

Poverty focused credit program aimed at distributive equity are in line with the goals of efficiency as well as equity, in a market order within an Islamic economic framework. Encouragement of expenditures of philanthropy and constraints on wasteful consumption in an Islamic economy imparts an altruistic element in consumption behavior which can be imputed to the cost-benefit estimates for investment or project choice. In the financial market which acts as source of funds

for Islamic NGOs, the lender or investor is placed in the context of norms dictated by the *Shariah* and maximizes within this context. These norms motivate the individual to strike a balance between individual interest and regard for others that is between the pure economic cost and benefit and the 'non-economic' components. The individual reconciles the rationale with the demands of the *Shariah* and thereby exercise an adaptive form of rationality. Such behavior patterns are affirmed by the institutionalist view that mankind is not merely a rational chooser but also a product of cultural & social norms; in this case emanation forms the *Shariah*.

As explained earlier, in such an altruistic and cooperative decision making and resource allocation, benefits or welfare gained by each individual depend also on his or her contribution to the utility of others (Chowdhury 86). Thus, Islamic principles underscores the consistency of poverty focused credit program seeking access to financial market, with investors who exercise an adaptive form of rationality, characterized by the presence of altruistic elements in their consumption menu, as ordained by the *Shariah*.

Arrow's Postulate

Kenneth Arrow differentiates between ordering or preferences according to the direct consumption of the individual of purely economic gains and the ordering when individuals add standards of equity or ethics. The market mechanism, Arrow points out, takes into account only the ordering in accordance with direct economic gains and not ordering according to ethics or values (Arrow, 63). Ethical scheme involve choices based on unanimously accepted values rather than a method of reconciling diverse individual values. In these schemes individual may be induced to decide on the basis of collective preferences or conventions, emanation from a religious code which take into account ordering according to values (Chowdhury 91). Consumer sovereignty is relegated to or is induced to conform to the tenets of the code or conventions (Chowdhury 91).

It may be underlined here that microenterprise finance aimed at distributive equity involves individual choices that are not taken into account solely by the market mechanism alone but would require an environment established by conventions or institutions collectively accepted, or conventions emanating from a religious code.

In the Islamic economic framework, distributive equity is established by, interalia, the mandatory abolition of interest (riba) and profiteering, and entitlement formation by poor and workers is established by the institution of *mudarabah* and

musharakah (Chowdhury 91, Akhtar 98). *Shariah* in an Islamic economy introduces standards of equity and ethics to market driven forces and Islamic voter or investor in the economy is induced to decide on the basis of collective preferences formed through *shuratic* deliberations. The presence and functions of *Shariah* Council in Islamic Banks in Bangladesh and other countries and the welfare banking program established by these Banks is an expression of this mechanism and to this effect forms collective preferences establishing an environment for entitlement formation by the poor. Therefore, Islamic principles underline the consistency of poverty focused program with investors who exercise an adaptive form of rationality incorporating altruism and ethics in their consumption menu, as ordained by preferences emanating from *Shariah* and *Shuratic* deliberations.

5. NGOs in an Islamic Economic Frame work: Adequacy to Reality

In the preceding sections contradictions characterizing the NGOs leaning increasingly toward secular utilitarian principles and seeking access to commercial market for funds have been discussed. In this context, logical consistency of the poverty focused credit programs in an Islamic economic framework has also been outlined. In this section the adequacy to reality of Islamic economic principles and *Shariah*, for NGOs functioning along Islamic lines will be examined.

The environment of the Islamically requisite production and entitlement formation by the poor is established by the institutions of cooperation and profit-sharing termed as *Mudarabah* and *Musharakah* as explained below. These and other similar *Shariah* instruments of financing and contract are being widely used by Islamic Banks and Islamic NGOs for microenterprise development (Ather & Loqman 98, Bashir and Darrat 92 Akhtar 98).

Mudarabah

Mudarabah financing activity includes two related sectors. The first comprise the financial intermediary (bank or an NGO) and a business firm or individual entrepreneur while the second comprise the intermediary and individual investor.

This mode of financing brings capital and labor together. It enables capital to earn profit by entrusting capital to the entrepreneur or individual who return the principal amount plus the agreed share of profit to him after completion of trading or production activity. The investor is called *Rab-ul-Mal* and the agent as *Mudarib*. *Rab-ul-Mal* participate with his funds and *Mudarib* with his dexterity

and labor in the project. They share profit according to the agreed ratio and loss is entirely borne by *Rab-ul-Mal* (Akhtar 98:6 Chowdhury 86).

Musharakah

Musharakah mode of financing envisages both partners providing capital. Sharing of profit is stated in the contract and losses are shared according to capital contribution. Modern application of *Musharakah* includes the business activities of cooperative societies.

Bai Muazzal

In case of *Bai Muazzal*, the bank based on client's proposal, purchases inputs from the market for the client who repurchases them from the bank at a price which include cost plus a mark-up in lumpsum or on installment. The price of the input charged by bank has to be fair and just (Akhtar 98, Bashir & Darrat 92 Chowdhury 86 Chowdhury 98).

A number of financial institutions in many Islamic countries based their activities on *Shariah* principles, particularly profit and loss sharing (PLS) arrangement replacing the interest payment system (Chowdhury 86 Sarkar 98). One of these institutions is the Islami Bank Bangladesh Limited (IBBL) in Bangladesh. The Bank functions in accordance with *Shariah* principles. The Bank attracts individual deposits in the commercial market and replaces interest payment on financial capital by profit-loss sharing. In this relationship with the subscribers the Bank act as *Mudarib*. The Bank then channelizes the savings into productive investment, a part of which is allocated for employment and income generating activities of the rural poor through its Rural Development Scheme (RDS). Its relationship with borrowers takes the form of *Rab-ul-Mal* (Sarkar 98, Chowdhury 98, Akhtar 98).

Banks based on *Shariah* principles add equity aspect and ethics to market forces and, as indicated earlier (section 4), investor or lender proceed on the basis of collective preferences formed by means of Shuratic deliberation (i.e. *Shariah* council in Banks or organisation).

With a view to ascertain adequacy of *Shariah*-based banks and credit programs to customs and valuation of people, their comparative performance in regard to accumulating resource or deposit from financial market is appraised in Bangladeshis appraised:

Exponential equation of the following form is applied to private and Islamic banks – Private bank

$$X = Ab^t \qquad (1)$$

where,

X = deposit

t = time

In logarithmic form, equation (1) is expressed as –

$$lnX = lnA + t(lnb) \qquad (2)$$

or, $\quad x = c_1 + c_2 t \qquad (3)$

Where, lower case letter x, c_1, c_2 represent lnX, lnA and lnb, respectively.

Islamic bank

$$X^i = A^i b^{it} \qquad (4)$$

Analogues to private banks –

$$x^i = c_1^i + c_2^i t \qquad (5)$$

Where, x^i and t represent quarterly deposit and time respectively.

Estimation of equation (3) in regard to private bank yield result provided in table 1.

Table 1: Deposit Mobilisation – Private Bank Bangladesh (2009-2014).

Dependent Variable: x^i

Method: Least Squares

Sample: 1 24

Included observations: 24

x^i = C(1) + C(2)*TIME

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	16.26372	0.018740	867.8390	0.0000
C(2)	0.043131	0.001312	32.88506	0.0000
R-squared	0.980062	Mean dependent var		16.80286
Adjusted R-squared	0.979156	S.D. dependent var		0.308067
S.E. of regression	0.044477	Akaike info criterion		-3.308025
Sum squared resid	0.043521	Schwarz criterion		-3.209854
Log likelihood	41.69630	Hannan-Quinn criter.		-3.281981
F-statistic	1081.427	Durbin-Watson stat		1.444635
Prob(F-statistic)	0.000000			

Source: BB (Various issues)

Growth in deposit variable is significant at 0.5 percent level, while R^2 value is 0.980062.

Estimation of equation (5) in regard to Islamic banks yield result provided in Table 2.

Table 2: Deposit Mobilisation-Islami Bank Bangladesh (2009-2014).

Dependent Variable: x
Method: Least Squares
Sample: 1 24
Included observations: 24
x = C(1) + C(2)*TIME

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	14.95878	0.202033	74.04140	0.0000
C(2)	0.059916	0.014139	4.237525	0.0003

R-squared	0.449403	Mean dependent var	15.70773
Adjusted R-squared	0.424376	S.D. dependent var	0.631987
S.E. of regression	0.479488	Akaike info criterion	1.447461
Sum squared resid	5.057999	Schwarz criterion	1.545632
Log likelihood	-15.36953	Durbin-Watson stat	2.193486
F-statistic	17.95662		
Prob (F-statistic)	0.000338		

Source: BB (Various issues).

R^2 of the equation is relatively low; it may be added that data relating to a longer period of time is likely to yield higher R^2. Limitation of data and resources preclude extension of time period for longer duration. DW statistics, however, is close to 2, indicating no autocorrelation. Based on t-ratios, growth in deposit variable is significant at 0.5 percent level.

Equation in table 1 can be represented in the form –
$$lnX = 16.263 + 0.043t \qquad (6)$$
Equation in table 2 can be represented in the form –
$$lnX^i = 14.958 + 0.059t \qquad (7)$$
Equation (6) and (7) yield –
$$x = 11.524 \ (100^3) \ (1.044)^t \qquad (8)$$
$$x^i = 3.134 \ (100^3) \ (1.06)^t \qquad (9)$$

It is inferred from equation (8) and (9) that growth in deposit of Islamic *Shariah* based banks are marginally higher, compared to private bank. Exponential growth of deposit in private commercial bank is 1.04 while growth of deposit in Islamic bank is 1.06.

Effective comparative performance of Islamic bank in accumulating finance is evidently very significant. Concept of *Shariah* based bank was new, when these banks commenced in Bangladesh. Given the early disadvantage, relatively effective functioning of Islamic bank, as is indicated by the comparative appraisal of commercial & Islamic banks, emphasize adequacy of Islamic economic principles to customs and valuations prevailing in developing economies as Bangladesh.

Foregoing appraisal of banks as IBBL in Bangladesh indicate reliably that *Shariah* instruments of financing are sustainable and adequate to reality in view of their conformity to custom and actual valuation held by people in Islamic communities, providing a basis of resource mobilization for Banks, with microcredit program.

The experience of IBBL has been reaffirmed by the successful performance of Shariah- based banks and finance companies elsewhere, including the Islamic Bank of Bahrain, Jordan Islamic Bank of Finance & Investment, Kuwait Finance House, Islamic Development Bank of Jeddah and a number of other banks which have replaced interest payment mechanism by *Shariah* principles and instrument of financing (Chowdhury 86). They indicate that replacement of inequitable interest payment by a profit-loss sharing and *Shariah* instruments of financing will enhance rather than retard investment funds and provide a continuous flow of financing to entrepreneurs (Bashir & Darrat 92, Akhtar 98).

Part of the investment funds generated by IBBL is utilized for entitlement forma-tion by the poor landless, laborers and marginal farmers by means of microenter-prise financing in rural areas as is evident from the predominance of Rural Development Scheme (RDS) of the Bank. Table- 3 presents annual disbursement of finances to rural poor for employment and income generation by IBBL.

The performance of IBBL's micro investment program as indicated by its growth underscores its potential for wider application and replicability, comparable to the performance of any of the leading NGOs now working in Bangladesh (Sarkar, 1998, Akhtar & Loqman 1998). The rate of recovery of micro investment of the IBBL as of April, 2001 is about 99 percent which underline the sustainability of the micro investment program of the IBBL (IBBL 2001). Its percrmance has to be viewed in the context of the advantageous position that GB and other NGOs

Table 3: Performance Rural Developments Scheme (Rds) of IBBL

(taka in million)

Year	Disbursement
1996	18.482
1997	41.878
1998	71.5156
1999	194.880
2000	388.187
2001	443.557
(upto Sept.)	
2008	3011.72
2009	3752.20
2011	7072.20
2012	10393.16

Source: IBBL, Dhaka, October. 2001, IBBL (2012)–Barsikprotibedon

possess. Major part of the funding for the GB has been at a preferential rate, borrowed from the Bangladesh central bank, international donors and local commercial banks (Hashemi & Morshed 97). The IBBL does not have access to subsidized sources of donor funds like GB, BRAC and other NGOs. The performance of the IBBL demonstrates the potential of the Bank to provide sustainable mobilization of fund and widespread financial services to the poor independent of donor assistance. In addition to the IBBL, microenterpnse schemes are also implemented by other *Shariah*-based organisations, which reinforce the experience of IBBL's micro investment program (Sarkar, 1998, Athar & Loqman 1998).

The poverty focused micro investment program for the poor by IBBL partly represents Banks depositor or investors, individual or firms, ethical transaction and altruistic expenditure. These investors' motivation to sustain the outlay of the program is based partly on their Islamic belief; the resulting benefit represents reward in the *akhira* (other world). The worldly equivalents of these elements become quantifiable as benefits in the form of increased labor productivity and income of the beneficiaries (part 4 above).

Performance of welfare oriented micro credit program implemented under RDS of the IBBL with resource mobilized in the market, provide supportive evidence that the *Shariah* principles beratingfixed interest payment and profiteering

enables lenders rationality to be adapted to 'equity principle' and incorporate ethics and altruism, in addition to income and resource constraints, as important consumption bundles in the utilitarian function of the investors or lenders to be maximized. The adaptive rationality and the altruistic framework of decision making and resource allocation represented by welfare and *Shariah* banking of this nature envisages that preference formation is based on individual will acting in conformity with collective or Shuratic preferences and that benefits or welfare gained by each individual depend not only on his or her own utility but also on ethical value and his or her contribution to the utility of others. The experience and potential of IBBL demonstrates that *Shariah* instruments of resource mobilization and micro credit financing are sustainable and adequate to reality in view of their conformity to customs and actual valuations held by people in Islamic communities.

6.   Conclusion

The foregoing analysis studies the deficiency of the neo-liberal policy agenda that aims at transforming non-governmental organizations (NGOs) engaged in poverty alleviation into formal financial institutions seeking access to capital market functioning on a commercial basis. The paper at the same time examines the Islamic scheme of micro enterprise financings as an alternative framework for welfare programs. The paper contends that poverty focused credit programs aimed at distributive equity are logically inconsistent with an ethically neutral liberal market order characterized by interest-based financing and lender's 'rationality'. In contrast, Islamic economic principles affirm the logical consistency of poverty-focused financing programs seeking access to resources in financial markets, characterized by the presence of altruistic, ethical elements in the consumption menu of the individual' as represented by the *Shariah* instruments prohibiting interest and profiteering and promoting charity.

The paper studies the logical consistency and adequacy to reality of the Islamic principles to actual conditions, customs and valuating prevailing in the Bangladesh economy. It finds supportive evidence that 'Islamic economic principles, by incorporating ethics and altruism as important consumption bundles in the utilitarian function of the depositors or investors to be maximized, ensures continuous flow of financing to credit program, as indicated by the financial and welfare banking program introduced by the IBBL and other *Shariah*-based banks in Bangladesh.

The modern neo-liberal approach prompts the NGOs to meet the demand for micro credit on a competitive commercial basis with access to capital market and full - cost pricing of services. This approach resembles the classical utilitarian appeal for leaving everything to the market for not allowing compassion to inter-fere with economic process (Galbraith 58). The new agenda is reminiscent of the tradition which had advocated,a with post-feudal Europe the abolition of English Poor Law, an Act framed to alleviate poverty, supported by a fund subscribed by each church parish (locality) for the benefit of the poor. To urge the NGOs serving the poor to be profitable and efficient in an ethically neutral market order is to expose the poor to the built-in criteria that insecurity and vicissitude of the com-petitive market is essential for efficiency and sustenance.

Shariah based financing provides an alternative vision which stands apart from the harsh neo-liberal policy agenda. Available evidence from the IBBL's experi-ence of its resource mobilization and micro program indicate that *Shariah* modes ensure a sustained flow of financing to microenterprises relying on market driven forces without government or aid assistance - a conclusion that could not be validly applied to traditional NGOs in Bangladesh.

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Urbanization and Economic Development of Bangladesh: The Primacy of Dhaka and Competitiveness

Sarder Syed Ahmed[*]
Muntasir Ahmed[**]

Abstract: *Now-a-days urbanization is regarded as an engine of growth and Development of a country. The contribution of urban sector to the GDP is much more than the rural sector in many developing countries like Bangladesh. The contribution of urban sector to GDP is increasing year by year in Bangladesh and it is now about 65%. Urbanization also plays a great role in socio-cultural and political development of the country. Urbanization and growth go together. Urbanization is necessary to sustain growth in developing countries & it yields other benefits as well.*

The contemporary theories of growth emphasizes mostly on capital and technology. There is also a missing fundamental factor-geography of a country. Geographic units in terms of location, place, climate, resource endowments and environment are the constituent's elements of engine of growth forming vast bundles of trade, transport, innovation and talent. Generally urbanization leads to industrialization. These two issues are closely linked in many ways. With the increasing economic development, dominance of agricultural sector gradually diminishes and industrialization takes place at an accelerated rate. Urbanization is positively co-related with industrialization. The level of urbanization in Bangladesh to total population is 28% but contribution of 28% population to GDP is 65%. Dhaka city consists, of 9% of total population of Bangladesh but its contribution to GDP near about 40%.

[*]   Ex-Professor, Department of Economics, Asian University of Bangladesh, Dhaka
[**]   BSC Engineer (Civil), Al-Arafa Islami Bank Ltd, Dhaka

The economic geography of Bangladesh is concentrated on economic production of Dhaka and Chittagong, Economic Density of Dhaka is much lower than similar other developing countries of the World. Economic density of Dhaka is $55 million per sq. km which is $88 million for Bangkok and $269 million for Singapore. Dhaka, the capital of Bangladesh is the biggest city enjoying distinct primacy. The measure of urban concentration is primacy or share of the largest city in the total urban population in the country. About 55% of the national urban population concentrated in 4 Metropolitan cities. Dhaka, Chittagong, Rajshahi and Khulna.

Economic opportunities are concentrated in the largest four cities of Bangladesh which are the concentrated urban areas in Bangladesh. Major industrial activities and auxiliary business services are concentrated in the largest cities. Dhaka alone account for 80% of the garments industries. Workers employment density in Dhaka City Corporation is above 60% higher than in Chittagong City Corporation. Employment density of workers per sq. km in Dhaka was 4241 which was 2835 in Chittgaong in 2009 (WB-2012). Besides garment industries, several government universities and 50% private universities & thousands of schools, colleges hospitals and clinics are concentrated in Dhaka. Administrative headquarters are located in Dhaka. Manufacturing & services often located close to urban areas to capture the productivity advantages generated by agglomeration economics that is access to market, knowledge spill over and the proximity to a large poll of labour. Agglomeration economics is an important consideration for industrial and commercial activities. Due to benefit of localization economics firms are concentrated in a locality. The firm also considers the benefit of urbanization economics. Firm that produce intermediate goods will tend to locate close to produces of the final goods (a forward linkage) Downstream firms similarly will gain from locating close to their suppliers (a backward linkage). Due to Agglomeration economics firm are concentrated in Dhaka.

City Competitiveness is a dynamic concept. It describes a city's comparative advantage in attracting mobile production factors and its ability to leverage these advantages to sustain growth in a fast changing global environment. City Competitiveness depends on innovation, livability and connectivity in a global economy. Empirical evidence suggest that cities with high innovation levels, a livable and high quality environment and internally and globally connected are more economically successful, as they are attractive location for firms and workers Beautiful water fronts, historical sites, echo park, sports facilities, good accommodation, comfortable transport system, industrial parks etc are important for attracting foreign investment and economic growth. Dhaka mega city alone shares more than half of the urban sector's contribution to GDP. This is important in examining the competitiveness of Dhaka.

Introduction

Now-a-days urbanization is regarded as an engine of growth and Development of a country. Urbanization has positive co-relation with Gross Domestic Product. The contribution of urban sector to the GDP is much more than the rural sector in many developing countries like Bangladesh. Once the contribution of agriculture to GDP was 50 to 60% but at present it decreased at 16% only. The contribution of urban sector to GDP is increasing year by year in Bangladesh and it is now about 65%. Urbanization also plays a great role in socio-cultural and political development of the country. Since independence the average rate of urbanization in Bangladesh is 5% (World Bank 2012) & percent of urban population has been doubled, from 15% in 1974 to 28.4% in 2011 (Population Census-2011). Rate of urbanization in Dhaka City is very fast which creates various problems leading to hamper basic rights of the citizens. Utility services like electricity, water and gas fall short of demand, roads and transport facilities become severely inadequate.

Urbanization is a process of human habitat and it is the outcome of rural- urban migration. Migration is a great force behind rapid urbanization. More than 60% of the population of Dhaka Mega City is migrated. Both pull and push factors work behind migration. Dhaka, Chittagong, Rajshahi & Khulna, the four cities are the largest cities in Bangladesh. Number of urban population in Bangladesh is 42.11 million of which Dhaka city consists of 40% and in 2014 it may be 18 million population. Dhaka now becomes one of the largest mega cities in the world. Life in Dhaka at present becomes unlivable due to over population and its negative consequences.

Objectives and Methodology

To describe the level urban population of Bangladesh and Dhaka Mega City.
To focus on urbanization and economic development of Bangladesh.
To analyze Dhaka's Primacy and Competitiveness.
The article is a descriptive one.
The article is based on secondary data from BBS, CUS, BIDS & Internet.

1.   Level of urbanization in Bangladesh

Bangladesh is an over populated country consisting of 154 million of population. It is the 7th most populous country in the world with highest density. Since independence the population of Bangladesh has been increased at an average rate of growth above 2 percent up to 1991 and after that population growth rate started to decline, for the last two decades the growth rate fell below 1.5%. Annual

exponential growth rate of urban population is much higher than population growth rate. It is seen form table-1 that from 1974 to 1981 urban population growth rate was highest (10.66%). In 1974 urban population was 6.27 million.

Table 1: Level of Urbanization and Growth Rate of Urban Population in Bangladesh 1951-2011

Census year	Total national population (million)	Growth rate of national population (%)	Total urban population (million)	Level of urbanization (%)	Decadal increase in urban population	Annual Exponential Growth rate of urban population (%)
1951	44.17	0.50	1.82	4.33	18.38	1.69
1961	55.22	2.26	2.64	5.19	45.11	3.72
1774	76.37	2.48	6.27	8.87	137.57	6.66
1981	89.91	2.32	13.23	15.18	110.68	10.66
1991	111.45	2.17	20.87	19.63	57.79	4.56
2001	123.10	1.47	28.61	23.10	37.05	3.15
2011 *	150.40	1.37	42.11	28.40	47.19	4.12

Source: Government of Bangladesh: Bangladesh Population Census. Census, 1991 BBS, 2003 1981; Report on Urban Areas, 1997 and Preliminary Report. Overview of Urbanization in Bangladesh-Nazrul Islam-2013

Figure 1: Level of urbanization (%)
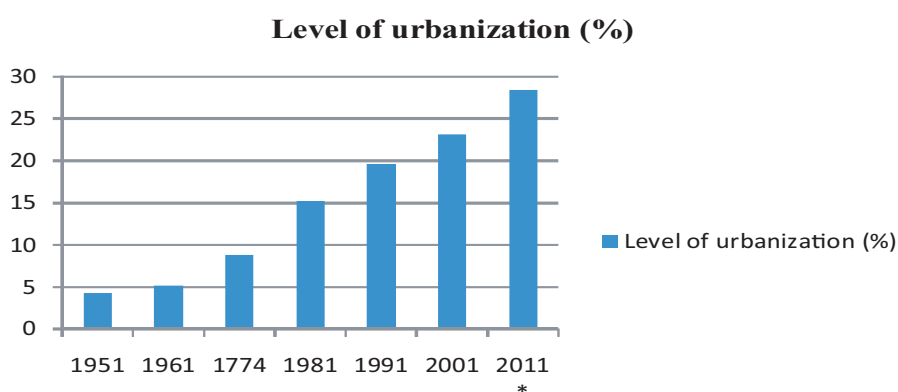
Report on Urban Areas, 1997 and Preliminary Report. Overview of Urbanization in Bangladesh- Nazrul Islam-2013

The population had been doubled in 1981 and in 2011 it stands at 42.11 million which means 28.4% of the population of the country lives in urban areas. Since 1974 to 2011 urban population increased 7 times, that is, the number of additional urban population is 35.84 million. (Table-1 & Figure-1)

In spite of higher growth rate of urban population in Bangladesh, the share of urban population to total population is much lower than world average urban population. The level of world average urban population is 52% which is 28.4% in Bangladesh. (Table-2)

Table 2: World Urbanization, 2011

Name of Continent, Region and Country	Urbanization Level (percent)
World	52.1
Africa	39.6
Asia	45.0
Eastern Asia	55.6
South-Central Asia	**32.8**
South-Eastern Asia	44.7
Western Asia	67.9
Southern Asia	32.6
India	21.2
Pakistan	36.2
Bangladesh	**28.4**
Europe	72.9
Latin America	79.1
North America	82.2
Oceania	88.7

Source: World Urbanization Prospects: The 2011 Revision Overview Urbanization in Bangladesh-Nazrul Islam-2013

The level of urban population to total population in Bangladesh is lower than the South Asian countries. In India the level is 31.2% and in Pakistan it is 36.2%. Share of urban population to total population in Asia is 45%, in Africa it is 40%. In Europe it is 73% and in North America it is more than 82%. (Table-2 & Figure-2)

There are 570 urban centers in Bangladesh. Dhaka Mega city, Chittagong, Rajshahi, Khulna & Sylhet metropolitan City. Cities consisting of more than 1 lac 25, City Corporations 7 & 315 Pourashavas and 464 Upzilas have small towns.

Figure 2: Wrold Urbanization
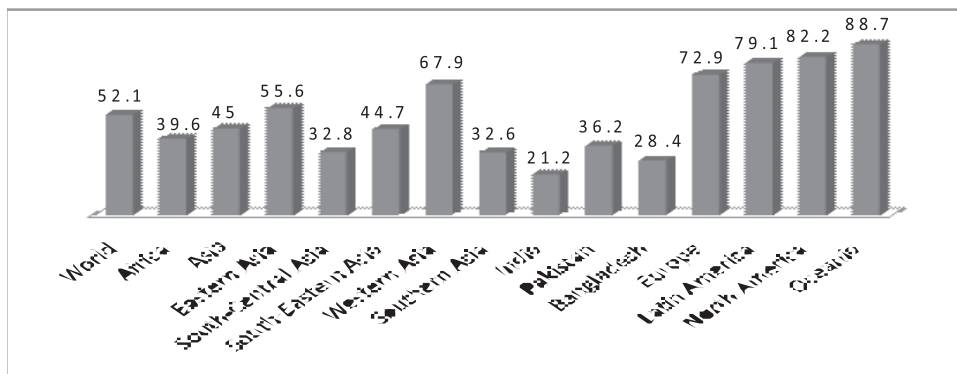
Forty percent urban population of Bangladesh consists in Dhaka mega city, 15% Chittagong, Rajshahi the Khulna and the remaining 45% lives in other urban centers and towns. (Nazrul Islam-2013)

2.   Area and Population of Dhaka Mega City

Dhaka is the oldest city. It is known to have existed in the 7th century. In that period it was under the Buddist empire and it was under the Sens' Kingdom of Bikrampur in the 9th century. The then time, Dhaka was known as Bengla. Dhaka was then a small town consisting of 52 bazars and 53 lanes only (Nazrul-1996). The history of pre Mughal Dhaka is very vague, that period ranges from the 13th century to the beginning of the early 17th century. It was then a market centre. During the Mughal Period Dhaka became a prestigious city of the empire of the Mughal. It was named as Jahangir Nagar after the name of Emperor Jahangir. It was made the capital of Bengal in 1608 by Subadar Islam Khan. During the reign of Subadar Shaista Khan (1662-1689) tremendous development of Dhaka had been taken place. The city started to lose its glory after the shifting of the Capital from Dhaka to Mursidabad in 1717. At that period, size of the Dhaka city was 4.5 sq. km and the population was about 1 lac.

After the Battle of Palassey in 1757 the area and population had decreased remarkably. Later on, after the transfer of power to the Crown by the British East Indian Company in 1858, the city started to expand. The Dhaka Municipality was founded in 1864 by Mr. Skinner (Hossain-2010). In 1905, the partition of Bengal took place & Dhaka was made the Capital of East Bengal and Assam. From 1905 to 1911 the population of Dhaka increased by 21% and after the Partition was annulled of Bengal, importance of Dhaka began to decline (Nazrul-1996). In 1947

Table 3: Population and area of Dhaka City (1931-2014)

Year	Periods	Population	Increase in decade	Average yearly increase	Area (sk.km)
1931	British period	161,922	25821	25821	20
1941	British period	239,728	77806	77806	25
1951	Pakistan period	411,279	171542	17154	85
1961	Pakistan period	718,766	307488	30748	125
1974	Bangladesh period	2068353	1349587	134458	336
1981	Bangladesh period	3440147	1371794	137179	510
1991	Bangladesh period	6887459	3447312	344731	1353
2001	Bangladesh period	10712206	3824747	382474	1530
2011	Bangladesh period	17721600	7009394	700939	

Source: J. Taylor, Sketch of the Topography and statistics of Dacca (Calcutta: Military Orphan Press, 1840) & Bangladesh Bureau of Statistics, Bangladesh National Population Census Report- 1974 (Dhaka: Ministry of Planning, 1977); Bangladesh population Census 1991 Urban Area Report (Dhaka: Ministry of Planning 1997); Population Census 2001 Preliminary Report (Dhaka: Ministry of Planning, 2001), Population Census 2011 & Nazrul Islam 2013.

the Indian Subcontinent was divided into states of India and Pakistan and Dhaka was made the Capital of East Pakistan. In 1941 the population of Dhaka was 2,39,728 which stood at 4,11,279 in 1951. Migration from India to Bangladesh (East Pakistan) was the main cause of population growth in this decade. In 1961 the population of the city grew to 7, 18,766 and the area was 125 sq. km. After the independence, in 1974, the population of Dhaka stood at 20, 68,253 with an additional 13 lac of 1961. From 1981 to 1991 the population of Dhaka city had been increased remarkably. In 1991 the population stood at 68,87,459 which was an addition to about 35 lac with the population of 1981. In this decade garment industries began to develop in Dhaka. Large number of woman labour force migrated to Dhaka from different districts and joined in garment industries. Multi-fiber Agreement of GATT in 1973 imposed Quotas on developing countries. The then time Bangladesh was out of quota system among the developing countries. The garment investors found Bangladesh the most suitable country to invest. Desh Garments of South Korian, Multinational Daewoo was established in 1977, it was

the first garment industry of Bangladesh. Later on garment industries were developed in Dhaka and Dhaka became the sweet home of the garment investors.

The population of Dhaka city stands at 17721600 in 2011 which is near 70 lac addition to the population of 2001 (10712206) which is much higher than its previous decade. From 2001 to 2011, the decade Bangladesh faces various natural disasters like flood of 2004, Sidor- 2007, Aila of 2009. The poor people of Rangpur and Dinajpur were victim of Manga in 2003, 2004 and 2005. The people of coastal areas especially Sidor and Aila affected poor, migrated to Dhaka for livelihood. These are the causes for which in 2011, the population of Dhaka had increased remarkably. In 2001 the area of Dhaka mega city increased by 1530 sq. km and population increased over 10 million and in 2014 it stood at 18 million. Most of the People of Dhaka is immigrant, which may be 60% (Nazrul-1996). It is reported by Daily Prothom Alo that from 2008 to 2013 large number of (57 lac) people migrated to different cities and mostly in Dhaka, most of them are from Southern Districts of Bangladesh. (Prothom Alo, August 2015).

3. Urbanization and Development in Bangladesh

Urbanization and growth go together. Urbanization is necessary to sustain growth in developing countries & it yields other benefits as well. World Bank Report 2009 states (coated from Burgess and Venable 2004) that urbanization is one of the clearest teachers of the development of manufacturing and services activity in developing countries, yet discussion of urbanization is simply absent from economic analyses of growth and development.

The contemporary theories of growth emphasizes mostly on capital and technology. It is believed that capital and technology have a magical power to make the world kingdom of Heaven. The theories of growth and development do not take into account the role of socio-cultural and political factors, though these are important for development. There is also a missing fundamental factor-geography of a country. Geographic units in terms of location, place, climate, resource endowments and environment are the constituent's elements of engine of growth forming vast bundles of trade, transport, innovation and talent (Hasnat-2012). Generally urbanization leads to industrialization. These two issues are closely linked in many ways. With the increasing economic development, dominance of agricultural sector gradually diminishes and industrialization takes place at an accelerated rate (Yesmin-1996). Urbanization is positively co-related with industrialization. The largest cities, where population is large, generally make a disproportionate contribution to GDP because they enjoy economics of

scale and consequently have higher national income and productivity per capita than rest of the nation (Afsar-1998) The level of urbanization in Bangladesh to total population is 28% but contribution of 28% population to GDP is 65% . Dhaka city consists, of 9% of total population of Bangladesh but its contribution to GDP near about 40%. In Bangladesh today the urban rural output and productivity differentiation is larger than the population density differentiation. Population density in urban areas (1800 people per sq. km) is twice as high as in rural areas (800 people per sq. km) but urban economic density (US$ 2.7 million per sq. km) is eight times as high as rural economic density (US$ 3, 20,000 per sq. km). The average GDP per capita in urban areas (US$1500) is almost 4 times as high as in rural areas (US$400) (World Bank 2012- p. 164). The urban sector has been gaining importance over time and its contribution, its role in employment generation and absorbing surplus rural population seem to be dominant factors in the economy of Bangladesh (Nazem-2013). Urbanization has a positive co-relation with Gross Domestic Product of a nation. City and towns play the most crucial role in the national economy of the states of the World. In these days of industrialization and globalization urban economy has been globalized. Rural agricultural sector lacks behind the industrial and service sector. Industrialization and urbanization go hand in hand. Globalization movement in later part of the 20th century has changed global economy and Lifestyle of the world citizens. The vision of globalization is to satisfy the consumers and change the lifestyle. An unhealthy competition arises among the nations in the production of goods and services and thereby marketing. Globalization forces consumers to see the whole planet as their shopping malls and communities to compete with cities world wide for prominence as international centers that attract the best companies and jobs (Kanter 1995). Growing industrial products and their marketing attract rural people to build towns and cities, what we call urbanization. Urbanization is an inevitable phenomenon which shapes the life of the people in a new fashion and predominate economic life of a community. Thus urbanization plays a vital role in the development process of a nation. It also contributes social and political development by providing better educational and health facilities to the citizens. A fundamental characteristic of urbanization is the structural shift in employment from agricultural to non agricultural. Urbanization is territorial response to structural changes in the economy. A distinctive division of labour, technology based production- of goods and services paid of a Varity of goods, high level of spatial and agglomeration in location, high economic density and population density etc are associated with urbanization. Once agriculture had a vital position in the economy of Bangladesh as it was an important economic activity for livelihood. Agriculture and thereby rural sector's contribution to the

economy was very large. Those days are gone, now urban sector's contribution to the economy are increasing day by day. Once agricultural was the life blood of the economy but due to urbanization agricultural lost its importance in the economy. Manufacturing or industrial sector becomes vital for the economy. So GDP of a nation greatly depends on the level of urbanization. World Bank (2009) reported that in Malaysia & Thailand urban sector contribute about 90 percent of the GDP & for Singapore and Hong Kong it is 100% (Siddique-2014). Even in Bangladesh contribution of urban sector to GDP is more than 65% (Siddiqui-14 and Nazem-2013). Agricultural is still the major (47%) labor absorbing sector but its contribution to GDP has been decreasing, at a higher rate. At present it stands at 16% only. It is shown in table-4 how urban sectors contribution is increasing and rural sector's contribution is decreasing.

It can be seen from table-4 and figure-3 that in 1972-1973 contribution of urban sector to GDP was only 25% which has been increased to 65% in 2014. Contribution of rural sector was 75% in 1973-73 which has decreased and stands at 35% in 2014. The increasing tendency of urban sector indicates that the structural change of the economy of Bangladesh has taken place with great success. The process of change contributes to rapid urbanization, because manufacturing and services industries are located in urban areas leading to spatial restructuring of the country. The contribution of industries was 17% in 1980-1981which has been increased at over 30% in 2014-2015 & the contribution of

Table 4: Trend of rural Sector's Contribution to GDP during 1972-73 to 1991-13.

Year	Contribution at constant pries of 1984-85 (percent)		
	Urban sector	Rural sector	Agricultural
1972-73	25.36	74.64	60.0
1975-76	25.47	74.53	49.3
1979-80	29.25	70.75	43.9
1982-83	29.81	70.19	43.5
1985-86	32.26	67.74	41.8
1988-89	35.41	64.59	37.1
1991-92	36.39	63.61	36.9
1995-96	45.00	55.00	32.2
2009-10	60.00	40.00	20.30
2012-14	65.00	35.00	16.50

Source: Huq, 1997 based on Calculated from Tables 7 and 8 of BBS's Twenty Years of National
         Accounting of Bangladesh, 1993c. (Urbanization, Migration and Development in
         Bangladesh: Recent Trends and emerging issues, CPD- Professor Nazrul Islam- Septembe
         1999, Bangladesh Economic Review- different issues.

Figure 3: Urban sector contribution to GDP
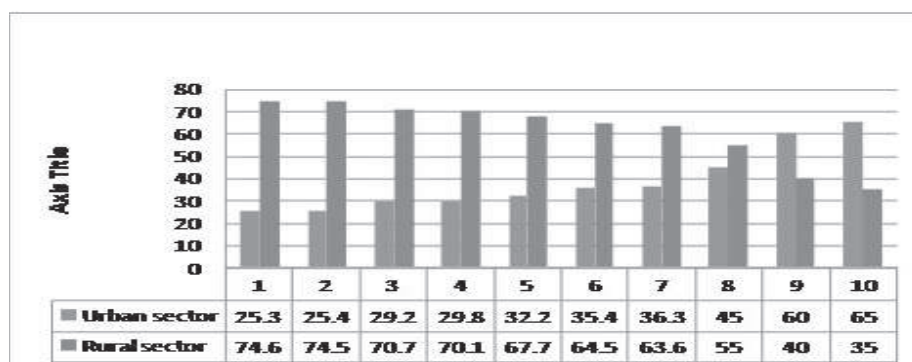
service sector is also increasing but at a slower growth rate than industrial sector. (Table-5 & Figure-4) In 1980 the contribution of service sector to GDP was 44% which has been increased in 54% in 2014.

Table 5 : Trend of structural transformation of Board sector changing in GDP (in percent)

Year	Agricultural	Industry	Service
1980-81	33.07	17.31	44.62
1985-86	31.13	19.13	49.73
1990-91	29.23	21.04	49.73
1995-96	25.68	24.87	49.45
2000-01	25.03	26.20	48.77
2005-06	21.84	29.03	49.4
2009-10	20.29	29.93	49.78
2014-15	15.96	30.42	53.62

Source: Bangladesh Economic Survey 2012-2015

The growth rate of agricultural is much less than services and industries. The growth of agricultural is 3.4%, service 5.3% and industries 9.6% in 2014-2015 (BER-2015).

4.   The Primacy of Dhaka

a)   Economic Density & contribution of Dhaka to GDP

The population density in urban areas of Bangladesh is 1800 which is double of the rural areas. Population density in Bangladesh is the highest in the world, 964 per sq. km. Population density of Dhaka city is the densest in the world mega

Figure 4: Trend of structural transformation of Board sectural changing in GDP (in percent)
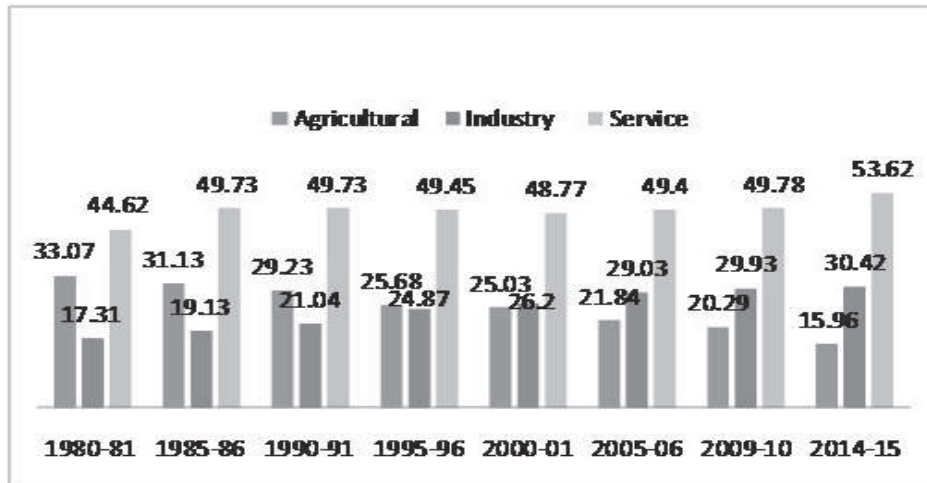
cities which are more than double to that of Malaysia and Jakarta. In Dhaka it is 26000 and 10650 in Malaysia and in Jakarta it is 10500 per sq. km. Dhaka mega city is one of the 10 largest mega cities of the world which constitutes 14 million of population. (World Bank-2012 and siddique-14). Urban space is densely populated but economic density is very low in Bangladesh. Economic density is equal to GDP or Value added per sq. km. Production is low in comparison to population. The economic geography of Bangladesh is concentrated on economic production of Dhaka and Chittagong, Nine percent of population of Bangladesh resides in Dhaka but its contribution to GDP is 36% (World Bank-12) and at present about 40% and contribution of Chittagong is 11% where 3% of the population of the country lives. Economic Density of Dhaka is much lowers than similar other developing countries of the World. Economic density of Dhaka is $55 million per sq. km which is $88 million for Bangkok and $269 million for Singapore. GDP has close relationship with economic density and urbanization.

b)   Employment density

Employment density in Dhaka city is 4042 per sq. km and in Chittagong it is 2855 per sq. km. Dhaka Metro 940 per sq. km and in secondary cities is 712 per sk. km. Due to structural change of the economy, patterns of employment has also been changed. In 1974, 78% of labour force was engaged in agricultural sector which was 47.5% in 2010. The greater Dhaka district is the most urbanized and has the highest per capita GDP, followed by Chittagong economic corridor runs between Dhaka and Chittagong.

In the same period only 8% of the lobour forces were employed in industrial sector which is now 18 percent and the service sector it was 35 percent in 1974

Table 6: Sectoral Distribution of Employment (%)

Period	Agriculture[4]	Industry[5]	Services	Total
1974	78.0	8.0	14.0	100.00
1981	61.0	8.7	30.3	100.00
1984	58.7	9.0	32.3	100.00
1985	57.8	9.4	32.8	100.00
1986	57.2	10.1	32.7	100.00
1989	56.6	10.1	33.3	100.00
1991	53.0	10.0	37.0	100.00
1996	48.8	10.1	41.1	100.00
2000	50.8	9.9	39.3	100.00
2001	51.0	10.0	39.0	100.00
2003	51.8	10.0	38.2	100.00
2006	48.1	11.1	40.8	100.00
2010	47.5	12.38	40.11	100.00

Source: Bangladesh Bureau of Statistics, Labour Force Surveys, 6th 5 year plan.

and in 2010 increased to 53%. Ten percent of total employed labour force of Bangladesh is employed in Dhaka, Narayangonj & Gazipur Districts (LPS-2010)

"The dominance of Dhaka is even more overwhelming in several of the smaller manufacturing activities, such as rubber produces, in which Dhaka contributes nearly 100% of total jobs, furniture (97%), publishing (96%) footwear (84%) leather goods (82%) and electrical machinery (72%) (Nazrul-1999). The textile and RMG sector in grater Dhaka constitute the largest manufacturing industries cluster in the country. The cluster absorbs 2.5 million workers most of whom are women. More than 80% of the national enterprises are located in Dhaka. In these organization millions of people are engaged. In the informal sector 1.6 million hawkers, Rickshaw pullers and domestic helpers are engaged. The number of hawkers are .03 million, Rickshaw pullers .08 million & domestic helpers .05 million. (Nazrul Islam- 2005).

c)   Agglomeration of population

Dhaka, the capital of Bangladesh is the biggest city enjoying distinct primacy. The degree of urban concentration in Bangladesh appears to be higher than in many of its comparators. The measure of urban concentration is primacy or share of the largest city in the total urban population in the country. About 55% of the national urban population concentrated in 4 Metropolitan cities: Dhaka, Chittagong, Rajshahi and Khulna. Population Census Report of Bangladesh 2011 indicates that these 4 cities are largest in Bangladesh. Dhaka mega city is the largest urban agglomeration of Bangladesh enjoys clear primate status in its urban structure. Dhaka's share of the urban population of Bangladesh was 20% only in 1961.

Table 7: The Primacy of Dhaka in the National and National Urban Context 1974-2011

Year	Population of Dhaka (million)	Percent of National Population	Percent of National Urban Population
1974	1.77	3.0	28.3
1981	3.44	3.8	25.7
1991	6.84	5.8	30.5
2001	10.71	8.0	37.4
2011	13.00	8.9	40.00

Source: Calculated from BBS, 1994, and World Bank-2012

Figure 5: Population of Dhaka (Million) -1974-2011
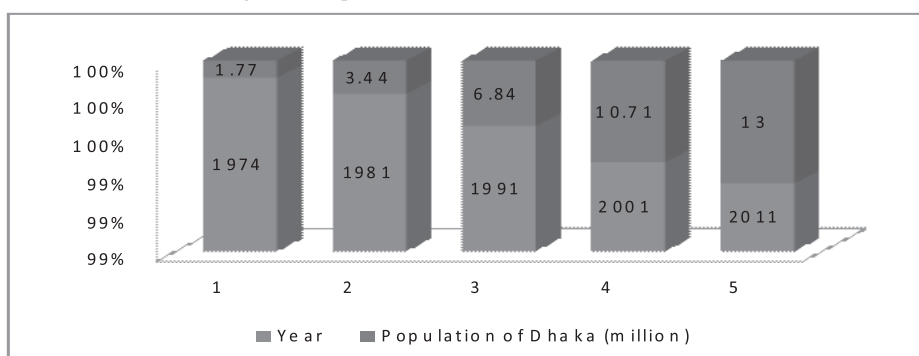
The share rose to 24% in 1974, 26% in 1981, 30% in 1991 and 40% in 2011 (Nazrul-2013). In 1974 the population of Dhaka City was 1.77 million, in 1981 it was 3.44 million and in 1991 increased by 6.84 million which stood at 10.71 million in 2001. The population of Dhaka city stnads at 13 million in 2011 & at

present it may be 18 million (Table-7, Figure-5). Dhaka consists of 40% of total urban population (17800000) which is larger than Chittagong, Rajshahi and Khulna taken together. Primacy index for Dhaka in 2001 was 2.05 which means the population of Dhaka was 2.05 times larger than other 3 large cities (Chittagong, Rajshahi and Khulna). The index has increased and stands at 2.12 in 2010 (World Bank-2012). In the larger states of the world like China and India have no primacy city. But Bangkok of Thailand and Tokyo in Japan are the examples of primacy. The primacy rate of Dhaka is higher than similar developing countries.

Table 8: Urban concentration in comparator countries (%)

South Asia Region		Per capita Incomes		Land area		Historic Incomes	
Country	Primacy	Country	Primacy	Country	Primacy	Country	Primacy
India	5.72	Cameroon	22.48	Bulgaria	20.84	Colombia (1975)	20.16
Pakistan	21.94	Mongolia	56.27	Guatemala	20.09	Honduras (1985)	35.48
		Senegal	43.53	Korea	23.28	Armenia (1995)	50.85
		Kyrgyz Republic	45.50	Honduras	27.25	Turkey (1975)	21.63

Data Source: WDI Tables, SIMA (World Bank-2009).

The primacy rate of Dhaka is 32%, which is higher than neighboring South Asian and East Asian countries. It is also high relative to countries with similar land areas. It is 23% in Korea and 21% for Bulgaria (World Bank-2009).

d)   Agglomeration of Economic Activities

Economic opportunities are concentrated in the largest four cities of Bangladesh which are the concentrated urban areas in Bangladesh. Forty percent of total urban population of Bangladesh are concentrated in Dhaka alone, the urban concentration trends not surprisingly, large mirrors the concentration of economic opportunities in the large cities (Dhaka, Chittagong, Rajshahi and Khulna). Most major industrial activities and auxiliary business services are concentrated in the largest cities. Dhaka alone account for 80% of the garments industries Siddiquy (2014). Since 1980s garment industries are growing in Dhaka and Chittagong. There are 4500 garment industries in Bangladesh of which 75% are located in Dhaka mega city area. The garment sector contributes 80% of the export earnings of Bangladesh although its value addition is lower due to import of the inputs

(World Bank-2012). Dhaka city and its peri-urban areas are the most productive location for garment industries. Estimated number of garment industries is the largest in the heart of Dhaka city where there are 2960 industries and employed workers are about 11 lacs. Average productivity of a firm is 7.9% and 5.6% higher than a firm working in Chittagong. Loss due to congestion and land prices and also higher rate of house rent, garments are relocating in peri- urban areas of Dhaka city. Garments account for 50 of total formal employment in Dhaka city and 65% of formal non firm jobs in peri- urban areas (WB-2012). Workers employment density in Dhaka City Corporation is above 60% higher than in Chittagong City Corporation. Employment density of workers per sq. km in Dhaka was 4241 which was 2835 in Chittgaong in 2009 (WB-2012). High cost of congestion, land price and excessive house rent in Dhaka city, garment and other industries are relocated in Gazipur and Narayangonj District.

e)   Concentration of Organizations

Besides garment industries, several government universities and 50% private universities & thousands of schools, colleges hospitals and clinics are concentrated in Dhaka. Administrative headquarters are located in Dhaka. Manufacturing & services often located close to urban areas to capture the productivity advantages generated by agglomeration economics that is access to market, knowledge spill over and the proximity to a large poll of labour.

f)   Agglomeration Economics

Agglomeration economics is an important consideration for industrial and commercial activities. Due to benefit of localization economics firms are concentrated in a locality. The firm also considers the benefit of urbanization economics. Firm that produce intermediate goods will tend to locate close to produces of the final goods (a forward linkage) Downstream firms similarly will gain from locating close to their suppliers (a backward linkage). Due to Agglomeration economics firm are concentrated in Dhaka. Concentration of economic activities such as garment production and organized business makes scope for both aspect of agglomeration- localization economics and urbanization economics in the largest city (World Bank-2009).

g)   Market access

Market access is an important factor in determining firm's location. Market access and urban concentration appear to be closely linked in Bangladesh. Firms are

attracted to places with easy to access, market which leads to concentration of production in those areas. Dhaka metropolitan is the central point of Bangladesh where transport and communication networks are better than other cities of the country.

h)   Policies bias

Generally in a centralized government, structural government, tend to favour one or two cities, Dhaka as national capital government fabour. Dhaka city like Bangkok, Jakarta, Seoul & Mexico city. Huge amount of money is invested in Dhaka in different fields for its development. Utility services are delivered to the citizens of Dhaka more efficiently than other cities. Government allocate huge funds for utility services and infrastructural development every year. Dhaka urban area received Tk 2000 million annually which was about 20% of the national public sector investment. Such massive investment created employment in the construction and in the utility services. (Shankland Cox 1981).

Excessive extension of Dhaka city and its growth as a primate city is the outcome of government policies. Dhaka's growth as prime city is mirrored in the extreme concentration of decision making and political authority (Zillur 2014). Administrative headquarters, employment, financial and banking, international trade, business houses are largely concentrated in Dhaka. Explosion of primacy is not confined to only economic fundamentals alone but political economy factor play a role. (WB, P-2012, 146)

Sub national expenditures as a percentage of total consolidated government expenditures are estimated to be in range of 3.4%. The comparable figures for Indonesia or South Africa, two unitary countries that developed in the last 15 years or less are 34% and 52% respectively. On the revenue side, less than 2% of total Bangladesh government revenue is collected at sub national levels, placing Bangladesh at the lowest end internally. In addition the strong infrastructural advantages of Dhaka vis-a-vis other cities are indicative of a non-level playing field among Bangladesh's cities. Many cities could benefit from improvement in the business climate (WB-2012, p-146).

5.   City Competitiveness

City Competitiveness is a dynamic concept. It describes a city's comparative advantage in attracting mobile production factors and its ability to leverage these advantages to sustain growth in a fast changing global environment. City Competitiveness depends on innovation, livability and connectivity in a global

economy. Empirical evidence suggests that cities with high innovation levels, a livable and high quality environment and internally and globally connected are more economically successful, as they are attractive location for firms and workers (W.B-2012). Generally cities are concentration of physical attraction and social-cultural facilities. In the age of globalization tourist form an important economic sector for physically and socially attractive cities. Beautiful water fronts, historical sites, echo park, sports facilities, good accommodation, comfortable transport system, industrial parks etc are important for attracting foreign investment and economic growth. Dhaka mega city alone shares more than half of the urban sector's contribution to GDP. This is important in examining the competitiveness of Dhaka.

Dhaka has been identified as the most competitive city in Bangladesh. It is also the administrative, social and cultural centre of the country. The greater Dhaka is relatively affluent compared to other areas of country. The non-farm sectors progress is better in the Dhaka possibly of urbanization and the agglomeration of economic activities. As a result, economic growth is high in Dhaka than in other regions. In a study on competitiveness of the cities in Bangladesh shows that Dhaka, with a total score of 7.31 out the most competitive city in Bangladesh. Chittagong, Sylhet and Comilla have the next-highest scores. 10 cities are not competitive nationally (their index scores are below 5). Chittagong, Sylhet and Comilla are considered 'competitive nationally'. But they have way to go before being able to set up more export-oriented, and internationally competitive, economies (Siddque-2014) in 2012, the Economist Intelligence Unit (EIU) ranked the competitiveness of global cities according to demonstrated ability to attract capital, businesses, talent and visitors. Dhaka scored 27.7, while New York the list with score of 71.4; Tehran scored 27.2 and logos 27.6 Dhaka was Ranked 3rd among 120 cities (Siddque-2014). The half of industrial unites is located in the Dhaka metropolitan area. The next-largest less concentration manufacturing units in the DCR are in Narayanganj, Narsingdi, and Gazipur. Manikganj has the concentration. Within Dhaka district, there is a major concentration of industries in the central city area. These are textile manufacturing units, located primarily in Mirpur and Savar, and along the Airport Road the largest concentrations of micro industries is in Keranijanj, south of the Buriganga river.

Beaqegard (2001) said that globalization of the four decades has been a neo liberal ideology that subordinates the national states to global capitalism discourages extensive welfare provisions and encourage place competition. This forces cites, regions and localities to be more competitive in order to attract investors. It has transportation and communication networks with most of the cities and towns and

with the important places of the country. The past industrial experience, administrative importance and cultural heritage testify significant of its excellent local advantage (Kalam-2010). Dhaka lacks most of the qualities to be a competitive city. Before 1980s city of Dhaka was a beautiful city but after the establishment of garment industries Dhaka started to become an unlivable city. Dhaka is now the most densely populated city where 26000 people live per sq. km which is highest in the world.

Connectivity is the important factor for a city to be competitive. Investment activities or economic activities are attracted to areas with better market access which leads to concentration of production. Market access and urbanization are deeply linked. Market access is a combined function of road networks and quality, travel speeds and population density (World Bank-2009). Dhaka is now a city of most congestion. According to Dhaka Metropolitan Chamber of Commence and Industry traffic congestion cost is about U$ 3 billion per year (in 2010) which is equivalent to almost 3% of GDP of the country, wasted time on the road accounts for about 60% of total cost, as 3.2 million business hours are lost everyday due to congestion followed by environmental cost 11% and business loss of passenger transport and freight 10% (World Bank-2012) Transport cost is an impart consideration for establishing industries for the investors. Due to high congestion cost the garment industries have already been relocated at the pari-urban area of Dhaka city. The garment industries are facing serious challenges for its competitiveness and ability to command global market. Poor physical infrastructure, in educated utility services, lack of trained human resources, poor condition of civil administration and weak governance are responsible for low competition. Dhaka's competitiveness has declined for most indicators since 2009. The reason are the political crisis and hartals, communication, congestion on the city streets, poor service facilities and environment and weak governance scaled down Dhaka's competitiveness.

Dhaka city is the largest hub of the knowledge cluster, (education training and research) in the country. Lack of quality of education is the major barrier in making a knowledge based society (Nazma-2013). Here higher education is expanding without any manpower planning. Degrees are not job oriented and research at all levels is limited. So innovative knowledge is very scarce which vital factor for city competitiveness is. Faster growth of Dhaka city than other cities of the country has created many problems. Problem of environment, health, transportation and communication make the city unlivable. The city has recently been rated as second least live able city (with ranking 139 out of 140 cities. The number of garment industries in the country is 4500 of which 80% are located in

Dhaka mega city consisting of 2.5 million of workers. The garment workers are paid only Tk. 5300 per month which is extremely low to maintain workers family expenses. They are compelled to lead inhuman life in the slums and they work in risky and unhealthy environment in the factories. Foreign buyers arise the question of workers safety and living standard of the garment workers and they are unwilling to purchase our RMG products. USA still does not with draw embargo on GSP facilities. The garment industries are facing the competition from other RMG exporting countries. Bangladesh is not in a good position to attract FDI. Investment climate in Bangladesh is unfavorable. National investment is in a stagnant position for several years. The doing business published in the World Bank & IFC ranked Bangladesh 173 in the Ease of doing business, global ranking 189 economics, which was only 65 in 2006 out of 155 countries. Bangladesh was ranked 43 in terms of protecting investors and in stating business rank was 115. The process of land registration requires 245 days which is 44 days in India, 22 days in Indonesia and only 2 days in Thailand (BER-2015). Unavailability of serviced land is a prominent investment hurdle (World Bank-2012). Dhaka is located in flood plain and surrounded by rivers. So developable land is very limited. There are 250 real estate companies in Dhaka. Competition among the developers, price of land rises. The land price of Dhaka is comparable to London and New York. Due to excessive land price and higher level of house rent poor are forced to live in slums. There are 9048 slums in urban areas of Bangladesh of which 4966 that is 52 percent is located in Dhaka city alone where 693883 households live in 40% of the population of the city live in the slums (CUS-2005). In the slums 15000-20000 people live per sq. acres. Over and above there are 2-3 lac floating people in Dhaka city. About 40 percent of Dhaka's population lives in slums where they lead an inhuman life. Utility services become very much inadequate and transport system has been mismatched.

Once Dhaka was famous for a beautiful city with abundant of natural beauties. Now it becomes a Hell grey and unhealthy place full of CFC and hue and cry of crowded people. Only 22% household have sewerage connection and only 20% area of the city is under sewerage system. Most of the slums dwellers have no sewerage connection and the rest use unhygienic toilets. The floating people use drain as latrines. The majority of slum dwellers have no access to dustbins. Water logging is a common feature during rainy season due to faulty drainage system. Half of the wastes are collected by City Corporation and remaining half remains scattered around the dustbins. All these factors contribute to pollute the natural environment of Dhaka city. Dhaka now becomes a unlivable city. Foreign investors are discouraged to invest in the dirty city.

6. Benefit and cost of urban concentration

Urbanization is a road to modernization, comprises such development as urbanization. In the modern world industrialization is the heart of development. Industrialization and urbanization interact with each other. Urbanization plays a vital role to change multidimensional structural transformation that attracts low income rural societies in the cities undergo modernization.

Presence of economics of scale and scope that arise in early stages of development creates increasing returns with benefit for growth and productivity. "Production benefits from being located in densely populated urban areas that provide a skilled worker, a network of complementary firms that provide backward and forward linkage for supply chains, opportunities for knowledge flows and a critical mass of consumers" (World Bank-2012). At a certain paint of urbanization cost in the form of congestion, transport and utility services tend to dominate and decreasing returns to scale set in resulting in lower GDP growth.

The level of income and urbanization in Dhaka, Henderson's estimates suggest an optimal primacy rate of around 21% for Dhaka, whereas it is about 32% this implies a loss of at least 2% in annual GDP growth. Dhaka relative to its level of governance and infrastructure has serious growth cost for the nation as a whole. Excessive urban concentration in the absence of concomitant improvement, urban management and infrastructure carries associated economic cost in the from of congestion and pollution. Such cost is indent in Dhaka. Land becomes scarce and costlier. Traffic congestion has increased commute times. Citizens of Dhaka are very much dissatisfied in enjoying utility services due to heavy pressure of over population or supply constraints.

There are many opinions regarding negative aspects of urbanization. Thomas Jefferson wrote: "I view great cities as pestilential to the morals, the health and the liberties of man." Peterson said that cities nourish some of the elegant arts but useful ones thrive elsewhere. Bert Hoselitz wrote of parasitic cities and their ill effects in developing countries. "PB Shelley wrote "Hell is cities much like London". It is astonishing that though city life is full of hazards, most of the people like to live in cities and towns. It seems to me that every citizen of Bangladesh has a dream to have a house in Dhaka.

Urban Planning and Ethical value

In Bangladesh there is no room for ethical judgment in urban planning process. The process of urbanization in Bangladesh is very rapid and with the rapid urbanization in Dhaka Mega City the natural environment has been seriously

hampered. Water, air and soil have been polluted seriously. Due to excessive population and inadequate roads and lack of open space the city becomes unlivable. The rich enjoys all the modern immunities of like but majority of the population compelled to lead a miserable inhuman life. More than one third of the population lives in slums, the slums dwellers are deprived of basic human needs. Most of the citizen of Dhaka city has no access to pure drinking water which is very much essential for human existence. The roads and streets are under the control of the rich families, possessing private cars. Due to unplanned housing and Roads, the general people have no right to use roads and streets and even they have no right to cross the roads safely. Even they are unable to walk in the footpath due to improper use of footpaths.

7.   Conclusion

The process of economic development and pattern of urbanization are linked with the changing long term structure of the economy. The Bangladesh economy has been undergoing a remarkable change. The economy is also gradually being integrated with the world market through the process of globalization. Bangladesh has a great prospect to develop through a process of urbanization in near future if a congenial investment climate, good governance, can be ensured. Urbanization is a world wide inevitable phenomenon. During the last century world urban population increased remarkably. In 1900, 15% of the World population lived in cities and now it is estimated that above 50% of the world people lives in cities. Urbanization is an inevitable force and it is unavoidable as Arthur Lewis expressed concerns about the cost of urbanization but saw it as unavoidable. According to him, urbanization would not be inevitable if we could spread industry around the country side instead of concentrating it in towns, but it is easy to say but very hard to do. In these days of urbanization managing urbanization is an important part of nurturing growth. So government should take proper steps to mange cities and towns. Road networks should be created in such a manner so that all cities and towns can avail equal opportunities to access market. Proper steps should be taken to make Dhaka free from traffic congestion. Utility services should expand with proper and careful planning to make the city livable. The decentralization of administration, decentralization or relocation of factories and shifting of universities from main Dhaka City to peri urban areas are very urgent to make Dhaka a livable city.

City corporations and Pouroshavas suffer from fund constraints. City Corporation's source of income is holding tax. To increase income there is a provision that tax base scheduled for revaluation every five years. This is not done

in Dhaka City Corporation for many years. It creates disparity among the tax payers. Old tax payers pay much less than new tax payers. It is reported in a World bank report that in 2001, DCC collected holding tax from only 1,80,000 house holds out of 1.1 million holdings in its Jurisdictions (World Bank-2009). Large number of households do not pay holding tax. City corporations require more income and dominating power over the service provider organizations.

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Health and food security nexus: Evidence from Vulnerable rural households in Bangladesh

G M MONIRUL ALAM[*]

Abstract: *Health and wellbeing is a crucial enabler for efficient farm and non-farm activities and determines individuals' and households' ability to achieve their livelihood objectives. Health status of household heads (earning member) critically affects household food security, which has important policy implications. This study examines the determinants of household food security. It also focuses on the impact of household head (earning member) physical health status on attaining food security by using the survey data of 380 most vulnerable riparian households in Bangladesh. The results reveal that riverine households' lack of access to many basic necessities and services such as food, safe drinking water, education and health results in increased vulnerability to food insecurity which could lead to an unfortunate vicious cycle of poverty. Model results indicate that household heads' education, household size, adoption of livestock and access to non-farm earnings also affect food security. Importantly, evidence suggests that access to improved health care also needs policy support in parallel with improved access to food to achieve and sustain long-term food security in Bangladesh.*

Keywords: Bangladesh, vulnerable household, physical health, food security, policy options.

1. Introduction

This is a significant challenge for policy makers in developing countries such as Bangladesh to improve the health conditions of rural households by ensuring access to food and health care. If farming households become sick, which is

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[*] School of Commerce, Faculty of Business, Education, Law & Arts, University of Southern Queensland, Australia and Bangabandhu Sheikh Mujibur Rahman Agricultural University, Bangladesh.-mail: g.m.monirul.alam@usq.edu.au; gmmonirul79@gmail.com

primarily caused by inadequate calorie intake and a lack of access to health services, they will be unable to perform farm and non-farm jobs which in turn makes them more vulnerable and a burden to their family and society (Alam et al. 2016). The question is whether the government will be able to bring all of those inactive people into the social safety net programs to achieve its food security challenge. The answer would definitely be negative due to the nature of the economy, which is characterized as poor (a developing country) and is confronted with various other problems such as natural disasters, climate change issues, high population growth and poverty (WB, 2015; WHO, 2013; GoB, 2011).

Bangladesh has achieved marked improvements in food production and the incidence of poverty since the country's independence in 1971. The rate of poverty decreased from 62% in 1988 to 35% in 2011 (BBS, 2012), and the population growth rate has decreased from 2.4 in 1970 to 1.47 in 2011 (BBS, 2012). Production of rice, the main staple food, has more than tripled from 16 million tons in 1970 to more than 50 million tons in 2010 (FAO, 2012). Despite these successes, the country is regarded as one of the seven countries[1] housing some of the two-thirds of the world's 906 million undernourished people (FAO, 2011). A report by USDA (2010) indicated that of the 165 million people in Bangladesh, 33 million were registered as food insecure in 2010, and this is projected to be 37 million by 2020.

In Bangladesh, a growing concern among policymakers is that certain groups within the country do not have access to the quantity of food required for an active and healthy life (GoB, 2011). Particularly the households in the riverine areas (see section 2.1) have limited access to food and other basic needs such as health facilities (WHO, 2013; IFAD, 2013; GoB, 2010). Scholars suggested that food insecurity has negative consequences for people's health, productivity and wellbeing, which can worsen the poverty situation (Harrigan, 2008; Chavas et al., 2005). Consuming less than the daily calorie requirement increases people's vulnerability to sickness and infectious diseases, which results in missed work, hence missed wages (Rice et al., 1985). Scholars have also pointed out that a lower consumption of calories can be a key risk factor for many chronic diseases of later life (Wichstrom et al., 2013; Telema et al., 2005). On the other hand, if the household head has ill health, this household is more likely to be food insecure

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[1.] In 2010, about 925 million people globally were undernourished, of which 906 million (98%) resided in developing countries. Two-thirds of these live in just seven countries, namely, Bangladesh, China, Democratic Republic of Congo, Ethiopia, India, Indonesia and Pakistan (FAO, 2011).

(Bernell et al., 2006). The reason behind this is that health status has an effect on labour supply and productivity, farm output and earnings (Fisher and Lewin, 2013; Alam and Mahal, 2012; Chavas et al., 2005). Stiglitz (1976) argued that the likelihood of obtaining a job and a fair wage rate depends on the job seeker's health condition. Poor health prevents households from participating in farm and non-farm jobs. This issue has particularly important for the rural households who depend on wage earnings and other non-farm activities for their livelihoods as in the case of this study.

Numerous researches in the past have been emphasized on the access to food to attain food security in Bangladesh (for instance, Mishra et al., 2015; Rich et al., 2015; Ahmed et al., 2012; Dorosh and Rashid, 2010; Faridi and Wadood, 2010; Shahabuddin, 2010; Hossain, 2010; Talukder, 2005; among many). The issue of household earning member's physical health status to attain household food security has received relatively less attention. Vulnerable reverine households have been experiencing less access to food due to loss of productive land coupled with their poor health condition making the challenge of attaining food security more worsen. Therefore, this study explores the new dimension of how household heads' (earning member) physical health status impacts on vulnerable rural households' food security. The research questions posed to investigate are: (i) What is the livelihood status of the riverine households of Bangladesh?, (ii) What factors influence household food security, and how does household heads' physical health status affect food security? and (iii) What are the policy options to improve the food security of these hazard-prone vulnerable rural households in Bangladesh?

The remainder of this paper is organized as follows: Section 2 presents descriptions of the study area and data collection procedures, followed by an empirical model for analysis; results and discussions are presented in Section 3; and Section 4 provides conclusions and policy recommendations.

2. Methodology

2.1 Description of the study area

This study employed a multistage sampling technique to collect data from vulnerable riverbank erosion prone rural households. In Bangladesh, 20 districts out of 64 are prone to riverbank erosion (GoB, 2010); another study asserted that some parts of 50 districts of Bangladesh are subject to riverbank erosion (Elahi et al., 1991). A loss of productive land and other resources on which agricultural practices depend is a common phenomenon in the riverine areas – it causes land

loss of about 8,700 ha and displaces approximately 200,000 people annually along the estimated 150,000 km of riverbanks in the country (CEGIS, 2012; GoB, 2010). These hazard-prone, resource-poor households are among the poorest of the poor and are the most vulnerable to food insecurity and poverty (IFAD, 2013; GoB, 2010).

Resource-poor households in the riverine areas are more prone to the impacts of frequent floods and water logging due to their proximity to the river, which also increases their vulnerability. Due to recurring riverbank erosion, large numbers of households have lost their land and homesteads, resulting in a decrease in access to food, safe drinking water, electricity, education, health services, financial institutions and farm and non-farm job opportunities (Alam 2016). Therefore, riverbank erosion-affected districts, Upazilas[2] and affected riverine villages were selected purposively based on the degree of severity of erosion evident through a review of the literature, newspaper reports and consultations with experts. Respondents were then selected randomly within each village. For the field survey, the Chauhali Upazila of the Sirajgonj district and the Nagarpur Upazila of the Tangail district were selected (see Figure 1), which represent the most vulnerable riparian environments in Bangladesh. The area is about 200 km north of Dhaka, the capital of Bangladesh. The Jamuna river[3], which is reported to cause erosion of around 2,000 ha per year (CEGIS, 2012), crosses the study area. Data were collected from six riverine villages, namely, Kash Pukuria, Moradpur, Kairat, Datpur, Kashkawalia and Atapara.

2.2   Sampling, questionnaire and data collection

A complete list of affected riverine households in the study area was obtained from the Department of Agricultural Extension (DAE). The unit of analysis was rural households[4], and for data collection, the household head (either male or female) was the survey participant. From each village, 15% of household heads were interviewed, which gave a sample size of 380 for the study. For a cross-sectional household survey, 5% of the population is considered to be adequate

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[2.] Lower administrative unit of the Government below district level but above village level.

[3.] Bangladesh is composed of the floodplains and deltas of three main rivers, the Padma (Ganges in India), the Jamuna and the Meghna (Brahmaputra in India). These rivers and their tributaries are prone to continuous erosion.

[4.] A household (economic agent) is a domestic unit with autonomous decision-making regarding production and consumption (Ellis, 1988). Household heads have the power to exercise decision-making over their household's resources.
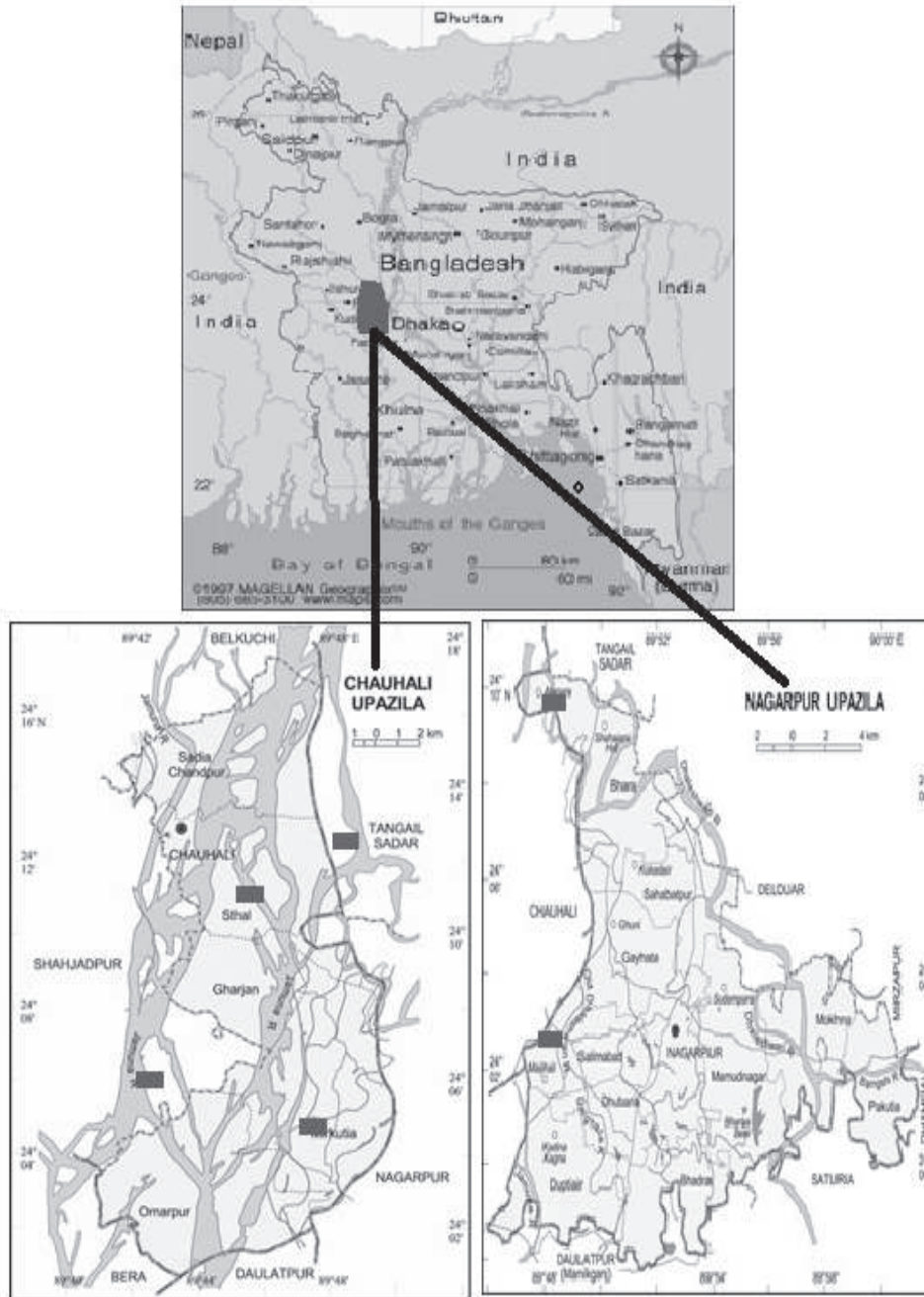
Figure 1: The study area: the Nagarpur and Chauhali Upazilas

(Bartlett et al., 2001); notably, a sample size of 350 is considered the optimal size for a structured interview in quantitative research (Perry, 1998). To ensure randomness in the sampling, a computer-generated random number table was applied to the list to select the households surveyed in this study.

The study developed a structured survey questionnaire to collect data using face-to-face interviews between January and May 2014. The survey questionnaire was pilot-tested with 20 respondents to ensure the adequacy of the information obtained and avoid ambiguity of questions. Questions included in the survey questionnaire sought information on socio-demographic characteristics of households such as age, education, income and expenditure patterns; land holdings; and access to social amenities. Food consumption data were collected at the household level through questions regarding the quantity of different food items (approximately 35 items) consumed over the last three days[5] along with their unit price and sources (home supplied and/or purchased). Several issues were taken into consideration to estimate household calorie supply and demand:

Food supply at the household level was determined by both household supply and purchase. It was converted into calories using the Food Conversion Table of the FAO[6] to measure the available calories for each household.

- Available calories were converted into adult equivalent (AE) ratios, and the values were then comparable across households of different sizes. Household family members and guests were either included or excluded in the calculation of the AE, depending on their presence or absence during the recall period. Household members under the age of six were considered as children, and two children were considered as one adult member in this study (Alam et al., 2010; Omotesho et al., 2006).

- Then, 2,122 kcal per person per day (GoB, 2000) was set as the desirable calorie requirement (demand) to enable an adult to live a healthy and moderately active life (food secure).

- Finally, the difference between calories available and calories demanded by a household was used to determine the food security status of each household. If a household's per capita calories were found to be greater than their demand, they were considered food secure and assigned a score of 1.

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[5]. The accuracy of food consumption data diminishes with the length of the recall period (Bouis, 1994). Hence, we used a three-day recall method, which is common in the literature (Alam, 2010; Reddy, 1997).

[6]. Shaheen et al. (2013) prepared a report on 'Food Composition Table for Bangladesh' under NFPCSP.

On the other hand, those households experiencing a calorie deficit were regarded as food insecure and assigned a score of 0.

2.3   Empirical model

Calories intake is often used as a proxy for all nutritional requirements for health, although there may be serious deficiencies in other nutrients required for health (Aromolaran, 2010). Scholars argued that when calories intake is satisfactory other needs are usually satisfied (Maxwell and Smith 2006; Heald and Lipton 1984). This study applied the calorie intake method to determine household food security (Rahman et al., 2012; Alam et al., 2010; Aromolaran, 2010; Bashir et al. 2010; Kazal et al., 2010; Sindhu et al. 2008; Fleke et al., 2005). To compute the availability of calories (), the Food Calorie Conversion Table was used. A household is considered to be food secure (*) if the difference between calorie consumption and recommended daily calorie needs (is greater than or equal to 0.

Where *= *≥0 indicates that the household is 'food secure', and *<0 indicates the household is 'food insecure'. Assuming a liner function, household food security status can be written as:

$$C_i = \sum_{j=1}^{k} \beta_j X_{ij} + \varepsilon_i \quad \text{................................(i)}$$

where are explanatory variables and is the error term, which is assumed to be uncorrelated with the explanatory variables. The observed variable is food security, where =1 when *≥0 and =0 when *<0 for i^{th} household. Since the observed dependent variable is binary/discrete in nature, the food security model can be framed as a response model (logit or probit) of qualitative variables, where is the probability of food security specified as:

$$Q_i = \text{Prob } (Z_i = 1) = \text{Prob } \left(\sum_{j=1}^{k} \beta_j X_{ij} + \varepsilon_i > 0 \right) \quad \text{................(ii)}$$

Now, the logistic regression can be applied to this model because it directly estimates the probability of an event occurring for more than one independent variable, that is, for k independent variables (Hailu and Nigatu, 2007; Fleke et al., 2005; Demaris, 1992). The logistic regression model of food security can be written as:

$$Ln \left(\frac{Q_i}{1-Q_i} \right) = \beta_0 + \sum_{j=1}^{k} \beta_j X_{ij} + \varepsilon_i \quad \text{.........................(iii)}$$

where is the conditional probability of food security, 's are parameters to be estimated, and 's are the explanatory variables.

In Equation (iii), the dependent variable – food security – is in log odds; the result

of the logistic regression can be interpreted in terms of conditional probabilities instead of log odds or odds using:

$$\varnothing_i = \frac{e^{\left(\beta_o + \sum_{i=1}^{n} \beta_i X_{ij}\right)}}{1 + e^{\left(\beta_o + \sum_{i=1}^{n} \beta_i X_{ij}\right)}} \text{ .... (iv)}$$

However, the estimated parameters only show the direction of the impact of the explanatory variables on the dependent variable and do not provide the extent of change or probabilities. Marginal effects (MEs), on the other hand, measure the impact on the probability of observing each of several outcomes rather than the impact on a single conditional mean and are more meaningful and interpretable (Cameron and Trivedi, 2009; Long, 1997). Therefore, we presented the results of marginal effects in the model after testing the stability and robustness of the results.

2.4   Specification of the variables

The selection of variables was based on a review of the literature and field experience. We assumed household food security to be a function of a household's socio-economic status and farming situation, such as age, gender and educational attainment of the household head, size[7] of the household, adoption of livestock, and access to the market and a safety net program. We also included cultivated land size[7] and access to non-farm income as a proxy for household income. Due to limited agricultural land, a large number of households depend on wage earnings or other non-farm income to maintain their livelihoods. Therefore, we also included household heads' self-rated physical health status (Kawachi, 1999) in the model as a dummy, since it has an influence on access to farm and non-farm jobs, where 1 represents good health and 0 represents poor health. To obtain the score, several techniques were adopted to minimise self-reported bias since health status is an unobserved or latent variable. For example, instead of asking about a respondent's health status directly, we asked whether they are fit for farm and non-farm work regularly throughout the year. The answers were then checked with how many days they were absent from their work due to sickness/illness. If it was less than one week[8] then the score is 1, and 0 otherwise. A detailed description of these variables and the summary statistics are presented in Table 1.

[7.]   This study considered cultivated land size instead of farm size, because many households have a large farm but practically most of the land is in the grip of the river and is not suitable for cultivation.

[8.]   Based on our consultation with local physicians, one week absence rom work was considered normal. Diseases such as fever, cough, skin infections and diarrhea are common in the area.

Table 1: Summary statistics and description of model variables

Explanatory variables	Description	Mean	Std.	Expected sign
Age of household head	Years (Continuous)	45.12	14.43	+/–
Gender of household head	Dummy, 1 = male, 0 otherwise	0.95	0.22	+
Education of household head	Years of schooling (continuous)	3.17	4.63	+
Household size	Number (continuous)	5.21	3.35	–/+
Cultivated land size	Decimal (continuous)	0.56	0.88	+
Adoption of livestock	Dummy, = 1 if households have livestock; 0 otherwise	0.84	0.36	+
Access to non-farm income	Dummy, = 1 if households have access; 0 otherwise	0.63	0.31	+
Access to safety net	Dummy, = 1 if households have received; 0 otherwise	0.04	0.20	+
Household head physical health condition	Dummy, = 1 for good health and 0 for poor health	0.57	0.49	+
Household food security	Dummy, 1= secure, 0= insecure	2048	975	

2.5   Econometric consideration

The issues of multicollinearity, heteroscedasticity and the effect of outliers in the variables –which are the inherent characteristics of cross-sectional survey data – were taken care of. Before proceeding with model estimation, we attempted to identify multicollinearity and the correlation matrix with all the explanatory variables after running an ordinary least square (OLS) regression. The correlations were found to be relatively low – below 0.43 in all cases; typically, correlation coefficients of 0.7 or higher are considered high (Kennedy, 1998). Thus, correlation problems between explanatory variables could be ruled out. In order to explore potential multicollinearity, which can lead to imprecise parameter estimates (Gujarati, 2003), we calculated the Variance Inflation Factor (VIF) for each of the explanatory variables. The VIFs range from 1.17 to 1.71, which does not reach the conventional threshold of 10 or higher used in regression diagnosis (Maddala, 1992). The Breusch-Pagan/Cook-Weisberg test confirmed that the model has no heteroscedasticity problem (the null hypothesis of homoscedasticity is accepted, Chi-square 13; p>0.131). The Ramsey-RESET test was also performed in order to test the accuracy of the models. The result rejects the null

hypothesis of incorrect functional form, which indicates that relevant variables have not been omitted. In order to be sure that household health status is exogenous, we employed the Hausman endogeneity test to verify that the error term is uncorrelated with household heads' health status. The test result rejects the null hypothesis that household heads' health status is endogenous (F (1, 23); p>0.110).

3.   Results and discussions

The results of the study are presented in two phases: households' livelihood conditions and the econometric results for the determinants of household food security.

3.1   Livelihood conditions

A better understanding of the overall livelihood status of the households can provide information about potential policy interventions and thus make pathways towards improving households' livelihoods and food security. The status of households' socio-economic and livelihood conditions are summarized below:

- All the riverine households have experienced loss of some of their land due to erosion. The study revealed that 39% of households had lost their homestead more than three times and 55% at least once, during the past 10 years.

- More than 93% of households reported a loss of employment opportunities and income from agriculture, caused by erosion. Due to loss of many market places and inadequate road and transport facilities, residents have to travel to distant places to sell their products. Moreover, traders are not able to come to local markets, which reduce their chance of obtaining a fair price for their products.

- Regarding education level of household heads, about 29% of respondents had no education, and the average years of schooling were below primary level (3.17 years). In addition, 17% of households did not send their children to school due to lack of educational facilities (distance to nearest school is more than 2 km and the road network is also inadequate). Respondents reported that they had lost 15 educational institutions, seven religious institutions and many roads and marketplaces during the past 10 years as a result of the erosion.

- The average family size of 5.21 is relatively large compared to the national average of 5.0 (BBS, 2012). More than 46% of households had six

members or more, and more than 56% of households did not adopt contraceptive measures.

- Regarding hygiene issues, more than 21% of households were without sanitary latrine facilities and 47% had no safe drinking water; many of them have tube-well facilities but with arsenic contamination. The distance to the next safe drinking water source is more than 1 km.

- Households were also found to be deprived of many standard government services. About 46% of households were without any electricity; availability of health facilities was also limited. Riverbank erosion destroyed the only public hospital in the Chauhali Upazila in 2015. They now had to travel a longer distance (more than 5 km) to reach the nearest health and veterinary centre, including the public hospital which is supposed to provide free health care. In addition, many households still use their traditional systems to recover from sickness rather than visiting doctors, due to their inability to bear the associated cost. Regarding the issue of health, around 63% of household heads fall into the category of poor health condition; this limits their opportunities to find a job in the farm and non-farm sectors.

- In the case of land holdings, 32% of households in the study area were landless (land <0.5 acres). The average land holding is 0.56 acres (small farm size is a common feature in Bangladesh; as per WB (2015), arable land is 0.123 acres/person).

- Moreover, the existence of government, NGOs and formal financial institutions' activities in the area was reported as inadequate. About 69% of households reported they had no access to government financial institutions and 64% had no access to NGOs from whom they can get credit. This is mainly due to the households' poor economic conditions where the financial institutions' possibility of recovering their credit is somewhat uncertain; riverine households' addresses often change due to changes in homestead position as a result of erosion.

- Due to poor socio-economic conditions and inadequate road transportation facilities, their social networks – the key to social capital – were also found to be limited. About 67% of households have had no contact with the extension service providers from whom they can get advice related to agriculture and rural development. They also had less farmer-to-farmer contacts (43%) and less involvement with different organisations from which they can receive information and assistance.

- Moreover, most of the female-headed households (83%) in the study area were widowed or divorced[9]. They are vulnerable in all aspects of livelihood characteristics in rural Bangladesh (Mallick and Rafi, 2010). Field experience suggested that their opportunities to work in farming and non-farming activities are limited and they are still not well accepted in society, inferring gender inequalities in the labour market. This contributes to increasing the vulnerability of female-headed households to food insecurity.

3.2   Status of household food security and expenditure

Regarding household food security, more than half (56%) of the households within the study area fall into the food insecure category, with an average per capita calorie consumption of 1,867 kcal/day, which is about 12% less than the standard minimum daily requirement. However, food-secure households exceed the minimum calorie requirement by 5% (2,229 kcal/day). This shortfall of 12% substantially understates the energy deficiency of the poor. The standard deviation of the calorie demand variable is fairly high, which indicates a wide range of variability across sample.

Furthermore, about 71% of the households' total expenditure is on food items and the rest is on non-food items including farming and livestock (15%) and house building and/or repairing (6%) (Table 2). Expenditure on health care is of lower priority – the households spend less than 2% of their earnings on this, mainly due to their low income and the unavailability of health service facilities in the area. Their low income prevents them from cutting back their minimum consumption requirements to pay for health care services. After fulfilling their consumption demand, their target is to invest in farming and house building and/or repairing.

The total market purchase value of food consumed at home stands at 75%; this indicates the vulnerability of the households to price shocks. It is reported that the lower the share of household expenditure on food, the easier it is for households to cope with price increases and shocks (Economist, 2015). In Bangladesh, it is reported that price increases have disproportionate short-term effects on the rural poor (Akter and Basher, 2014). In the case of food expenditure, households spend about 82% on rice/wheat, the main source of carbohydrate. Therefore, it is crucial from a policy perspective to keep the price of rice/wheat reasonable so that poor

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[9]. This area has one of the highest rural-urban migrations in Bangladesh. Many of the husbands who migrate to major cities as their seasonal coping mechanisms to find a job do not return to their families, leading to a high rate of divorce. We used STATA 12 to estimate our model.

Table 2: Household expenditure

Expenditure	Percentage	Food expenditure	Percentage
Food	71	Rice/wheat	82
Farming and livestock	15	Fish and meat	3
Children education and clothing	6	Egg and milk	1
Health care	>2	Pulse, species and oil	9
House building/repairing	6	Vegetables and fruits	5
Total	100	Total	100

people can afford it. Increasing the adoption of livestock and poultry by the resource-poor households would not only supplement their income but also provide eggs, milk and meat for their consumption.

3.3   Econometric results

The results of the regression analysis (logit)[10] are presented in Table 3. To test the stability and robustness of the results, we estimated four alternative specifications of the model. In the first model we included core variables and subsequently added other relevant variables in models 2 to 4. In model 3, the non-significant variables were dropped, which did not increase the coefficients and significance level of the remaining variables substantially. Goodness of fit of the models (given by McFadden Pseudo R^2) does not increase substantially from models 1 to 4 and indicates a reasonable explanatory power of the model (Table 3). The last specification (model 4) represents all variables and shows the best model fit in terms of the expected sign and significance level. The likelihood ratio statistics (Chi-square of 242.137) indicate the strong explanatory power of the model. In other words, it rejects the joint null hypothesis that all coefficients of independent variables in the model are 0 (p<0.00). The signs and degree of statistical significance of the variables do not change substantially across the different estimates; hence, the estimated results are stable and robust (see discussions below of the results of marginal effects of model 4):

Educational attainment

Education is often used as an indicator of human capital (Alam et al., 2016; Lutz et al., 2008; Goujon and Lutz, 2004). Results of marginal effects of model 4 yielded, as expected, a significant positive relationship between household heads' educational

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[10.]   We used STATA 12 to estimate our model.

Table 3: Regression results for the likelihood determinants of food security

Variables	Maximum likelihood estimates (coefficient)				Marginal effect of model 4	
	Model 1	Model 2	Model 3	Model 4	Coeff.	Std. error
Age of household head (years)	−0.217** (0.103)	−0.215** (0.102)	−0.211** (0.098)	−0.213** (0.101)	−0.091*	0.048
Gender of household head (dummy)		0.101 (1.402)		0.105 (1.027)	0.071	0.874
Household size (AE)	1.316*** (0.470)	1.312*** (0.463)	1.317*** (0.468)	−1.310*** (0.461)	−1.041***	0.379
Education of household head (years)	1.725*** (0.572)	1.723*** (0.570)	1.728*** (0.575)	1.721*** (0.569)	1.134***	0.402
Cultivated land size (decimal)	1.197*** (0.411)		1.216*** (0.407)	1.192*** (0.402)	1.082***	0.371
Access to non-farm income (dummy)	1.151*** (0.413)	1.148*** (0.411)	1.153** (0.415)	1.150*** (0.410)	1.013***	0.375
Livestock ownership (dummy)		1.165*** (0.410)	1.167*** (0.413)	1.163*** (0.431)	1.087**	0.513
Access to safety net (dummy)		0.139 (0.345)		0.102 (0.647)	0.074	0.023
Access to market (dummy)		0.023 (0.109)		0.016 (0.103)	0.010	0.093
Household heads' physical health condition (dummy)	1.210*** (0.371)		1.237*** (0.376)	1.211*** (0.349)	1.110***	0.391
Constant	10.587***	11.451***	11.461***	11.563***		
Prob $> \chi^2$	0.000	0.000	0.000	0.000	0.000	
Goodness of fit (Pseudo R^2)	0.721	0.727	0.729	0.730		
Log likelihood	−80.129	−81.514	−81.461	−81.921		
LR (chi-square)	237.07	241.142	241.512	242.137		
Degrees of freedom	06	08	07	10		
Number of observations	380	380	380	380		

Note: Dependent variable: Food security. ***p<0.001; **p<0.05 and *p<0.10.

attainment and food security (1.134; p<0.001). Past research also yielded the same results (Anik, 2013; Alam, 2010). It is expected that household heads with more education have greater access to non-farm jobs and the capacity to adopt better adaptation strategies in their farming, which in turn increases their production and contributes to food security for these households. It is reported that household heads' education level is associated with the adoption of modern agricultural technology, fertilizer and better agronomic management, which is key to offsetting the negative effects of a changing climate (Gebrehiwot and van der Veen, 2013; Deressa et al., 2009; Lin, 1991). The marginal effect of education implies that a one unit (year) increase in a participant's level of education will increase the probability of household food security by 1.134, while the effect on the remaining options is negligible. The same interpretation holds true for other variables.

Age of household head

We found a negative association between household head's age and food security (-0.091; p<0.10). Similar results were also found in past research (Balagtas et al., 2014; Mannaf and Uddin, 2012). These results are mainly due to household heads' inability to do relatively hard work in the farm and non-farm sectors as their age increases. In the study area, most of the farmers, particularly small and landless farmers, migrate for a few months to improve their livelihoods and food security, due to the limited opportunities for both farming and non-farming activities during the rainy seasons. However, it is less likely that an older household head will undertake this type of migration, which increases their vulnerability to food insecurity.

Household size

This study found an inverse relationship between family size and food security (–1.041; p<0.001). This result is consistent with previous findings (Feleke et al., 2005; Bashir et al., 2010). Households with more family members tend to have lower food security; however, households endowed with more earning members are more likely to be food secure. In this study, large families mainly include members who are not able to earn an income, such as children and aged people. Many of the younger people earning an income were found to be separated from their family. There is a higher number of children in the households who had a lower education level and did not adopt contraceptive methods. Despite tremendous progress in reducing population growth in Bangladesh, this finding indicates the need for a more significant role for family planning activities of government and NGOs among these vulnerable communities.

Cultivated land size

Access to land – the most important natural resource – is considered the key determinant of the livelihood strategies of the rural poor. Rural households' incomes are mainly derived from the land. While 32% of households in the study area are landless, this study found a significant positive relationship between cultivated land size and food security (1.082; p<0.001). In Bangladesh, a positive relationship between farm size and household food security is well registered (Faridi and Wadood, 2010; Kazal et al., 2010). However, the irony of this fact is that riverine households' experience loss of some of their land every year. Policy intervention is required for the emerging *char* land[11], which was previously fallow due to lack of suitable crop varieties for such land. Scientists need to respond by developing and improving crop varieties and production technologies suitable for the *char* lands in the riverbank erosion-affected areas.

Livestock ownership

This study found that livestock adoption has a significant positive impact on household food security (1.087; p<0.05); this result is in line with the findings of Rahman and Poza (2010) and Amaza et al. (2006). Livestock is an important source of supplementary family income. It is indeed encouraging that households in the area are beginning to adopt mixed farming activities to be more resilient and risk-averse to natural hazards. However, many farm households were found to use animal power for agricultural purposes including cultivation of land. This indicates their backwardness as well as inability and reluctance to adopt modern agricultural practices.

Access to non-farm income

Access to non-farm income offers an important pathway towards addressing food insecurity and represents income diversification opportunities of households. Results of marginal effects of model 4 indicate a significant positive association between non-farm earnings and food security (1.013; p<0.001). Access to rural non-farm income is well documented to be an important factor in food security (Murungweni et al., 2014; Reardon, 1997); however, all households do not have equal access to non-farm income. It is reported that the poor and uneducated households, and others lacking social ties, rarely enjoy access to remunerative

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[11.] *Char* land (sandbars/sand and silt landmasses) have emerged as islands within the river channel or attached land to the riverbanks. The *char* area covers about 5% of the total land area of the country and accommodates about 6.5 million people (5% of the total population) (EGIS, 2000).

opportunities in non-farm earnings (Barrett et al., 2010). Public services such as education and credit facilities, and communication and transport infrastructure, are crucial to enable participation in non-farm activities, and these were found to be inadequate in the study area. Households' limited access to institutional facilities, coupled with limited agricultural activities due to land loss, serve as substantial barriers to participation in non-farm activities.

Household heads' physical health condition

We found a significant positive impact of household heads' health status on household food security (1.110; $p < 0.001$). The marginal effect suggests that household heads' good health would result in an improvement in the likelihood of household food security by 0.822. It is reported elsewhere that if the household head has ill health, this household is more likely to be food insecure (Fisher and Lewin, 2013; Bernell et al., 2006). Households, particularly small and wage labour have reported that due to poor health condition they were missed out work for several occasions. They were even not able to go to distance places to do work especially during the rainy seasons when the scopes of employment become limited in the area which resulted in increased food insecurity. Scholars have pointed out a range of negative health outcomes due to food insecurity, including lower calorie consumption, iron deficiency anemia, obesity, and poor physical and mental health (Carter et al., 2010; Stuff et al., 2004; Vozoris and Tarasuk, 2003; Che and Chen, 2001). Therefore, it can be said that if the observed food insecurity situation (low calorie intake) is prolonged, the households will lose their productive capacity and thus fall victim to food insecurity, leading to increased vulnerability to poverty. In other words, this food insecurity and low affordability of medicines makes poor household members prone to disease that could lead to an unfortunate vicious cycle of poverty shown in Figure 2.
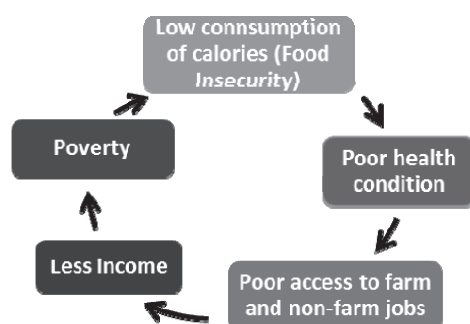
Figure 2: A vicious circle of food insecurity and poverty

Poor health conditions limit the poor household access to farm and non-farm jobs, and further reduces the income-generating competencies. This is ultimately leading to forming a vicious circle of poverty and malnutrition. This issue will in turn be the main hurdle to achieving long-term food security challenge in Bangladesh unless appropriate policies are put in place.

Access to safety net

It is important to note that previous research, for example, Kazal et al. (2010), indicates the effectiveness of safety net programs on household food security. Our estimates, however, show a positive but insignificant relationship, even at the 10% level of significance (marginal effects of model 4). This statistical insignificance may be due to the small number of households (4%) included in the safety net program. This may have important policy implications for household food security, which underpins the coverage of the safety net program in the study area. Contrary to this, Ahmed et al. (2012) argued that access to microfinance is more effective than safety net programs in helping poor households cope with the shocks. Households in the erosion-prone areas, however, reported having limited access to financial institutions, and this needs appropriate attention.

4.   Conclusions and policy recommendations

Bangladesh is one of the most densely populated countries in the world and is confronted with many challenges, including climate change issues, attainment of food security and eradication of poverty. This study goes beyond simply examining the determinants of household food security for most vulnerable riparian households in Bangladesh. It also focuses on the impact of household head (earning member) physical health status on attaining food security. The model does not suffer from the potential multicollinearity, heteroskedastacity and endogeneity problem confirmed by the statistical tests.

Study results reveal that the riverbank erosion-prone areas are deficient in a number of areas such as infrastructure, access to education and health services, access to markets and non-farm activities, and availability of public utilities like electricity and safe drinking water; all of these factors contribute to households' increased vulnerability to food insecurity. This study also found several other related factors that serve as drivers of households' food insecurity such as household heads' level of education, household size and cultivated land holdings, livestock ownership and access to non-farm income. We also found new evidence which suggests that physical health status of the household head is a key

significant factor influencing household food security. The rest of the variables tested are not statistically significant but have the expected sign.

A broad range of actions are necessary to improve and sustain the food security of these particular vulnerable communities. First, since these resource-poor households have limited access to food due to loss of productive land and subsequent effects on income and other resource endowments, direct food transfer through food aid programs is one mechanism that could boost access to food in the short-term. The coverage of the safety net programs in the study area seem to be inadequate, and an appropriately targeted food policy intervention is yet to be developed for these vulnerable communities. Female-headed households should receive priority as they have fewer opportunities to enter into farm and non-farm jobs, which can make them more vulnerable to food insecurity. Interventions through income-generating activities such as tailoring, handicrafts or embroidery where women can be engaged need to be facilitated through proper training, which is currently not in place.

The findings of this study clearly show that education – which is an indicator of human capital – has a significant impact on household food security. In the riverbank erosion-prone areas, many educational institutions have closed due to the erosion and this, coupled with fragile road networks, limits households' access to education. Targeted programs are required in order to boost primary school enrolments and human capital development in the area.

Increased livestock ownership by the resource-poor households emerged as one of the important methods that could be used to address household food insecurity. Since the crop production environment in the erosion-affected areas is somewhat unfavourable, livestock rearing should be encouraged with enabling policy support. For instance, government organisations and NGOs could provide households with livestock support or credit for having livestock, as the poor households suffer from a lack of capital. Increased livestock ownership can serve as an important source of supplementary income.

Health status of household heads critically affects household food security, and this leads to a vicious cycle of poverty which has important policy implications. Farming households will be unable to perform farm and non-farm jobs if they become sick, which is primarily caused by inadequate calorie intake and a lack of access to health services. It is hardly possible for the government to bring all of those inactive people into the social safety net programs to achieve its food security challenge due to the nature of the economy. Therefore, access to health services should receive top policy priority in parallel with access to food in order to achieve and sustain long-term food security in Bangladesh. Provision of

adequate community health services, which are currently lacking, is one option to ensure households' access to health care; poor households are actually supposed to get free health care from the public hospital. Both the government and NGOs could set up mobile health (m-health) services in the area along with their microcredit programs. It was found that most of the households (more than 89%) own a mobile phone, which enhances the opportunity to provide them with a variety of information related to agriculture and health services. In the era of the wide spread use of cell phones in rural areas in many developing countries, providing information on health care might contribute to improve the poor household health condition and thus enable them to find job in both farm and non-farm sectors.

The challenge for Bangladesh and also for many other developing countries is how to include marginalized and health impacted inactive people into the social safety net program and meet the Sustainable Development Goals of eradicating poverty and improving food security. Properly targeted income transfers and credit programs along with improved infrastructure and health care services, and human development programs in the riverbank erosion-affected areas across the country may have very high potential to improve food security and reduce poverty in the long run, and this demands well-targeted policy interventions.

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Determinants of Job Satisfaction of Bank Employees: A Comparison of State-owned and Private Commercial Banks in Bangladesh

MD. FAZLE FATTAH HOSSAIN[*]
MD ABDUL WADUD[**]

Abstract: *This paper investigates the determinants of job satisfaction of employees of PCBs and SCBs in Bangladesh and makes a comparison using survery data consisting of 250 employees from PCBs and 250 employees from SCBs. We apply the ordered probit and ordered logit model to measure the relationship of job satisfaction with the employees' job satisfaction elements. Results show that financial benefits other than salary, work-load, job security, co-worker relationship, autonomy, performance evaluation, promotional opportunity, salary and supervisor support have significant impact on the overall job satisfaction in case of PCBs employees. On the other hand, financial benefits other than salary, work-load, job security, branch computerization, autonomy, performance evaluation, promotional opportunity and salary have significant impact on the overall job satisfaction in case of the SCBs employees. A comparision of results show that while co-worker relation, supervior support and job rotation have significant implact on job satisfaction of employees of PCBs, but those have not affected job satisfaction significantly in case of SCBs employee. While timely vacation is found to be significant impact on job satisfaction on SCBs employees, but it has not significant impact on PCB employees' job satisfaction.*

Key terms: *Job Satisfaction, Ordered Probit Model, Ordered Logit Model, Job Satisfaction Motivators.*

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[*] Manager (Senior Officer), Janata Bank Limited, Ranihati Branch, Chapainawabganj
[**] Professor, Department of Economics, Rajshahi University, Rajshahi, Email: wadud68@yahoo.com

1.   Introduction

Job satisfaction can be grouped as (i) statutory (ii) voluntary and (iii) mutual. Statutory measures are the legal provisions connected with employee welfare, working environment and health factors. The employer can fix certain minimum norms through rules and regulations. Voluntary measures are connected with employee welfare which comprises all those activities that employers undertake for their employees on a voluntary basis. Mutual measures are the welfare activities that are undertaken by the employees themselves. Efficiency of employees is directly and indirectly linked with the conditions and the environment under which employees are required to work. Even the most sincere employee cannot contribute to his best if he is uncomfortable. On the contrary, his productivity is likely to increase when he is comfortable at the working place and welfare amenities. Provision of adequate welfare facilities will go a long way in the improvement of morale of employees and consequent increase in their efficiency and reduction in cost management.

There are some facets of job satisfaction. These include ability utilization, achievement, advancement, authority, company policies, compensation, co-worker relation, creativity, independence, moral values and so on (Ahmad, *et.al,* 2012). These are important determinants for the job satisfaction of employees. These factors directly and indirectly affect the employee's job behavior and their level of satisfaction. For example, if an employee feels that he is not paid sufficient salary or he is deprived of his actual salary, then the employee becomes frustrated and his job satisfaction level goes low. Similarly, if an employee feels that his working environment is not suitable, then his job satisfaction goes low. So, the main requisite of job satisfaction is the higher pay and good real opportunity for promotion, considerate and participative management (Islam, *et.al,* 2013). In practice, these factors are not only controlling phenomena of job satisfaction rather several extrinsic and intrinsic factors directly and indirectly influence and affect the job satisfaction of the bank employees. Moreover, the performance of banks mainly depends on the level of the employees' job satisfaction. But we have little knowledge about the actual status of job satisfaction of the employees of SCBs and PCBs in Bangladesh and whether there are any differences between the two categories of bank employees of job satisfaction level.

Traditionally, most of the people of our country are engaged in land-based agricultural activity in the form of informal economic system. There exists contribution of this traditional economic system. Banking sector of Bangladesh

plays a crucial role in the field of our economy. In last three decades, employment, industrialization and national as well as international trade are increased in many times in the form of formal economic system. There are different financial institutions which are operating in our country. These include PCBs, SCBs, foreign commercial banks (FCBs), specialized banks, non-scheduled bank, insurance company, non-banking financial institution, and specialized financial institutions (SFIs) and so on. The number of these financial institutions is increasing day by day.

There are six SCBs, thirty nine PCBs, nine FCBs and two specialized commercial banks which are now operating in our country (Activities of Bank, Insurance and Financial Institutes, 2014-2015). From these banks and non-banking financial institution, SCBs have wide coverage. Many SCBs have upazila and union level branches. On the other hand, PCBs have few branches which cover mostly upto district level. There are lots of employees working in both SCBs and PCBs, but apparently it is observed that the satisfaction level of those employees is not so satisfactory and the satisfaction level is low among SCBs employees as compared to the employees of the PCBs.

There are many reasons why the job satisfaction level of the employees of the SCBs is low. These include salary, working environment, co-worker relation, financial benefits other than salary, duties and responsibilities, absence of timely selection of employees, faulty employee selection process and limited application of information technology in banking business. It is noted that the SCBs are following the government pay scale which is low in comparison to that of the PCBs. PCBs provide healthy salary, bonus and other benefits as extrinsic allowances along with several intrinsic incentives. An employee of SCBs gets thirty thousands whereas an employee of same level in PCBs gets almost double salary. Again PCBs employees get seven or eight bonuses a year, whereas an employee of SCBs gets almost half of those bonuses. So automatically, there causes low job satisfaction among the employees of the SCBs. The living standard of the employees of PCBs is gradually increasing whereas living standard of the employees of the SCBs is decreasing day by day. Moreover, it is apparently observed that the working environment of the SCBs and PCBs is almost same. But in case of the SCBs it has root level branches and there are number of branches which have not enough spaces for performing banking business. Most of the office spaces are in congested places. The small floor area cannot give the customer to move freely into the office. On the other hand, PCBs branches are well-decorated and the offices are spacious.

Regarding relationship among the employees it seems that there present an alarming situation in SCBs. There are numerous reasons why these kinds of situations prevail. Absence of proper managerial capacity of maintaining the healthy relation among the employees and concern authority affects the performance of the organization and job satisfaction level of the employees. But, in case of the PCBs, this situation is almost healthy due to application of proper managerial techniques. Similarly, the recruitment process of the SCBs does not follow the standard level. There are lots of employees who are recruited under faulty recruitment policy and process. The recruiting policy would be that the employees who want to retain in the service should be selected. But, in reality, it is observed that most of the employees who are recruited, quit their job frequently if they get better opportunity.

Rani, *et.al, (*2011) explore employees' job satisfaction in terms of work-life balance in India. This study examines the relationship between employees' job satisfaction and their work-life balance. The major determinant consists of career opportunity, recognition, tasks, payments, benefits and superior-subordinate relation. The outcome reveals that high correlation exists between the task and employees' job satisfaction in relation to work-life balance. Muhammad, *et.al,* (2010) explore employees' job satisfaction on the basis of supervision, salary and opportunity for promotion at the Dhaka city in Bangladesh. The study investigates the relationship between job satisfaction and the variables like salary, supervision, opportunity for promotion. Result presents that job satisfaction is positively correlated with salary, supervision and opportunity for promotion.

Azim, *et.al,* (2013) depict employees' job satisfaction considering gender, marital status in Bangladesh. The paper attempts to unveil employee job satisfaction level in terms of employees demographic factors namely gender and marital status. Result suggests no significant relation between employees' job satisfaction and employees' selected demographic variables. Akafo, *et.al,* (2015) conducts a research on job satisfaction which is based on reward and recognition for Ghanaian academic staff and administrator. This paper investigates the consequences of reward and motivation on job satisfaction. Findings depict that there exists a significant relationship between reward and recognition on job satisfaction.

Awan, *et.al,* (2014) explain employees' job satisfaction on different factors in the banking sector of Muzafforabad district in Pakistan. This paper finds out job satisfaction on different motivational factors like salary, job security and reward system. Results indicate a positive and significant impact between the job satisfaction and employees' pay, job security and reward system. Chahal, *et.al,*

(2013) critically examine bank employees' job satisfaction depending on some contributing variables of Canara Bank employees in India. This study finds out the level of job satisfaction of the bank employees. Results imply that salary, employee's performance, promotional strategies have significant impact for improving bank employees' job satisfaction level.

Deb, *et.al,* (2015) critically analyze the job satisfaction on employees of United Bank of India (UBL). The study identifies the degree of job satisfaction of UBI employees. Findings suggest that banks employees are satisfied moderately considering different variables like pay, allowances, welfare facilities, promotion and transfer. Mahmud, *et.al,* (2011) identify the impact of human resource management (HRM) practices on turn-over of bank employees in Bangladesh. The article practically determines six HRM aspects and the possible relation in respect to turn-over. The authors find that some job satisfaction indicators like job analysis, career enrichment and compensation are negatively and significantly related with the employee's expectation to leave.

Rahman, *et.al,* (2012) conduct a research on female employee's job satisfaction on selected private commercial banks and financial institutions of Bangladesh. The study finds out the most important factors of the job satisfaction. Different statistical tools like the ANOVA, t- test, descriptive statistics and Pearson correlation are used for revealing the twelve driven forces that are needed to job contentment of the female banks employees in Chittagong. Rahman, *et.al,* (2009), in another study, critically analyze the job satisfaction factors of bank employees in Bangladesh. They try to portray a view of bank employee's job satisfaction and find out the importance of job satisfaction factors like reward, job security etc. of bank employees. The study reveals several job satisfaction indicators like, remuneration and reward, pride in work. These are significant on the employee's job satisfaction.

Sowmya, *et.al,* (2011) portray influencing factors that affect bank employee's job satisfaction in Chennai, India. The study finds out the determinants that affect employee job satisfaction. It is found that the employees who feel satisfied with job, they could produce more things and their involvement would be higher than those of the employees who are less satisfied with job. Porter, *et.al,* (2007) emphasize influence of supervisor temperament on subordinate job satisfaction and perception of supervisor's socio-communicative orientation and approachability. The article tries to investigate the impact on subordinate job contentment on supervisor behavior. The outcome of the study depicts that there exists a relationship between supervisor behaviors on subordinate's job satisfaction.

Rafiq, *et.al,* (2012) examine relationships between reward and employee job satisfaction in the Pakistani context. The article tries to gain an insight into the outcome of intrinsic and extrinsic reward on job contentment. Result shows a positive direction in all the facets of job satisfaction. Extrinsic rewards are important than those of intrinsic reward for job satisfaction. Ahmed, *et.al,* (2012) integrate employees job satisfaction in case of Janata Bank Ltd. in Bangladesh. The study sketches out job contentment of bankers in Bangladesh. Result reveals that job contentment of the employees depends or lies on salary, promotion, supervision, benefits and reward. Ahmad, *et.al,* (2015) investigate selected factors of job satisfaction in the public banking sector in Bangladesh. The study determines the level of employee's job satisfaction. Result shows that in terms of co-worker's nature of work and supervision, employees received are very much significant on job satisfaction. On the other hand, it reveals that employees are dissatisfied with the pay and promotional opportunity. This study assesses the factors of job satisfaction of the employees of the PCBs and the SCBs in an ordered categorical manner.

2.   Data and Methodology

2.1.   Data

Data have been from 500 bank employees of SCBs and PCBs with equal number from each using a structured questionnaire in 2014-2015. For job related questions, -2 is assigned for 'very much dissatisfied', -1 for 'dissatisfied', 0 for 'neutral', 1 for 'satisfied' and 2 for 'very much satisfied'. After that average is taken for each question for getting overall job satisfaction.

For the analysis of the ordered categorical variables, we assume numerical values to denote the rank-order of a particular attribute. These rankings however do not represent the actual magnitude on a substantive scale. The distance between the two adjacent categories of an ordinal variable is not necessarily the same across different segment of its distribution. The averages of each question are grouped into five ordered category for constructing dependent variable. Thus, these five categories are taken as dependent variable and job satisfaction variables are taken as independent variables.

Table 1 shows the summary statistics of different job related variables of PCBs employees. The mean of overall job satisfaction is 0.17, maximum value 2, minimum value -2, standard deviation 0.41, skewness -0.18, kurtosis 1.75, Jarque bera 17.47 and lastly the probability 0. In case of financial benefits other than salary, the mean value 0.60, maximum value 2, minimum value -2, standard deviation is 0.97, skewness -1.48, kurtosis 4.60, Jarque bera 117.52 and lastly the probability 0. For work-load, the values of mean, median, maximum, minimum standard deviation, skewness, kurtosis and probability are -0.03, 2, -2, 1.32, 0.05, 2.09, 8.83 and 0.01 respectively. In case of job security the mean 0.61, maximum value 2, minimum value -2, standard deviation 0.75, skewness -1.09, kurtosis 4.18, Jarque bera 63.91 and lastly the probability 0. In case of job rotation, the mean value 0.48, maximum value 2, minimum value -2, standard deviation 0.92, skewness is -1.02, kurtosis 3.25. Jarque bera 43.83 and lastly the probability is 0.

Table 2 shows the summary statistics of different job related variables of SCBs employees. The mean of overall job satisfaction -0.75, maximum value 2, minimum value -2, standard deviation 1.13, skewness 0.59, kurtosis 2.29, Jarque bera 19.60 and lastly the probability 0. In case of financial benefits other than salary, the mean value is -1.40, maximum value 2, minimum value -2, standard deviation 0.99, skewness -1.82, kurtosis 5.76, Jarque bera 217.36 and lastly the probability 0. For work-load, the values of mean, maximum, minimum, standard deviation, , skewness and kurtosis and probability are -1.34, 2, -2, 0.82, 1.08, 3.86, 56.45 and 0 respectively. For employee's job security, the values of mean, maximum, minimum, standard deviation, skewness, kurtosis and probability are -1.09, 2, -2, 1.12, 1.11, 3.31, 52.53 and 0 respectively. In case of job rotation the mean -1.06, maximum 1, minimum -2, standard deviation 0.65, skewness 0.95, kurtosis 5.49, Jarque bera 102.26 and lastly the probability 0. In case of co-worker relation, the mean value -0.78, maximum value 2, minimum value -2, standard deviation 0.75, skewness 2, kurtosis 7.52, Jarque bera 379.55 and lastly the probability 0.

2.2.   Methodology

2.2.1. Ordered Probit Model

An ordered response model like the ordered probit model recognizes the indexed nature of various response variables. Underlying the indexing in such models is latent but continuous descriptor of the response. In an ordered probit model, the random error associated with this continuous descriptor is assumed to follow the normal distribution.

Table 1: Summary Statistics of the PCBs Employees (n = 250)

	Mean	Max.	Min.	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	Prob.
Overall Satisfaction	0.17	2	-2	1.41	-0.18	1.75	17.47	0.00
Financial Benefit Other than Salary	0.60	2	-2	0.97	-1.48	4.60	117.52	0.00
Work Load	-0.03	2	-2	1.32	0.05	2.09	8.83	0.01
Job Security	0.61	2	-2	0.75	-1.09	4.18	63.91	0.00
Job Rotation	0.48	2	-2	0.92	-1.02	3.25	43.83	0.00
Co Worker Relation	1.09	2	-2	0.60	-1.68	11.33	840.89	0.00
Branch Computerization	0.79	2	-1	0.80	-0.92	3.57	38.32	0.00
Autonomy	-1.69	2	-2	0.74	2.86	11.60	1110.48	0.00
Performance Evaluation	0.64	2	-2	0.98	-1.08	3.85	56.41	0.00
Prize Distribution	0.78	2	-2	0.79	-2.22	8.40	510.23	0.00
Promotional Opportunity	-0.08	2	-2	1.25	-0.27	1.56	24.73	0.00
Job Fit	0.68	2	-2	0.74	-1.17	4.73	88.02	0.00
Salary	1.08	2	-2	1.37	-1.22	3.05	62.06	0.00
Supervisor Support	0.68	2	-2	1.00	-0.71	2.65	22.45	0.00
Timely Vacation	-0.87	2	-2	1.16	0.83	2.60	30.24	0.00

Table 2: Summary Statistics of the SCBs Employees (n = 250)

Variable	Mean	Max.	Min.	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	Prob
Overall satisfaction	-0.75	2	-2	1.13	0.59	2.29	19.60	0.00
Financial Benefit Other than Salary	-1.40	2	-2	0.99	1.82	5.76	217.36	0.00
Work Load	-1.34	2	-2	0.82	1.08	3.86	56.45	0.00
Job Security	-1.09	2	-2	1.12	1.11	3.31	52.53	0.00
Job Rotation	-1.06	1	-2	0.65	0.95	5.49	102.26	0.00
Coworker Relation	-0.78	2	-2	0.75	2.00	7.52	379.55	0.00
Branch Computerization	-1.56	2	-2	0.92	2.55	9.17	667.09	0.00
Autonomy	-1.67	2	-2	0.94	3.20	12.24	1314.13	0.00
Performance Evaluation	-1.68	2	-2	0.69	2.26	8.01	474.00	0.00
Prize Distribution	0.00	2	-2	1.11	0.01	1.81	14.64	0.00
Promotional opportunity	-1.44	2	-2	0.94	1.82	5.87	224.10	0.00
Job Fit	0.36	2	-2	1.03	-0.53	2.12	19.64	0.00
Salary	-0.95	2	-2	0.97	0.99	3.35	42.47	0.00
Supervisor Support	-1.55	2	-2	0.86	1.76	4.98	169.72	0.00
Timely Vacation	-0.91	2	-2	0.80	0.86	3.88	38.64	0.00

$$T^*n = \beta' Z_n + \varepsilon n \tag{1}$$

Here = Latent or continuous variable of job satisfaction, = a vector of explanatory variable, = is a vector of parameter to be estimated and = a random error term (assumed to follow a standard normal distribution). The observed and the coded five points from Likart scale is determined from the model as follows:

$$Tn = \begin{cases} -2 \ if - \alpha \le T^*n \ \le u_i & (very\ much\ dissatisfied) \\ -1 \ if\ u_1 < T^*n \le\ u_2 & (dissatisfied\ ) \\ 0 \ if\ u_2 < T^*n \le u_3 & (neutral) \\ 1 \ if\ u_3 < T^*n \le u_4 & (satisfied\ ) \\ 2 \ if\ u_4 < T^*n \le \alpha & (very\ much\ satisfied) \end{cases} \tag{2}$$

u_i

Where represents threshold to be estimated along with the parameter vector

2.2.2. Ordered Logit Model

The ordered logit model is a regression model for ordinal dependent variables. In a job satisfaction survey which consists of choices that are among 'very much dissatisfied', 'dissatisfied', 'neutral', 'satisfied', and 'very much satisfied', are used. If some of them are quantitative, then the ordered logit model is applied. It is an extension of logistic regression model for dichotomous dependent variables that allows more than two ordered response categories. Suppose the underlying process to be characterized is:

$$y^* = \beta X^T + \varepsilon \tag{3}$$

Where is the exact but unobserved dependent variable, is the vector of independent variables, and is the vector of regression coefficients which we wish to estimate.

$$\begin{cases} -2 \ \ if - \alpha \le y^* \le\ u_i & (very\ much\ dissatisfied) \\ -1 \ \ if\ u_1 < y^* \le\ u_2 & (dissatisfied\ ) \\ 0 \ if\ u_2 < y^* \le u_3 (neutral) \\ 1 \ if\ u_3 < y^* \le u_4 (satisfied\ ) \\ 2 \ if\ u_4 < y^* \le \alpha\ (very\ much\ satisfied) \end{cases} \quad . \tag{4}$$

Table 3 shows the results of ordered probit and ordered logit regression for both PCBs and SCBs. It is observed that regression result of both models shows statistically significant value at 1% level for both two categories of banks in case of the explanatory variable-financial benefits other than salary. It indicates that

Table 3: Results of Ordered Probit and Ordered Logit Regression

Variable	PCBs		SCBs	
	Ordered Probit Coefficient	Ordered Logit Coefficient	Ordered Probit Coefficient	Ordered Logit Coefficient
Financial Benefits other than Salary	0.3252*	0.6896*	0.2720*	0.4995*
Work-Load	0.2348*	0.5681*	0.2442*	0.3825**
Job Security	0.6742*	1.3293*	0.2754*	0.4999*
Job Rotation	0.2053**	0.5445*	0.1005	0.0997
Timely Vacation	0.0170	0.0372	0.1131	0.2956*
Co- Worker	0.4105**	1.0108*	-0.0283	-0.0979
Branch Computerization	0.1902	0.4034**	0.2329*	0.3572**
Autonomy	0.2305**	0.6509*	0.1228*	0.2570***
Performance Evaluation	0.2486**	0.5544*	0.2599**	0.4516*
Prize Distribution	-0.0396	-0.0245	0.0330	0.0353
Promotional Opportunity	0.2979*	0.6806*	0.2509*	0.4497*
Job Fit	0.0316	0.0648	0.0867	0.1534
Salary	0.2748*	0.6695*	0.1694**	0.3917*
Supervisor Support	0.2932*	0.7032*	0.1002	0.0353
Pseudo R-squared	0.3038	0.3720	0.1026	0.1106
LR statistic	243.20	297.87	72.142	77.783
Prob(LR statistic)	0.0000	0.0000	0.0000	0.0000

Note: *, ** and *** indicate 1%, 5% and 10% levels of significance respectively.

there present a better relation between employees' financial benefits other than salary and overall job satisfaction between the two categories of banks employees.

For PCBs and SCBs employees, the ordered probit regression show that the variables, work- load statistically significant value at 1% level with the overall job satisfaction. On the other hand, the ordered logit shows statistically significant value at 1% with the overall job satisfaction. The ordered probit and ordered logit regression, show statistically significant at 1% value in both cases. It shows that there exists a better relation between employees' work load and overall job satisfaction between the two categories of banks employees.

The job related variable is the job security. Statistical result from both models shows a significant and positive relationship between the job security and reported level of job satisfaction for both PCBs and SCBs employees. It shows

employees are secured with job, and management can not sack them from their job without good reason.

Results present a positive relationship between the job rotation and job satisfaction. for the employees of PCBs (significant at 5% level) and for employees of SCBs the result is not significant. On the other hand, the ordered logit model for PCBs employees shows significant result but for SCBs result is not satisfactory. Hence, it is concluded that, for both two models, PCBs employees' satisfaction level is better than SCBs employees' satisfaction level.

Results of the ordered probit model for PCBs and SCBs employees reveal no relationship. On the other hand, in case of SCBs employees only ordered logit regression shows a positive relation (significant at 1% level). This confirms that employees of PCBs are not getting timely vacation when they need. Thus employees are dissatisfied with their job. Results show that employees of PCBs maintain congenial relationship with their colleague. On the other hand SCBs employees show the opposite things.

The statistical result of OPM reveals no relationship between the employee's job satisfaction and the computerized environment of PCBs but shows statistical significant evidence at 1% level in case of SCBs. The ordered logit model shows 5% significant level in case of both PCBs and SCBs. Here PCBs employees are lagging behind in comparison to the SCBs employees in terms of significance level. Thus SCBs employees are more satisfied than the PCBs employees.

For the employee's autonomy,, the ordered probit regression shows statistically significant result at 5% and 1% significant level of the PCBs and the SCBs employees respectively. In case of ordered logit regression, the result is statistically significant at 1% of PCBs employees. Again, the ordered logit regression, the result is statistically significant at 10% level of PCBs and SCBs. Thus it reveals that the two categories of banks reports more or less equal satisfaction level.

Performance evaluation system is a control variable of the bank employees' job satisfaction and shows significant impact on the employees' job satisfaction as is exhibited by in model for both categories of banks (5% level). The ordered logit regression result is significant at 1% level for both the PCBs and the SCBs. So it is evident that result of ordered logit model is superior to ordered probit model in this regard.

For both categories of banks, the result of both models shows no significant relationship between the job satisfaction and the employees' prize distribution

system. Hence there prevails job dissatisfaction among the employees of the two banks.

For both categories of banks, the regression result of both models shows significant (significance level is 1%) relationship between the overall job satisfaction and the employees' promotional opportunity. For PCBs and SCBs employees, the ordered probit and ordered logit model shows no statistically significant evidence. Hence, it is concluded that there exists not a better relation between the employees' job fit and employees' job satisfaction. For the control variable the **salary** of the employees of PCBs and SCBs the result of ordered probit model shows 1% and 5% level of significance. It indicates that both the two banks employees are satisfied with the salary that they are getting. Result shows that there exists a positive relation between job satisfaction and employees supervisor support. On the other hand, supervisor support of the SCBs employees is not significant. It implies that supervisors are not employee friendly in case of SCBs.

4.   Conclusions

This paper examines the factors associated with job satisfaction of employees of PCBs and SCBs in Bangladesh using survey data from 250 bank employees of each bank applying the ordered probit and logit model. Different job satisfaction determinants play a crucial role in determining the job satisfaction. Result of the two models show that, in case of PCBs employees, financial benefits other than salary, work-load, job security, co-worker relationship, autonomy, performance evaluation, promotional opportunity, salary and supervisor support have significant impact on the overall job satisfaction. On the other hand, in case of the SCBs employees, financial benefits other than salary, work-load, job security, branch computerization, autonomy, performance evaluation, promotional opportunity and salary have significant impact on the overall job satisfaction. A comparision of results exhibit that co-worker relation, supervisor support and job rotation have significant implact on job satisfaction of employees of PCBs, but not significant in case of SCBs. While timely vacation is found to be significant impact on job satisfaction on SCBs employees, but not significant impact on PCB employees' job satisfaction.

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Real Estate and Housing Market in Chittagong: An Overview

SUJAN KANTI BISWAS[*]
MOSLEHUDDIN CHOWDHURY KHALED[**]
BIDDUTH KANTI NATH[***]

Abstract: *Due to high price and insufficiency of land, high cost of land registration, and high price of building materials, people are now less interested in buying land for building their own houses. Due to high prices of land the real estate and housing industry boom in Bangladesh over the last two decades. Newspapers are full of advertisements related to flats or apartments. This article takes a view of the housing market – how many sellers, who are the sellers, what are the buyers looking for, how are the flats priced, what is the cost structure like etc. Geographically, this study focuses on the Chittagong, and can be considered as a considerable contribution to the understanding of the real estate industry, particularly in Chittagong. But the findings may be relevant for other cities also. The main findings of this study are that pricing of the flats and apartments is different due to location and nature of uses and that real estate industry needs to be studied in more details for better decision making and policy making also. This exploratory and overview article, which is part of a larger research, can serve as a basis for further research.*

Keywords: *Bangladesh, Chittagong, customer perception, Real Estate, Real estate market,*

[*]   Assistant Professor, Department of Management, Premier University, Chittagong, Bangladesh
     E-mail: sujan_kbt@yahoo.com
[**] Assistant Professor, School of Business, Chittagong Independent University
     E-mail: mmckhaled@gmail.com
[***] Assistant Professor, Department of Economics, Premier University, Chittagong, Bangladesh
     E-mail: biddutheco@yahoo.com

1.   Introduction

Background and Rationale of the Study: Estimates might vary but Bangladesh's population is around 15 crore (150 million). It is one of the most populous countries of the world and day by day, population is increasing rapidly which tremendously created the housing problem. Land prices skyrocketed. Due to high price and insufficiency of land, high cost of land registration, and high price of building materials, people are now not interested in buying a piece of land for building their own houses. That's why they turn to real estate companies who are providing flats or apartments. On the other hand, owners of vacant land or land with low building structure have been tempted to be millionaire or multimillionaires by inviting property developers to go for constructing high rise buildings over the landed properties on a sharing basis. In response, real estate business has enjoyed a boom over the years. All over Bangladesh, new companies are growing up like mushrooms. This trend signals the growth for economy and opportunities for people to have their own residential facilities within means in one hand and warms as well the possible disaster at micro and macro economic level if it doesn't match with the market demand. Most of the companies are situated in Dhaka and Chittagong but   are also spreading throughout other divisional and district towns like Comilla, Sylhet, Cox's Bazar, Bogra, Rajshahi, Khulna, Mymensingh, Gazipur etc. some studies on market demand for apartments are found in the literature basically based on Dhaka, but no such significant initiative is found to take up regarding based on Chittagong market. This study is attempted to fill this gap by providing an exploratory insight on apartment market in Chittagong.

There are some secondary literature based articles like real estate financing by Sarker et al. (2008). The real estate sector is one of the fastest growing and thrusting sectors in Bangladesh. Infrastructural development is highly important for a country to rise as a developed nation and to ensure housing facilities for the citizens of the country. But in spite of serious importance of this sector, there have been studies which are far below the required number on this sector and its accessibility to financing. Islam M. S. and Hossain A. (2008) conducted an extensive study on the depth of the housing industry with focus on the supply chain, and Sarker M. M. R. and Siddiquee (2008) conducted another similar study on the real estate sector. The later study focused on the availability of and accessibility to financing or the stakeholders of this sector and concluded with some important policy recommendations. Due to less studies on this sector, it is necessary to have extensive studies to find out the future potentiality, problems and solutions of the real estate sector and the availability of financing in this

respect. This study is exploratory in nature and may work as the basis of knowing the present scenario and indicating necessity of any future study. But there is little research, specifically primary data based one. The present study has been undertaken as of exploratory one to have an overall picture of the real estate market in Chittagong.

1.1   Objectives of the study: The broad objective of this study is to develop an understanding of apartment/flat market of Chittagong City. The specific objectives of the study consist in investigating to find answers to the following questions:

- How many real estate companies have been operating in Chittagong? How many of them are Dhaka based how many Chittagong based? How many of them are REHAB members?
- What are the major factors affecting a customer's apartment purchase decision?
- What is the typical cost structure of the apartment construction?
- What risks are perceived by the customers?

1.2   Methodology

The topic has been selected for study as it is a very interesting one in current context of Bangladesh. Real estate market is booming, demand is soaring, and industry is shaping very fast in Bangladesh. Real estate has become a focus of citizen interest. Literature review was done by going through the available volumes of different universities and web search. The study was exploratory in nature and confined to examining the annual reports of the selected enterprises for secondary data as well as private interview with the responsible managerial resources of the respective organizations. Data collection was also done through browsing published journal articles, real estate directory, newspaper reports, editorials, working paper for secondary data and in-depth interviewing senior practitioners at three levels for collecting qualitative primary data. Also a convenient sample of 15 was taken to find out factors related to customers by using a semi-structured questionnaire. The output of the study is an exploratory report which can be used in further detail studies of the real estate sector and consumer attitude and preferences related to this sector. In selecting samples for this study the convenience sampling method was used. After scanning the annual reports and the collected information from interview of the sample companies, a content analysis was done and various aspects of real estate business were identified. The annual reports and the collected data (through interview) of the companies were thoroughly examined.

1.3   Scope and Limitations

This is an exploratory and cross sectional study which might not capture the trend or changes in the market. This field based study was done only in Chittagong. There are so many real estate developer companies in Dhaka and all over the country, with huge and growing customer base, different target customers, and with different business strategies. So it might not be possible to make generalization about the overall country scenario. The main field investigation was done two years ago. So the year-of-investigation and year-of-publication time gap is there as this market is changing over time.

2.   Real Estate Industry in Bangladesh

REHAB (Real Estate and Housing Association of Bangladesh) was formed in 1991 with only **11** members. As on February 28, 2011 the number of REHAB members have risen to **1082** (REHAB, 2011). So it can be understood from this fact that this real estate sector is relatively a new sector but it developed with a tremendous speed.

National Housing Authority (NHA) (2010) website says,

> *"To ascertain shelter for all by 2000 the democratic government is now formulating National Housing policy 2004, considering the present need of the country. In the light of the National Housing policy, the national Assembly has adopted and approved the National Housing Authority (NHA) Act. 2000. in accordance with the act, Housing and settlement direction (HSD) and Deputy Commissioner Settlement (DCS) office have been abolished and a new organization NHA has been formed by merging these two organizations. The National Housing Authority Act 2000 has been implemented on the 15th July, 2001 through the government notification."*

So, the website of National Housing Authority seems not to be updated with current demand and supply of housing units in Bangladesh.

National Housing Policy (draft) (2008) is a very good document itself. But we are not seeing any strategic implementation plan based on that. There are unplanned real estate developments all over the country and government is seen to take only ad hoc actions.

Chittagong is the second largest city, having most important sea port, and, at least in paper, the port city of Bangladesh. Just after Dhaka, Chittagong has experienced the real estate boom. Bangladesh Bureau of Statistics (2010) shows that there are around 0.9 millions municipality households and another 0.6 million

households in other urban category in Chittagong. But this are the data of 2001. If the data are updated for 2011, naturally it will be significantly more.

REHAB (2011, a) website shows that there are 53 Chittagong based companies. In REHAB Fair (2011) at Chittagong, we see that out of 96 participant companies, 40 companies are based in Chittagong. Also it has become quite normal that companies coming from Dhaka to invest in new projects in Chittagong.

3.   Snapshots of Real Estate Industry in Chittagong City

This section will give an overall picture of the real estate and housing market of Chittagong from various perspectives.

3.1   Number of firms in Chittagong: Our first objective is to identify the total number of Real Estate Company operating their business in Chittagong city. From the collected data it was found that there are around 52 real estate companies in Chittagong city. Some of the companies are Dhaka based and maximum companies are Chittagong based. During the survey it has been found that about 39 companies are the members of REHAB and 13 of local companies are not enlisted with of REHAB.

No. of companies operating in Chittagong	52
No. of companies based in Chittagong	34
No. of Chittagong based members of REHAB	21
No. of Chittagong based non-members of REHAB	13
No. of companies based in Dhaka	18

According to the survey result it was found that there are 136 ongoing apartment projects and 16 land projects in Chittagong. These projects are located in various areas in Chittagong city, especially in well developed and prestigious areas like Khulshi Hills, Nasirabd H/S, GEC Cercal, Mehadibagh, Lalkhan Bazzar, Jamalkhan, Agrabad, Halishahar, Panchlaish etc. In Chittagong city, there are fewer land projects than apartment projects. Maximum real estate companies are interested in apartment projects because of two reasons: apartment project is more profitable than land project and land project requires undivided land at one place which is hardly available in Chittagong city.

3.2   Factors affecting customer's apartment purchase decision

3.2.1 Locations preferred by the customers: Location of the apartment is one of the most important factors of consumers' preference to choose an apartment. People try to move to those locations where communication facilities are good

and security is high. Naturally price is also related with the good location. So it is important to find out the locations which the consumers prefer for buying apartments. As this was an exploration, no random sampling was taken. That can be taken in a detailed study. It is found that Khulshi hills area is a top preference. This is because the area is one of the prestigious areas in Chittagong city. There are other preferred places like Agrabad, Sugondha, Mehedibag, Nasirabad, Jamalkhan, O.R. Nizam Road, Lalkhan Bazaar, Love lane and Devpahar.

3.2.2 Facilities preferred by the customers: Facilities of apartment are important in deciding which apartment is to buy. Facilities are actually design and development related features which makes one apartment project different from others and one company from the other. That's why it is important to know the types of facilities which are most preferable to the apartment purchasers. It is observed that the desired facilities are good communications (road access and nearness to the markets), availability of educational facilities, broad road, greenness, medical facilities, environment of the building, quality of other buyers of flats in the particular building, availability of common space, existence of community facilities, standard of management, quality of construction, goodwill of the developer, number of flat owners, fittings, security, interior design, car parking, generator, void space, ventilation, etc.

3.2.3 Mostly preferred size: This comes out as very important factor for apartment market. It is important to consider because consumers budget is related with the apartment size. The size is quoted as a unit of square foot. The larger the apartment size, the higher the price of apartment. In terms of size, majority of the consumers prefer between 1250 to 1550 Sft. Also, there seems to be a strong demand for even smaller flats by the middle and lower middle class buyers. But there are some buyers who prefer very large flats of sizes more than 2500 Sft.

3.2.4 Price of the apartment: Another objective is to find out the cost structure of a typical real estate company. The cost structure is not only important for consumers, it is also important for the developer company. There are three types of costs associated with apartment project development. There are:

  1) Development Cost;
  2) Construction Cost; and
  3) Utility Cost.

3.3   Typical cost structure of apartment construction

Now percentages of money Developer Company spends on abovementioned different cost categories are given below:

Table 1: Element wise Cost of Apartment Complex in Percentage (%)

	(a) Development Cost		
Sl. No	Description of Cost	Percentage (%)	
1	Head office Expenditure	3.55%	
2	Registration cost	0.02%	
3	Power of Attorney registration	0.02%	
4	Plan approval	0.33.%	
5	Consultancy Fee	0.37.%	
6	Pricing of Brochure for consumers	0.09%	
	(b)Total development cost (%)		3.64%
	Construction Cost		
1	Foundation	23.7%	
2	Interior Design	10.9%	
3	Electrical	5.2%	
4	Sanitary	2.8%	
5	Material Test	0.12%	
6	Equipment & Maintenance	14.3%	
7	Architecture & Engineer	36.5%	
8	Labour	0.24%	
9	Others	0.71%	
	Total construction cost (%)		94.47%
	©Utility Cost		
1	Substation	0.95%	
2	Gas Connection	0.38%	
3	Water & Sewerage connection	0.24.%	
4	Desa	0.66%	
	Total construction cost (%)		1.99%
Total		**100 %**	

From the aforementioned table it can be seen that construction cost is the major portion of the total project cost (around 94%), followed by development cost (initial and preliminary costs and head office overheads), and utility setup cost.

The following table gives the cost data per square foot of overall apartment project.

Table 2: Per Square Foot Cost of Apartment Complex in Taka

	(a) Development Cost	
Sl. No.	Description of Cost	Per Sft. Cost
1	Head office Expenditure	75.00 Tk.
2	Registration cost	0.50 Tk.
3	Power of Attorney registration	0.50 Tk
4	Plan approval	7.00 Tk.
5	Consultancy Fee	8.00 Tk.
6	Pricing of Brochure for customers	2.00 Tk
	Total development cost	**93.00 taka**
	(b)Construction Cost	
1	Foundation	500.00 Tk.
2	Gr. Fl. (Civil)	350.00 Tk.
3	Tropical Fl. (Civil)	400.00 Tk.
4	Roof	20.00 Tk.
5	Wood Works	50.00 Tk.
6	Mosaic / Tile on Floor	90.00 Tk
7	Tiles	50.00 Tk
8	Thai Aluminum	240.00 Tk.
9	Grill & Railling	60.00 Tk.
10	Paint	40.00 Tk.
11	Sanitary (Pipe)	30.00 Tk.
12	Sanitary (Fitting & Fixture)	30.00 Tk.
13	Electrical	45.00 Tk.
14	Generator	20.00 Tk.
15	Lift (1 No)	42.00 Tk.
16	Intercom	3.00 Tk
17	Elec. Wasa &Gas Bill	8.00 Tk
18	Material Test	0.25 Tk.
19	Equipments & Maintenance	1.00 Tk.
20	Mobilization	5.00 Tk.
21	Price Escalation & Contingency	15.00 Tk
	Total construction cost	**1999.25 Taka**
	© Utility Cost	
1	Substation	20.00 Tk.
2	Gas Connection	8.00 Tk
3	Water & Sewerage connection	5.00 Tk.
4	Desa	14.00 Tk.
	Total utility cost	**47.00 Taka**
	Total project cost per square foot	**2139.25 Taka**

The abovementioned apartment cost structure is applicable to the case of super first class construction of a residential building construted by a very reputed developer company. It is to be noted that price rates of different materials are variable. Also it may vary from company to company and is dependent on the quality commitments of the particular company.

3.4   How the real estate companies are pricing the apartments

Apartment pricing differs basing on apartment type, location, category of company, quality and procurement of materials. In this exploration it is found that prices range from 2500 taka per sqft (totally new company having their own land) to 7500 taka per sqft (established reputed company) in the market.

Real estate companies follow different types of pricing strategy based on apartment project construction cost, number of floors approved by the local authority like Chittagong Development Authority(CDA) location of the project, share of the land owner, stages of construction (initial stage or finished stage, etc.), legal problem of the land, abandonment of the project by the developer, quality of the ingredients and materials (rods, cement, fittings, etc.), marketing cost , cost of capital and overall goodwill of the company.

- The overall construction cost is an important determinant of the cost. But more than that the demand drives the price upward. In Bangladesh, overall demand for flats is very high. So the companies can set the price much higher than construction cost.

- The total land area on which a building is constructed is appropriated among the number of flats or saleable units. Therefore, number of floors approved by the local authority of the government is an important factor to influence the pricing of this product. This number is dependent upon the location of land, width of approach road and government rules. Normal rule is, the greater the number of floors the lower the price per square foot.

- In case of joint venture project the share of the property to be allocated to the land owner is a definite factor to influence the pricing policy. The normal rule is, the higher this share the higher the price.

- If the location is a sought after place, then the price is higher. If the location is an average one, the price is lower. This is true for a particular company running two projects at the same time, though their construction cost is the same.

- Price is also related to the stage of construction. If the project can sell before the construction begins, the price is lower. The more the work is finished, the price per Sft is higher.

- Another important finding is that pricing policies of the apartment, commercial space and land are totally different.

- Overall goodwill is also a factor in pricing. Developers like Equity and Sanmar will charge 1000 taka or more than other companies at the same place regardless of cost of construction. This is possible due to their first mover advantage and reputation.

3.5   What are the risks perceived by the customer

It means what the factors are there the consumers fear about purchasing apartment from a real estate company. There is a widespread fear in the market related to the real estate or Developer Company along the following dimensions: timely handover of apartment, low quality of fittings and raw materials, proper apartment allotment according to the diagram, breach of commitment by the developer company, CDA approval, NOC of the Directorate of Environment, utilities approval (water, gas, electricity, city corporation etc.). Analyzing this section aligning with the perceived risk factors given in published researched literature: such as i) Functional risk ii) Service risk iii) Monetary risk etc. the customers make their assessment to buy a space of a developed property.

4.   Conclusion and future research direction

Due to high price and insufficiency of land, rising share of the land owners high cost of land registration and high price of building materials, people are now less interested in buying a land for building their own houses. Geographically, this study focuses on Chittagong, and can be considered as a little contribution to the understanding of the real estate industry, particularly in Chittagong. But the findings may be relevant for other cities also. Real estate market is booming, demand is soaring, and industry is shaping very fast in Bangladesh. Real estate has become a focus of citizen interest. This should be considered as one of the leading industries of Bangladesh and realistically promotes other affiliated business and industries like brick, cement, steel and re-rolling mills, store chips, sand, manpower, engineering, furniture, banking, law profession, etc.This industry has created a big opportunity for employment, investment and government revenues. This exploratory study showed an overall picture of the real estate market. From here further study can be developed to understand company

and customer perspectives. More in-depth studies can be undertaken to identify consumer opinions, attitudes, and preferences. For future studies this current study may have some preliminary insight and enhance the understanding of the sector to help the decision makers.

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Appendix

(All cost data is of 2008 when the field study was done,
Current price increased as much as 20% to 60% depending on the area)

Table 1: Real Estate Company (Chittagong)

SL. No	Name of the Company	Address	Member of REHAB
1	Equity property management Ltd.	'Manashi' 1094/1196, O,R Nizam Road, Chittagong. Tel: 031-653340, 656727 E-mail: equity@spetctg.com	Yes
2	Sanmar Properties Ltd.	S. Alam Center, 58. agrabad C/A (5th floor) Chittagong, Tel: 031-716871-3, Web: www.mysanmar.com	Yes
3	C.A Property Development Ltd.	81. S.S Khaled Road, Chittagong, Tel: 031-2851443, E-mail: info@cpdlbd.com	Yes
4	Epic Properties Ltd.	1005/7, CDA Avenue, East Nasirabad Tel: 031-656603, Chittagong Web: www.epicl.com	Yes
5	H.B.S Associates Ltd.	VIP Tower (3rd floor), 125 Chatteshari Road, Chittagong, Tel: 031-618104, 285021	Yes
6	Moulana Development Co Ltd.	MDC Plaza, 980/A, Agrabad Access Road, Barapool, Ctg. Tel: 031-2511520-21, E-mail: moulanactg@yahoo.com	Yes
7	Alpha Real Estate Ltd.	360. CDA Avenue (1st floor), Tel: 031-636346, 638108, E-mail: areal@click-online.net	Yes
8	Rahat Properties & Developer Co Ltd.	Ameer Court (2nd floor), 1022 Agrabad, C/A, Sk. Muzib Road, Chittagong Tel: 031-726202, E-mail: rahatproperties@gmail.com	Yes
9	RF Properties Ltd.	Road 3, House 6, Nasirabad H/S, Panchlaish Chittagong. Tel: 031-2551303, 2441366, www.rfpropertiesltd.com	Yes
10	Mishmak Developments Ltd.	Forum Central (6th floor), M.M Ali Road, Goalpahar Circale, Chittagong, Tel: 031-639686, 840623-24, E-mail: mishmakdl@yahoo.com	Yes
11	Shah Amanat Properties Ltd.	54. Katalgonj (2nd floor), Panchlish, Chittagong. Tel: 031-650798, 2550371, E-mail: sapl@gononet.com	Yes

SL. No	Name of the Company	Address	Member of REHAB
12	Subashati Properties Ltd.	Sunny Tower (2nd Floor) 251, CDA Avenue, Lalkhan Bazaar, Ctg – 4000 Tel: 031-624091	Yes
13	Eternal Design & Developments Ltd.	Rashid Mansion (2nd floor), 1299. O.R Nizam Road, Goal Pahar, Chittagong. Tel: 031-2552235, Web. www.eterna-bd.com	Yes
14	Knight Frank Development Ltd.	Modina Tower (5th floor), 508/A, CDA Aveneue, Near GEC Circle, Ctg. Tel:031-2851116-7	Yes
15	Bay Tech Properties Ltd.	Shakoor Manzil (2nd floor), 37, K.B Fazlul Kader Road, Ctg – 4203, Tel: 031-2550379	Yes
16	Central Builders Ltd	House # 32, M.M. Ali road, Lalkhan Bazar, Chittagong. Tel: 031-2851739	Yes
17	Ideal Home Builders	502 Highway Plaza, Lalkhan Bazar, Chittgong. Tel: 031-615687	Yes
18	ConCord Properties Ltd.	40, Chatteswari Road, Kotewali Ctg. Web: www.concordgroup.net	Yes
19	Zaman Property Development	189/203, Haji younusMarket (2nd floor) CDA Avenue, Muradpur, Chittagong. Tel: 031-656401, 658750, Web:www.zamandevelopments.com	No
20	Ambia Holdings Ltd. Al-Haj Mostafa Hakim	07, Agrabad C/A, Chittagong Bangladesh. Tel: 031-716447, 713084	No
21	Housing & Real Estate Ltd.	218. D.T Road, Dewan Hat, Chittagong, Tel: 031-710610, 720228, Web. www.tahergroupbd.com	Yes
22	Chowdhury Modern City Ltd.	House#8, Road#4 Nasirabad Housing Society, Solashahar, Chittagong. Tel: 031-2552307, 2551809	No
23	J.A.K Properties	House # 28, Road # 2, Sughanda R/A, Panchalish, Chittagong. Tel: 031-2551622	No
24	Metro Assets Ltd.	1-4 Abdul Latif Market (1st floor) Block – B, Jubliee Road, Chittagong.	Yes
25	Paramount Housing Ltd.	3536/A, Ali Mansion (1st floor), SK. Mujib road, Agrabad, Chittagong. Tel: 031-2512628	No

SL. No	Name of the Company	Address	Member of REHAB
26	Uni Village Assets Ltd.	Standard City Plazza (2nd floor), 533, SK. Mujib Road, Dewanhat. Chittagong. Tel:031-2514243	No
27	Vision Housing Ltd.	Jahan Buildings # 3, (1st Floor), 79, Agrabad, Chittagong.	No
28	Mission Developers Ltd.	Hill View Road, East Nasirabad, Chittagong. Web: www.missiongroupbd.com	No
29	Seven Properties Ltd.	50, Jail Road, Asadgong, Chittagong	No
30	Chowdhury Assets Ltd	6 Jahan Building, 93 Agrabad R/A, Chittagong, Mob: 01712-215561	No
31	Jumayera Holdings Ltd.	815/A, Mehadibag Road, Chittagong	No
32	Al Noorani Foundation	5, Jubliee Road, 2nd floor, Chittagong, Tel: 031618927	No
33	Achiyn Rahman Property Developments Ltd.	91, Agrabad C/A (1st floor), Chittagong, Tel: 031-720709, 725631, E-maail: arproperties@online.net	Yes
34	Green Delta Housing	House # 04, Road # 02, Khulshi, Chittagong – 4000 Tel: 031-2550553-4, Web: www.greendeltahousing.com	No

Table 2: Real Estate Company in Chittagong (Dhaka based)

SL. No	Name of the Company	Address	Member of REHAB
1	Sahara City Housing Ltd.	932, Mehedibag, Chittagong – 4000 Tel: 031-2852632, Web:www.saharacityhousing.com	Yes
2	AirBell Development Technologies Ltd.	Pacific Tower (2nd Floor) 206/217, Jamal Khan road, Ctg – 4000, Tel: 031-622791, 628189, E-mail: akauiam@airbellbd.com Foram Central (7th Floor)	Yes
3	Megha Builders	787/863, MM Ali Road Goalpahar, Chttagong.	Yes
4	Northern Foundation Ltd.	23/A, MM Ali Road (1st Floor) Mehadibag, Chittagong	Yes
5	Dwell Properties Ltd.	House#50, Road#4 O. R Nizam Road R/A, Chittagong – 4203 Tel: 031-2550994	Yes
6	Rangs Properties Ltd.	House#15, Road#1, O.R Nizam Road R/A, Chittagong.	Yes
7	Hyperion Builders Ltd.	MQ Plaza (3rd floor), Fakirhat Rood, Bandor, Chittagong.	Yes
8	Crown Housing ltd.	28, Panchlish R/A, (3rd floor), Chittagong. Tel:031-2551945	Yes
9	Prasad Nirman Ltd.	Plot#2, Road#3/A, North Khulshi	Yes
10	Navana Real Estate Ltd.	House#47/B2, Road – 1, Khulshi Hills, Chittagong.	Yes
11	ABC Properties	Avenue Center, 6th Floor, 787/A, CDA Avenue, East Nasirabad, Ctg-4100 Tel: 031-2852213	Yes
12	ANZ Properties	1182 Noor Ahamed Road, Love Lain Chittagong. Tel: 031-613004-5, Web: www.anzproperties.com	Yes
13	Amin Mohammed Foundation & Land Developments Ltd.	819/A, Mehadibag Road, Chittagong Tel:031-2851355-6, Web: www.amgbd.com	Yes

SL. No	Name of the Company	Address	Member of REHAB
14	ASSET Developments Ltd.	-----	Yes
15	Bti Ltd.	Lalkhan Bazar	Yes
16	KEARI Limited	KEARI Elysium, 01, Roshaik Hazari Lain, Parad Corner, College Road, Chittagong.	Yes
17	True Builders Ltd	Plot#1478, Road#01 (Hill view road), Panchlaish, Chittagong.	Yes
18	SAF Holdings Ltd.	Kashana E-Noorjahan, 537/A, Katalgonj, Chittagong Tel:031-725631, 720709	Yes

Table 3: Chittagong based Real Estate Company projects

Company Name	Ongoing Apartment projects	Size of flat	Ongoing Land Projects
1. Equity property management Ltd.	Khulshi R/A (1),Devpahar (2), Momin Road (2), Mehadibag (2), Enayet Bazar (2), Nasirabad H/S (1), CDA Avenue (1), S.S Road (1)	2530, 2105, 1805,1542,1631, 13871746, 1445,1697, 1420,1363, 1720 sft	Nil
2. Sanmar Properties Ltd.	Love Lain (1), JamalKhan (1), College Road (1). Nandan Kanon (1), Biazid Bostami (1), Dev pahar (1), Khulsi Hills (2), Sirazud dowela Road (1), Mehadibag (1),Nasirabad (1)	1550, 1260, 1350, 1420, 940, 980, 1530,1750, 2250, 3000 Sft	Vatiary (2)
3. C.A Property Development Ltd.	S.S Khaled Road (3), Muradpur (1)	1050, 1250, 1300, 1465 Sft	Nil
4. Epic Properties Ltd.	South Khulshi (1), Chat. Road (1), Patharghata (1), Mehadibag (1), Abedin Colony (1), Noor Ahamed Road (1)	1450, 1730, 1270, 1600,1005, 1300,1160 Sft.	Nil
5. H.B.S Associates Ltd.	Chatteswari Road (1)	1150, 1050, 1250, 1450 Sft	Nil
6. Moulana Development Co Ltd.	2 No Gate (1), Halishar (1), Wasa Cercal (1)	1005, 1265 1455 Sft	Nil
7. Alpha Real Estate Ltd.	Nil	Nil	Cornal Hut (1)
8. Rahat Properties & Developer Co Ltd.	Kodomtali (1), Mehadibag (1)	1065, 1150 Sft	Nil
9. RF Properties Ltd.	Siraj ud Dowla Road (1), 2 No Gate (1), Madarbari (1)	1065, 725, 915, 825 Sft.	Nil
10. Mishmak Developments Ltd.	Khulshi Hills (1), Ispahani Circle (1), Ham Sen Lane (1), O.R. Nizam Road (2)	1720, 1560,1204, 1500,750, 2275 Sft.	Nil

Company Name	Ongoing Apartment projects	Size of flat	Ongoing Land Projects
11. Shah Amanat Properties Ltd.	Katalgonj (1), New Market (1)	1050, 1265, 1360 Sft.	Vatiari (1)
12. Subashati Properties Ltd.	Love Lain (2), Shugondha (1), Panchalish (1), Kazir Dewari (1), South Khulshi (1)	1050, 1100, 1265, 1720, 1366 Sft.	Nil
13. Eternal Design & Developments Ltd.	Sirajuddola Road (1), Halishar (1), North Khulshi (1) D.C Road, Dwenbazzar (1)	764, 788,1043, 1201, 971, 1164, 1455 Sft.	Nil
14. Knight Frank Development Ltd.	Dewanhat (1), Mehadibag (1)	1250, 1150, 1005, 1455 Sft.	Nil
15. Bay Tech Properties Ltd.	Rahamotgonj (1)	1195, 1543 Sft.	Nil
16. Central Builders Ltd	Lalkhan Bazar(1), Chadgao R/A (1)	1365, 1450, 2200 Sft.	Nil
17. Ideal Home Builders	Lalkhan Bazzar (3), M.M. Ali Road (1)	860, 950, 1058, 1710, 1686, 1400, 1500, 2995 Sft.	Nil
18. ConCord Properties Ltd.	Chatteshari Road (1), Khulshi Hills (2)	888, 1890, 1260, 1365 Sft	Nil
19. Zaman Property Development	Bahaddarhat (1), Mohammadpur (2)	1050, 1150, 1265, 1360 Sft	Nil
20. Ambia Holdings Ltd.	Nil	Nil	Nil
21. Chowdhury Modern City Ltd.	Nasirabad R/A (1), Lalkhan Bazar (1), Mehadibag (1)	1150, 1265, 1360, 1455, 1765 Sft	Nil
22. J.A.K Properties	Nil	Nil	Nil
23. Metro Assets Ltd.	Shirazud dowlla Road (1)	1350, 1500 Sft.	Nil
24. Paramount Housing Ltd.	Halishar R/A (1), Lalkhan Bazar (1)	1150, 1265, 1355, 1865 Sft	Nil
25. Uni Village Assets Ltd.	Agrabad (5), Khulshi Hills (1), Nalapara (1), Lalkhan Bazar (1), Airport (1)	980, 1005, 1065, 1155, 1265, 1360, 1455, 1860, 2250 Sft	Kumira (4)

Company Name	Ongoing Apartment projects	Size of flat	Ongoing Land Projects
26. Vision Housing Ltd.	Mehadibagh (1)	1100, 1250, 1365 Sft	Nil
27. Mission Developers Ltd.	Halishahar (1), Kazir Dewri (1),Chadgoa R/A (1)	1065, 1155, 1265, 1360 Sft	Nil
28. Seven Properties Ltd.	Eid Gao Abasik Alaka (1)	980, 1005, 1065, 1155, 1265 Sft	Fojdarhat City Gate ,Sitakundo ,Kumira
29. Chowdhury Assets Ltd	Nil	Nil	Nil
30. Jumayera Holdings Ltd.	Mehadbagh (1)	1160, 1255, 1665 Sft	Nil
31. Al Noorani Foundations	Love Lain (1)	1150, 1265, 1365, 2250 Sft.	
32. Achiyn Rahman Property Developments Ltd.	Nil	Nil	Nil
33. Al-Haj Mostafa Hakim Housing & Real Estate Ltd.	New Market (1)	1100, 1250, 1350 Sft	City Gate (1)
34. Green Delta Housing	Agrabad R/A (5), Chanmari Road (2), Khulshi (1)	1300, 1560, 1660, 1775, 1882 Sft	Nil

Table 4: Dhaka Based Real Estate Company projects

SL. No	Company Name	On Going Company Project	Size of Apartment	On Going Land Project
1	Sahara City Housing Ltd.	Nil	Nil	Kornal Hut (1) Oxygen (1)
2	AirBell Development Technologies Ltd.	Chackbazar (1)	1362, 944, 1184 Sft.	Nil
3	Crowen Housing Ltd.	Lalkhanbazar (1)	1150, 1265, 1350 Sft.	Nil
4	Megha Builders	Muradpur (1)	1005, 1265 Sft	Nil
5	Northern Foundation Ltd.	Lalkhan Bazzar (1), Nandon Kanon (1)	1250, 1350, 1460 Sft.	Nil
6	Dwell Properties Ltd.	O.R Nizam Road (1)	1535, 2200 Sft.	Nil
7	RANGS Properties Ltd.	Nasirabad H/S (1)	1686, 1353 Sft	Nil
8	Hyperion Builders Ltd.	Nil	Nil	Nil
9	Prasad Nirman Ltd.	Khulshi Hills (1), Nasirabad (2)	1550, 1260, 1750,1350 Sft.	Nil
10	Navana Real Estate Ltd.	South Khulshi (1)	1350, 1460, 1760, 1850 Sft	Nil
11	ABC Properties	Khulshi Hills (1)	2100, 3000 Sft.	Nil
12	ANZ Properties	South Khulshi (1), Panchlaish R/A (1), Nasirabad R/A (5)	1265, 1360, 1550, 1665, 1860, 2265 Sft.	Nil
13	ASSET Developments Ltd.	O.R Nizam Road (1)	1250, 1460, 1765, 1860, 2165 Sft	Nil
14	Bti Ltd.	Khulshi Hills (2), Nasirabad (3)	1465, 1360, 1860, 2200 Sft	Nil

SL. No	Company Name	On Going Company Project	Size of Apartment	On Going Land Project
15	KEARI Limited	Halishar (1), Jamalkhan (1)	1160, 1250, 1365, 1765 Sft	Kornal Hut (1) Oxygen (1)
16	Amin Mohammed Foundation & Land Developments Ltd.	Nasirabad H/S (1)	1165, 1260, 1455, 1765 Sft	Nil
17	SAF Holdings Ltd.	Katalgong (1), New Market (1)	1150, 1265 Sft.	Oxygen Wazidia (1) Nil
18	True Builders Ltd	Panchalish (1)	1655, 1750 Sft.	Nil

Table 5: Location/Area based pricing in Chittagong

Name of the area	Price per Square Foot (1 Sqf = 0.0929 Sqm)
Khulshi Hills	4500 – 5500 Tk.
South Khulshi	3500 – 4000 Tk.
Nasirabad H/S	3500 – 4000 Tk.
East Nasirabad	2800 – 3200 Tk.
Paschlish	3500 – 3800 Tk.
O.R. Nizam Road	4500 – 5500 Tk.
Jamal Khan	2800 – 3500 Tk.
Mehadibagh	3200 – 3600 Tk.
S. S. Khaled Road	3000 – 3300 Tk.
Halishahar H/S	2500 – 2900 Tk.
Sirajuddullah Road	2200 – 2600 Tk.
Lalkhan Bazar	2600 – 3200 Tk.
Muradpur	2600 – 3000 Tk.
Enayet Bazar	2700 – 3000 Tk.
Nandan Kanon	2700 – 3200 Tk.
Rahamotgonj	2700 – 3200 Tk.
Agrabad CDA H/S	2800 – 3200 Tk.
Devpahar	3000 – 3200 Tk.
Collage Road	3000 – 3200 Tk.
Biazid Bostami	2200 – 2500 Tk.
Love Lain	3000 Tk.
Chatteswari Road	3000 Tk.
Pathargata	2700 Tk.
Noor Ahamed Colony	2700 – 2900 Tk.
Abedin Colony	2700 – 2900 Tk.
Sholoshaahar	2600 – 2900 Tk.
Wasa Cercal	2700 – 3000 Tk.
Kodomtali	2500 Tk.
Ham San Lane	2600 Tk.
Katalgonj	3000 – 3200 Tk.
New Market	2800 – 3200 Tk.
Shugondha	3500 – 4000 Tk.
Kazir Dewari	2900 – 3200 Tk.
D.C Road Dawanbazar	2200 – 2500 Tk.
Dewanhat	2600 – 2800 Tk.
M.M Ali Road	2800 – 3000 Tk.
Airport	2000 – 2500 Tk.
Chackbazar	2200 – 2600 Tk.
Mohammadpur	2500 – 2800 Tk.

Table 6: Apartment price in different Location/Area

Company Name	On Going Apartment Projects	Size of Apartment	Price of Apartment (Per Square Foot)
Equity property management Ltd	Khulshi R/A (1)	2530, 2105 Sft	5000 Tk.
	Devpahar (2)	1542 – 1805 Sft	3000 – 3200 Tk.
	Momin Road (2)	1387 – 1866 Sft	2800 – 3000 Tk
	Mehadibag (2)	1633 – 2325 Sft	3000 – 3600 Tk
	Enayet Bazar (2)	1251 – 1381 Sft	2700 – 2900 Tk.
	Nasirabad H/S (1)	1720, 1790 Sft	3500 Tk
	CDA Avenue (1)	1363, 1420 Sft	3200 Tk.
	S.S Road (1)	1265 – 1655 Sft	3300 Tk
Sanmar Properties Ltd.	Love Lain (1)	1030 – 1530 Sft	3000 Tk.
	Jamal Khan (1)	1550 – 1690 Sft	3500 Tk.
	Colleg Road (1)	940 – 1360 Sft	3200 Tk.
	Nandan Kanon (1)	1155 – 1765 Sft	2800 Tk.
	Biazid Bostami (1)	1055 – 1565 Sft	2500 Tk.
	Devpahar (1)	1233 – 1677 Sft	3000 Tk.
	Siraz Ud Dowela (1)	1150 – 1365 Sft	2500 Tk.
	Mehadibag (1)	1250 – 1465 Sft	3500 Tk.
	Nasirabad (1)	1165 – 1465 Sft	3800 Tk.
C.A Property Development Ltd.	S.S Khaled Road (3)	1156 – 1565 Sft	3000 – 3300 Tk.
	Muradpur (1)	1005 – 1250 Sft	2800 Tk.
Epic Properties Ltd.	South Khulshi (1)	1450 Sft	3500 Tk.
	Chat. Road (1)	1270 – 1730 Sft	3000 Tk.
	Patharghata (1)	1000 – 1150 Sft	2700 Tk.
	Mehadibag (1)	1160 – 1450 Sft	3300 Tk.
	Abedin Colony (1)	1255 – 1565 Sft	2800 Tk.
	Noor Ahamed Road (1)	988 – 1265 Sft	2700 Tk.
H.B.S Associates Ltd.	Chatterswari Road (1)	1050 – 1450 Sft	3000 Tk.
Moulana Development Co. Ltd	2 No Gate (1)	1005 – 1455 Sft	2800 Tk.
	Halishar (1)	1265 – 1865 Sft	2600 Tk.
	Wasa Cercal (1)	1155 – 1633 Sft	3000 Tk.

Company Name	On Going Apartment Projects	Size of Apartment	Price of Apartment (Per Square Foot)
Rahat Properties & Developer Co Ltd.	Kodomtali (1) Mehadibag (1)	1065 – 1150 Sft 1155 – 1555 Sft	2500 Tk. 3300 Tk.
RF Properties Ltd.	Sirazuddowala Road (1) 2 No Gate (1) Madarbari (1)	725 – 1065 Sft 2350 Tk. 825 – 1265 Sft 915 – 1155 Sft	2800 Tk. 2600 Tk.
Ideal Home Builders	Lalkhan Bazzar (3)	860 – 1710 Sft	2600 – 3200 Tk.
Chowdhury Modern City Ltd.	Nasirabad R/A (1) Lalkhan Bazar (1) Mehadibag (1)	1150 – 1455 Sft 1155 – 1360 Sft 1260 – 1765 Sft	3800 Tk. 3000 Tk. 3500 Tk.
Seven Properties Ltd.	EidGao R/A (1)	980 – 1265 Sft	2700 Tk.
Jumayera Holdings Ltd.	Mehadbagh (1)	1160 - 1665 Sft	3500 Tk.
Al Noorani foundations	Love Lain (1)	1150 - 2250 Sft.	3000 Tk.
Mishmak Developments Ltd.	Ham Sen Lane (1) O.R. Nizam Road (2) Khulshi Hills (1) Ispahani Circale (1)	750 – 1165 Sft 1465 – 2275 Sft 1265 – 1720 Sft. 1150 – 1560 Sft	2600 Tk. 5000 Tk. 4500 Tk 3000 Tk.
Shah Amanat Properties Ltd.	Katalgonj (1) New Market (1)	1050 – 1265 Sft 1050 – 1360 Sft	3000 Tk. 2800 Tk.
Subashati Properties Ltd.	Love Lain (2) Shugondha (1) Panchalish (1) Kazir Dewari (1) South Khulshi (1)	1050 – 1560 Sft 1165 – 1460 Sft 1065 – 1366 Sft 1050 – 1260 Sft 1160 – 1720 Sft	3000 Tk. 4000 Tk. 3500 Tk. 2900 Tk. 3800 Tk.

Company Name	On Going Apartment Projects	Size of Apartment	Price of Apartment (Per Square Foot)
Eternal Design & Developments Ltd.	Sirajuddowla Road (1)	971 – 1201 Sft	2600 Tk.
	Halishar (1)	1164 – 1455 Sft	2800 Tk.
	North Khulshi (1)	1265 – 1665 Sft	4500 Tk.
	D.C Road Dwenbazar (1)	764 – 1555 Sft	2200 Tk.
Knight Frank Development Ltd	Dewanhat (1)	1005 – 1250 Sft	2800 Tk.
	Mehadibag (1)	1150 – 1455 Sft	3500 Tk.
Bay Tech Properties Ltd.	Rahamotgonj (1)	1195 – 1543 Sft	2700 Tk.
Central Builders Ltd.	Lalkhan Bazar (1)	1365 – 2200 Sft	3000 Tk.
	Chadgoa R/A (1)	1365 – 1675 Sft	2800 Tk.
ConCord Properties Ltd.	Chatteshari Road (1)	888 – 1890 Sft	3000 Tk.
	Khulshi Hills (2)	1260 – 1365 Sft	4500 – 5000 Tk.
Zaman Property Development	Bahaddarhat (1)	1050 – 1365 Sft	2600 Tk.
	Mohammadpur (2)	1165 – 1265 Sft	2700 – 3200 Tk.
Metro Assets Ltd.	Shirazudowlla Road (1)	1350 -1500 Sft.	2600 Tk.
Paramount Housing Ltd.	Halishar R/A (1)	1150 – 1265 Sft	2800 Tk.
	Lalkhan Bazar (1)	1355 – 1865 Sft	3100 Tk.
Uni Village Assets Ltd.	Agrabad (5)	980 – 1005 Sft	2700 – 2900 Tk.
	Khulshi Hills (1)	1265 – 2250 Sft	4500 Tk.
	Nalapara (1)	1065 – 1155 Sft	2300 Tk.
	Lalkhan Bazar (1)	1455 – 1860 Sft	3000 Tk.
	Airport (1)	980 – 1455 Sft	2300 Tk.
Vision Housing Ltd.	Mehadibagh (1)	1100 -1365 Sft	3600 Tk.
Mission Developers Ltd.	Halishahar (1)	1065 – 1155 Sft	2800 Tk.
	Kazir Dewri (1)	1265 – 1360 Sft	3000 tk.
	Chadgoa R/A (1)	1155 – 1465 Sft	2900 Tk.

Company Name	On Going Apartment Projects	Size of Apartment	Price of Apartment (Per Square Foot)
Al-Haj Mostafa Hakim Housing & Real Estate Ltd.	New Market (1)	1100 - 1350 Sft	2800 Tk.
Green Delta Housing Ltd.	Agrabad R/A (5) Chanmari Road (2) Khulshi (1)	1300 – 1882 Sft 930 – 1010 Sft 1775 Sft	2700 – 2900 Tk. 2600 Tk. 4500 Tk.

Opportunities and Challenges of Eco-tourism Marketing in Bangladesh

SHISHIR REZA*
MONSUR AHMED**
MAUSUMI REHUNUMA***

Abstract: *Ecotourism ensures the viability of economy, sensitivity of ecology and appropriateness of culture. It is a sustainable form of natural environment based tourism that combines environment and economy and seeks to minimize harmful impacts, focuses on local culture, wilderness adventures, volunteering, personal growth as well as learning new ways to live on our vulnerable planet. Bangladesh enjoys a most favorite position, being easily accessible from many popular destinations in South Asia. This is a great advantage and particularly true of the Chittagong Hill Tracts that provides a truly pristine and exciting destination for travelers. We have not only the longest unbroken sandy sea beach− Coxes Bazar and the largest single tract of mangrove forest- Sundarban but also many other Islands, Haors, Baors etc. Bangladesh is the home of Royal Bengal Tigers, Leopards, Asiatic elephants, monkeys, langurs, gibbons, Otters, Pythons, and Paradise Flycatcher etc. However, due to lack of proper care and policy it has not seen a huge tourist's crowd and environmentally viable as expected. The practice of eco-tourism can improve both of our economic trends and environmental management if proper home grown development philosophy can be formed and implemented. Considering this aspect, proper marketing strategies can play a key role. This study analyses the present status and promotional strategy of eco-tourism potential in Bangladesh and puts forward some recommendations for turning the country into an environmentally sustainable and economically viable.*

***Keywords:** Eco-tourism, Marketing Strategy, Environmental Management, Economic Development*

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* Assistant Director, Bangladesh Bank, E-mail: Shishirmjs@gmail.com
** Lecturer, Chattogram Islamia College, Chattogram
*** Graduate in Environmental Science, Mawlana Bhashani Science & Technology University

Introduction

Bangladesh is a country with rich traditions, natural beauty, beaches, forests, lakes, hills, wild lives, archaeological attractions, monuments, handicrafts, sanctuaries, cultural heritage, tribal culture and architecture, incredible greenery, mighty rivers and attractive river cruises, sunny beaches, colorful tribal life and attractive cultural functions that offer great tourist attractions (Haque, Hossain and Nazmin, 2006). After the independence of Bangladesh, the government of the newborn state realized the importance of tourism in its economic and social life. Therefore, the government decided to reorganize the tourism sector (Ministry of Civil Aviation and Tourism, 2004) by combining both the tourism department and the private corporation into one organization, bringing it under government responsibility for better coordination, promotion, development and marketing (Hossain, 2006). Bangladesh Economic Review (2010) states that Bangladesh has basically three sectors of generating revenue: industry, agriculture and service. Tourism is a part of service sector which contributes to the GDP of Bangladesh. Though the contribution of tourism in GDP is only 7% in 2004-05, it has increased to 9.44% by the year 2009-10. It decreases in 2014 which is 4.1% of total GDP and in 2015; tourism contributes 4.7% of the total GDP. Effective promotional strategies are very essential for the improvement of tourism industry in any country. Proper marketing provides full and responsible information, increases respect for the natural, social and cultural environments of destination areas and enhances customer satisfaction. Due to lack of nourishment, available research, fund and proper marketing strategy, Bangladesh Parjaton Corporation could not yet develop the promotional strategies. As a result, tourism industry could not get room to grow correctly in Bangladesh. But there are lots of opportunities if Bangladesh attempts to focus our land as an eco-tourist destination to the tourists through effective promotional policies and take some steps to improve some infrastructural facilities, the country would be able to combine economy and environment. If eco-tourism is not economically viable, the facilities and services required by most eco-tourist will not be provided and potential economic benefits of eco-tourism for both industry and local residents will not be achieved. If the environment and its treasures are not maintained, the resources base eco-tourism is destroyed. If the eco-tourism is not culturally acceptable and local people do not get benefit from its existence, they will be hostile towards eco-tourism. In order to make these aspects more effective towards sustainable eco-tourism development, the current situation calls for 'sustainable infrastructure' and implementation of effective marketing strategies through integration of environmental concerns into all the socio-economic

development practices of the country. The main objective of this study is to explore opportunities and challenges of eco-tourism marketing in Bangladesh.

Methodology of the Study

It is an exploratory type of study. Data has collected from both primary and secondary sources. Secondary data has collected by studying and reviewing the different journals and articles, textbooks, news papers and websites. Primary source includes Formal survey through questionnaire, Informal conversation with experts who understand the pros and cons of the industry. The target people were officials of Parjaton Corporation and the tourists from home and abroad. Sampling technique was judgmental sampling and Sample sizes are 20 respondents from the officials and 40 respondents from the tourists.

Eco-tourism: Meaning and Importance

Ecotourism has been developed following the environmental movement which appeared at the beginning of the seventies. The growing interest of people for environment and trips oriented towards fresh air, in addition to the growing dissatisfaction towards mass tourism, highlighted to the tourism industry a need for ecotourism. Besides, the understanding and the agreement with the principles of nature preservation and durability for a growing portion of the population took part in the evolution of the term "**ecotourism**". It focuses on local cultures, wilderness adventures, volunteering, personal growth and learning new ways to live on our vulnerable planet. The concept of ecotourism is one of ambiguity and dispute. Ecotourism has to be both ecologically and socially conscious. Its goal is to minimize the impact that tourism has on an area through cooperation and management and in some case it even encourages travelers to have a positive impact on their new surroundings. Ecotourism implies,

"Responsible travel to natural areas that conserves the environment and improves the well being of local people"(Blangy and Wood, 1993)

Eco-tourism is very important regarding the global climate change as well as environment and development conflict. It is an essential understanding to the tourism oriented or third world countries as it actively contributes to the natural and cultural heritage protection includes local and native populations in its planning, development. It contributes to their well-being; offers to visitors an interpretation of the natural and cultural heritage; lends itself better to individual travelling and travelling organized for small groups. Eco-tourism ensures a destination, generally natural environment which is not polluted; minimizes the

negative impacts of tourism; Contributes to conservation efforts; Cooperates with local people to manage natural areas; supports the local economy and the specificity of the place. Bangladesh is a land equipped with hills, valleys, forests, beaches, lakes and rivers. She can be an eco-tourist hub if all aspects of eco-tourism development aspects are properly addressed.

Figure 1: Eco-tourism Development Aspects (Source: Reza, 2016)
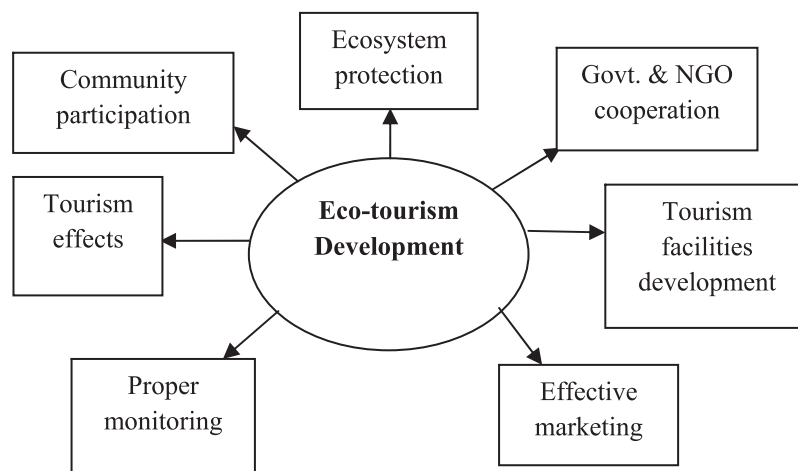
Through making an allowance for eco-tourism development aspects, Bangladesh can promote sustainable use of natural resources, explore economic value of ecosystem services, create incentives for conservation in local communities, reduce threats to biodiversity and generate direct and indirect income local stakeholders.

Economics, Marketing and Management of Eco-tourism

Eco-tourism helps in the process of generating foreign exchange, creation of employment and encouragement of local economy especially nature tourism which occurs in rural areas. It can lead to localized economic development in these often neglected areas. This industry has a great importance not only as a generator of income but also for creating employment opportunities. According to the World Tourism Organization, a total number of 763.25 million international tourist traffics were recorded during 2004 and received US$ 622.68 billion from this sector and making the tourism as one of the largest industries in the world. World vision (2001) anticipates that, an average annual tourism growth rate of 4.1% till 2020 where nature base tourism would increase employment rates,

improve socio-economic condition and foreign exchange earnings. So, in order to address the economic aspect of ecotourism, proper marketing and management is essential. In ecotourism, proper marketing communications occur in three ways such as external, internal and word-of-mouth. External uses formal communication channels to promote the tourism product to the traveler, boasting of its benefit and making promises. Internal communication occurs when the tourism service provider makes contact with the tourist and delivers the promised benefits. Word-of mouth communication occurs informally when visitors or employees discuss their experiences of the tourism products to others. For proper marketing of eco-tourism, some issues are essential such as, local demand, environmental sensitivity, international demand, investment climate, community interests and support.

Figure 2: Eco-tourism Marketing Issues (Source: Reza, 2016)
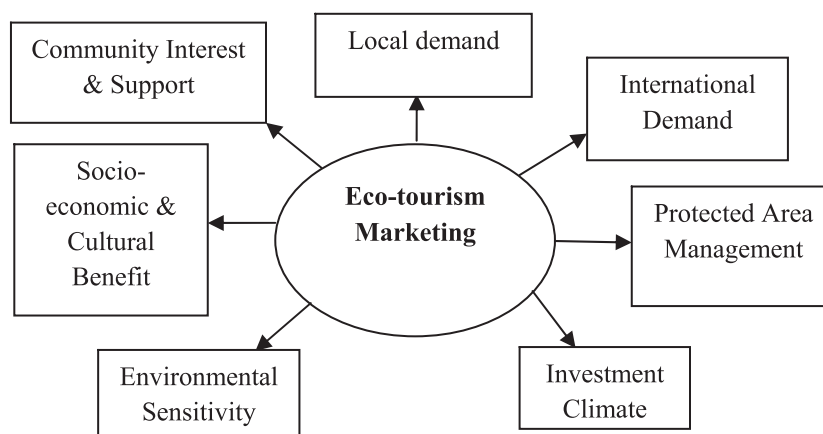
Basically, eco-tourism implies a traveling to relatively undisturbed or uncontaminated natural areas with the specific objective of studying, admiring and enjoying the scenery and its wild plants and animals as well as existing cultural manifestations found in any areas (Boo, 1990). Eco-tourist needs to explore the value of natural land, local food, recreation facilities, status of biodiversity, conserved inhabitants and endangered species. As a result, management of natural parks, protected areas, game reserves are essential. Primarily global thoughts are close to climate change and sustainable development now. We know, sustainable tourism refers to meet the needs and rights of present tourists and host communities and regions while protecting and enhancing opportunities for the future. Home grown development aspects and

effective policies can be important part for sustainable tourism. For proper management of eco-tourism in any country, three aspects are necessary. Economic- private & public partnership, employment opportunities, purchasing decision; socially- cultural appropriateness, benefit for future generations, role of media, local government & NGO's; environmentally- environmental safety standard, global warming, climate change and environmental awareness. On the other hand, hospitality management is very decisive as it combines easy access of hotels, motels, restaurants, timely transportation, maintains local, regional and national security, as well as cultural and natural enrichment.

Contemporary picture of tourism sector in Bangladesh

The people who have visited Bangladesh are pleased and satisfied with the country's magnificent natural beauty, eye-catching attractions, rich cultural heritage, cheap services and facilities, and friendly simple people. Despite the facts, Bangladesh has not taken appropriate measures to counter its negative image abroad as a country that faces poverty, floods and cyclones. According to World Economic Forum (2013), the position of Bangladesh is 123rd out of 140 countries. According to world travel & tourism competitiveness report (2013), Bangladesh got 129th out of 136 countries. Among the South Asian countries, the status of Bangladesh is very well compared with India, Nepal, Sri Lanka and Pakistan. It is expected that the Parjaton Corporation along with other private tour operators will prefer the issue of correcting the image by undertaking promotional measures in order to develop tourism in Bangladesh. The government should also extend cooperation in this regard by playing the foremost role in building the positive image so that the industry can play it proper responsibility to the economy of the country.

Tourist Arrivals in Bangladesh

The following table shows the tourist arrivals in Bangladesh in different years:

The table depicts that the number of tourist arrivals in Bangladesh has increased to 258,650 in 2015 from 207,662 in 2006 which shows a positive signal. In general, the statistics shows a very good and positive trend. But the fact is that the overall scenario is not good. This rate can be considered very accelerative for those countries that have already matured in the market. But for the initial level of market entry, the above growth rate is not a positive one. Expected tourists' arrival is about 600,000 for the year 2020, subject to remaining the present trend unchanged.

Table 1: Foreign Visitors Arrival by Months (2006-2015)

Month	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
January	20,213	16,733	39,345	29,632	24,670	20,370	19,170	16,733	10,045	27,202
February	15,848	17,308	30,788	27,286	26,012	22,021	22,022	15,308	15,288	25,181
March	19,853	17,579	30,079	27,114	25,262	25,999	21,202	16,579	14,079	24,014
April	16,234	23,956	25,128	28,786	25,173	21,455	20,211	14,956	13,128	25,281
May	18,535	20,853	36,929	25,704	19,959	15,213	17,100	14,853	16,220	22,104
June	17,496	24,483	39,158	26,244	24,020	19,623	15,201	17,483	15,158	20,200
July	19,773	32,223	42,457	25,780	25,991	21,423	16,233	27,223	14,411	21,283
August	15,292	20,614	36,017	20,239	23,938	17,762	20,102	20,614	16,017	17,130
September	13,166	18,509	26,723	19,749	20,860	18,336	14,206	18,509	17,321	16,742
October	15,568	27,073	43,213	18,963	22,785	20,112	18,312	19,073	21,203	18,903
November	18,399	30,308	39,996	21,336	25,208	23,322	21,312	14,308	21,196	19,336
December	17,285	39,471	77,499	25,274	20,392	22,122	19,202	19,471	29,409	21,274
Total	**207,662**	**289,110**	**467,332**	**297,107**	**271,270**	**247,788**	**224,273**	**215,113**	**203,475**	**258,650**

(Source: Bangladesh Tourism Board Website; tourismboard.gov.bd/publications/statistics/)

Table 2: Foreign Exchange Earnings from Tourism & Other Travels (2001-2010)

Month	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Jan	273.80	297.50	259.00	457.00	450.42	653.71	561.13	749.28	649.24	495.98
Feb	218.10	260.60	327.00	393.70	502.73	554.11	624.04	585.06	579.46	496.98
Mar	196.10	336.20	355.90	425.90	468.50	538.94	471.90	527.79	518.90	565.97
Apr	219.00	312.50	241.10	309.40	335.56	411.62	387.22	459.35	473.85	427.37
May	240.50	282.70	226.30	305.00	347.95	452.02	449.95	423.06	538.21	342.11
Jun	221.70	313.00	288.00	279.70	301.23	394.96	366.17	509.52	417.71	473.03
Jul	207.10	267.50	302.30	303.60	296.98	398.14	346.63	461.98	453.03	320.97
Aug	170.50	251.50	232.00	285.90	354.61	424.16	363.72	417.30	439.32	431.37
Sep	193.40	245.90	217.30	293.10	334.14	362.29	342.54	464.46	350.65	368.06
Oct	187.00	205.00	265.10	247.90	332.67	327.95	359.68	415.67	361.99	525.26
Nov	234.80	277.70	224.20	250.42	324.45	444.50	440.25	519.39	461.28	477.14
Dec	291.80	262.50	371.80	415.94	444.65	568.25	551.96	591.66	518.60	638.46
Total	**2653.80**	**3312.60**	**3310.00**	**3967.56**	**4493.89**	**5530.65**	**5265.19**	**6124.52**	**5762.24**	**5562.70**
% Change	**1.02**	**24.82**	**-0.08**	**19.87**	**13.27**	**23.07**	**-4.80**	**16.32**	**-5.92**	**-3.46**

(Source: Bangladesh Tourism Board Website; tourismboard.gov.bd/publications/statistics/)

Tourism and Travels in Bangladesh: Foreign Exchange Earnings, GDP and Employment

The marketing performance of any tourism organization can be evaluated based on the earnings by the organization. The following table shows the earnings and growth rate of the same of Bangladesh Parjaton Corporation, the only government owned tourism organization in Bangladesh: (Million Taka)

Though the foreign exchange earnings through mobilizing domestic resources by the host country's tourism industry can play an important role in the economy, the earning of Parjaton Corporation is very insignificant in terms of the overall earnings of the said industry in the world and even in the Asian region. The earnings from tourism in Bangladesh was Tk. 267.7 million in 1990-91 which increased to Tk. 5562.70 million in 2010. There is also a very positive sign that in most of the year from 2000 to 2010 has a positive growth rate. From the above table we have seen, Bangladesh does not have a good position in world tourism, but the trend of growth rate in the earnings is encouraging. By observing GDP it is important to calculate hotels fares, airlines fares, airport services, travel agents as well as leisure and recreation services. The direct contribution of Travel & Tourism to GDP was BDT193.0 billion (2.1% of total GDP) in 2012, and which was 7.7% in 2013, and to rise by 6.4%, from 2013-2023, to BDT384.7 billion in 2023. The direct contribution of travel and tourism to GDP are shown in the following figure-

Years	Direct contribution to GDP (Billion taka)
2010	148.1
1011	167.6
1012	193.0
1013	223.0
2023 (forecasted)	683.2

The rapid development of tourism sector in Bangladesh has led to significant employment creation. Direct contribution to employment means the number of direct jobs within the Travel & Tourism industry. In 2012 Travel & Tourism directly supported 1,281,500 jobs. It is assumption that by 2023, tourism would create 1,785,000 jobs. The direct contribution of travel and tourism to employment are shown in the following Table-

Years	Direct contribution to Employment (000)
2010	1240.5
1011	1252.9
1012	1281.6
1013	1338.3
2023 (forecasted)	1785.8

Opportunities of Eco-tourism Marketing in Bangladesh

The terms ' the third world' , 'underdeveloped countries', 'developing countries', ' poor countries', ' the south' and less-developed countries are discussed mostly nowadays. Bangladesh is a lower middle income country (dreaming for middle income country within 2021) in South Asia with an area of 147,570 sq. km. and a population of 160 million. It is bordered on the west, north and east by India, on the south-east by Myanmar and Bay of Bengal to the south. The territorial waters of Bangladesh extend 12 nautical miles and economic zone of the country is 200 nautical miles. Bangladesh has already adopted 'National Tourism Policy-2010'. The main objective of this policy is to develop eco-tourism, a wing of sustainable tourism through conservation and preservation of cultural values of the local community and their participation and sharing benefits. Through this policy, a platform has been already created to improve the inflow of national and international currencies at local level of Bangladesh. We know eco-tourism considers community gain and cultural appropriateness. So it can provide benefit for economically underprivileged, indigenous, marginal and religious minority peoples of Bangladesh. Besides, local people can explore their thoughts by the eco-tourists such as, 'simple living, high thinking', 'zest for living, room to grow', etc. However, Bangladesh possesses a great potential for ecotourism development. The country entirely itself is an ecotourism destination. There are plenty of ecotourism attractions lying hither and thither of this land. The offshore islands, haors and wetlands, mangrove forests, rivers and culture can be our ecotourism products.

Sea Beaches: Cox's Bazar (62 miles), the longest sea beach of the world, is the tourist capital of Bangladesh. The shark-free beach is good for bathing, sun-bathing and swimming. The breathtaking beauty of the setting sun behind the waves of the sea is captivating. Visiting the fascinating spot like Himchhari, Teknaf, Inani Beach, Buddhist Temple at Ramu and islands such as Sonadia, St. Martin and Moheskhali can form memorable experiences of one's lifetime. Kuakata, locally known as Sagar Kannya, is a panoramic sea beach on the

southernmost tip of Bangladesh. Kuakata(30 km long), is one of the rarest places which has the unique beauty of offering the full view of rising and setting of crimson sun in the water of the Bay of Bengal in a calm environment.

Forests: The Sundarbans is the largest mangrove forest in the world. Two-third of the Sundarbans is in Bangladesh. Sundarbans South, East and West are three protected forests in Bangladesh. Sundarbans meaning beautiful forest is the natural habitat of the world famous Royal Bengal Tiger, spotted deer, crocodiles, jungle fowl, wild boar, lizards, monkeys and an innumerable variety of beautiful birds. Wildlife photography is an important part of eco-tourism, includes photography of the wildlife, boating inside the forest, nature study, meeting fishermen, wood-cutters and honey-collectors, peace and tranquility in the wilderness. National Botanical Garden was established in 1961 and is located to the eastern side of National Zoological Garden in Mirpur with a total area of 84 hectare of land. The garden has a collection of about 100 species of local and foreign plants. About 100 varieties of roses, in the bamboo grove 100 varieties of bamboo, varieties of sandal wood are some notable attractions of the garden along with about 60 species of different rare and exotic plants. Botanical Garden and Eco-park is a reserved forest block with unique natural beauty established in 1998 at the foothill of Chandranath Hill at Sitakunda, Chittagong with a total area of 808 hectare. It is a promising site for developing habitat of wild flora and fauna, blooming eco-tourism and developing research and education for scientists of home and abroad.

Hills, Rivers, Lakes and Island: Rangamati is a wonderful repository of scenic splendors with flora and fauna of varied descriptions. The township is located on the western bank of the Kaptai Lake. Rangamati is a favorite holiday resort because of its beautiful landscape, scenic beauty, lake, colorful tribes, its flora and fauna, tribal museum, hanging bridge, homespun textile products, ivory jewellery and the tribal men and women who fashion them. Bandarban is regarded as one of the most attractive travel destinations in Bangladesh. Its resources can attract tourists from all over the country or even from abroad. Nilgiri is a famous tourist place here. Notably Bandarban is the house of the three highest peaks of Bangladesh. Khagrachari is also known as Phalang Htaung or the Mong Circle. Khagrachari is a valley. It has three rivers namely Chengi, Kasalong and Maini. Most of the land of Khagrachari is hilly areas. Its resources can attract tourists from all over the country or even from abroad. The Sylhet Division is covered with terraced tea estates, patches of tropical rainforest, pineapple plantations and orange groves. This division has the best climate in the country – temperate and cool air in the winter and moderately warm in the summer. This place is also of

religious importance to the pious Muslims of Bangladesh since the shrines of Hazrat Shahjalal (RA) and Hazrat Shahporan (RA) are situated there. St. Martin's Island is the only coral island in Bangladesh. It is about 8 km west of the northwest coast of Myanmar at the mouth of the Naf River. The local name of the island is "Narical Gingira". Bangladesh may consider all aspects for development of ecotourism at St. Martin's island. It is endowed with vast marine and land resources having great biodiversity significance. This island is a good example of co-occurrence of corals, algae, seaweeds, grasses and mangroves.

Govt. of Bangladesh has already launched an act of protected areas of tourism and special tourism zone where tourism authority would emphasize of using solar energy at remote areas. National Board of Revenue (NBR) decided to provide customs duty waiver on importing heavy machineries and instruments to erect eco-tourism oriented infrastructure. Bangladesh Tourism Board started 'Tourism Awareness Program' from 2013, now this formula is working at Chittagong hill tracts area. Ministry of civil aviation and Tourism has started to provide journalism fellowship on tourism from 2016. It is a great opportunity for journalists to pick up local eco-tourist zones.

Challenges of Eco-tourism Marketing in Bangladesh

There are a lot of challenges of eco-tourism marketing in Bangladesh. In our country, the poor people have least knowledge and understanding regarding country's eco-tourism development where local people at some destinations are completely unaware of eco-tourism. In hilly districts, tribal people set fire to the jungles for jhoom cultivation causing damage to the forest and species. Evergreen forests are highly degraded, shal forests are now converting exotic short rotation plantation, and mangrove forests are losing her beauty due to shrimp farming and high population pressure. Many of the plants and animals species are extinct already from the protected areas of Bangladesh due to land encroachment in forests, commercial cultivation, and violation of forest and environmental laws etc. St. Martins Island is not free from danger due to the habitat destruction, changes of landscape, salinity intrusion, expansion of settlements and over-exploitation of fisheries

Percentage of satisfaction of the tourists of our spots: Greatly satisfied 5%, Satisfied 45%, Neutral 19%, Dissatisfied 25%, Very dissatisfied 6%
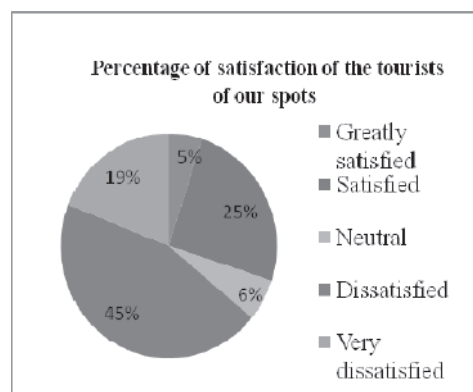
resources. Besides some common challenges, the authority facing to explore eco-tourism in Bangladesh, which are given below:

1. All the 5-star, 3-star, 2-star hotels are located in Dhaka, Cox's Bazaar and Sylhet and its number and accommodation capacity are insufficient.
2. Hijacking, snatching, murder etc. have become an ordinary event in our life.
3. Political corruption as well as political, social and cultural stability
4. Uncontrolled ground level transportations
5. Sanitation problems
6. Lack of pure drinking water and hygienic foods
7. Poor local infrastructure, uncontrolled urbanization and low institutional capacity
8. Lack of technical knowhow and weak promotional activity
9. Lack of consistent tourism strategies and policies
10. Lack of pollution free environment.
11. Biodiversity loss and degradation
12. Human resources weakness (According to international labor organization, 40% young people are inactive in Bangladesh)
13. Absence of training institute related to eco-tourism
14. Lack of market information
15. Increasing cultural deterioration and disrespect for human rights
16. Conflict between tribal and other people

Findings of the Survey Conducted on Tourists: This study provides huge scope to promote and strengthen eco-tourism in Bangladesh. The objectives of tourism industry must match with the findings delineated in the whole report. To have insights about the industry a survey was conducted on 40 persons of varying age, social class, income level. This survey has supported to understand the present condition of our tourism industry. Followings are some of the findings of my survey:

1.   Percentage of Satisfaction of the Tourists of Our Spots: According to the survey on satisfaction of the tourists of our spots it was found that most of them were dissatisfied about it. Only 5% was greatly satisfied and 25% was moderately satisfied with the environment and facilities of the tourist's spots.

2.   Factors of Tourists' Satisfaction: In response to the question that "if they are satisfied, then what factors did they find playing as the most effective role to make their trip a memorable one", the respondents name few important factors

influencing their satisfaction. 40% of the respondents mention low cost of hotel and food as important factor. Proper infrastructure proper management, transport facility and safety are some of the other important drivers of satisfaction.

3.   Causes of Dissatisfaction of the Tourists:

In response to the question that "if they are not satisfied, then what factors did they find playing as the most negative role to make their trip a bad experience", the respondents name a number of important factors causing their dissatisfaction. 40% of the respondents mentioned poor transport facility as the main cause. Some other causes are high cost of hotel, improper management, improper infrastructure etc.
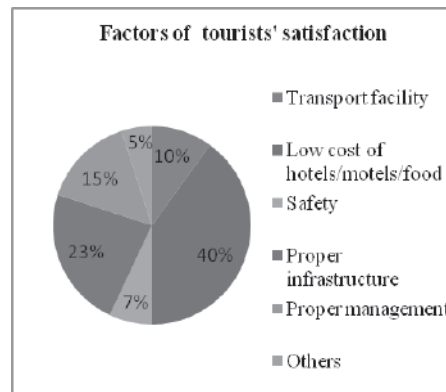
4.   Most Preferable Spots: The respondents were asked to list their most preferable spots. 63% of them name Cox's Bazar as their most preferable spots. Other preferable spots are the Sundarbans, Chittagong Hill Tracts, Sylhet, Kuakata etc.
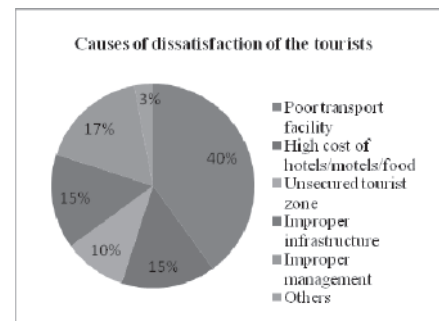
5.   Government Steps Are Adequate:

The respondents were asked whether government steps for the development of tourism in Bangladesh are sufficient or not. 52% of the respondents think that the government steps were not adequate. Only a small portion of the respondents was satisfied with the initiatives of the government.

6.   Advertising can play the key role: The respondents were asked which promotional tools can be used to promote tourism in Bangladesh. 25% of them think that advertising can play very important role. 20% of them think Sales promotion should be used; another 20% think Interactive marketing can be effective. 15% emphasize Public relation and publicity, another 15% emphasize Direct Marketing. Only 5% respondents mentioned personal selling to be used as a promotional tool to promote tourism.

Eco-tourism Marketing in Bangladesh: Integrated, Niche Strategy and Geographical Information Systems

Various tools of Marketing Communication can be used to promote the tourism sector of Bangladesh.

Advertising: Advertising is a non-personal form of mass communication and offers a high degree of control for those responsible for the design and delivery of the advertising message. Different tourist attraction of the country can be advertised in TV, Radio, newspaper, Journals or magazines using persuasive message to attract the potential visitors. Both the home country media and foreign media can be used to deliver the message. For example: Some persuasive and attractive advertisements like "Beautiful Bangladesh" can be prepared and presented in broadcast media.

Sales Promotion: According to Philip Kotler, sales promotion is the short-term incentives to encourage the purchase or sale of a product or service. According to the authors, samples, cash refunds, price packs, premiums, advertising specialties, patronage rewards, point-of-purchase displays and demonstrations, and contests, sweepstakes and games can be used for consumer promotion tools and many of the tools used for consumer promotions- contests, premiums, displays – can be used as trade promotions or alternatively, the manufacturer may offer a straight discount off the list price on each case purchased during a stated period of time, also called a price-off, off-invoice or off-list whereas in business promotion includes many of the same tools used for consumer or trade promotions but mainly conventions and

Factors of tourists' satisfaction

- Transport facility
- Low cost of hotels/motels/food
- Safety
- Proper infrastructure
- Proper management
- Others

10%, 40%, 7%, 23%, 15%, 5%

Govt. steps are adequate

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

8%, 13%, 22%, 52%, 5%

Advertising can play the key role

- Advertising
- Sales romtion
- Personal Selling
- Public Relation and Publicity
- Direct Marketing

25%, 20%, 5%, 15%, 15%, 20%

trade shows and sales contests are used for business promotions. Incentives can be given to attract the visitors in the off-season. For example- tour package, discount services, price reduction or some facilities can be offered to the visitors. Some lucrative offers can be offered on different occasions. Tour fair can also be arranged. Again, special offers can be given on special days like Valentine's Day, or any other days when there exits an opportunity to attract visitors.

Personal Selling: Personal selling is traditionally perceived as a communication tool which involves face-to-face activities undertaken by individuals, often representing an organization, in order to inform, persuade or remind an individual or group to take appropriate action, as required by the sponsor's representative. According to the author, a sales person engages in communication in a one-to-one basis where instantaneous feedback is possible and the costs associated with interpersonal communication are normally very large. The respective authority can send their delegates to different countries where they will personally deliver messages about the tourist's attraction and facilities of our country in different seminars and meetings. 'Team selling' form of personal selling can be used where groups people will present information on our tourists spot to a number of potential visitors who can influence even more visitors to visit our tourists spots.

Public Relations: Public relations is the art and social science of analyzing trends, predicting their consequences, counseling organization's leadership, and implementing planned programs of action which will serve both the organization's and the public interest. Third-party like magazines, newspapers, news programs etc. disseminate the messages on behalf of a particular company or organization. The increasing use of public relations and in particular publicity is a reflection of the high credibility attached to this form of communication and there is no charge for the media space or time but there are costs incurred in the production of the material. Press relations, product publicity, corporate communications, lobbying and counseling etc. are the different tools which can be used for public relation effectively. Newsworthy information on the tourist spots can be created and placed in the local news media and also in the foreign news media to attract attention of the potential visitors. Bangladesh can establish one tourism promotion office and help desk in each of the countries where a large number of visitors are supposed to be found. Again, a Tourism booth can open in each of the High Commissioner Offices of Bangladesh in various countries.

Direct Marketing: Direct Marketing is defined as any activity which creates and profitably exploits a direct relationship between the company and its prospect. Direct marketing is a term used to refer to all media activities that generate a

series of communications and responses with an existing or potential customer. Telephone, mail, fax, e-mail, the Internet etc can be used to communicate directly with specific consumers and to create and sustain a personal and intermediary-free dialogue with them. The database from the travel agencies and hotels can used to obtain the lists of their frequent clients. This information can be used to communicate and inform about various tour facilities and offers to the potential client bases. For example, it may take the form of direct-mail marketing, catalog marketing, telephone marketing or direct-response television marketing.

Interactive Marketing: Interactive marketing relies on customers expressing their preferences so that marketers can produce more relevant marketing messages. Unlike the outbound marketing of the past, interactive marketing creates a two way dialogue between a business and its customers. Any time a customer is invited to provide feedback, express their personal preferences, or offer up demographic information, they are providing information that marketers can use to guide their advertising efforts. Interactive marketing can take many forms, but search engine marketing is one of the most common. When customers type a query into a search engine, they are shown advertising based on their search terms. Bangladesh should develop an interactive website or improve its current website so that potential visitors can contact directly with our responsible authorities. Again, there should be efficient personnel who will respond to their queries accordingly. Bangladesh's tourism sector must start taking all the preparations from this moment if it wants to grab the huge development potentiality it posses. Although we should largely target the foreign visitors, at the same time it must not also ignore the increasing prospect of the domestic market of this sector. As mentioned earlier, it is not enough that the country possesses a potential for becoming a covetable tourist destination.

Niche Marketing is related to the market segmentation 'an emphasis on a particular need or geographic, demographic or product segment' (Teplensky et, al, 1993). Kotler (2013) states that niche markets are usually constructed by dividing a segment into sub-segments and the key issue in niche marketing is specialization. We can apply niche marketing strategy by the demographic and psychographic segmentation. Demographic segmentation means

1. Ethnic identity and nationality: countries – USA, UK, East Asia, South Asia, African etc.
2. Age: young, old and children around the world
3. Family: Bangladeshi in USA, UK, Australia etc.
4. Sex: men and women
5. Religion: Islamic, Christian, Buddhists, Hindu etc

Psychographic segmentation depends on hobbies, opinions, values, lifestyles, attitudes and personalities. Regarding eco-tourism, niche market for forests, hills and islands can be in such a ways:

1. Hills and islands includes sundarbans (the home of the majestic royal Bengal tigers)
2. Rangamati- the lake district
3. Kaptai- the lake town
4. Bandarban- the roof of Bangladesh
5. Khagrachari- the hilltop town
6. Tribal community- the indigenous cultural assimilation

Besides, applications of geographical information systems (GIS) are very important for marketing eco-tourism. By the use of these systems, concerned authority can easily sell eco-tourism products, show graphic location, assimilation of plants and animals, explain geo-demographic characteristics and put in plain words about cultural variety and the socio-economic condition of indigenous peoples.

Conclusion and Recommendations

Bangladesh can be an eco-tourist hub if govt. and local people work together. It is important to mention that, host community should need to work together than the socio-cultural conflict. Based on the findings of the study the following recommendations are given for the managerial implication to improve the promotion of this industry:

Image of the Country: Bangladesh is suffering from the image problem because of some international media. These media highlight Bangladesh negatively which results to create misconception among the potential tourists. As a result, many foreigners do not choose Bangladesh as an eco-tourist destination because of either they don't have enough idea about the country and its tourism attractions and facilities or what they have is negative. To some extent, it may be partially true but is not the fact as a whole. Once someone visits the country his/her perceived image is changed. So, Bangladesh tourism should emphasize first on its promotional measures to correct this negative image.

Information Technology in Promotional Activity: The international tourism system is dependent on information technology for its future growth, competitiveness and long-term survival. In promoting the tourism industry of any country, the Internet can play the leading role to facilitate information exchange

internationally. In addition to that World Wide Web is the most popular application on the Internet which can be used effectively for the many purpose of tourism marketing including direct sales, advertisement, customer support, etc. Bangladesh tourism authority must consider the effective use of this technology for the promotional activity of this industry. It is worth mentioning here that though Bangladesh Parjaton Corporation has its own web page; it should be well designed containing all the necessary information such as wildlife photography books, wildlife videos, and environmental awareness issues.

Promotion of Specific Regions: If the industry wants to attract more foreign tourists, it needs to publish some creative advertisement in some specific travel guides, magazines, and specialized professional journals that the potential tourists, overseas tour operators, travel agents, and travel writers read. It is very important of information and education center for both national and international tourists for exploration eco-tourism.

Allocation of More Promotional Funds: Bangladesh don't have that level of capability to compete with the world's top tourist generating countries, but it has the capability to compete with the member countries of SAARC or at least some other small countries of SAARC except India. To compete with these countries, needs to conduct more promotional measures. But what the amount is allocating presently for this purpose is not sufficient. Though the country has not enough financial capabilities, but it can easily increase it promotional budget up to 4 or 5 percent of its total earnings from this sector. In addition to that the authority should have a plan for the effective use of the promotional budget because it will again help to increase the earnings by attracting more tourists. Double taxation can be avoided in case of foreign investors on the basis of bilateral agreements.

Promotion of Bangladesh through Foreign Tour Operators: Foreign tour operators can play an important role in motivating the potential tourists to a specific tourist destination. BPC and the private tour operators of Bangladesh can maintain the contact and liaison with the foreign tour operators and to influence them to send more tourists to Bangladesh. Even foreign tour operators can be used to distribute the brochure, souvenirs, and tourists' maps of Bangladesh tourism. For this purpose they need to have some incentives. Bangladesh can sell package tours through foreign tour operators where they receive a handsome amount of discount. Besides the govt. of Bangladesh provide easy license, low interest loan, training and guidelines to local the tour operators.

More Discounted Offer for a Group Tour and Long Stay: Bangladesh can attract more tourists by offering more discounts on group tours and long stay

visits. For example, discount on air tickets, hotel rents, discounted price of local transport arranged by the tour operators etc. National airlines have a major role in this regards. Since the position of the national airlines of Bangladesh is not so good, the country can make the mutual arrangement on some selected international airlines. In addition to that the tourism authority should offer more off-season discounts, students discount, SAARC tour rebate etc to motivate the potential tourists to visit Bangladesh.

Direction for Further Research: This research was conducted to find out the use, importance and ways of promotional activities in tourism of Bangladesh. It is tough to conduct the research on a vast area like eco-tourism with the time frame allocated for the study. There remains further scope to conduct the study as the replication of the present study. For example, to have in-depth picture of the tourists' opinion they can be interviewed. A comparative study can be done among the cost of visiting the destinations of different regions from the same place of origin as the cost for travelling is an important element in choosing the destination place. Again, the promotional strategies used by the successful destinations can be compared to prescribe the more suitable strategy for Bangladesh.

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Determinants of Bank Profitability
In Bangladesh

KHAN A. MATIN[*]

Abstract: *This study attempts to investigate the influence of various bank specific and macroeconomic determinants of bank profitability by taking 47 commercial banks of Bangladesh during the period 2010-15. Three different measures of profitability namely return on assets (ROA), return on equity (ROE) and net interest margin over total assets (NIM) are used in the study. The data are from the annual reports of individual banks, BFID annual reports, and various publications of the Bangladesh Bank and Bangladesh Bureau of Statistics. The Feasible Generalised Least Squares (FGLS) model for panel data has been applied to estimate the effect of the explanatory variables. The result indicated that nonperforming loans, loan loss provisions, bank size, cost efficiency and liquidity had significant negative effect on ROA, while non-traditional activities measured by non-interest income and off-balance sheet activities had significant positive effect on ROA. In the model for ROE, loan loss provision and cost efficiency had significant negative effect. The equity capital, loan loss provision, non interest income, cost efficiency and liquidity had significant positive effect on NIM, while bank size and off-balance sheet activities had significant negative effect on NIM. We find no significant impact of the macroeconomic variables-rate of growth of real GDP and inflation rate included in the models on profitability. The financial soundness indicators of Bangladesh compare well with those from countries like India, Pakistan, Sri Lanka, China, Indonesia, Thailand and Vietnam.*

Keywords: bank profitability, panel regression analysis, Bangladesh.

JEL Classification. C23 G01   G21 N25

[*]   Professor (Formerly), Institute of Statistical Research and Training (ISRT), University of Dhaka
       E-mail: kmatin@isrt.ac.bd/kmatin_isrt@yahoo.com

Introduction

The banking system is the most important element of the financial system in Bangladesh. Various estimates puts the share of banking assets to the total financial system assets well over 60 per cent. The Banking assets to GDP ratio is about 71 per cent. In Bangladesh banks function as the main players in channeling funds from lenders to borrowers, therefore it is important that their intermediary role provides a higher welfare for the society, possibly at lower costs. It falls on the banks to bridge the gap between savers and borrowers and to perform all tasks associated with the profitable and secure channeling of funds. The banking sector also plays an important economic role in providing financial intermediation and economic acceleration by converting deposits into productive investments. An efficient financial system improves banks' profitability by increasing the amount of funds available for investment, while enhancing the quality of services provided for the customers (Saona, 2011). Banks are such types of business where deposits are considered as liabilities and issuing debt securities are considered as assets on the other part (Fama, 1980). Commercial Banks incur costs for their liabilities and earn income from their assets. Thus profitability of banks is directly affected by management of their assets and liabilities. In addition, different market and macroeconomic factors also influence the ability of the banks to make profits (Short, 1979; Molyneux and Thornton, 1992; Athanasoglou et al, 2008). If a financial system is efficient, then it should show profitability improvements, increasing volume of funds flowing from savers to borrowers, and better quality services for consumers (Sufian & Habibullah, 2009). In Bangladesh, banking institutions are playing significant roles in the expansion of the financial system and the economy of the nation. It is notable that, the banking sector of developing countries is less stable than developed countries (Beck & Rahman, 2006; Sufian & Habibullah, 2009; Uddin & Suzuki , 2011).

As a guardian of all commercial banks, Bangladesh Bank-central bank of Bangladesh has been taken a series of actions to improve the soundness, competitiveness, and efficiency of the banking system. Among them, changes relating to ownership, market concentration, regulatory measures and policies have taken place to improve banking performance. Although Bangladesh Bank has been taken some measures to stabilize the financial system and build confidence in the banking system, it is still relevant to know what factors affect banks profitability in order to influence policy making in the banking sector in Bangladesh.

Literature Review

A good number of studies on the determinants of profitability of the commercial banks in Bangladesh have been conducted but only in recent years. Here we are concentrating on the findings of empirical works conducted in Bangladesh.

Sufian and Habibullah (2009**)** studied the performance of 37 Bangladeshi commercial banks for the period 1997 to 2004 and found that bank specific characteristics, in particular loans intensity, credit risk, and cost have positive and significant impacts on bank performance, while non-interest income exhibits negative relationship with bank profitability. The empirical findings suggest that size has a negative impact on return on average equity (ROAE), while the opposite is true for return on average assets (ROAA) and net interest margins (NIM). As for the impact of macroeconomic indicators, they found no significant impact on bank profitability, except for inflation which has a negative relationship with banks profitability.

Sufian and Kamarudin(2012) studied bank specific characteristics and macroeconomic determinants of profitability in the Bangladesh's banking sector over the years 2000 to 2010 on a sample of 31 commercial banks. The multiple regression results found five bank specific determinants that are important in influencing profitability:capitalisation, non-traditional activities, liquidity, management quality, and size of the bank. Besides, three macroeconomic determinants significantly influence profitability including growth in GDP, inflation and concentration.

Rahman et al (,2015) studied potential determinants of bank profitability by taking 25 commercial banks from Bangladesh for a period from 2006 to 2013. Three different measures of profitability namely return on assets (ROA), net interest margin over total assets (NIM) and return on equity (ROE) are used in the study. The empirical findings suggest that capital strength (both regulatory capital and equity capital) and loan intensity has positive and significant impact on profitability. Results also show that cost efficiency and off-balance sheet activities have negative and significant impact on bank profitability. The impact of other variables is not uniform in respect of different measures of profitability. Non-interest income, credit risk and growth rate of GDP are found as important determinant for NIM. Size has a positive and significant impact on ROA. Inflation has a negative and significant impact on ROA and ROE.

Jahangir et al(2007) while analyzing data on 15 commercial Banks listed in Dhaka Stock exchange for the period 2000-2005 found that market concentration and bank risk do little to explain bank's return on equity, whereas bank's market size

is the only variable providing an explanation for bank's return on equity in the context of Bangladesh

Uddin and Suzuki (2011) analyzing data on 38 commercial banks for the period 2001-2008 found that income and cost efficiency of sample banks have increased by 37.84 percent and 15.28 percent respectively in 2008 compared to 2001. Similarly, non-performing loans and return on assets also report improvement in bank performance. The results generated by regression models indicate that foreign ownership has a statistically significant positive impact on bank performance. On the other hand, private ownership has favorable impact on income efficiency, return on assets, and non-performing loans, whereas negative impact on cost efficiency.

Sayeed et al (2012) while applying Statistical Cost Accounting (SCA) methods on 18 commercial banks for the period 1995-2006 found that the high earning banks experience higher returns from their assets and lower returns from their liabilities than the low earning banks. Results are inconclusive with regard to private banks' and public banks' returns. This study finds that assets management of large commercial banks is better than those of small banks, but they are not better than small banks in respect of liability management.

Samad(2015) examines the impact of bank specific characteristics and macroeconomic variables in determining the banks' profitablity of Bangladesh banking industry with a panel data. A total of 42 Bangladesh commercial banks' financial reports were analyzed; and bank specific characteristics such as bank financial risk, bank operational efficiency, and bank sizes as well as macroeconomic variables such as economic growth are examined to estimate their impact of bank profits. Results indicate that bank specific factors such as loan-deposit ratio, loan-loss provision to total assets, equity capital to total assets, and operating expenses to total assets are significant factors. Bank sizes and macroeconomic variable show no impact.

Abdullah et al (2014): The study examines the bank-specific, industry-specific and macroeconomic determinants of 26 DSE listed bank's profitability in Bangladesh during 2008 to 2011. The empirical results show that the profitability of the Bangladesh banking sector is determined by bank size, higher cost efficiency, capitalization, and higher concentration, regardless of whether ROA or NIM is used as the dependent variable. Credit risk and ROA have a negative relation, whereas the relationship with NIM is positive. Inflation is significantly related to NIM but not with ROA, and labor productivity and nontraditional activity have a positive effect on ROA only.

Hossain, 2010) analyzes interest rate spreads and margins in banking in Bangladesh for the period 1990-2008. The application of the Arellano-Bover/Blundell-Bond dynamic panel regression model to a panel of 43 banks for the period 1990-2008 reveals persistency in interest spreads and margins. The model also identifies that high administrative costs, high non-performing loan ratio and some macroeconomic factors are the key determinants of persistently high interest rate spreads and margins. Persistently high spreads and margins in old private banks (established before 1999) are attributed to a certain degree of market power in the post-liberalization period (after 1999). These factors together imply a lack of competition and efficiency in the banking sector of Bangladesh despite financial reforms.

Jahan (2012) conducted study on randomly selected six commercial banks of Bangladesh. This study uses widely used determinants of banks' profitabilities, which are ROA, ROE and ROD and these are also commonly used criterion of Bangladesh Bank to evaluate banks' performance. The results of regression analysis found the explanatory variables - operational efficiency, asset size and ROD to be positively related and asset utilization to be negatively related to ROA, but these associations are statistically insignificant.

Objective of the study

The study investigates the capital, risk, size, non-interest income to total assets, cost-to-income ratio, off balance sheet items to total assets, liquidity, Concentration, GDP growth rate, and inflation as potential determinants of banks' profitability in Bangladesh. The level and trend of the financial soundness indicators of the banks are also investigated.

Data and Methodology

Data of all bank specific variables were obtained from the Websites of the respective banks. The annual data of 47 commercial banks for the sample period 2010 to 2015 have been used to estimate the model involving panel data. The data were compiled from Annual Reports and Financial Statements of individual banks, Annual Reports of Bank and Financial Institution Division (BFID) and publications of Bangladesh bank and Bangladesh Bureau of Statistics. Current statistics generated by Bangladesh Bureau of Statistics, Bangladesh Bank and Ministry of Finance have also been used particularly for macroeconomic variables. The online data maintained by ADB, OECD, World Bank and IMF have also been used. All ratios are estimated by the author. The panel variable (Banks)

was balanced. The Feasible Generalised Least Squares (FGLS) model for panel data has been applied to estimate the effect of the explanatory variables(White, 1980). The estimation of the regression equations has been carried out using the STATA12   package. The list of banks selected for the present study is given in Annex I.

Variables

Dependent Variable: Profitability

Bank profits have been expressed by three approaches (i) Return on assets (ROA) (ii) Return on equity(ROE) and (iii) Net Interest Margin(NIM).

To examine the relationship between the efficiency of the banks and explanatory variables, the standard regression model is used and it could be defined as follows for observation (bank) i by using the profitability scores as dependent variable, this study extends equation (1) and estimates the following model:

Where $\quad \Pi_{it} \quad = \alpha_0 + \beta \ X_{it} + \varepsilon_{it} \quad i = 1 \ldots\ldots N$ $\hspace{3cm}$ (1)

$\hspace{2cm} \Pi_{it} \hspace{1cm}$ is the profitability (ROA, ROE, & NIM of the ith bank in the period t

$\hspace{1.5cm} (\alpha_0, \ \beta) \hspace{1cm}$ is a vector of parameters

$\hspace{2cm}$ Xit $\hspace{1cm}$ is a vector of explanatory variables, $\ \varepsilon_{it} \ $ is a stochastic error term

The description of variables and their measurements are given in Table 1.

Movement of Financial Soundness Indicators: 2000-15

Some important financial indicators conducive to profitability of the commercial banks is discussed in this section. The analysis is based on the published data from the Annual reports of Bangladesh Bank-central bank of Bangladesh.   The movement of the time series annual data is analysed for the period 2000-2015.

Banking Sector Assets

The formal financial sector of Bangladesh includes all regulated institutions like Banks, Non-Bank Financial Institutions (FIs), Insurance Companies, Capital Market Intermediaries like Brokerage Houses, Merchant Banks etc.; Micro Finance Institutions (MFIs). It thus consists of money market (comprising operations of the banking system, microcredit institutions, nonbank financial institutions, interbank foreign exchange market), the capital market (stock markets), bond market and the insurance market. The formal financial sector in

Table 1: Description of the variables used in the regression models.

Variable	Description	Proxy	Hypothesised Relationship
Dependent			
ROA	Net profit after tax divided by total assets	Profitability	Not applicabl
ROE	Net profit after tax divided by shareholders' equity	Profitability	Not applicabl
NIM	Difference between interest earned and interest Expended by a bank divided by its total assets	Profitability	Not applicabl
Independent			
Bank specific characteristics(internal determinants)			
CRAR	Capital to risk weighted assets	Capitalisation	+/-
EQUITTA	Total book value of shareholders equity over total assets	Capitalisation	+/-
NPLTL	Ratio of non-performing loans to total loans	Asset quality	-
LLPTL	Loan loss reserve over gross loan	Asset quality	+/-
SIZE	Log of Total assets	Bank size	+/-
NIITA	Non-interest income over total assets	Non-traditional activities	+
OBSTA	Total of off-balance sheet activities divided by total assets	Non-traditional activities	+
NIE-INC	Ratio of Expenditure to income	Cost efficiency	+
NIETA	Non-interest expenses over total assets	Management quality	+/-
LIQUIDITY	Total loans over total assets	Liquidity	+/-
Macroeconomic variables(external determimants)			
GDP	annual gdp growth rate	Economic growth	+/-
INFL	annual CPI inflation rate	Inflation	+/-
CR5	Five largest banks assets concentration ratio	Banking sector concentration	+/-

Bangladesh mostly consists of banks. According to a recent estimate (Mansur, 2015) banking sector assets accounted for 63 per cent of the total assets of the formal financial sector in 2013. Mujeri and Younus(2009) observed that banking sector accounts for around 96 per cent of the assets of the financial sector. WB(2006) recorded the banking assets as percentage of total financial assets as 87 per cent for the year 2004 in Bangladesh. However along with the development of the capital market the share of the assets of the banking sector shall have to be compromised. There is paucity of data in this aspect. The ratio of banking sector assets to GDP in 2016 was 71.13 per cent.

Assets to GDP Ratio

The Banking industry assets to GDP ratio was computed for the period FY2006 to FY2016 using the GDP at current prices of 2005/06 base. For the year 2006, the asset-GDP ratio was 49.9 per cent which steadily increased to 71.13 per cent in 2016. The mean value of the Asset-GDP ratio was 61.35 per cent for the period under consideration 2006-2016 and the least squares growth rate was found to be 4.08 per cent per annum. Fig 1 and table 2.

Fig 1. Assets to GDP ratio
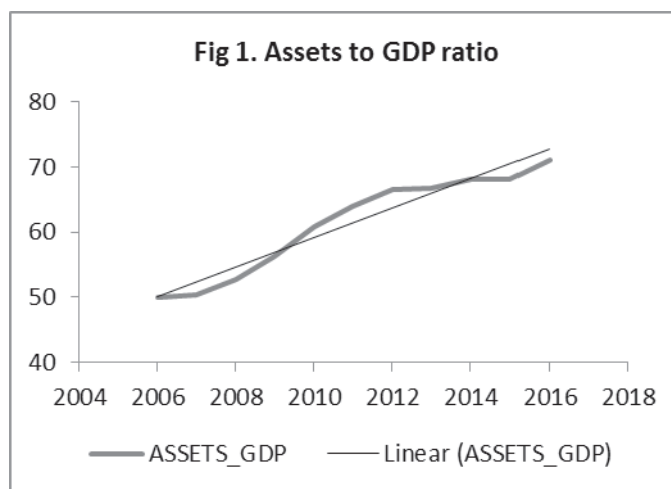
Regulatory Capital to Risk-Weighted Assets Ratio

Capital adequacy measures the loss absorption capacity of the banks, related to credit, market, operation, interest rate, liquidity, reputation, settlement, strategy, environment and climate change, etc. Under Basel-III, banks in Bangladesh are instructed to maintain the Minimum Capital Requirement (MCR) at 10.0 percent of the Risk Weighted Assets (RWA) or Taka 4.0 billion as capital, whichever is

higher. The risk-weighted capital adequacy ratio is a measure of bank's capital and is used to protect depositors and promote the stability and efficiency of financial systems around the world. The value of CRAR was 6.9 per cent in 2000 which increased to 8.7 per cent in 2004 and declining for the following years it recorded a low value of 6.7 percent in 2006 and since then it exhibited a rising tendency reaching up to 11.6 per cent in 2009 followed by a decrease to 9.3 per cent in 2010. In the subsequent years it has been fluctuating around 11 per cent. During the year 2015 the CRAR for was 5.4 per cent, for DFIs it was -32.0 per cent, for PCBs it was 12.4 per cent and for FCBs it turned out to be 25.6 per cent. The overall mean CRAR for the Banking industry was found to be 10.8 for the year 2015. In March 31, 2016, the CRAR was 10.62 per cent, which is similar to the latest requirement. Until December, 2015, the banks had to maintain a capital adequacy ratio at 10 per cent, but from January 2016 to 2019 banks will have to maintain their capital adequacy at 0.625 per cent in addition to 10 per cent of their CRAR. The least squares growth rate of the CAR during the period 2000-15 was found to be 3.04 per cent per annum. But it was statistically insignificant. The mean CRAR per annum for the entire period under consideration was 9.16 per cent. Bangladesh Bank took initiative to improve bank's financial health by increasing their CRAR in line with Basel III standards which was introduced in January 2016. Figure 2 and table 2.

Fig. 2. Capital adequacy ratio(CRAR)
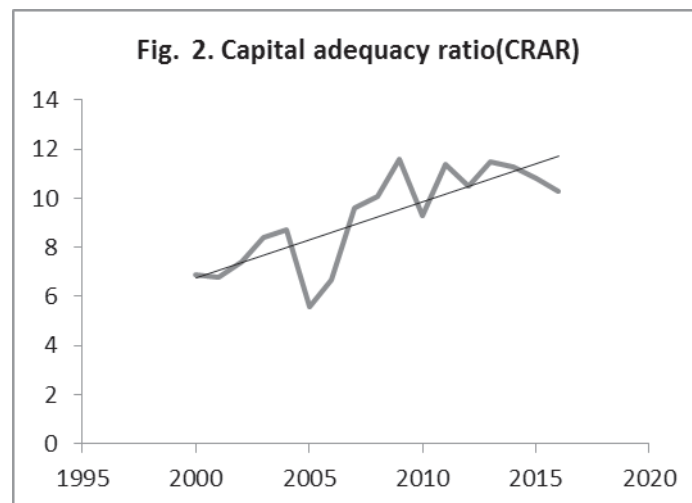
Non Performing Loans(NPL)

Non-performing loans, which puts a brake on the recycling of banking business, reduce banks. It is well-known that profitability of banks shrinks because of non-

performing loans the lending capacity of the banks. Banks always try to create a reserve fund from their income to offset bad debts. Banks need to create high percentage provision to cover high percentage of non-performing loans. All kinds of NPLs reduce the profitability of the banks and banks encounter problem of low capital base which badly affects the banking sector. Credit facilities are the main product of banks and granting credit is a vitally important decision for the banks because it determines their profitability. Non-performing loans have been a matter of concern for the last few decades. The mean value of NPL for the entire period 2000-15 was 15.32 per cent and the least squares growth rate was negative 8.60 per cent per annum. The value of the regression coefficient was statistically highly significant. The value of NPL was quite high—34.9 per cent in 2000 which steadily declined to 6.`1 per cent in 2011 after which it again increased to 10 per cent in 2012 and for the yeas 2015 it is slightly above 10 per cent. During the year 2015 , the value of NPL was 21.5 per cent for SOCBs, 23.2 per cent for DFIs , 4.9 per cent of PCBs and 7.8 per cent for FCBSs. For the banking industry the value of NPL was 8.8 per cent. Figure 3 and table 2.

Fig 3. Non performing loans(NPL)
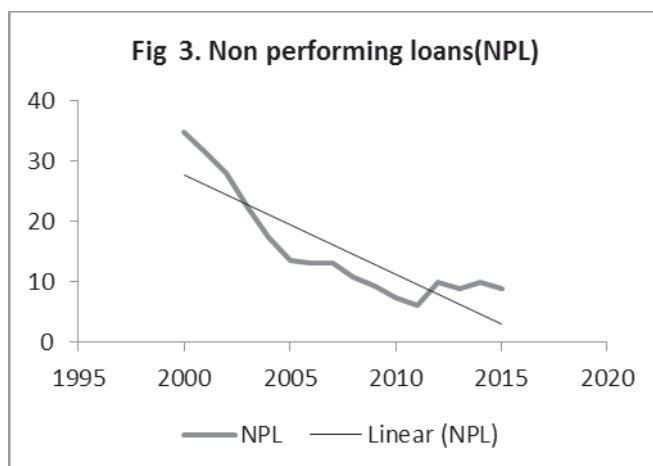
Return on Assets (ROA)

.In the year 2000 the value if ROA was 0.5 per cent which after showing some volatility up to the year 2005 shown an upward movement reaching 1.8 per cent in 2006, after which it again declined to 0.6 per cent in 2012, after experiencing some fluctuations it reached a value of 0.8 per cent in 2015. The overall mean value of the return on asset(ROA) was 0.87 per cent during the period 2000-15 and the least squares growth rate was 2.02 per cent per annum. The regression coefficient was statistically highly significant. During the year 2015, the value

ROA was found to be -0.04 per cent for SoCBs,-1.2 per cent for SoSB/DFIs, 1.00 per cent for PCBs and 2.9 per cent for FCBs. The ROA for the banking industry turned out to be 0.8 per cent. Figure 4 and table 2.
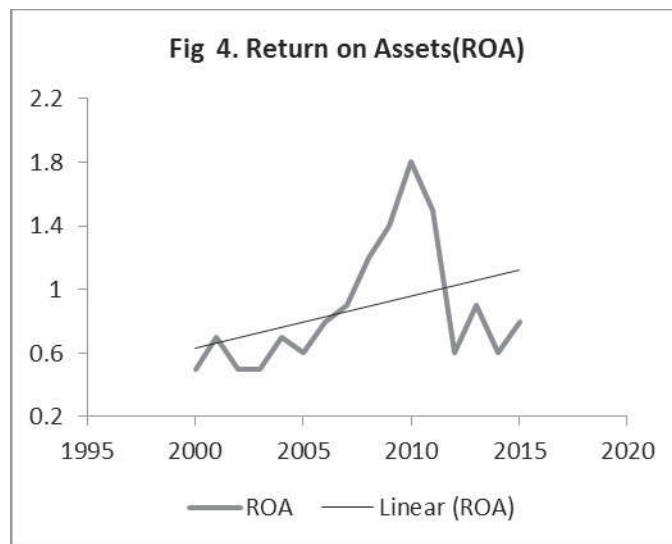
Return on Equity (ROE)

In the year 2000, the value of ROE was 10.9 per cent which increased to 16.9 per cent in 2001, then decreasing to 9.8 per cent in 2003 after which it reached its highest value of 21.7 per cent in 2009. But the value of ROE showed large scale decline to 8.2 per cent in 2014. The overall mean value of the return on
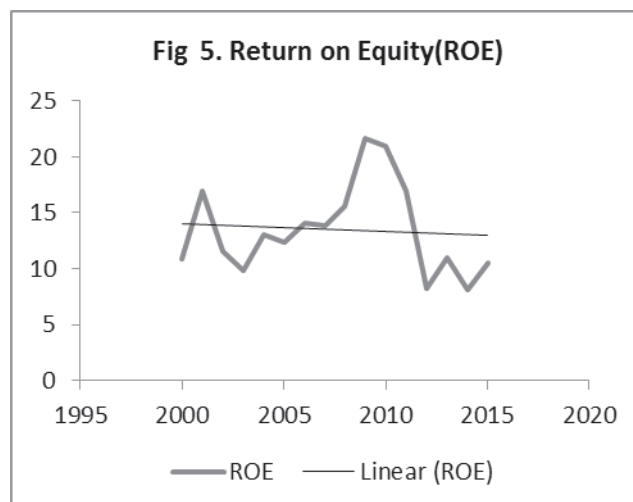
equity(ROE) for the period under consideration was 13.22 per cent and the least squares growth rate was found to be -1.98 per cent per annum During the year 2015, the value of ROE was found to be -1.5 per cent for SCBs, -5.8 per cent for SBs/DFIs, 10.8 per cent for PCBs and 14.6 per cent for FCBs. the overall value of ROE ended up in 10.5 per cent. Figure 5 and table 2.

Net Interest Margin (NIM)

The net interest margin (NIM) has been obtained in the present study as a ratio of net interest income to total assets. During 2000 the value of NIM was 0.76 per cent which gradually increased to 2.61 per cent in 2010 followed by a decrease to 1.65 per cent in 2013. The value of NIM increased to 3 per cent in 2014 and in 2015 it had a value of 2.84 per cent. The mean value of NIM for the period under consideration is found to be 1.83 per cent and the least squares growth rate was 8.32 per cent per annum During the year 2015, the value of NIM was found to be 1.42 per cent for SCBs, 0.58 per cent for DFIs, 3.84 per cent for PCBs and 5.31 per cent for the FCBs, the overall performance of the industry showed an NIM of 2.84 per cent, due mostly by the courtesy of the FCBs and PCBs. Figure 6 and table 2.

Fig 6. Net interest margin
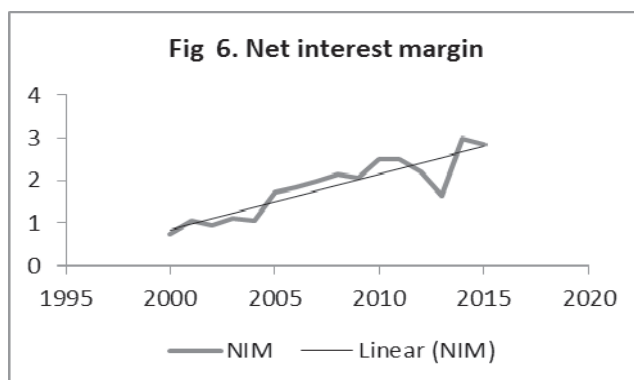
The financial soundness indicators of 2015 compares well with those from countries like India, Pakistan, Sri Lanka, China, Indonesia, Thailand and Vietnam. Table 3.

Table 2: Least Squares Growth Rate of Some Financial Soundness Indicators :2000-2015.

FSI Indicators	N (Mean)	Regression Coefficient (β^*)	t-ratio	P-value	R square	Least Squares Growth Rate(%)	D-W
CRAR	16(9.16)	.03	0.75	.468	.04	3.04	1.52
NPLTL	16(15.32)	-.09	6.41	.000	.73	-8.60	1.22
ROA	16(0.87)	.02	4.44	.000	.44	2.02	0.75
ROE	16(13.22)	-.02	1.18	.257	.08	-1.98	1.22
NIM	16(1.83)	.08	7.34	.006	. 42	8.32	1.86
ASSET-GDP	11(61.35)	.04	10.81	.000	.93	4.08	0.53

Source and Notes. Bangladesh Bank. Author's Computation
The Regression line is $\ln X_t = \alpha + \beta T$. The average annual growth rate
$r = [exp^{\beta^*} - 1] \times 100$, where β^* is the least squares estimate of β.
ASSETS_GDP ratio is for the period 2006-2016.

Empirical Findings. Panel Data 2010-2015

Correlation Analysis

The correlation matrix of the explanatory variables used in the multiple regression analysis was examined and it shows that in general the correlation between the bank specific variables is not strong thus suggesting that multicollinearity problems are not severe.

Regression Analysis

The result of the Mulitiple Regression Analysis under Feasible Generalised Least Squares model is given in table 4.

Capitalisation

Two concepts of capital are mainly used in literature, for example (i) actual capital and (ii) regulatory capital. Actual capital is also known as physical capital which is composed of equity and long-term debt and is represented in the balance sheet of banks. It is usually measured as the ratio of equity to total assets and also known as capital ratio and capitalisation (EQUITTA). This coefficient is expected to have positive effect on profitability (Abreu and Mendes 2001, Casu and Girardone 2004, Carvallo and Kasman 2005, Athanasoglou, Brissimis and Delis

Table 3: Financial Soundness Indicators:Some selected countries

Indicators	Bangladesh	India	China,PR Mainland	Pakistan	Sri Lanka	Indonesia	Thailand	Vietnam
Time	2015A1	2016Q3	2016Q2	2016Q3	2016Q3	2016Q3	2016Q3	2015A1
Regulatory Capital to Risk-Weighted Assets	10.6	13.1	13.1	16.8	14.1	20.6	18.2	10.1
Non-performing Loans to Total Gross Loans	8.4	8.8	1.7	11.3	2.9	3.0	3.1	2.3
Return on Assets	1.4	0.4	.6	1.3	1.5	1.7	1.4	0.4
Return on Equity	16.6	5.1	7.6	14.2	18.5	11.7	11.0	5.4
Interest Margin to Gross Income	68.9	62.0	74.3	71.6	25.3	70.0	62.0	74.4
Non-interest Expenses to Gross Income	49.0	49.9	26.7	52.2	32.7	46.5	46.5	55.8
Liquid Assets to Total Assets	21.0	8.5	21.6	49.5	28.3	21.8	18.9	13.2
Capital to Assets	5.4	7.4	8.1	7.9	7.8	15.0	10.7	9.3

Source. IMF. Financial Soundness Indicators. All Countries Latest Available Data (FSI).
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2008, Sufian 2009). The variable EQUITTA had highly significant (P< .01) positive effect on NIM but insignificant positive effect on ROA and insignificant negative effect on ROE.

Regulatory capital is the capital based on risk which is maintained in accordance with the rules determined by supervisor in a country. This capital is measured as the ratio of capital to risk-weighted assets and also known as risk-based capital adequacy ratio (CRAR). Studies have found mixed results on the effect of capital adequacy ratio on profitability. Some studies obtained positive effect of CRAR on

Table 4:   Multiple Regression Analysis Result Under FGLS model.

Variable	Model 1 ROA	Model 2 ROE	Model 3 NIM
Independent variables			
CRAR	.011(.005)**	.038(.116)	.001(.005)
EQUITTA	.001(.005)	-.117(.106)	.014(.005)***
NPLTL	-.015(.008)*	-.171(.170)	-.007(.008)
LLPTL	--.497(.031)***	-3.417(.640)***	.057(.030)*
SIZE	-.181(.083)**	-2.043(1.719)	-.296(.080)***
NIITA	.525(.101)***	--.875(2.091	.990(.098)***
OBSTA	.009(.004)*	.140(.091)	-.023(.004)***
NIE_INC	-.010(.001)***	-.091(.033)***	.007(.001)**
NIETA	.295(.076)***	1.394(1.572)	.289(.074)***
LIQUIDITY	-.017(.007)**	.088(.152))	.049(.007)***
GDP	-.069(.442)	-.200(9.10)	-.005(.426)
INFL	-.046(.089)	-1.005(1.84)	.057(.086)
CR5	.098(1.398)	3.13(2.88)	-.1355(.135)
Wald χ^2(13)	852.08	93.17	274.28
	(p= .0000)	(p= .0000)	(p= .0000)
Panels	homoskedastic.	homoskedastic.	homoskedastic.
	No autocorrelation	No autocorrelation	No autocorrelation
Number of banks	47	47	47
Number of years	6	6	6
Number of observations	282	282	282

Note. The figures in parentheses are standard error.

***, **, * indicate statistically significant at 1 per cent, 5 per cent and 10 per cent respectively.

profitability while some found the negative effect. The variable CRAR had highly significant (P<.01) positive effect on ROA and NIM, and its effect on ROE was also positive but insignificant.

Asset Quality

We have measured the asset quality by taking the (a) ratio of classified loans to total loans (NPLTL), and (b) loan loss provision to total loans (LLPTL). These are also considered as measure of credit risk. It is an indicator of the ability of the banks to absorb losses from non-performing loans. The coefficient is expected to be negative because bad loans (non-performing loans) could reduce the bank's efficiency level. A better quality asset is described as having lower non-

performing loans or ratio of NPLTL The effect of nonperforming loans (NPLTL) on ROA was negative and significant at 10 per cent level and its effect on ROE and NIM was negative but insignificant. The effect of loan loss provision to total loans (LLPTL) on ROA and ROE was negative and highly significant (P< .01) while its effect on NIM was positive and significant at 10 per cent level.

Bank Size

The bank size (SIZE) has impact on various activities of banks including investing opportunities, portfolio diversification, reputation and access to equity capital. It has been measured by the natural logarithm of the total assets of the bank. As the large banks have easy access to equity capital market, they will have lower capital ratio than smaller banks. As large banks can carry out a large number of different activities, so they can diversify their portfolio, and, hence credit risk will be decreased. However findings on the effect of bank size on profitability have been mixed. Some finding positive impact while some other observed that it had negative impact on profitability. The bank size had significant negative effect on ROA (P<.05) and NIM (P<.01) and insignificant negative effect on ROE.

Non-traditional Activities

Two measures of non-traditional activities have been used in the present analysis-one the ratio of non-interest income to total assets(NIITA), the other one being off-balance sheet activities which is a ratio of off-balance sheet income to total assets (OBSTA). The off-balance sheet activities help banks to raise their sources of income without changing capital structure. Non-interest income consists of commission, service charges and fees, guarantee fees, net profit from sale of investment securities and foreign exchange profit. We expect a positive impact of the non-traditional activities on bank profitability. The effect of NIITA on ROA and NIM was positive and highly significant (P<.01), its effect on ROE was negative but insignificant. The variable OBSTA had significant (P< .10) positive effect on ROA, but its effect on ROE was positive but insignificant. Its effect on NIM was negative and highly significant (P<.01).

Management Quality

We have used two different measures of Management quality-Non-interest expense to total assets (NIETA) and non-interest expense to operational income (NIE_INC). These variables also measures cost-efficiency. These variables are applied to provide the information on variation in operating costs across the

banking system. It reflects total amount of wages and salaries, as well as the cost of running branch and corporate office facilities. This is expected to have a negative relationship between cost to income ratio and profitability. The effect of NIE_INC on ROA and ROE was negative and highly significant (p<.01) but its effect on NIM was positive but insignificant. The effect of NIETA on ROA and NIM was positive and highly significant (p<.01). Its effect on both ROE was also positive but insignificant.

Liquidity

In this study liquidity has been defined as the ratio of total loan to total assets (LIQUIDITY). It is used to measure bank specific lending intensity. The liquidity refers to the risk of not having enough cash reserves to meet the demands of withdrawals from depositors. The loan structure, especially loans to individuals and firms, is risky than the others forms of credit for example government securities. Bank loans are assumed to be the main source of profitability and are expected to affect performance positively. Nevertheless, the coefficient could also be negative, which indicates a negative relationship between liquidity and profitability because loan-performance relationship depends significantly on the expected change of the economy. (Rahman et al. 2015, Sufian and Kamaruddin. 2012). The effect of liquidity on ROA and NIM was positive and highly significant (p<.01). On the other hand its effect on NIM was negative and insignificant.

Macroeconomic Variables

The macroeconomic variables are important to be included into the estimation as control variables because they can deal with the bank efficiency sufficiently. The first macroeconomic variable included in the model is the annual rate of growth of real gross domestic product (GDP). The GDP is expected to influence numerous factors related to the supply and demand for loans and deposits. Favourable economic conditions would positively influence bank profitability. The effect of growth rate of real GDP was negative on ROA, ROE and NIM but insignificant

Another macroeconomic variable is annual rate of inflation measured by consumer price index (INFL). The effects of inflation on bank performance depend on whether the inflation is anticipated or unanticipated. In the anticipated case, the interest rates are adjusted accordingly, resulting in faster increase of bank revenues than costs and subsequently gives positive impact on bank performance.

In the unanticipated case, banks may be slow in adjusting their interest rates, resulting in a faster increase of bank costs than revenue, thus, gives negative effects on bank performance. (Sufian and Kamaruddin, 2012). The variable INFLATION had insignificant negative effect on ROA and ROE and insignificant positive effect on NIM.

Third macroeconomic variable is concentration ratio of the five largest banks (CR5) in terms of assets, which is entered in the regression model as a proxy variable for the impact of banking sector concentration on the profitability of the banks. The structure-conduct-performance (SCP) theory posits that the banks in a highly concentrated market tend to collude, and therefore earn monopoly profits. The effect of CR5 on ROA and ROE was negative but insignificant. Its effect on NIM was positive and insignificant.

Conclusions

The study was carried out with the main purpose of overseeing the financial soundness indicators and identifying the potential bank specific and macroeconomic determinants of bank profitability in commercial banks in Bangladesh. Considering the trend of the industry level annual data on banking assets to GDP ratio, Capital to Risk_assets ratio, non performing loans, return on assets, return on equity and net interest margin for the period 2000-2015, one would be satisfied with the performance of the commercial banks in Bangladesh. Amongst them the Assets to GDP ratio, CRAR, ROA and NIM showed upward trend, while non performing loans and ROE are on the decrease, although ROE experienced a wide range of fluctuations during the period under consideration. The financial soundness indicators compares well with those from countries like India, Pakistan, Sri Lanka, China, Indonesia, Thailand and Vietnam. In the multiple regression analysis on panel data of 47 banks for the period 2010-15, it appeared that all the bank specific variables included in the models exerted significant influence on the three measures of profitability used in the study – ROA, ROE and NIM. But their effect on the profitability had wide range of variation across different measures. The Feasible Generalised Least Squares regression model for panel data has been applied to estimate the effect of the explanatory variables. The results indicated that nonperforming loans, loan loss provisions, bank size, cost efficiency and liquidity had significant negative effect on ROA, while non-traditional activities measured by non interest income and off balance sheet activities had significant positive effect on ROA. In the model for ROE, loan loss provision and cost efficiency had significant negative effect. The

equity capital, loan loss provision, non interest income, cost efficiency and liquidity had significant positive effect on NIM, while bank size and off balance sheet activities had significant negative effect on NIM. The macroeconomic variables- rate of growth of real GDP and annual inflation rate did not exhibit any influence on bank profitability.

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Annex 1.

List of Scheduled Banks(Total 57 Banks) as on 31 December 2016.

A. STATE OWNED BANKS:
1. Agrani Bank Limited.
2. Janata Bank Limited.
3. Rupali Bank Limited.
4. Sonali Bank Limited.
5. Bank of Small Industries and Commerce Bangladesh Ltd.
6. Bangladesh Development Bank Limited.

B. SPECIALSED BANKS:
1. Bangladesh Krishi Bank.
2. Rajshahi Krishi Unnayan Bank.

C. PRIVATE BANKS:
a) Foreign Banks:
1. Standard Chartered Bank
2. State Bank of India
3. Habib Bank Ltd.
4. Citi Bank, N.A.
5. Commercial Bank of Ceylon Ltd.
6. National Bank of Pakistan
7. Woori Bank
8. The Hong Kong & Shanghai Banking Corporation Ltd.
9. Bank Al-Falah Ltd.

b) Private Banks (Incorporated in Bangladesh excluding Islamic Banks):

1. AB Bank Ltd.
2. National Bank Ltd.
3. The City Bank Ltd.
4. International Finance Investment and Commerce Bank Ltd.
5. United Commercial Bank Ltd.
6. Pubali Bank Ltd.
7. Uttara Bank Ltd.
8. Eastern Bank Ltd.
9. National Credit and Commerce Bank Ltd.
10. Prime Bank Ltd.
11. Southeast Bank Ltd.
12. Dhaka Bank Ltd.
13. Dutch Bangla Bank Ltd.
14. Mercantile Bank Ltd.
15. Standard Bank Ltd.
16. One Bank Ltd.
17. Bangladesh Commerce Bank Ltd.
18. Mutual Trust Bank Ltd.
19. Premier Bank Ltd.
20. Bank Asia Ltd.

21. Trust Bank Ltd.
22. Jamuna Bank Ltd.
23. BRAC Bank Ltd.
24. NRB Commercial Bank Ltd.
25. South Bangla Agriculture and Commerce Bank Ltd.
26. Meghna Bank Ltd.
27. Midland Bank Ltd.
28. The Farmers Bank Ltd.
29. NRB Bank Ltd.
30. Modhumoti Bank Ltd.
31. NRB Global Bank Ltd.

c) Islamic Banks
1. Islami Bank Bangladesh Ltd.
2. ICB Islamic Bank Ltd.
3. Al-Arafah Islami Bank Ltd.
4. Social Islami Bank Ltd.
5. EXIM Bank Ltd.
6. First Security Islami Bank Ltd.
7. Shahjalal Islami Bank Ltd.
8. Union Bank Ltd
The following 9 banks in the private sector which started their operations in FY 2013 were not covered in the present study as their data for the years 2010-2013 would be missing.
1. NRB Commercial Bank Ltd.
2. South Bangla Agriculture and Commerce Bank Ltd.
3. Meghna Bank Ltd.
4. Midland Bank Ltd.
5. The Farmers Bank Ltd.
6. NRB Bank Ltd.
7. Modhumoti Bank Ltd.
8. NRB Global Bank Ltd.
9. Union Bank Ltd
   Shimanto Bank Ltd(57th Bank. Listed as scheduled Bank on July 21, 2016.)

Source: Bangladesh Bank. Scheduled Bank Statistics. October 2016. and Website WWW.bb.org.bd

Microcredit Program for Rural Poverty Alleviation: A Study on Microcredit Borrowers of BRAC of Jalirpar Village

Kalyankar Mistry[*]

Abstruct: *This study is an endeavour of searching the reasons for which the villagers take microcredit; how they utilize it and what is its impact on poverty alleviation. The study reveals that the villagers take and utilize microcredit for multiple reasons and microcredit helps in alleviating poverty in many ways.*

Key Words: *Micro Credit, Rural Poverty, Alleviation, BRAC, Borrowers.*

1. Introduction

Microcredit has been worldwide recognized as a 'poverty driven tool (PDT)'. In Bangladesh, microedit program has been working for alleviating poverty since the independence. It is established that microcredit has been contributing in alleviating rural poverty. There are around 15,000 NGOs registered in Bangladesh, of these, nearly 1000 NGOs are dealing with microcredit programs. BRAC is the largest microcredit operating NGO in the country. According to BRAC's annual report-2016, BRAC has disbursed a total amount of 8.4 billion USD to its borrowers under the microcredit program. Around 97% of the borrowers are women. 1.3 million extreme poor could able to change their life. 16.7 million people use sanitary latrine (BRAC, 2016). So, microcredit program is very important for alleviating rural poverty. In this perspective, an endeavor has been taken in order to find out the reasons for which the villagers take mcircoredit; how the borrowers utilize borrowed money and how they bring changes that affect in alleviating poverty. In this perspective, the microcredit borrowers of BRAC of Jalirpar village have been selected for this study.

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[*] Kalyankar Mistry, Ph.D Researcher, University of Dhaka and Development Researcher.

2.   Literature Review

Rural poverty has always been a threat to socio-economic development of Bangladesh. After the independence, the health, food, selter, education, and overall condition of rural people were miserable. In 1972, the poverty rate was 92.7 per cent. Hossain Zillur Rahman and Mahbub Hossain edited a book named "Rethinking Rural Poverty—Bangladesh as A Case Study" where issues related to the causes of rural poverty have been studied elaboratedly. An article of Omar Haider Chowdhury entitled 'Nitritional Dimentions of Poverty' was published in that book. He (1995) wrote, "only asset a poor man has is his labour power. He is unemployed most of the time because he is unskilled and/or sick. Acess to health care and education can turn this poor unemployed labourer into a healthy productive labour force." The principal reasons of rural poverty are lack of resources and capital, skilllessness, poor helth condition, lack of talent and wisdom for generating new income sources and entrepreneurship, as a result the rural people led an extremely inhuman life. Moreover natural calamity added fuel to the fire as Hossain Zillur Rahman wrote in his article 'Crisis and Insecurity: The 'Other' face of Poverty'. He (1995) found that rural households in Bangladesh are routinely subject to a variety of crisis which significantly affect the households's ability to sustain current welfare levels let alone sustain any welfare increases. Landlessness was a crutial factor that remains the poor people to be poor. Mahabub Hossain studied on 'Socioeconomic Characteristics of the Poor'. He (1995) wrote, "the bulk of the poor households belong to the land-poor category.

The incidence of poverty is about 78 per cent for households having no cultivated land and 71 per cent for the marginal land-owners compared to 31 per cent for medium farm households and only 9 per cent for households owning more than 5 acres."

Dr. Binayak Sen studied on 'Rural Poverty Trends, 1963-64 to 1989-90'. His (1995) view is that a multi-dimentional approach would take into account both income and non-income dimentions of poverty. It includes a range of quality of life variables, such as nutrition, health and sanitation, housing, security, access to state distribution system, participation and institutional capability and crisis-copying capacity. Dr. Binayak Sen also studied on 'Selected Living Standar Indicators'. In this study he (1995) also argued, "A complete assessment of trends in rural poverty should take account of several dimentions of poverty, of which income or consumption levels per head is only one. Equally relevant are factors, such as access to adequate clothing and shelter, longevity, access to health and

education facilities and security of consumption levels from extreme shocks." In such a situation, microcredit came to the poor as a blessing. Regarding microcredit, Muhammed Yunus (1996) wrote, "credit offers a poor person an opportunity to convert his/her energy and creativity into income-generating activities. Credit plays such an important role in creating self-employment for the poor. 'BRAC Development Strategy' also directs the same way. In this regard, Shahidur R.Khandher and M. A. Baqui Khalily studied on 'The BRAC's Credit Programs: Performance and Sustainability'. They (1995) wrote, "The BRAC's development thesis is that economic dependency, disempowerment, and the lack of access to credit are the major causes of rural poverty. Due to low levels of education and other forms of human capital, the poor are not fully aware of the state and causes of their poverty and thus require social and human development inputs to reduce their dependency on exploitative rural economic and social structures." For alleviating poverty and gaining economic development, Micro Credit Programs have been operating. M. Mark Pitt studied on " The Effect of Non-Agricultural Self-employment Credit on Contractual Relations and Employment in Agriculture: The Case of Microcredit Programmes in Bangladesh." He (2000) stated that in recent years, government and non-governmental organizations in many low-income countries have introduced credit programmes targeted at the poor. He viewed of microcredit contributes to the process of poverty alleviation.

For achieving economic development and establishing peace in society, poverty needs to be alleviated. The poverty rate has been gradually declining for which the role of microcredit is priseworthy. In 1990, 2000 and 2010, the poverty rate was 58.84%, 48.90% and 31.50% respectively. There are still 24.5 per cent (revised of 31.5%) of total population are under poverty line (BBS, 2011). In respect of rural poverty reduction, the role of microcredit is world-wide recognized. Hundreds of NGOs like Grameen Bank, BRAC are working with microcredit program (MCP). BRAC has disbursed a total amount of 8.4 billion USD to its borrowers under the microcredit program (BRAC, 2016). Islam (2005) found in the study that 37% respondents took loans from BRAC, 21% from ASHA, the rest from others. Rowshan Ara Begum did her M. Phil thesis on "Income Sources of Village Women" at the University of Dhaka in 2003. Begum (2003) found in her study that —-23% village women are the members of BRAC, 20% of Grameen Bank, 19% ASHA.

Why do the people take loan from NGOs? Many studies found that people usually take loan from NGOs for various reasons of which the principal reason is poverty. Other reasons are: (i) starting new business, (ii) helping husband's business, (iii)

building new house, (iv) repairing house, (v) buying cow/goat/poultry, (vi) buying agricultural land, (vii) cultivating, (viii) recovering previous loan and (ix) children marriage/dowry, etc. Ahidul Islam conducted a study on "The impact of Micro Credit on Women Empowerment: A Study in the Two Villages". Islam (2005) found in his study that 28% borrowers took loans for poultry firms, 10.5% for paying debt, 22% for giving their husband, 24.5% for small business, and 14% for agricultural works. The purpose of taking loan, Rowshan Ara Begum (2003) found in her study, 13.75% borrowers used loan for business, 6.67% for dairy, 5% for agricultural purpose, and 1.67% for sewing. The recovery rate of loan is satisfactory. Mohammad Habibullah did his M. Phil degree on "Monitoring and Control System of Grameen Bank and its Effect on the Recovery Rate" at the University of Dhaka. He (2000) found in his study that 95.20% respondents with regular repayment habit, and 29.66% repay regularly in order to obtain new loans.

Development researchers and experts conducted many research projects on whether microcredit can help the poor people in alleviating poverty or not? In this regard, Md. Elias Hossain and M. Mosatdequr Rahaman (2009) conducted research on "Impact of Microcredit on Economic Indicators of the Borrowers: An Empirical Analysis". They found in their study that microcredit appears as a significant determinant of income for the overall poor and the higher income poor, it is a significant determinant of income for the hardcore poor section. Md. Abdul Wadud (2012) conducted research on "Impact of Micro Credit on Farm Income in Bangladesh: A Propensity Score Matching Approach". He found, "It is difficult for them to accumulate capital for meeting the production expenditure. As such a large number of farmers in rural Bangladesh depend on micro credit. Microcredit increases firm income. It indicates poverty decreases and microcredit makes poor people empowered". Selim Rayhan (2015) conducted a study on "The Contribution of Micro Finance to GDP". He found in the study that Micro Finance's contribution to GDP is 5.76 per cent to 7.85 per cent. and in rural economy, it stands 8.14 per cent to 10.91 per cent. Islam (2005) found that 84.5% respondents expressed that a positive change is occurred due to loan and 15.5 said no comments. —-95.5% thought that microcredit has been playing a role in empowerment of women. Analysts came to the conclusion that a small amount of money works as a miracle in a cash-hungry society and significantly raises the woman's power in the family (Zaman, 1998; Hashemi et al., 1996 — as cited by Chowdhury and Bhuiya, 1999).

Finally, microcredit has been playing an important role in alleviating poverty (Islam, 2005; Khalily, Imam & Khan, 1995; Rayhan, 2015), decreasing gender inequity, empowering the poor especially woman (Mahmud, 2000; Amin &

Pebley, 1994; Steele,1998), increasing nutrition (Chowdhury & Khandher), health (bhhuiya, 2009), education, income, savings (Khandker, 2000), consumption capacity, household-welfare on a long term basis and awareness about the environment which ultimately have a very positive impact on rural poverty reduction as well as economic and social development of Bangladesh (Sen, 1984; Abed, Yunus, 1996; Zaman, 1998; Hussain, 1998; Khandher,1999; Abed, 2000; Martin, 2000; Bhonsle, 2007). In this perspective, this study intended to examine of why the villagers took microcredit; how the borrowes utilized the borrowed money and how rural poverty was alleviated by using microcredit.

3.   Objectives of the Study

1. To find out the reasons for which the villagers take microcredit from BRAC.
2. To observe how the microcredit borrowers of BRAC utilize the borrowed money.
3. To examine the impact of microcredit in alleviating rural poverty.
4. To formulate recommendations for the improvement of efficiency of microcredit program.

4.   Rationale of the Study

In literature review, it is found that the most of the previous researchers agreed that rural poverty is being reduced by using microcredit. Thus, microcredit has become an important issue in respect of poverty alleviation, socio-economic development, and empowerment of women in Bangladesh. The role of microcredit for alleviating rural poverty demands more extensive and intensive research. How are the borrowers of microcredit utilizing the loan and how are they trying to reduce the poverty and finally how are they bringing the light of development to their respective families and making the brighter future for their children need to be studied for the greater interest of the nation. This researcher has chosen the microcredit borrowers of BRAC of Jalirpar village in order to examine why the villagers took microcredit; how the borrowers utilized the borrowed money and how rural poverty was alleviated by using microcredit. This research is important in the perspective of socio-economic development of Bangladesh and will help the microcredit operating NGOs in formulating policy and taking decision. The future researchers will also get guidelines from this study.

5.0 Methodology

5.1 Target Population and Sampling Method

The microcredit borrowers of BRAC of Jalirpar village were the target population of the study. A survey was conducted among the target population during 22 December 2016 to 28 December 2016. The respondents have been selected using convenient sampling method. Convenience sampling method is a non-probability sampling technique. This technique was selected because it helped in getting the basic data regarding this study. There are 90 respondents have been interviewed both in written and verbal. The officials of BRAC branch office of Jalirpar were interviewed verbally in order to fulfill the objectives of the study.

5.2 Data Used in the Study

In this study, both primary and secondary data have been used. Primary data have been collected through a survey among the microcredit borrowers of BRAC and officials of BRAC office of Jalirpar. Secondary data have been collected from different sources like a. journals and research papers, published or non-published dissertation on this field. b. publications of BRAC. c. newspapers' report and d. Websites on Internet.

5.3 Data Collection Technique

Field-survey was conducted among the microcredit borrowers of BRAC of Jalirpar village using questionnaire during 22 December 2016 to 28 December 2016. In order to achieve the objectives, both stuctured and open-ended questions were included in the questionnaire. Likert Scales having five sacales—Strongly Agree, Agree, Not Agree, Strongly Disagree, and No Comment was used. Open-ended questions were needed to be included for getting opinion based-answer of the resopndents. The officials of BRAC were also interviewed verbally.

6. Working Definitions and Observation

6.1 Microcredit

Microcredit, in simple terms, can be described as small loans offered to poor households to foster self-employment and income generations. The loans largely go to rural landless, disadvantaged women and marginal farmers who depend largely on selling their labour. The terminology of 'microcredit' has undergone a change in recent time. Practitioners in many countries call it 'microfinance' for its wider dimension (Abed, 2000; Hossain, 1998; Yunus, 2003). Muhammad Yunus

has also given a description about 'microcredit'. According to his view, Micro Credit is: a. traditional informal Micro Credit (such as, moneylender's credit, pawn shops, loans from friends and relatives, consumer credit in informal market, etc.); b. microcredit based on traditional informal groups (such as, tontine,); c. activity-based microcredit through conventional or specialized banks (such as agricultural credit, livestock credit, fisheries credit, handloom credit. ect.); d. rural credit through specialized banks; e. cooperative microcredit (cooperative credit, credit union, savings and loan associations, savings banks, etc.); f. consumer microcredit; g. Bank-NGO partnership based microcredit, and h. Grameen types microcredit or Grameencredit (Yunus, 2003).

6.2 Human Development Index (HDI) of Jalirpar Village

Jalirpar is a village and a union that established in 1634. It is situated under Muksudpur Upazila in the district of Gopalgonj. The total area is 3 square kilometer and its population is about 20,912 (BBS, 2011). The location of Jalirpar is good. There are 2 primary schools, 1 seceondary schools, 1 Union health sub-

Human Development Index (HDI) of Jalirpar

Perticulers	
Area	3755 Acres
Population	20,912
Population Density	1376 sq/km.
Literacy rate	52.5 (M-54.8%, F-50.5%)
Acess to Drinking Water	96.3%
Sanitation	83.8%
Access to Electricity	43.0%
Housing condition	2.6% puka house, 13.6% Semi-puka house, 82.3% Kutcha house and 1.5 others.
Occupation	Agricultre, Small business, Shopkeer, Fisheries, Carpenter, Cottage industry, Service
Govt. Offices	Bank, Post Office, Toll Office, Land Sub Office
Non-governmental organizations	BDAO , BRAC, CCDB, ASA, World Vision, and HCCB

Source: HISH-2011, Ministry of Planning, and Survey on BRAC's Borrowers of Jalirpar Village-2016.

center, 1 Toll office, 1 Sub-settlement office, 1 Bank, 1 post office, 1 bazar, 1 specialized market for cottage industry, 1 Jute mill and some private rich mills. There are two missionaries in Jalirpar. Most of the people depend on agriculture. Small business, shopkeeper, fisheries, carpenter, cottage industry, service, day labourer, industrial labaurer, shop-helpers, agri-farms and labourers, diary, rich mill business, etc are the sources of income of the inhabitants of Jalirpar village. A little river flows across Jalirpar and it divides two parts-Nourth and South. Non governmental organizations including BRAC, Grameen Bank, CCDB, ASA, World Vision, etc.are working at Jalirpar.

6.3   BRAC, Jalirpar Branch Office

BRAC Brach Office, Jalirpar covers Jalirpar, Nanikhir and Vannabari of Satpar union. A brach office works under an area office which is conducted by the regional office and the head quarters is the supreme authority for all. But the branch office is the key instrument for managing microcredit programs. There are some officials and staff working in a branch office. A manager is leading all activities of the branch office. Program Assistant (PA)/Program Officer (PO) and Customer Service Assistant (CSA) are also working at BRAC branch office.

Particulars	
Total Micro Credit Borrowers/Members	992 (in November'2016)
Total Loan Disburshment	BDT 1,98.59 lac
Rate of Loan Refund	95%
One Program Officer Supervises	496 VO members
Savings	BDT 82.90 lac
Good Customer Loan	BDT 14 lac

Source: BRAC Brach Office, Jalirpar

6.4   BRAC and Microcredit Program Management (MCPM)

BRAC conducts two types microcredit programs- a. DABI program b. Progoti program. DABI includes all kinds of microcredit program that is directly involved in poverty alleviation. DABI includes 1. Good Customer Loan 2. Migration Loan 3. Recover Loan 4. Death Facilities 5. Loan Security. BRAC also conducts some programs that are directly and indirectly involved in socio-economic development of the country. These are: 1. Wash program 2. Health program 3. Altra-poor 4. Micro Finance program 5. Human Rights program

BRAC has also been operating large programs in health, education and some other activities along with micro credit programs. BRAC programs are targeted to

the poor and focused on women. A total of 400 upazilas or sub-districts out of 464 of the country, are covered by BRAC microcredit programs (Abed, 2000). Basically BRAC is operating Micro Credit programs for rural poverty alleviation in Bangladesh. BRAC's Microcredit activities are operated through its Rural Development Program (RDP). RDP comprises two broad types of activities-economic development and social development. RDP lays importance on enterprise development of the borrowers which is supported by credit, training, input and extension support and often marketing assistance. The social development activities comprise elements of essential health care and awareness development on social issues including legal rights. BRAC Branch Office (BBO) is the key point that directly involves the operation of microcredit program at grass root level.

6.5   How to Get Micro Credit

Village Organization (VO) is the primary organization through which rural women can be member of VO and take microcredit from BRAC. Women are usually members of VO. There are 15-40 members of the Village Organization (VO). Village Organization (VO) consists of a group of village women who maintain an association under a BRAC branch office, but Village Organization (VO) is a voluntary organization not a part of BRAC. A chairperson leads the VO. A woman who interested to be a member and want to borrow loan from BRAC, firstly she needs to be a member of Village Organization (VO). BRAC branch office staff help the village women about admission to the VO. With the copy of National Identification Card (NID), one has to communicate with the chairperson of VO. She has to describe the purpose of becoming the member of VO. The chairperson investigates her house and others related issues. If the chairperson initially satisfies and agrees to recommend posivitely, then the program officer (PO) investigates for second time. If the field officer satisfied, she can be a member of VO. One has to pay Tk. 20 (Tk. 10 for admission fee and Tk. 10 is for pass book.). After being the member of VO, one can apply for loan. Before allowing loan, the Program Officer (field officer) and the Branch Manager (BM) both investigate the applicant's house, property, income source, belongings, relatives, the surroundings etc. If they satisfy, the applicant will be allowed to have loan. The Branch Manager (BM) can approve loan amounting Tk. 12,000-25,000. The Area Manager (AM) approves above Tk. 25,000. A program officer (PO) monitors more or less 450 borrowers. The Customer Service Assistant (CSA) gives training to the new borrowers. The program officer visits the borrowers' house regular basis and monitors the activity of the borrowers. The Branch Manager (BM) also visits and when needs, the Area Manager visits the field.

6.6 Observation

The researcher talked to some VO members who came to the BRAC branch office at Jalirpar from different places. The VO members consider 'microcredit' a tool for facing different types of social crisis and poverty at the time of the necessity. Those who are really poor want microcredit for doing something income generating small business. But a good number of VO members who are not in the category of poor take microcredit for avoiding some social problems and hazards. As per an example: Taking cash-loan from any relative may lead to a quarrel and risk of maintaining good relationship and social status. In society, taking loan from relative is treated as an 'act of disgrace'. Sometimes it becomes an issue of social degradation. That's why well off and semi-well villagers simply choose to take microcredit from NGOs. Some take loan for facing seasonal-need like cultivation and bad time in business. Some cases study are stated here:

Case Study-01: Granty Bala (30), husband name-Bikash Bala (45), is a microcredit borrower from BRAC, Jalirpar branch office. Her husband runs a small business. She has two children-one is daughter and one is son, both of them go to school. She feels proud as her children are learning and subsequently will have brighter future. Currently she has borrowed Tk. 20,000/-(Twenty thousand) only from BRAC. In the past, she also took loan from BRAC. She expressed her gratitude to BRAC authority for getting loan as it was needed. She would hand over the borrowed money to her husband. Her husband will invest it as capital in business.

Case Study-02: Ahulla Biswas (32) is also a microcrdit borrower from BRAC, Jalirpar branch office. Her husband has a small business. She has two children-one is daughter and one is son, both of them go to school. She feels proud as her children are learning and subsequently will have brighter future. Currently she has borrowed Tk. 20,000/-(Twenty thousand) only from BRAC.

Case Study-03: Unnati Bakchi (25) comes from Vennabari to the BRAC branch office (BBO), at Jalirpar for taking loan. She lives at Bakchibari of Vennabari with her family. The distance bewteen Vennabari and BRAC branch office is near about 10 km. She has 3 children of whom 1 is female and 2 are male. Her husband, Krisna Bakchi (37), is a carpenter. She told this is the third time she applied for microcredit of Tk. 10,000. Firstly she took loan Tk. 20,000 and then Tk. 30, 00. She admitted that with the borrowed money she personally did nothing, she just gave it to her husband. The loan helped her husband in dealing the familiar affairs. She strongly admitted that microcredit helped her family in earning money. Foe microcredit, her husband does not have to take loan from mahajan or other relatives. Unnati Bakchi told that this time she took loan for

giving her husband for cultivating because the period December to January is the season for cultivation. This year her family would cultivate about 1.5 acre land. In rural areas of Bangladesh, poor farmers have to take hand-loan (cash money) from *Mahajans* at a high rate of interest. As Unnati Bakchi could be avail to get the loan from BRAC, so her family did not have urgent to take loan from Mahajan. That's why Unnati Bakchi got relief from being harasment of Mahajan and her family became tensionless as the expenditure for cultivation was ready. If they cannot cultivate land, their food security and income will be decreased which will ultimately increase their poverty. As their capital for cultivation is secured by microcredit, so they will be able to work without facing any big crisis. This is how microcredit program help the villagers in order to alleviate poverty.

Case Study: 04 Rubi Begum (29) is also a microcredit borrower of BRAC. She comes from Uttarpara of Nanihkir union. Moham Shaikh, her husband, is a contractor. She has two male children of whom one is studing five and another is four. Rubi Begum took loan from BRAC for five times. She has a good record of refunding loan. She also helps her husband for his business. She, herself, does not spend the borrowed money, but she believes that her husband spends the borrowed money for the betterment of their business and family.

Case Study: 05 Kamla Bairagi (50) has 6 children. Her daughter is a teacher of government primary school. Her husband, Fanindra Bairagi (74) is an agricultural-worker. Kamla Bairagi came to BRAC for taking loan that is needed for her husband to complete cultivation works.

7.0 Finding of the Study and Analysis

7.1 Reasons for Taking Microcredit

The respondents of the study approved that they have to take microcredit for multiple reasons. Amongst these, helping husband's business (43.33%) stood first in the list. Cultivation (16.67%), poverty (10%), starting new small business (3.33%) are also important reasons.

7.2 Occupation of Micro Credit Borrowers' Husband

The socio-economic status of the microcredit borrower is that of the microcredit borrower's husband. For this reason, occupation of the microcredit borrowers' husband was needed to be identified in order to determine their socio-economic status. The table No. 2 shows that 23.33% of the respondents' husband work as carpenters. Total 31.11% of the respondents told that their husbands' income sources depend on agriculture, farmers, agri-related works and day labourer.

Table 1: Frequency Distribution of Microcredit Borrowers by
Responses on Reasons for Taking Microcredit

Perticulers	Number of Respondents	Percentage (%)
Poverty	9	10
Starting new business	3	3.33
Helping husband's business	39	43.33
Building new housing	4	4.45
Repairing house	4	4.45
Buying cow/goat/poultry	5	5.56
Buying agricultural land	2	2.22
Cultivation	15	16.67
Recovering previous loan	3	3.33
Medical treatment	2	2.22
Children's education	2	2.22
Children's marriage and dowry	2	2.22
Total:	90	

Source: Survey on BRAC's Borrowers of Jalirpar Village-2016

Table 2: Frequency Distribution of Microcredit Borrowers by
Responses on Occupation of Microcredit Borrowers' Husband

Perticulers	Number of Respondents	Percentage (%)
Small shopkeeper	6	6.67
Farmer	14	15.56
Carpenter	21	23.33
Cottage industry	3	33.33
Agricaltural Works	9	10
Labourers	3	3.33
Day labourer	2	2.22
Fisherish	3	3.33
Private Service	4	4.44
Single Dairy	4	4.44
Tea Stall	6	6.67
Business	5	5.55
Occasional Emplyment	2	2.22
Vendering	8	8.89
Total:	90	

Source: Survey on BRAC's Borrowers of Jalirpar Village-2016

7.3 Microcredit Borrowers' Occupation

The most microcredit borrowers are basically housewife. 15.57% respondents are the helpers to their husbands' business where the number of housewife and workers of cottage industry is 14.44. Beside, the respondents are engaged in different kind of small entrepreneurship and firming. The village poor women also choose to be shopkeepers (3.33%), helper of carpenter(6.67%), dairy (3.33%) or poultry (4.44%) or tea stall (1.11), or vegetable firm owner (5.55%) for fighting against poverty in order to bring a change to their families.

Table 3: Frequency Distribution of Microcredit Borrowers by Responses on their own occupation

Particulars	Number of Respondents	Percentage (%)
House Wife	13	14.44
Helper to Husband's Business	14	15.57
Shopkeeper	3	3.33
Worker of Cottage Industry	13	14.44
Owner of dairy/goat firm	4	4.44
Tea Stall	1	1.11
Part time Worker	12	13.33
Small Food-Shop	2	2.22
Helper of Carpenter	6	6.67
Farmer	9	10
Poultry Firm	3	3.33
Vegetable Firm	5	5.55
Private Service	1	1.11
Domestic worker	3	3.33
Others	1	1.11
Total:	90	

Source: Survey on BRAC's Borrowers of Jalirpar Village-2016

7.4 How Borrowed Money Spend

One of the basic objectives of the study is to know how the borrowed money is spent by the microcredit borrower. The study found that the respondents have to spend the borrowed money for multiple purposes. 32.5% respondents of the study admitted that they handed over the borrowed money to their husbands for helping their husbands' business while 17.5% for cultivation purpose. 7% respondents of the study used the some of the borrowed money for refunding the previous loan. 2.5% of the respondents used the loan for starting new small business.

7.5   Spending Borrowed Money for Single or Multiple Purposes

41.11% respondents of the study admitted that they used the borrowed money for more than one reason while 28.87 for thrice reasons. The study suggested that the microcredit borrowers spend the borrowed money for multiple purposes.

Table 4: Frequency Distribution of Microcredit Borrowers by
Responses on How Borrowed Money was Spent

Particulars	Number of Respondents	Percentage (%)
Helping Husband's Business	65	32.5
Purchasing Land	4	2
Building New House	7	3.5
Repairing Old House	9	4.5
Starting New Business	5	2.5
Purchasing Goat/Cow/Poultry	7	3.5
Cultivation	35	17.5
Buying Food	9	4.5
Children Education	11	5.5
Children's Marriage/Dowry	8	4
Medical Treatment	5	2.5
Vegetable Firm	21	10.5
Refunding Previous Loan	14	7
Total	200	

Source: Survey on BRAC's Borrowers of Jalirpar Village-2016

7.6   Increasing Income

The respondents of the study admitted that microcredit helps them in respect of increasing their income. 44.11% of the respondents expressed their opinion that their income is increasing while 25.56% expressed the same opinion strongly. 12.22% of the respondents did not agree that their income is increasing due to microcredit while 21.11% respondents remained silent. It stands that 69.67% respondents agreed that with the help of microcredit their income is increased while 12.22% did not think so.

7.7   Poverty Reduction

The respondents of the study admitted that microcredit helps them in alleviating poverty. 23.33% respondents agreed that poverty is being alleviated while 15.56% agreed strongly. 20% of the respondent strongly disagreed that their poverty is being alleviated while 31.11% respondent made on comment regarding this. It

Table 5: Frequency Distribution of Microcredit Borrowers by
Responses on Spending Borrowed Money for Single or Multiple Purposes

Particulars	Number of Respondents	Percentage (%)
Single Reason	15	16.67
Twice Reasons	37	41.11
Thrice Reasons	26	28.87
Multiple Reasons	12	13.33
	90	

Source: Survey on BRAC's Borrowers of Jalirpar Village-2016

Table 6: Frequency Distribution of Microcredit Borrowers by
Responses on Increasing Income

Particulars	Number of Respondents	Percentage (%)
Strongly Agree	23	25.56
Agree	37	44.11
Not Agree	8	8.89
Strongly Disagree	3	3.33
No comments	19	21.11
Total:	90	

Source: Survey on BRAC's Borrowers of Jalirpar Village-2016

stands that 38.89% respondents think poverty is being alleviated with the help of microcredit while 30% respondents did not think so. The number of respondents who believe that microcredit can alleviate poverty is bigger than the number of respondents who do not believe so by 8.89%.

7.8 Training and Monitoring for Proper Utilization of Microcredit

The respondents were asked whether they need training and monitoring for utilization of microcredit. The almost all respondents (93.33%) strongly urged that training and monitoring are needed for properly utilization of microcredit.

7.9 Key Observation

In the table No. 7.9, some observations have been made on the basis of field-survey, discussion with the stakeholders of microcredit and BRAC officials and the findings of the study.

*Table 7: Frequency Distribution of Microcredit Borrowers by
Responses on Poverty Reduction*

Particulars	Number of Respondents	Percentage (%)
Strongly Agree	14	15.56
Agree	21	23.33
Not Agree	9	10
Strongly Disagree	18	20
No comments	28	31.11
Total:	90	

Source: Survey on BRAC's Borrowers of Jalirpar Village-2016

*Table 8: Frequency Distribution of Microcredit Borrowers by Responses on
Necessity of Training and Monitoring for Proper Utilization of Microcredit*

Particulars	Number of Respondents	Percentage (%)
Strongly Agree	57	63.33
Agree	27	30
Not Agree	0	0
Strongly Disagree	2	2.22
No comments	4	4.44
Total:	90	

Source: Survey on BRAC's Borrowers of Jalirpar Village-2016

8.0. Limitation and Direction for Future Research

Rural poverty reduction is not a small job. It's a nation-wide program. Micro Credit program has been contributing positively in reducing rural poverty. A lot of researchers have already done study on this issue. Even that, due to its importance in regard of socio-economic issues of the country, much more research needs to be done. So, extensive research and follow-up research need to conducted for gaining the real picture of rural poverty reduction by utilizing Micro Credit. This research program has been financed by the research himself, as such needless to say that financial limitation was the main barrier of this study. Time was also a factor that did not allow this researcher to go to the field agian and again.The future researcher may formulate more extensive research program so that what this researcher could not do might be done which may be able to fulfill the objectives completely.

Table 9: Key Observation of the Study

Issues	Number of Respondents
Why the Villagers take microcredit?	Because
	1. They need money and they get it easily.
	2. Microcredit helps them at the time of crisis.
Why housewife usually takes microcredit?	Housewife is just being used as a tool of
	taking microcredit in favour of husband.
	Because male is not allowed to microcredit.
Reasons for taking microcredit and	1. Multipurpose reasons for taking microcredit
How it is used	2. No match between objectives of taking
	microcredit and its utilization.
Target of BRAC branch office	1. Increasing of VO members/borrowers
	2. Refund of loan
Training and monitoring, BRAC offers	1.How the borrowers refund the loan
	2. Ensure of refund of loan.
Does microcredit alleviate poverty	1. Yes:38.89%
	2. No:30%
	3. No comment:31.11%

Source: Survey on BRAC's Borrowers of Jalirpar Village-2016

9.   Conclusion and Recommendations

9.1   Conclusion

It is found in the study that the village poor women, directed by their husband, usually take microcredit for multiple reasons and they hand over the cash to their husband. The findings of the study suggest that the microcredit borrowers are benefited with microcredit programs and it helps them in alleviating poverty. If training and monitoring system can be established and maintained properly, then the poverty will be alleviated more effectively. Thus, on the basis of the findings and observation of the study, a. Integrated Approach Plan (IAP), b. Objective Based Monitoring (OBM) and c. Training For Achieving Goals (TAG) Program have been recommended for gaining the real objectives of Microcredit i.e. alleviation of poverty.

9.2   Recommendations

9.2.1 Integrated Approach Plan (IAP)

Integrated Approach Plan (IAP) has been formulated based on the observation of the findings of this study. In this study, it was found that one can easily get microcredit and without giving any account the borrowed money can be spent. As

a result the borrowed money are not being utilized purposefully. Besides, training that are supposed to give the VO member by the BRAC Brach Office (BBO) is not effective and result oriented. The Brach Office needs to ensure that the VO member spends the borrowed money for the purpose as stated in the application form. The borrowers take loan with a declaration of purpose of taking loan, but in practical they do not utilize the borrowed money according to their declaration. Purpose of taking loan and utilization of that loan needs to be adjusted. In this regard, the BRAC Branch Office (BBO) can take necessary steps so that the borrower money must be utilized according to the declaration stated in the application form that singed by the member at the time of taking loan. Some steps can be considered: (i) Instead of giving the loan in cash, the Branch Office can supply the material or the desired goods of the VO member. (ii) The VO member must spend the borrowed money with the written consent of the BBO and the representative of the BBO will present at the time of spending borrowed money. The representative of the BBO will ensure in written that the VO member spends the borrowed money as stated in the application form. Before allowing microcredit, the VO member must participate in the TAG program. The training module must be realistic, practical, and result oriented.

9.2.2 Training For Achieving Goals (TAG) Program

Currently BRAC Branch Office arranges an orientation on 'Financial Training' for the new entrants of microcredit and regular training for the borrowers. 'Financial Training' deals how a VO member takes and refunds the loan. BBO also conducts training for the borrowers 4 days in a week. Even it gives allowances Tk.70 to each participant. But training is not effective enough to utilize the microcredit objectively. There is no training arrangement for those who want to take loan and start a new small business for generating income. BRAC can take new initiatives of launching TAG program. Under this program, those who want to start new business will give at least 6 month practical training. Suppose, one VO member wants to start a dairy firm will be attached to a dairy firm for gaining practical training. All expenditure will be bore under the TAG program. After completion of the training the loan will be disbursed. The BRAC branch office must ensure that the borrowed money will be spent for establishment of dairy firm. How 'Training for Achieving Goals (TAG) Program' and 'Objective Based Monitoring (OBM)' will work for attaining the goal is seen below:

9.2.3 Objective Based Monitoring (OBM)

It is perceived that the monitoring system of BRAC branch office depends on the refund of the borrowed money. If installation of loan is collected regularly, the BBO will keep silent. If installation of loan is not collected regularly, the BBO will be seriously active to recollect the installation. Such kind of monitoring system will not help the VO member in gaining their objectives. The BBO must be aware of how the VO member refunds the loan. If the refund money is the income from the investment, then the real purpose of the BRAC would be served.

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┌──────────────┐      ┌──────────────┐         ╭──────────╮
│ TAG Program  │─────▶│  Microcredit │────────▶│ Attaining│
└──────┬───────┘      └──────────────┘         │   Goal   │
       │            ┌──────────────────┐       ╰────▲─────╯
       └────────────│       OBM        │────────────┘
                    └──────────────────┘
                                      ystem
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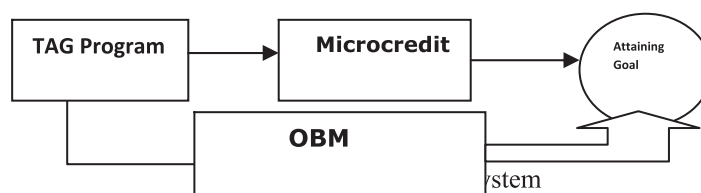
How a VO member utilizes the microcredit and tries to make a change with the microcredit must be monitored by the BRAC branch office.

BRAC should establish 'Objective Based Monitoring (OBM)' which will significantly help in gaining the targets of the borrowers. OBM refers such kind of monitoring system that will be engaged to perform all activities for achieving the objective. As far an example: A VO member wants to take microcredit for starting a glossary shop. Monitoring activities will start from the beginning of starting the shop and will continue for achieving the objective. In truly, BRAC's target is focused on only the collection of installment from the borrowers. But if BRAC is committed to its vision and mission, then the borrowers' target should be the BRAC's target that is how poverty is alleviated. Thus, TAG and OBM should be established. If OBM and TAG can be established and maintained properly, poverty will be alleviated more effectively. The investment in establishing and conducting of TAG and OBM will surely be a successful project in context of poverty alleviation program of BRAC.

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Localized Sewing Industries in Bangladesh: A case study on Chittagong

BIDDUTH KANTI NATH[*]
ARPITA DATTA[**]

Abstract: *Localized industries can play a great role in the development of a city. But the saga of such industries often remains unsung because of mismanagement, lack of cooperation or lack of sponsorship. These firms often share backward and forward linkages with the subsidiary markets as well as with the labour market directly or indirectly. Firms in cluster enjoy both competitive and marketing advantages. Moreover, the cluster creates an opportunity of specialization. Local government is often unaware of the significant role these industries can play in local development and in national development as well. Considering the disbursed sewing factories or readymade garments of Chittagong as a cluster, this paper tends to overview some characteristics of local sewing factories and seeks to quest for the setbacks of these factories. The paper further tries to outline some recommendations to overcome the shortcomings found and how the contribution of this localized industry can be utilized to improvise the situation of garments industry of the economy like the Sillicon Valley of USA.*

Key Words: *Small sewing industries, labour employment, backward linkages, division of labour vs. production, number of labours vs. production.*

Introduction

One of the basic reasons behind the rapid expansion of garments industry in Bangladesh is 'cheap labour'. There is prohibition of selling the readymade garments in which imported clothes or the clothes produced in the external markets are being used as raw materials. Bangladesh has to export almost the full

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[*]   Assistant Professor, Department of Economics, Premier University, Chittagong.
[**] Lecturer, Department of Economics, Premier University, Chittagong.

quantity of these readymade garments. This paper shades light on the fact that by using the huge flow of cheap labours and if the prohibition is cancelled to what extent the fundamental problem of clothing can be mitigated.

In this paper, we are considering some small sewing industries. Together these small factories can be considered as 'clusters" (Michael Porter: theory of competitive advantage) or we can consider these as an localized industry. According to Marshall "a localized industry is an industry concentrated in certain localities. The main reason behind may be 'the patronage of a court' that produces a 'demand for a goods of special quality'. The mysteries of a trade become no mysteries, but as it were in the air and children learn many of them unconsciously.(Marshall 1920,P-268,270)". Subsidiary firms grow up in the neighborhood, supplying it with implements and materials, organizing its traffic and in many ways conducing the economy of its material. Moreover, a localized industry offers 'a constant market for skill so that employers do not have any problem while looking for workers'.

Almost all of these characteristics are quite prominent in the research area being considered here. The sewing factories maintain a 'spoke and hub' relationship with the subsidiary firms. Inventions and innovations take place naturally and division of labour facilitates the ideas to grow. *If one man starts a new idea, it is taken up by others and combined with suggestions of their own; and thus it becomes the source of further new ideas*" (Marshall, 1920: Book IV, Ch. X, §3) p.225).These factories are often unorganized and are established for serving commercial purpose only.

Having all these potentials, the question arises whether these factories can be considered as localized industry or not, are there any internal problems and if any, how those can be mitigated.

Selecting the area of research

Micro or small sewing factories are disbursed all through the country. In Chittagong, we have found the prominence in underlying areas:

- Madarbari
- CDA market
- Kajir dewri
- Bakolia
- Johur hawkers market
- Kahalifapotti in Ghatforhadbeg.
- Kajem ali by lane

But among these areas there are numerous sewing shops around khalifapotti, hawkers market and teribazar. These shops can be specialized as a 'processing zone' as a whole. For this reason, we have taken samples from these areas to precede our research. We believe that this zone will represent the SME's of country as a whole.

Methodology of the study

While we were trying to observe the backward and forward linkages within the factories, we were unable to find out any secondary source of data. Moreover, these factories do not maintain any record books. So, we have to go to the way of direct observation and find out necessary information based on prepared questionnaires. To verify the authenticity of the information or data we have crosschecked those from some manufacturers who do not belong to our sample. The methodology includes econometric model as well as simple statistical tools like variance and correlation.

Objective of the study

The main objectives of this paper are to:

1. Find out the backward and forward linkage situation in the industry
2. Analyze the interlinks among labours, raw materials, production, profit and expenditure.
3. Find out the contributory roles of these factories in the development and growth of the local area and of the country as a whole.

Hypothesis Testing and Decision Making

Hypothesis-1: "There are a direct backward linkage affect in the labour market and an indirect backward linkage affect in the market of related inputs due to the sewing industries."

It is found from the history of the micro sewing industries that once there were not so many factories as there are now; there were only a few factories. The number of shops increased gradually and it is still on the rise. For setting up a production firm, both fixed and variable types of inputs are needed. So, for setting up these tailoring factories one has to buy new machines, as well as employ numerous labours.

Some figures have been furnished below regarding the factories situated in the study area:

foreign currency there.

Subject	Number
(1) Factory/Tailoring Shop	450
(2) Shops selling necessary accessories for tailoring	10
(3) Machine repairing shop	3

Ref.: Khalifapatti Merchant Association and The Chattal Small Traders' Association.

Employees have been appointed to the machine repairing shops and material selling shops as seen above. In the same way, employees have been employed in the tailoring factories in direct connection with the production. It has been seen in the survey that, on average, there are 10-15 workers engaged at different levels of tailoring in every factory.

The following table contains an account of the matter.

Division/ type of labour	Number
(1) Total number of owners and labourers of the factory	6250 People (Approx.)
(2) Owners of factory	450 People (Approx.)
(3) Cutting man and tailoring artisans	800 People (Approx.)
(4)Tailoring worker (Helpers/ Iron men/ Packing men)	5000 People (Approx.)

Tailoring is a job requiring skill and fine work, whereas skill and smoothness in work is not any instant matter; it is the result of experience. So, when a worker is employed in any factory, he works as an apprentice up a certain period just for boarding and lodging and does different types of work. At one stage, he gets skill and begins to accumulate capital. When his saved capital becomes just enough for investment, he takes a shop on rent in the same area or any other place and starts a small tailoring shop with one or two sewing machines. As a result, scopes of new employment are created in the new tailoring shop he has just started, as well as opportunity is created for other workers in the vacant job that he has left behind. The number of shops has increased mainly in this way in the area under study and a direct connection is being maintained with the labour market for employing workers. On the other hand, some people just come here to take training on tailoring. Those trained people are continuously leaving the area for other parts of the country, as well as the countries of Middle-East. According to the President of the Khalifa Patti Merchant Association, over the last 60 years, around 50,000 people have gone to different foreign countries including Saudi Arabia, United Arab Emirates after getting training here and are now earning

Now, we will see the backward development effect in the market of other materials. Locally-made fabrics and other local materials are used in the factories located in this area. This encourages the indigenous producers of fabrics. The establishment of more garments industries of this type will widen the road to flourishing more fabric industries in our country. In this study, due to the constraint of ability on our part, we have not been able to prove the backward development effect in the material market by analyzing the statistical data. However, the tendency of growing number of cloth stores in places like Terry Bazar of Chittagong, Islampur of Dhaka or Babui Bazar of Narshingdi, we can, at least, indirectly imagine the said effect. The owners of the garments industries of the area under this study also purchase their fabrics and other accessories from those markets. They are dependent on the locally arising shops for meeting their demands of thread, button and other related materials, too. Hence, many shops have sprouted here for selling such accessories and other related materials.

Hence, based on the above statistical proof and information, we can take the hypothesis to be mostly correct, if not fully true.

Hypothesis 2: "Division of labour may result into higher level of production."

Division of labour is an important aspect of production process. Division of labor increases dexterity and skill of the workers. When a person continuously does a task for a longer period, he becomes expert of that task. Division of labour facilitates mass production. Large scale production provides economies in the use of resources, such as raw materials, labour, tools etc. Optimum use of means of production helps to reduce cost of production and reduces wastage of the raw materials, increases productivity and improves the quality of the product. With the division of work, the range of occupation increases. In case, the work is split up into small processes, the task can be specialized in a short period and there can be much economy in time and efforts. Moreover, when a man is doing the same job over and over again, he sometimes succeeds in inventing easier methods of production and even new technology Our aim is to find out whether division of labor could bring out any good for the research area concerned.

In our research area, we found out that, the same labour has to perform different tasks. Under various limitations like smaller firm size, limited or insufficient capital, poor numbers of machines; he cannot specialize or cannot do the task he wants to do. But in large firms with a higher capital base division of labour is quite familiar and that increased the amount of profit and ensured a higher level of output. To prove this, we have to calculate the correlation between numbers of labours and production.

Table : Calculating of correlation between number of labours and amount of output

Sample	No. of labours (X)	Production (Y)	XY	X^2	Y^2
A_1	8	1156	9248	64	1336306
A_2	16	1690	27040	256	2856100
A_3	12	1794.5	21528	144	3218436
A_4	14	2160	30240	196	4665600
A_5	12	1836	22032	144	3370896
B_1	8	1664	13312	64	2768896
B_2	20	2816	56320	400	7929856
B_3	6	1085	6510	36	1177225
B_4	18	2656	47808	324	7054336
B_5	14	1573	12750	100	1625625
C_1	10	1276	18540	144	2387025
C_2	12	1545	59760	400	8928144
C_3	20	2988	41760	256	6812100
C_4	16	2610	19428	144	2621161
C_5	12	1619	9560	64	1428025
D_1	8	1195	15330	100	2350089
D_2	10	1533	4014	36	447561
D_3	6	1669	11385	81	1600225
D_4	9	1265	4722	36	619369
D_5	6	787	18600	144	2402500
E_1	12	1550	25550	196	3330625
E_2	14	1825	19152	144	2547216
E_3	12	1596	45472	196	10549504
E_4	14	3248	8440	100	712336
E_5	10	844			
n=25	$\sum X$=299	$\sum Y$=42979	$\sum XY$=57052	$\sum X^2$=3965	$\sum Y^2$=85213515

Source: fieldwork.

Correlation coefficient $r^2 = \dfrac{\sum XY - \dfrac{\sum X \sum Y}{n}}{\sqrt{\left(\sum X^2 - \dfrac{(\sum X)^2}{n}\right)\left(\sum Y^2 - \dfrac{(\sum Y)^2}{n}\right)}}$

$= \dfrac{570523 - \dfrac{299 \times 42979}{25}}{\sqrt{\left(3965 - \dfrac{299^2}{25}\right)\left(85213515 - \dfrac{42979^2}{25}\right)}}$

$= \dfrac{56494.16}{\sqrt{4403899731}}$

$= \dfrac{56494.16}{66361.88}$

$= 0.8513043$

$\approx 0.851 \text{(approx.)}$

$$r = \pm 0.9226615$$
$$= \pm 0.922 (approx).$$

Here, value of r varies from +1 to -1and the value is greater than 0.5.So there is a highly positive correlation between the variables.

Test of hypothesis about coefficient of correlation

1. Null hypothesis: H_0: $= \rho$(there is no statistical relation between the variables)
2. Alternative hypothesis: H_1: ρ(there is statistical relation between the variables)
As the sample size is small we are considering the sample static as 't statistic'.

Calculated value of 't':

$$t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$
$$= \frac{0.922\sqrt{25-2}}{\sqrt{1-(.922)^2}}$$
$$= \frac{4.421756}{0.3860981}$$
$$= 11.45517$$
$$\approx 11.456$$

Critical value of 't':

Here 5% level of significance is considered for type 1 error. But as the alternative hypothesis is indicating a two tailed test, level of significance is considered at 2.5%and if degree of freedom is (25-2)=23 then critical value of 't' is 2.069.

Decision making:

i) If $t_c^{/} < t < t_c$,we shall accept the null hypothesis.

ii) If $t_c^{/} < t < t_c$, we shall reject the null hypothesis.

Here, t(11.456) t_c(2.059).Hence the null hypothesis H_0 be rejected and alternative hypothesis H_a can be accepted.

Hence, we can say that there is a positive relationship between production and the number of workers in all small scale garments industries. However, in this case, this study does not advocate increasing production by increasing number of workers, because, previously, in the test of hypothesis, it has been proved that if

work is done in two shifts by employing more workers, the production will not increase, rather it can have negative effects. Here we propose to increase production by developing skill of labours through specialization and reallocation of labour. And to this end, the number of employment should be increased, at least to some extent, so that division of labour is possible moderately. However, the number of labours should be increased to such extent that the marginal cost of labour does not exceed the marginal production. On the other hand, the division of labour may not be possible if the factory is small in size, or if done, the marginal production may decrease. So, if the owners of a few small factories can utilise their capital and organize joint production, this may make specialization through the division of labour possible, as well as increase in production.

Hence, based on the relationship, we find between the division of labour and production after analyzing the hypothesis No. 4, field survey of the samples and analysis of the 'correlation', we can take the hypothesis to be true.

Conclusion and recommendations

- These small and medium factories have not yet reached the long term equilibrium because of barriers to entry and exit. As the demand for readymade garments is on increase, there is huge scope for new entrants and thus the industry will also flourish if barriers are withdrawn.
- If managed properly, the arrangement provides 'flexible specialization'. Moreover, the firms will not have to turn down a big order due to lack of capital or capacity. Moreover the firms will get some marketing advantages.
- These firms have not got any government assistance in 60 years. Moreover, electricity crisis and lack of easy loan facilities have made their problems acute.If government stops enforcing irrational and stifling regulations and provide some legal and financial assistance to the industry, it will obviously flourish in a gigantic manner. According to our research, the industry has the capability to provide employment to forty thousand labours within two years.

After all the discussions above we can conclude that if necessary steps are taken by the government and other institutions to make the industry dynamic, the industry would surely add a new feather in the country's economic development. Local agglomeration will definitely facilitate comparative advantage and following it backward and forward linkage industry will gear up. These firms or

factories can gain some benefits by the fact of location; named as 'passive collective efficiency'.(Khalid Nadvi);but other benefits should be achieved through collective actions like lobbying government for needed infrastructure and financial assistance.

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Islamic Banking in Bangladesh:
An Alluring Prospect Ahead

S. M. Abu Zaker[*]

Abstract: *The object of the article is to give an overview on Islamic Banking of Bangladesh with issues and challenges ahead. Besides other Muslim countries the Islamic Banking of Bangladesh is growing fast. Islamic Banking has started its journey in Bangladesh in 1983 through opening only one Islamic Bank i.e. Islamic Bank Bangladesh Ltd. Now, the banking sector of Bangladesh has got 8 full-fledged Islamic Bank and 16 other partially operated Islamic Bank. Out of 56 commercial Banks 24 banks are involved with Islamic banking which is 43%. That means, almost half of the banks are being operated with a belief in Shariah. The growth shows that the entire banking sector may come under the umbrella of Shariah Banking in near future. And that will be a branding of Islamic Banking in the globe which Bangladesh deserves. As the sector is prospective in our country, the challenges of the sector required to be identified so that the sector can run smoothly with a view to fostering remarkable growth of the economy.*

1.   Introduction

The fast and stable growth of Islamic banks in the world financial system during the last few decades indicate the inherent strength of Islamic banking as a challenging alternative to the interest based capitalistic financial system. The Islamic finance industry has expanded rapidly over the past decade, growing at 10-12% annually.

The establishment of the Islamic Development Bank (IDB) in 1975 in Jeddah, KSA gave an accelerating momentum to the Islamic Banking movement worldwide. Since the establishment of IDB, a number of Islamic Banking and

*   Executive Vice President & Regional Manager, Exim Bank, Chittagong Region, Chittagong.

financial institutions have been established all over the world irrespective of Muslim and non-Muslim countries. Over the past few decades, the Islamic financial industry has rapidly expanded worldwide. Currently, about 300 Islamic banks and financial institutions (IFIs) have been functioning in line with Islamic Shariah with total combined assets exceeding US $2 trillion in more than 75 countries. This rapid growth has gained considerable attention in international financial circles where various market participants have recognized their promising potentials.

In view of the potentials of the emerging Islamic markets and funds, a number of global financial institutions, including but not limited to, the world giants such as Kleinwort Benson, Chemical Bank, ABN Amro (Netherlands), Citibank(USA), ANZ (Australia) Grindlays, J.P.Morgan, Goldman Sachs(USA), Bankers Trust, Chase Manhattan, Hong Kong and Shanghai Banking Corporation (UK), Deutche Bank (Germany), Societe Generale (France), BNP Paribus, and Union Bank of Switzerland (UBS) have established Islamic banking Shariah compatible services in several countries. Moreover, many conventional commercial banks, in many Muslim countries, have been offering Islamic banking services. These include among others, Bank Misr in Egypt, National Commercial bank, Saudi American Bank and Saudi-British Bank in Saudi Arabia.

2.   Islam

Islam is a complete code of life. There is every solution related to political, economic, social, familial, personal, commercial, internal & external relation, social & religious rights of human life in Qu-ran & Sunna. But world had to remain within the economic framework based on interest for last 1400 years, though Islam has forbidden interest. As there was no any Islamic bank, there was no alternative but to bank with interest based bank. Peoples had to wait for full fledged Islamic bank until 1963 during which first Islamic bank namely Mit Ghamr Savings Bank was established in Egypt. Later on in 1969 another Islamic bank namely Tabung Hajj was established in Malaysia by the government of Malaysia. Islami Bank Bangladesh Ltd is the first Islamic bank in Bangladesh established in 1983.

3.   Islamic Bank

Accordingly OIC Islami Bank is a financial institution whose statutes, rules and procedures expressly states its commitment to the principles of Islamic Shariah and to the banning of the receipt and payment of *riba* (usury) on any of its operations.

According to International Association of Islamic Banks, "The Islamic bank basically implements a new banking concept, in that it adheres strictly to the ruling of the Islamic Shariah in the fields of finance and other dealings. Moreover, the bank which is functioning in this way must reflect Islamic principles in real life. The bank should work towards the establishment of an Islamic society; hence, one of its primary goals is the deepening of the religious spirit among the people.

Within next 8-10 years, the Islamic banking industry is estimated to capture half of the Savings of the world's 1.6 billion Muslims. There are estimated more than 300 Islamic Financial Institutions having about 10000 branches in many countries including Malaysia, Pakistan, UAE, Egypt, Dubai, Brunei, Indonesia, Lebanon, Bahrain, Kuwait, Iran, Jordan, Saudi Arabia, Bangladesh etc. Non-Muslim country includes Singapore, Philippine, Thailand, Sri Lanka, USA, UK, France etc.

Islamic Bank runs on some basic concept derived from Qur'an and Sunna some of which are noted below:

a) One of the most important characteristics of Islamic Financing is that it is an asset-backed financing while the conventional / capitalized concept of financing is that the banks and financial institutions deal in money and monetary papers. On the other hand Islam does not recognize money as a subject-matter of trade, except in some special cases. Money has no intrinsic utility; it is only a medium of exchange.

b) The profit earned through dealing in money (of the same currency) or the papers representing them is interest, hence prohibited.

c) When the financer contributes money on the basis of *Musharaka* and *Mudarabah*, *Salam*, *Istisna*, *Murabaha* it is either converted into the assets having intrinsic utility, or creates real assets. Profits are generated through the sale (or rental) of these real assets.

d) Islamic law does not object to payment for the use of an asset, and the earning of profits or returns from assets are indeed encouraged as long as both lender and borrower share the investment risk together.

e) The 'depositors' are not lenders or creditors; but rather they are investors.

f) Profit must not be guaranteed based on assumption and can only accrue if the investment itself yields income.

The above concepts for running the Islamic Bank are based on the Qur-anic directives some of which are quoted below:

01)   *Those who eat "Riba"* (usury*) will not stand* (on the day of Resurrection) *except like the standing of a person beaten by 'Shaitan'* (Satan) *leading him to insanity. That is because they say; "Trading is only like 'Riba'* (usury*)", whereas Allah has permitted trading and forbidden 'Riba'* (usury*). So whosoever receives an admonition from his Lord and stops eating 'Riba'* (usury*) shall not be punished for the past, his case is for Allah* (to judge*); but whoever returns* (to Riba*), such are the dwellers of the fire -they will abide therein*. **(Surat Al Baqarah, Verse 275)**

02)   *Allah will destroy Riba (*usury*) and will give increase for Sadaqat (*deeds of Charity, alms, etc.*) and Allah likes not the disbelievers, Sinners*. **(Surat Al Baqarah, Verse 276)**

03)   *Truly those who believe, and do deeds of righteousness, and perform As-Salat and give Zakat, they will have their reward with their Lord. On them shall be no fear, nor shall they grieve*. **(Surat Al Baqarah, Verse 277)**

04)   *O you who believe! Be afraid of Allah and give up what remains (due to you) from 'Riba' (usury) (from now onward), if you are (really) believers*. **(Surat Al Baqarah, Verse 278)**

05)   *And if you do not do it* (to avoid interest*); then take a notice of war from Allah and His Messenger*. **(Surat Al Baqarah, Verse 279)**

06)   *And if the debtor is in a hard time* (has no money*), then grant him time till it is easy for him to repay, but if you remit it by way of charity, that is better for you if you did but know*. **(Surat Al Baqarah, Verse 280).**

4.   Deeds forbidden (Hara'm) in Islam

As per Al-Qur'an some deeds are forbidden (Hara'm) which are as follows:

a)   Bribery: "*And eat up not one another's property unjustly* (in any illegal way e.g. Stealing, robbing, deceiving etc)*, nor give bribery to the rulers* (judges before presenting your cases*) that you may knowingly eat up a past of the property of others Sinfully*". **(Surat Al Baqarah, Verse 188)**

b)   Illegal earning: *"It is not for any prophet to take illegally a part of booty, and whosoever deceives his companions as regards the booty, he shall*

bring forth on the Day of Resurrection that which he took (illegally) ”. **(Surat Al Imran, Verse 161)**

c) Property of Orphans: “Verily, those who unjustly eat up the property of orphans, they eat up only a fire into their bellies, and they will be burnt in the blazing”. **(Surat An-Nisa,Verse 10)**

d) Giving less than due weight: “And when they have to give measure or weight to men, give less than due”. **(Surat Al-Mutaffifin, Verse 3)**

e) Allah prohibits all sorts of deeds those create social and ethical anarchy: “Verily, those who live that illegal sexual intercourse should be propagated among those who believe, they will have a painful torment in this world and in the Hereafter”. **(Surat An-Nur,Verse 19)**

f) Alcoholic drinking and gambling: “O you who believe! Intoxicants (all kinds of alcoholic drinks), gambling, AlAnsab and AlAzlam (arrows for seeking luck or decision) are an abomination of Satan handiwork. So avoid (strictly all) that (abomination) in order that you may be successful”. **(Surat Al-Maidah,Verse 90)**

5.   Evolution of the Concept of Islamic Banking

Though the directives of banking and trading were laid down in Quran and Sunnah, the idea of Islamic banking took as many as thirty years for its conceptual consolidation and only by the early seventies did it take the shape of the present comprehensive model. The system is based on the Islamic legal concepts of *shirkah* (partnership) and *mudaraba* (profit sharing). Many Muslim economists contributed to the development of thinking on Islamic banking, the notables among them are Nejatullah Siddiqi, Baquir al Sadar, Abdullah al Araby, Sami Hassan Hamoud and Ahmed al Naggar. Siddiqi primarily conceived an Islamic bank as a financial intermediary mobilizing savings from the public on the basis of *mudarabah* and advancing capital to entrepreneurs on the same basis. Profit accruing to entrepreneurs on the capital advanced by the bank are shared by the bank according to a mutually agreed upon percentage. The bank also provides a number of familiar services on a fee or a commission basis. The banks own capital also goes into the business of offering banking services and advancing capital on a profit sharing basis. After accounting for administrative costs, the net revenue on these business activities constitutes the bank’s profits, which are distributed to the owners of capital, both to the individuals that deposited their savings on the basis of *mudarabah* and the bank for its capital investment.

6.   Islamic Law on Finance

Given the principle of permissibility, Islamic commercial law can evolve within the limits imposed by Shariah. Recent history of the growth of the Islamic financial sector based on new rulings of Shariah scholars is an indicator of the adaptability of Islamic law to changed situations. While Islamic law can evolve, other elements of the legal infrastructure like laws and statutes and dispute settlement institutions also need to be strengthened. The adaptability features of Islamic law along with the strengthening the legal infrastructure is vital components of the development of the Islamic financial sector.

One of the important determinants of financial development is adaptability of law to changing conditions. Adaptability underscores the formalism of laws and the ability of legal traditions to evolve. Specifically, legal systems that adapt efficiently to the contracting needs of the economy foster development of the financial system. The question of adaptability of the law to changing circumstances is vital to the development of Islamic financial system. Issues like legal formalism, dynamism, and the efficiency with which laws can adapt to changing circumstances will determine to a large extent how this sector will grow in the future. Islamic law started with the advent of Islam. The overall goal of the Islamic law is to promote welfare (*masalih*) of mankind. This goal in broad general terms implies, among others, to ensure growth (*tazkiyah*) and justice (*qist*) and in specific terms relates to *maqasid al Shariah* implying the protection of religion, life, reason, progeny and property. Thus, the objective of Islamic commercial law would be to ensure one or several of these goals. For example, the goal of prohibition of *riba* or interest is to ensure justice and equity.

7.   Adaptability of Islamic Commercial Law

Over the centuries, Islamic law has evolved to a body of *'a highly sophisticated system of rules, covering the whole field of what the contemporary world perceives as law'*. Islamic laws and rulings regarding human activities can be divided broadly into two: devotional matters (*fiqh-ul-ibadah*) and dealings or transactions (*fiqh-ul-muamalah*). The rules and principles of nominate contracts are applied to new concepts and problems and by the process of analogy, applicable solutions are arrived at. The most common method of creating financial contracts has been the combination of traditional nominating contracts to create new contracts. Examples of these include the contemporary *financial murabahah* (or murabahah to the purchase orderer) a widely used instrument by Islamic financial institutions. The original sale contract (*murabahah*) is used with

several other concepts (promise, guarantee) to produce a financing tool. Similarly, traditional *ijarah* contract is used with a sale or gift contract to form a financing instrument called `*ijarah wa iqtina*' or `*ijarah muntahia bit-tamleek'*. `*Musharaka Mutanakissa'* or diminishing *musharakah* associates *musharakah* contract with that of a sale for financing purposes. Similarly, contemporary sukuk is a composite of multiple transactions/contracts.

8.   Adapting Conventional Financial Products

Another method of creating new contracts in the Islamic financial sector is to adopt and adapt conventional financial instruments/products/contracts that meet the Shariah criteria. The conventional contracts or products can be modified by removing the undesirable components to make them comply with the Shariah principles. For example, equity based mutual funds have been adopted by Islamic financial institutions by adapting the stocks that can be included in these funds. Investments in stocks are allowed if they fulfill certain business and financial criteria derived from Shariah and fiqh. Accordingly, investment in companies that deal with forbidden goods/services like alcohol and tobacco, gambling, pornography, interest based financing institutions, etc. is not allowed. The financial filter developed on the basis of Islamic shariah is being used to weed out firms that have unwarranted dealings with interest-based transactions.

9.   Application of the Islamic Legal Infrastructure

As pointed out, most Muslim countries have adopted one of the Western legal systems. The absence of a comprehensive legal system for a long time resulted in the lack of legal infrastructure institutions that can support the use of Islamic commercial law during contemporary times. With the advent of Islamic finance, Islamic financial contracts are being used, but this is being done in an alien legal environment. Even if individuals agree to use Islamic contracts, the laws and courts may not be there to interpret and enforce the form of these contracts. Successful application of Islamic law in contemporary financial transactions requires various supporting legal infrastructure institutions. Some issues related to the development of Islamic law and legal infrastructure institutions with respect to the financial sector are discussed below.

a)   Good documentation of contracts is important determinant of growth and liquidity of markets in financial products. Standardized documentation creates more predictability and certainty about the characteristics of the financial contracts. Agents involved are better able to understand their

rights and obligations under the contract and enhances the confidence to enter the market and transact.

b)   The standardization of Shariah rules needs to take place at two levels. First, at the national level, the rules governing economic transactions can be standardized by a national Shariah body. This body will be responsible not only for issuing rulings but also codifying them for application. Examples of national level Shariah boards/authorities are those existing in Sudan and Malaysia. The harmonization of Shariah rules within national borders, however, will not solve the problems of global Islamic financial transactions. There is a need for an international body that can issue standardized rulings on economic transactions. Efforts by AAOIFI are given for this legal diversification. But as AAOIFI is an institution dealing with mainly accounting and auditing standards, there is a need for a global Shariah body that can harmonize diverse bodies of knowledge to one standardized version that the Islamic financial industries around the world can use. Establishment of an international body to develop different Standards for Shariah Application in Finance Industry is inevitable.

c)   As most Muslim countries have adopted either the common law or civil law framework, their legal systems do not have specific laws/statutes that support the unique features of Islamic financial products. For example, whereas Islamic banks main activity in trading (*Murabaha*) and investing in equities (*Musharaka* and *Mudaraba*), current banking law and regulations in most jurisdictions forbid commercial banks to undertake such activities. This calls for specific laws and statutes that can support and promote Islamic financial services industry. While in some countries separate Islamic Banking laws have been passed (e.g., Kuwait and Malaysia), in others Islamic banking is covered under a section of the existing banking law (e.g., Bangladesh and Indonesia). The implications of these Islamic banking/financial laws on the operations and growth of Islamic financial sector will depend on the type of legal system in place.

d)   As the laws and their implementation are codified under the civil law regime, it would be difficult to have Islamic financing if new laws are not enacted as the existing rules and regulations are geared towards conventional banking practices. The Islamic banking law enacted by the legislature will form the legal foundation for Islamic banking and financial dealings. The Islamic banking laws passed in civil law country like Indonesia, however, are worded in general terms and lack details of the

different Islamic modes of financing. Examples of such omissions include the prohibition of trading and taking equity positions and the absence of resolution of the double taxation in Islamic financial transactions (e.g. in case of *ijarah*). While Bank Indonesia is trying to fill some of the gaps through some regulations, these may not hold in the courts of law. Such uncertainty in the laws related to Islamic banking will have Islamic banks at a disadvantageous position compared to the conventional banks. Thus, there is a need for detailed codification of the law that would include the Islamic principles for financial transactions and the administrative procedures for carrying out these activities.

e)   Islamic contracts and transactions under the common law regime may have problems of interpretation as no precedents on these activities may exist. Promulgation of law in this system may not be as effective as in case of civil law regime as the judges may deviate from the statute if the statute is incompatible with the precedents. Common law regimes, however, provide more predictable results under legal documentation relative to the civil law system. While in the civil law system, the courts will interpret the contracts on the basis of reasonableness and fairness, the Common law system will consider the provisions in a legal document more weight irrespective of other considerations like materiality or fairness. As the sanctity of the contract is greater in the common law system, there may be lower legal risk involved for Islamic baking instruments under this regime.

f)   Lack of Islamic courts in most Muslim countries that can enforce Islamic contracts increases the legal risks of using these contracts. As such, partners in transactions avoid using Islamic law as they want to avoid the impracticalities or the uncertainty of applying classical Islamic law. In an environment with no Islamic courts, Islamic financial contracts include choice-of-law and dispute settlement clauses. In such cases, two approaches can be taken. The first is to use Shariah as the governing law as the Islamic financial contracts' legitimacy should be judged by the principles of Shariah. To ensure such settlements the contracts would include a clause indicating Islamic law to be used for settlement of disputes. The second approach is to use the law of the country to settle disputes. In the former approach, the contracts should be shielded from the legal environment and disputes settled through commercial arbitration.

To ensure the growth of the Islamic financial industry, there is a need to have dispute settlement institutions or Islamic courts that understand the form of the contracts so that these can be interpreted and enforced accordingly. While the

whole court system cannot be expected to change, a solution is to have special Islamic bench that deals with, among others, financial transactions. In this regard, Malaysia has adopted several steps to build some legal infrastructure institutions for Islamic financial industry. At the highest level, the High Court in Malaysia has dedicated high court judges to oversee litigations related to Islamic banking and finance. Furthermore, to complement the court system, the Kuala Lumpur regional Centre for Arbitration has been enhanced to deal with disputes on Islamic banking and finance for both domestic and international cases. To ensure the efficient functioning of the Islamic financial sector, the Central Bank of Malaysia has also set up a Law Review Committee to assess the common law based legislations and to assimilate the Shariah principles.

10.   Main Reasons to Establish Islamic Banking System

There are mainly two reasons to establish Islami Banking system:

    i)   Shariah

    ii) Socio-economic

        a) To check inflation,
        b) To do justice to the depositors,
        c) To increase the investment,
        d) To handover capital to the experts,
        e) To protect the hoarders,
        f) To decrease the income discrimination,
        g) To full utilization of foreign currency or foreign capital,
        h) To ensure proper supply & distribution of goods/wealth,
        i) To increase the financial development of poors,
        j) To relief the poors from oppression,
        k) To extend the hands to the productive sector,
        l) To stable the price hike.

11.   Main objectives of Islamic economy

The objectives of Islamic economy are as under:

i)   To establish Adl (justice), to attain Hasanah (good) and Falah (welfare) in this life and the life hereafter.

ii)   To establish Ihsan (gracious conduct or kindness) in economic affairs.

iii)   To establish Maroof (proper or good acts, institutions) in economic life.

iv)   To eliminate Munker (evil, wrong or injurious practices from economic life).

v)   To free the humanity from un-wanted burdens and shackles and to make life easier for them.

vi)   To achieve maximum economic growth.

vii)   To maximize employment to ensure proper distribution of wealth in the society.

viii) To achieve universal education.

ix)   To encourage cooperation in the society.

x)   To favoring the weaker sections of the society to establish them in life.

12.   Profit, Interest, Riba

Profit means additional amount of business capital. In other words, it is the excess amount of purchase and sale with a risk of loss. Here there must be a business of commodity or sale purchase agreement. As per requirement of investment client, Islamic Banks provides goods in lieu of money. In Islamic Banking he bears the risk who is the owner of capital.

Interest is the amount which is predetermined upon principal amount for a certain period with certain rate. In other words, excess over principal amount through fixed rate or premium for the use of money. Here time, amount and rate are fixed.

Riba: The word used by the holy Quran concerning interest is **Riba**. Riba is the predetermined return on the use of money or goods. In shariah, riba technically refers to the premium that must be paid by the borrower to the lender along with the principal amount/quantity as a condition for the investment/loan. All transactions based on Riba are strictly prohibited in Qur'an.

There are two types of Riba:

i)   **Riba Nasia**: In addition to investment (loan) amount is Riba Nasia. It   has been restricted in Quran by time and again.

ii)   **Riba Fadal**: Excess of same commodity or same thing during spot exchange of the commodity. This has been restricted by prophet Hazrat(s) by Sunnat.

13.   Conditions for or philosophy of Islamic mode of transactions

    i)   The transaction should be Riba (interest) free.

    ii)   The transaction should be Gharar (excessive uncertainty) free.

    iii) The transaction should be Maysir (Gambling) free.

    iv)   The business product should be shariah permissible.

14.   Profit mark-up & weightage

'Profit mark-up' means the difference amount of a purchase & sale deal between a banker & customer for a particular period. This term is used in Investment banking of Islami Banks.

'**Weightage**' means status distribution to various types of mudaraba depositors on the basis of tenor/types in terms of money/profit. In other words, it is the extra money given/distribution to the mudaraba depositors considering their types of deposits on the basis of tenor. It is a formula in Islamic Banks towards distribution of profit on deposits as per types.

15.   Functions of Shariah Board

    i)   The main functions of Shariah Council or Shariah Board is to advise the Bank authority to train up the manpower of the Bank so that they can run the Bank on the principles of Shariah.

    ii)   They also monitor/supervise the functions of the Bank whether they are performing as per norms.

    iii) They initiate audit / inspection of branches of the Islamic Banks with the help of the Officers of the bank and submit audit / inspection report to the Board of Directors with their comments/ recommendations thereby ensuring Shariah compliance.

    iv)   They also collect information / data of their bank & other Islamic Banks of the world and arrange to preserve the information / data for uniform decision making on Shariah principle, research purposes.

    v)   Permission of Shariah Council is mandatory by Islamic Banks authority before launching any new product on Shariah admissibility.

    v)   The Board also arrange seminar/workshop time to time on Islamic Banking to enhance the knowledge and understanding of the Islamic Bankers and the scholars of Islamic Banking.

SL.	Islamic Banking	Conventional Banking
1	It is based on Quran and Hadith.	It is based on capitalistic theory.
2	It runs towards achievement of the beauty of Islamic Economics.	No concerned.
3	This type of banks run on profit/loss sharing basis.	Run of interest based.
4	Inter-banks transactions is based on profit/loss basis.	On interest basis i.e. Call money rate.
5	Islamic Bank realize one time profit for any investment deal.	Conventional banks realize interest for any finance on compounding basis.
6	They don't realize any profit after the expiry date of deal.	Conventional banks realize interest even after expiry date of limit.
7	Depositors bears the risk of loss.	Interest rate predetermined. So, no risk of loss of the depositors.
8	Depositors and Bankers are business partners of banks. So, they are friendly.	The relationship as Banker-Customer or Debtor-Creditor.
9	Islamic Bank committed to implement welfare oriented principles of financing.	No such commitment.
10	Islamic Bank never invest money to run the business of *Haraam* products.	No concerned.
11	They never finance to unlawful arms, drugs or any other anti-social business.	No concerned.
12	Implement investment plans on Mudaraba and Musharaka to stimulate or enhance the income of the poor people.	No such program.
13	To ensure social justice and welfare.	Not concerned.
14	Banks pay Zakat on equity other than Paid-up capital which ensures welfare to the poors.	No such system.
15	Islamic Banking has target: One, to implementation of the objectives of Shariah and the other is to earn profit.	Their only motive is to earn profit.
16	They buy or sell foreign currency on spot basis, not on forward booking or future basis.	Spot and forward buy/sell of foreign currency are used.
17	This type of Banks avoids financial activities on speculation.	Their main business on speculation basis.
18	Islamic Banks works under the surveillance of Shariah supervisory board.	No such surveillance.
19	Islamic Bank deals with money.	Conventional Bank deals in money.
20	Islamic Bank mobilize resources with money.	Conventional Bank mobilize resources in money.
21	Profit pull inflation/demand.	Interest push inflation/cost.
22	Islamic Bank convert the money into goods & services for investment.	This type of bank directly give loan to the borrower in cash.
23	This type of Bank invest money in the form of goods with the investment client as partner.	Conventional Bank and its' borrower acts as a debtor & creditor.

17.   Methodology of distribution of profit to the Mudaraba depositors of Islamic Bank

Any benefit/income out of investment activities of the bank using *mudaraba* funds are shared by the bank with all types of *mudaraba* depositors as per agreed ratio. The depositors are not entitled to share any income of the bank from other services. The other services includes Commission & Exchange income, remittance income, L/C & Guarantee, purchase & negotiation of both inward & outward bills, service charge realized against Quard, Locker, ATM, Postage, Telecommunication etc. Gross income earned from the investment activities during a calendar year are separated from other income arising out of other activities and services offered by the bank. Out of the total investment income in a calendar year, first of all bank deduct the income derived from cost free deposits and Equity of the bank proportionately as per their share in the total investment. The share of gross investment income of *Mudaraba* deposits is generally distributed between the bank and the *Mudaraba* depositors at 35:65 ratio i.e. the bank get 35% as Management fee and as a reserve for loss against investment. Banks may fix the depositors share at higher ratio, in case of need. The different types of deposits get different weightages while allocating their share considering the type and tenor/period of *mudaraba* deposits. The rates of return on various types of cost bearing deposits of the conventional banks in the money market play an important role on allocation of weightage at different rates to the different types of *Mudaraba* deposits.

Suppose, The Nice Bank earned Tk.100.00 Crore during a calendar year by investing Tk.1,000.00 Crore out of which Tk.200.00 Crore Equity of the bank; Tk.250.00 Crore cost free Al-Wadia CD, Sundry deposit & balance of Bills payable account and rest Tk.550.00 Crore of Mudaraba deposits. In this case, at the end of the year the competent authority of the bank will distribute the gross investment income as under:

Total income   :Tk.100.00 Crore

Less income from the Equity of the bank (200.00 Crore out of 1,000.00 Crore) 20% : Tk.20.00 Crore

Less Income from Cost free deposits (250 Crore out of Tk.1000 Crore) 25%: Tk.25.00 Crore   ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

Rest …………………………………………………   Tk.55.00 Crore

                                                                             ==========

The rest Tk.55.00 Crore will be distributed among the bank (as Managerial fee and risk premium of bad debt) and depositors at 35:65 ratio as agreed term of Account opening form. Thus, Tk.19.25 Crore will get the bank and Tk.35.75 Crore will be distributed to the Mudaraba depositors of Tk.550.00 Crore considering their type and tenor of deposit.

	(Amount in C
Total invested fund or total deposit………………………………………….	1,000.00
Cost free deposit (Equity, CD balance, Bills payable & Sundry balance (45%)	450.00
Cost bearing deposit (Mudaraba deposit) …………………………………..(55%)	550.00
Gross investment income ………………………………………………….	100.0
Share of Cost free fund which is not entitled by the mudaraba depositors (45%)	45.00
Cost bearing deposit (Mudaraba deposit) …………………………………(55%)	55.00
35% investment income of Mudarib (Bank) as Managerial fee out of 55 Crore	19.2:
65% " " distributable to the mudaraba depositors ……………….	35.7:

Now, from the undernoted table we have showed how Tk.35.75 Crore will be distributed among the Mudaraba depositors.

◈ Individual weighted balance (Col.5) =   Individual yearly average balance X Weightage (Col. 3X4)

◈ Individual share of distribution (Col.6) =   Total distributable profit X Individual weighted balance (Col.9c X Col.5)

<div align="right">

Grand total weighted balance(Col.9b)
</div>

◈ Percentage (Col.7)   = Individual share of distributable fund X 100 (Col.6 X 100)

<div align="right">

Individual total yearly average balance. (Col. 3)
</div>

Sl no.	Name of Deposit		Total yearly average balance	Weight age	Weighted balance	Share of distributable profit	Percentage
1	2		3	4	5 (3X4)	6	7
	Mudaraba Term Deposit						
	a)	01 month	548646	0.83	455376	30958	5.64
01	b)	03 months	546235	0.88	480687	32679	5.98
	c)	06 months	622020	0.92	572258	38904	6.25
	d)	12 months	281074	0.96	269831	18344	6.53
	e)	24 months	252882	0.98	247824	16848	6.66
	f)	36 months	546255	1.00	546255	37136	6.80
02	Mudaraba Savings Deposit		119270	0.75	89453	6081	5.10
03	Mudaraba STD		760068	0.62	471242	32037	4.22
04	Steady Money		542705	1.15	624111	42429	7.82
05	Super Savings		234327	1.17	274163	18639	7.95
06	Multiplus Savings		250080	1.17	292594	19892	7.95
	Money Grower						
07	a)	05 years	169049	1.16	196097	13331	7.89
	b)	08 years	233002	1.17	272612	18533	7.95
	c)	10 years	271611	1.18	320501	21789	8.02
	d)	12 years	109589	1.19	130411	8866	8.09
08	Education Savings		5646	1.14	6436	438	7.76
09	Hajj Deposit		435	1.10	479	33	7.59
10	Smart Saver		7106	1.17	8314	565	7.95
Total (8)			**5500000** **(9a)**		**5258644** **(9b)**	**357502** **(9c)**	

18.   Types of Deposit as per Shariah

Islamic banks receive deposits under two principles:

i)   Al-Wadeeah principle.

ii)   Mudaraba principle.

Al-Wadeeah

Fund which is deposited with Banks by the depositors with clear permission to utilize/invest the same is called Al-Wadeeah. Islamic banks receive deposits in

Current Accounts on the basis of this Al-Wadeeah principle. Islamic banks obtain permission from the Al-Wadeeah depositors to utilize the funds at its own responsibility and the depositors would not share any profit or loss earned/incurred out of using of these funds by the bank. The banks have to pay back the deposits received on the principle of Al-Wadeeah on demand of the holders. The depositors have to pay government taxes and other charges, if any.

Mudaraba

Mudaraba is a partnership of labour and capital, where one partner provides full capital and the other one manages the business. The capital provider is called Sahib-Al-Maal and the user of the capital is called Mudarib. As per Shahriah principles, the Mudarib will conduct the business independently following Shariah principles. The Sahib-Al-Maal may provide advices, if he deems fit but he can not impose any decision over the Mudarib. Profit, if any, is divisible between the Sahib-Al-Maal and the Mudarib at a predetermined ratio, while loss, if any, is borne by the Sahib-Al-Maal. Mudarib can not avail of any salary or remuneration against his labour as a manager or conductor of the enterprise/business. The deposits, received by Islamic banks under this principle are called Mudaraba Deposits. Here, the depositors are called Sahib-Al-Maal and the bank is called Mudarib. The Mudaraba deposits include:

i)   Mudaraba Savings Deposits (MSD)
ii) Mudaraba Short Notice Deposits (MSND)
iii) Mudaraba Term Deposits (MTD).

Different Islamic banks have developed various deposit schemes on the basis of this Mudaraba principle such as monthly deposit-based Hajj Scheme, Monthly/One time deposit-based Term Deposit Scheme, Monthly Mudaraba Profit Deposit Scheme, Monthly Mudaraba Marriage Savings Scheme, Mudaraba Savings Bond etc.

19.   Principles of Investment Facilities Allowed by Islamic Bank

a)   To invest fund strictly in accordance with the principles of Islamic Shariah.

b)   To diversify its investment portfolio by size of investment portfolio by sectors (Public &Private), by economic purpose, by securities and by geographical area including industrial, commercial & agricultural.

c)   To ensure mutual benefit both for the bank and the investment client by

professional appraisal of investment proposals, judicious sanction of investment, close and constant supervision and monitoring thereof.

d) To make investment keeping the socio economic requirement of the country in view.

e) To increase the number of potential investors by making participatory and productive investment.

f) To finance various development schemes for poverty alleviation, income and employment generation with a view to accelerate sustainable socio-economic growth and upliftment of the society.

g) To invest in the form of goods and commodities rather than give out cash money to the investment clients.

h) To encourage social upliftment of enterprises.

i) To ensure avoid all the investment forbidden by the Islamic shariah.

j) The bank extends investment under the principles of *Bai-murabaha*, *Bai-Muazzal*, Hire Purchase Under *Shirkatul Melk* and *Musharaka.*

Investment Policy of Islamic Banking: Investment policy of Islamic Bank and non Islamic bank are fully different. The investment policies of Islamic bank are

a) Strict observance of Islamic shariah principles.

b) Investment to national priority sectors.

c) Diversified investment portfolio: Diversification by size, sector, geographical area, economic purpose, securities and mode of investment.

d) Preference to short-term Investments.

e) Preference to investment of small size.

f) To ensure safety & security of investments

g) To look profitability of investments.

h) To give support to government denationalization industrial program.

i) Investment to trade and commerce sector.

j) Investment to industrial sectors.

k) Investment to Foreign Trade (import & export).

I) Exploration of the possibility of investment in the existing Money & capital Market and help organization of Islamic Money & Capital Market.

Investment Strategy of Islamic Banking

The investment strategies of Islamic Bank are:

a) To check exodus of investment clients.

b) To induct new investment clients.

c) To induct good investment clients of other Banks.

d) To enhance existing limits of good investment clients.

e) Extension of investment to transport sector.

f) Extension of investment to backward as well as forward linkage industries.

g) Extension of investment to Real Estate Sector.

h) Extension of investment to Jute sector; particularly for trading and export purpose.

I) To strengthen supervision, control and monitoring mechanism.

j) Training and motivation of manpower to handle increased and diverse volume of investments.

k) To give due consideration to high risk, high return and low risk, low return investment proposals.

l) Adaptation of modern technology

Investment Facilities Allowed by Islamic Bank

Islamic Bank invests its money in various sectors of the economy through different modes permitted by shariah and approved by the Bangladesh Bank. The modes of investment are as follows:

i)   Bai-Mechanism:

   A. Bai-Murabaha
   B. Bai-Muazzal
   C. Bai-Salam
   D. Istishna

ii)   Leasing, Ijara, Hire Purchase (HP), Hire purchase under shirkatul Melk (HPSM).

iii) Shirkat Mechanism:

   A. Musharaka
   B. Mudaraba

Bai-Mechanism (Trading mode)

A. **Bai-Murabaha**: Bai- murabaha may be defined as a contract between a buyer and a seller under which the seller sells certain specific goods (permissible under Islamic shariah and the law of the land) to the buyer at a cost plus agreed profit payable in cash or on any fixed future date in lump sum or by installments. The marked-up profit may be fixed in lump sum or in percentage of the cost price of the goods.

Important features of Bai-Murabaha

a) It is permissible for the client to offer an order to purchase by the bank particular goods deciding its specification and committing him to buy same from the bank on murabaha, i.e. cost plus agreed upon profit.

b) It is permissible to make the promise binding upon the client to purchase from the bank, that is, he is to satisfy the promise or to indemnify the damages caused by breaking the promise without excuse.

c) It is also permissible to take cash / collateral security to guarantee the implementation of the promise or indemnify the damages.

d) Stock availability of goods is a basic condition for signing a Bai-murabaha agreement. Therefore, the bank must purchase the goods as per specification of the client to acquire ownership of the same before signing the Bai-Murabaha agreement with the Client.

e) After purchase of goods the Bank must bear the risk of goods until those are actually sold and delivered to the Client, i.e., after purchase of the goods by the Bank and before selling of those on Bai-Murabaha to the Client buyer, the bank bear the consequences of any damages or defects, unless there is an agreement with the Client releasing the bank of the defects, that means, if the goods are damaged, bank is liable, if the goods are defective, (a defect that is not included in the release) the Bank bears the responsibility.

f) The Bank must deliver the specified Goods to the Client on specified date and at specified place of delivery as per Contract.

g) The bank sells the goods at a higher price (Cost + profit) to earn profit. The cost of goods sold and profit mark-up therewith shall separately and clearly be mentioned in the *Bai-Murabaha* agreement. The profit Mark-up may be mentioned in lump sum or in percentage of the purchase/cost price of the goods, But, under no circumstance, the percentage of the

profit shall have any relation with time or expressed in relation with time, such as per month, per annum etc.

h) The price once fixed as per agreement and it cannot be increased further.

i) It is permissible for the bank to authorize any third party to buy and receive the goods on Bank behalf. The authorization must be in a separated contract.

B. Bai-Muujjal

Bai-Muajjal may be defined as a contract between a Buyer and a Seller under which the seller sells certain specific goods (permissible under Sharjah and Law of the Country), to the Buyer at an agreed fixed price payable at a certain fixed future date in lump sum or within a fixed period by fixed instalments. The seller may also sell the goods purchased by him as per order and specification of the Buyer. In case of Bank, Bai-Muajjal is treated as a contract between the Bank and the Client under which the Bank sells to the Client certain specified goods, purchased as per order and specification of the Client at an agreed price payable within a fixed future date in lump sum or by fixed instalments.

Important Features of Bai-Muajjal

It is permissible for the Client to offer an order to purchase by the Bank particular goods deciding its specification and committing himself to buy the same from the Bank on Bai-Muajjal i.e. deferred payment sale at fixed price.

a) It is permissible to make the promise binding upon the Client to purchase from the Bank, that is, he is to either satisfy the promise or to indemnify the damages   caused by breaking the promise without excuse.

b) It is permissible to take cash / collateral security to guarantee the implementation of the promise or to indemnify the damages.

c) It is also permissible to document the debt resulting from Bai-Muajjal by a Guarantor, or a mortgagor, or both like any other debt. Mortgage / Guarantee / Cash security may be obtained prior to the signing of the Agreement or at the time of signing the Agreement.

d) Stock and availability of goods is a basic condition for signing a Bai-Muajjal Agreement. Therefore, the Bank must purchase the goods as per specification of the Client to acquire ownership of the same before signing the Bai-Muajjal Agreement with the Client.

e)　After purchase of goods the Bank must bear the risk of goods until those are actually delivered to the Client.

f)　The Bank must deliver the specified Goods to the Client on specified date and at specified place of delivery as per Contract.

g)　The Bank may sell the goods at a higher price than the purchase price to earn profit.

h)　The price once fixed as per agreement and it cannot be increased further.

i)　The Bank may sell the goods at one agreed price which will include both the cost price and the profit. Unlike *Bai-Murabaha*, the Bank may not disclose the cost price and the profit mark-up separately to the Client.

C. Bai-Salam

Bai-Salam may be defined as a contract between a Buyer and a Seller under which the Seller sells in advance the certain commodity (ies)/product(s) permissible under Islamic Shariah and the law of the land to the Buyer at an agreed price payable on execution of the said contract and the commodity (ies)/product(s) is/are delivered as per specification, size, quality, quantity at a future time in a particular place. In other words, Bai-Salam is a sale whereby the seller undertakes to supply some specific Commodity (ies) /Product(s) to the buyer at a future time in exchange of an advanced price fully paid on the spot. Here the price is paid in cash, but the delivery of the goods is deferred.

Important Features of Bai-Salam

a)　Bai-Salam is a mode of investment allowed by Islamic Shariah in which commodity (ies)/product(s) can be sold without having the said commodity (ies)/ product(s) either in existence or physical/ constructive possession of the seller. If the commodity (ies)/product(s) are ready for sale, Bai-Salam is not allowed in Shariah. Then the sale may be done either in *Bai-Murabaha* or *Bai-Muajjal* mode of investment.

b)　Generally, Industrial and Agricultural products are purchased/sold in advance under *Bai-Salam* mode of Investment to infuse finance so that production is not hindered due to shortage of fund/cash.

c)　It is permissible to obtain collateral security from the seller client to secure the investment from any hazards viz. non-supply/partial supply of commodity (ies)/product(s), supply of low quality commodity (ies)/Product(s) etc.

    d)   It is also permissible to obtain Mortgage and/or Personal Guarantee from a third party as security before the signing of the Agreement or at the time of signing the Agreement.

    e)   The seller (manufacturer) client may be made agent of the Bank to sell the goods delivered to the Bank by him provided a separate agency agreement is executed between the Bank and the Client (Agent).

D. Istishna'a

Istisna'a is a contract between a manufacturer/seller and a buyer under which the manufacturer/seller sells specific product(s) after having manufactured, permissible under Islamic Shariah and Law of the Country after having manufactured at an agreed price payable in advance or by installments within a fixed period or on/within a fixed future date on the basis of the order placed by the buyer. In *Istisna'a* contract, the buyer is called '*al-mustasni'*, the seller '*al-sani'* and the goods or the subject matter of the contract *'al-masnoo'*.

Parallel Istisna'a

If the ultimate buyer does not stipulate in the contract that the seller will manufacture the product(s) by himself, then the seller may enter into a second *Istisna'a* contract in order to fulfil his contractual obligations in the first contract. This new contract is known as Parallel *Istisna'a*, whereby the obligations of the seller in the first contract are carried out.

Important Features of Istisna'a

    a) *Istisna'a* is an exceptional mode of investment allowed by Islamic Shariah in which product(s) can be sold without having the same in existence. If the product(s) are ready for sale, *Istisna'a* is not allowed in Shariah. Then the sale may be done either in *Bai-Murabaha* or *Bai-Muajjal* mode of investment. In this mode, deliveries of goods are deferred and payment of price may also be deferred.

    b) It facilitates the manufacturer sometimes to get the price of the goods in advance, which he may use as capital for producing the goods.

    c) It gives the buyer opportunity to pay the price in some future dates or by installments.

    d) It is a binding contract and no party is allowed to cancel the *Istisna'a* contract after the price is paid and received in full or in part or the manufacturer starts the work.

e) *Istisna'a* is specially practiced in Manufacturing and Industrial sectors. However, it can be practiced in agricultural and constructions sectors also.

Leasing, Ijara, Hire Purchase (HP), Hire Purchase Under Shirkatul Melk (HPSM)

Hire Purchase under *Shirkatul Melk* is a Special type of contract which has been

developed through practice. Actually, it is a synthesis of three contracts: 1. Shirkat 2.

Ijarah and 3. Sale. These may be defined as follows:

Shirkatul Melk

*Shirka*t means partnership. *Shirkatul Melk* means share in ownership. When two or more persons supply equity, purchase an asset, own the same jointly and share the benefit as per agreement and bear the loss in proportion to their respective equity, the contract is called *Shirkatul Melk* contract.

ljarah

The term *ljarah* has been derived from the Arabic word which means consideration, return, wages or rent. This is really the exchange value or consideration, return, wages, rent of service of an asset. Ijarah has been defined as a contract between two parties, the Hiree and Hirer where the Hirer enjoys or reaps a specific service or benefit against a specified consideration or rent from the asset owned by the Hiree. It is a hire agreement under which a certain asset is hired out by the Hiree to a Hirer against fixed rent or rentals for a specified period.

Sale

This is a sale contract between a buyer and a seller under which the ownership of certain goods or asset is transferred by seller to the buyer against agreed upon price paid / to be paid by the buyer.

Thus, in Hire Purchase under *Shirkatul Melk* mode both the Bank and the Client supply equity in equal or unequal proportion for purchase of an asset like land, building, machinery transports etc. Purchase the asset with that equity money, own the same jointly, share the benefit as per agreement and bear the loss in proportion to their respective equity. The share, part or portion of the asset owned by the Bank is hired out to the Client partner for a fixed rent per unit of time for

a fixed period. Lastly the Bank sells and transfers the ownership of its share / part / portion to the Client against payment of price fixed for that part either gradually part by part or in lump sum within the hire period or after the expiry of the hire agreement.

Stages Of Hire Purchase Under Shirkatul Melk

Thus Hire Purchase under Shirkatul Melk Agreement has got three stages: a) Purchase under joint ownership. b) Hire and c) Sale and /or transfer of ownership to the other partner Hirer.

Important features

a) In case of Hire Purchase under Shirkatul Melk transaction the asset / property involved is jointly purchased by the Hiree (Bank) and the Hirer (Client) with specified equity participation under a Shirkatul Melk Contract in which the amount of equity and share in ownership of the asset of each partner (Hiree Bank & Hirer Client) are clearly mentioned. Under this agreement, the Hiree and the Hirer become co-owner of the asset under transaction in proportion to their respective equity participation.

b) In Hire Purchase under Shirkatul Melk Agreement, the exact ownership of both the Hiree (Bank) and Hirer (Client) must be recognized. However, if the partners agree and wish that the asset purchased may be registered in the name of any one of them or in the name of any third party, clearly mentioning the same in the Hire Purchase Shirkatul Melk Agreement.

c) The share / part of the purchased asset owned by the Hiree (Bank) is put at the disposal / possession of the Hirer (Client) keeping the ownership with him (Bank) for a fixed period under a hire agreement in which the amount of rent per unit of time and the benefit for which rent to be paid along with all other agreed upon stipulations are also to be clearly stated. Under this agreement, the Hirer (Client) becomes the owner of the benefit of the asset but not of the asset itself, in accordance with the specific provisions of the contract which entitles the Hiree (Bank) is entitled for the rentals.

d) As the ownership of hired portion of the asset lies with the Hiree (Bank) and rent is paid by the Hirer (Client) against the specific benefit, the rent is not considered as price or part of price of the asset.

e) In the Hire Purchase under Shirkatul Melk Agreement the Hiree (Bank) does not sell or the Hirer (Client) does not purchase the asset but the Hiree (Bank) promise to sell the asset to the Hirer (Client) part by part only, if the Hirer (Client) pays the cost price / equity / agreed price as fixed for the asset as per stipulations within agreed upon period on which the Hirer also gives undertakings.

f) The promise to transfer legal title by the Hiree and undertakings given by the Hirer to purchase ownership of the hired asset upon payment part by part as per stipulations are effected only when it is actually done by a separate sale contract.

g) As soon as any part of Hiree's (Bank's) ownership of the asset is transferred to the Hirer (Client) that becomes the property of the Hirer and hire contract for that share / part and entitlement for rent thereof lapses.

h) In Hire Purchase under Shirkatul Melk Agreement, the Shirkatul Melk contract is effected from the day the equity of both parties deposited and the asset is purchased and continues upto the day on which the full title of Hiree (Bank) is transferred to the Hirer (Client).

i) The hire contract becomes effective from the day on which the Hiree transfers the possession of the hired asset in good order and usable condition to the Hirer, so that the Hirer may make use of the same as per provisions of the agreement.

j) Effectiveness of the sale contract depends on the actual sale and transfer of ownership of the asset by the Hiree to the Hirer. It is sold and transferred part by part, it will become effective part by part and with the sale and transfer of ownership of every share / part. The hire contract for that share / part will lapse and the rent will be reduced proportionately. At the end of the hire period when the full title of the asset will be sold out and transferred to the Hirer (Client), the Hirer will become the owner of both the benefit and the asset consequently the hire contract will fully end.

k) Hire Purchase under Shirkatul Melk is a binding contract for the parties to it — the Bank and the Client who are committed to fulfill / meet their undertakings / obligations in accordance with the relevant agreement.

1) Under this agreement the Bank acts as a partner, as a Hiree and at last as a seller; on the other hand the Client acts as a partner, as a Hirer and lastly as a purchaser.

m) Ownership risk is borne by both the Hiree and Hirer in proportion to their retained ownership / equity.

n) Under this agreement the role of Hirer is one that of a trustee, the hired asset being a trust property in his hands; he will manage, maintain the asset in favour of the interest of the Hiree at his own cost as the exact subject of hirer except in cases of any accident due to any event entirely beyond control of the hirer and natural calamity/disaster (acts of Allah) to be determined by the Bank after proper investigation within the knowledge of the hirer.

o) The Hirer is responsible for keeping the hired asset(s) in good condition throughout the whole period of hire and if the asset is damaged or destroyed due to mismanagement, corruption, negligence, transgressions, default, etc. of the Hirer, he shall be responsible to compensate the Hiree (Bank) for that. Of course, such mismanagement, corruption, negligence, transgressions, default, etc. of the hirer shall be determined by the Hiree (Bank) after proper investigation within the knowledge of the hirer.

p) The Hirer cannot, without obtaining prior written permission of the Hiree (Bank) make any changes in the exact item of the hire, and / or remove it from its place of installation and transfer it to another location.

q) In a Hire Purchase under Shirkatul Melk agreement any stipulation may be made, provided it is not against the nature and requirements of the contract itself, nor does it violate the divine laws of Islam and is also acceptable to both the parties.

r) Hire Purchase under Shirkatul Melk facilities may be for medium-term or long-term period which may be utilized for the expansion of production and services, as well as housing activities. The duration of Hire Purchase under Shirkatul Melk contract shall not exceed the useful life of the subject / asset of the transaction. The Bank should not normally enter a Hire Purchase under Shirkatul Melk transaction for items with useful life of less than two years.

s) If, for any reason, the hire contract is revoked prior to the transfer of full title of the asset to the Hirer, then the title of the asset will be shared by both Hiree and Hirer — the Hirer will share that part of title which has been transferred to him against payment and the Hiree will share the remaining part.

t) The hirer to secure the Bank (the Hiree) will pledge / hypothecate / mortgage his portion / part / share in the asset (acquired / to be acquired) and or any other asset / property of his own / third party guarantee to the Bank to fulfill his all liabilities / commitments including the accrued rental, if any.

Share Mechanism

Mudaraba

Mudaraba is a partnership in profit whereby one party provides capital and the other party provides skill and labor. The provider of capital is called "*Shahib al-maal*" while the provider of skill and labour is called "*Mudarib*". So, Mudaraba may be defined as a contract of partnership where the Shahib al-maal provides capital to the Mudarib for investing it in a commercial enterprise by applying his labour and endeavor. Both the parties share the profit as per agreed upon ratio and the losses, if any, being borne by the provider of funds i.e. *Shahib al-maal* except if it is due to breach of trust i.e. misconduct, negligence or violation of the conditions agreed upon by the *Mudarib*. If there is any loss incurred due to the reasons mentioned above, the *Mudarib* becomes liable for that.

Types Of Mudaraba

Mudaraba Contracts may be divided into 2 types:

i. Restricted Mudaraba (Al Mudaraba Al Muqayyadah):

A restricted Mudaraba (Al Mudaraba Al Muqayyadah) is a contract in which the *Shahib al-maal* impose any restrictions on the actions of the Mudarib but not in a manner that would unduly constrain the *Mudarib* in his operations. Restricted *Mudaraba* may further be divided into three types:

a) Restriction in respect of time or period: In this type of Mudaraba, the Mudaraba contract include a clause on duration of the business. After expiry of such period, the Mudaraba shall become void.

b) Restriction in respect of place or location: In this type of Mudaraba, the Mudaraba contract includes a clause on place or location of the business. The Mudarib shall bound to do the business within the area of such place or location.

c) Restriction in respect of business: In this type of Mudaraba, the Shahib al-maal restricts the actions of the Mudarib to a particular type of business as he (Shahib al-maal) considers appropriate.

ii. Unrestricted Mudaraba (Al Mudaraba Al Mutlaqah): An unrestricted Mudaraba (Al Mudaraba Al Mutlaqah) is a contract in which Shahib al-maal permits the Mudarib to administer the Mudaraba capital without any restrictions. In this case, the Mudarib has a wide range of trade or business freedom on the basis of trust and the business expertise he has acquired. Such unrestricted business freedom must be exercised only in accordance with the interests of the parties and the objectives of the Mudaraba contract. But, if Mudarib wants to have an extraordinary work, which is beyond the normal course of business, he cannot do so without express permission from Shahib al-maal. He is also not authorized to: a) Keep another Mudarib or a partner b) Mix his own capital in that particular Mudaraba without consent of the Shahib al-maal.

Shariah Rules for Mudaraba

Rules Relating to Mudaraba Contract: The general principle is that a Mudaraba contract is not binding, i.e. each of the contracting parties may terminate it unilaterally except in two cases:

When the Mudarib has already commenced the business, in which case the Mudaraba contract becomes binding up to the date of actual or constructive liquidation.

When the contracting parties agree to determine a duration for which the contract will remain in operation. In this case, the contract cannot be terminated prior to the end of the specified duration, except by mutual consent of the contracting parties.

A Mudaraba contract is one of the trust based contracts. Therefore, the Mudarib invests Mudaraba capital on trust basis with in which case the Mudarib is not liable for losses except in case of breach of trust, such as misconduct, negligence and breach of the terms of Mudaraba contract. In committing any of the above, Mudarib becomes liable for the Mudaraba capital.

Musharaka

Musharaka may be defined as a contract of partnership between two or more individuals or bodies in which all the partners contribute capital, participate in the management, share the profit in proportion to their capital or as per pre-agreed ratio and bear the loss, if any, in proportion to their capital/equity ratio.

Bank may take part in a business with its Client(s), where both the Client(s) and the Bank provide capital in fixed proportions, take part in the management of

business and share the profit in proportion to their respective capital ratio or at pre-agreed ratio and bear the loss, if any, in proportion to their respective capital/equity ratio.

Important Features

   a) The investment client will normally run and manage the business.

   b) The bank shall take part in the policy and decision making as well as overseeing (supervision and monitoring) the operation of the business of the client. The bank may appoint suitable personnel(s) to run the business and to maintain books of accounts of the business properly,

   c) In case of loss it will be shared on the basis of capital ratio.

Quard

It is a mode to provide financial assistance/investment/loan with the stipulation to return the principal

amount in the future without any increase thereon.

Quard Hassan

This is a benevolent investment/loan that obliges a borrower to repay the lender the   principal amount borrowed on maturity. The borrower, however, has the discretion to reward the lender for his investment/loan by paying any amount over and above the amount of the principal provided there will be no reference (explicit or implicit) in this regard.

If a bank provides its client any investment (loan), it can receive actual expenditure relating to the investment (loan) as service charge only once. It cannot charge annually at a percentage rate.

If an investment (loan) is provided against the money deposited by a client in the bank, it has the right not to pay any profit against the amount of money given as investment/loan.

But profit should be paid on the rest of the amount deposited as per previous agreement.

20.   SUKUK

The latest development of the Islamic economic product is SUKUK which is a challenging instrument in the sphere of capital market. The first Sukuk bonds

were issued by Malaysia in 2002 with the issuance of the first sovereign five-year global Sukuk. The demands for Malaysian Sukuk have always been on the rise. Malaysia is now a leader in Sukuk transaction. According to the Thomson Reuters State of the Global Islamic Economy Report 2015/16, there was $295bn of Sukuk outstanding as of the end of 2014. According to the same report $1.814 trillion of assets are being managed in a Shariah compliant manner as of 2014 which is expecting to rise to $3.247 trillion by 2020. Malaysia dominates the market shares in world Sukuk market. As at first half of 2015 Malaysia holds the largest market share of 54.9% or USD171.7 billion of global Sukuk outstanding.

What is Sukuk

SUKUK is the Arabic name for financial certificates, but commonly referred to as Shariah compliant bonds. The Arabic word Sukuk is plural (*sakk* for singular). Its origin can be traced back to early Islamic periods where the issuance of paper representing commodities for salary payments was called '*suk*'. In plural form '*suk*' is Sukuk. Sukuk, in its simplest definition are similar to a bond in conventional finance but must comply with the Islamic religious law, Shariah. Sukuk as in the Arabic term are commonly referred to as Islamic bond although literally they are referred to as Islamic investment certificates too.

Sukuk are defined by AAOIFI (Accounting and Auditing Organization for Islamic Financial Institutions) as "securities of equal denomination representing individual ownership interests in a portfolio of eligible existing or future assets". Securities Commission of Malaysia (SC) in its 2011 Islamic Securities Guidelines (Sukuk Guideline) defined Sukuk as "a certificate of equal value which evidence undivided ownership or investment in the assets using Shariah principles". The Fiqh academy of the OIC legitimized the use of Sukuk in February 1988. It is similar to a traditional bond. As the traditional interest paying bond is not permissible (as it is based on interest which is forbidden by Qur'an and *Sunnah*), the issuer of a Sukuk sells it back to the issuer for a predetermined rental fee. The issuer also makes a contractual promise to buy back the Sukuk at a future date at par value.

Structure of Sukuk

In Malaysia, Sukuk issuance is regulated by the Securities Commission Malaysia. The structure of the Sukuk must be confirmed and approved by a Shariah Advisor appointed by the issuer who can either be an independent Shariah Advisor approved by the Securities Commission or a Shariah Committee with a Bank

Negara-approved financial institution operating Islamic banking and finance activities.

Sukuk are structured in several different ways. While a conventional bond is a promise to repay a loan, Sukuk constitute partial ownership in debt (Sukuk Murabaha), asset (Sukuk Al Ijara), project (Sukuk Al Istisna), business (Sukuk Al Musharaka), or investment (Sukuk Al Istithmar).

Types of Sukuk

The Securities Commission's Islamic Securities Guidelines (Sukuk Guideline 2011) also mentioned several types of Sukuk applicable in Malaysia. They are Sukuk Murabahah, Sukuk Ijarah, Sukuk Mudarabah, Sukuk Musharakah and Sukuk Wakalah.

The seller of the Sukuk Murabahah is the issuer of the certificate, the subscribers are the buyers of that commodity and the realized funds are the purchasing cost of that particular commodity. The buyers or certificate holders own the Murabahah commodity who are entitled to the final sale price. The Sukuk Murabahah or the deferred payment Sukuk are more popular in Malaysia. Its trading in secondary markets are prohibited by Shariah due to the occurrence of trading in debt on a deferred basis which would ultimately result in *riba* (interest).

Sukuk Ijarah or lease-based Sukuk is basically a rental or lease contract that establishes the right to use an asset for a fee. In simpler terms, it denotes that the Sukuk holders are the investors who are also the owners of the asset and are entitled to receive a return when that asset is leased or rented out. All costs of maintenance and damage to the real estate are borne by the Sukuk holders. These Sukuk provide the owners the right to own real estates, collect the rent and dispose the Sukuk in such that does not affect the rights of the lessee. As Sukuk Ijara are securities of joint ownership, they can be traded at secondary markets with a price determined by market agents.

Sukuk Mudarabah is Sukuk based on equity partnership where the investors (Sukuk holders) are the silent partners or *rab al mal* while the *mudarib* or working partner is the party who utilizes the funds. Profits from the investment activity are shared between both parties based on the agreed formula.

Sukuk Musharakah is joint venture Sukuk whereby all partners contribute capital, labour and expertise. The profits or losses are also shared among all parties based on initially agreed ratios and agreement. These Sukuk share similarities with Sukuk Mudarabah but in contrast, Sukuk Musharakah have a committee of Sukuk

investor representatives participating in the decision-making process. It is possible to trade Musharakah Sukuk in a secondary market.

Under Sukuk Wakalah (agency), an Islamic financial institution packages its contracts, receivable, shares or Sukuk certificates held by it into a portfolio which is then sold to investors. The income derived from this portfolio is utilized for servicing the coupon payments due under the Sukuk certificates.

Difference between Sukuk and Bond

In contrast to conventional Bonds which confer ownership of a debt, Sukuk offers an investor a share of an asset along with the commensurate cash flows and risk, adhering to Shariah principles of prohibiting charging or payment of interests. Sukuk signify the possession of a tangible asset while Bonds are often indicator of debt obligations. The latter creates a 'lender and borrower' relationship between the bond issuers and the consumers where there is an existence of a fixed interest loan which is very riba in nature.

The face value of Sukuk is based on the market value of the fundamental asset whereas the face value of a bond price is based on the issuer's credit worthiness, often portrayed through its credit ratings. In the secondary market, a Sukuk sale means to sell an asset possession but selling a bond means selling a debt.

Sukuk also make it possible to raise the main asset and hence the value of the Sukuk certificates. This is not possible in bonds as the main debt cannot be raised.

Sukuk are suitable because they are asset-based securities rather than purely debt instruments. A Sukuk investor has a common share in the asset ownership linked to the investment which does not constitute a debt owed to the bond's issuer. This is different in conventional bonds where the issuer has a contractual obligation to pay to his bond holders on the stipulated dates, interests and principal. A bond is a share of debt, Sukuk are a share of the underlying asset.

Sukuk enable the future cash flow from the underlying asset to be transferred into the present cash flow as they may be issued for either existing assets or assets that will come in to the picture in the future. Sukuk investors are rewarded with a share of the profits from these assets and not interest payments, which is a violation of Shariah. They allow for the opportunity to invest in Shariah compliant assets which generally offer lower levels of risks but a predictable rate of returns. For cash-conscious investors, these instruments are tradable, allowing for easy liquidation.

Sukuk investors need to bear in mind that Sukuk are issued with specific maturity dates, the same with their conventional counterparts. Upon maturity, the Sukuk issuer buys them back. Initial investment in Sukuk is not guaranteed, meaning the Sukuk investors can or cannot get back the entire face value amount as they also share the risks of the underlying asset. In the event of defaults or failure to perform, the Sukuk investors must bear a share of the loss. (There are some Sukuk issued with repurchase guarantees. Sukuk Ijarah can sometimes come with a repurchase guarantee).

Sukuk are seen as an alternative to syndicated funding by many sovereign, multinational organizations, financial institutions and government-linked companies. Investors seeking long-term, credible and dependable source of investment returns should consider Sukuk for a viable investment alternative.

Islamic capital market starts its journey by introducing Sukuk in 2002 in Malaysia. In the passage of time it is growing fast as the Muslim investors showed deep interest on it. Gradually the Sukuk operations are being popular in various countries such as Indonesia, Brunei, Pakistan, Singapore, China, Bahrain, Egypt, Gambia, Iran, Kazakhstan, Kuwait, Qatar, Saudi Arabia, Singapore, Somalia, Turkey, United Arab Emirates, United Kingdom, Hong Kong and Sudan.

Bangladesh has become a role model of Islamic Banking. But Bangladesh could not enter in Islamic capital market like Sukuk as yet. Securities and Exchange Commission of Bangladesh can play a vital role to introduce Sukuk operations in prospective Islamic capital market of Bangladesh. A vast number of investors of Bangladesh can attracted in capital market by introducing Sukuk in the capital market of Bangladesh. The Muslim investors of all over the world especially Middle East are interested to invest their money in Sukuk. So we can attract huge amount of foreign investment in Sukuk by introducing it through a Shariah Advisory Committee that can be constitute under the guidance of Security and Exchange Commission.

21. Islamic Banks in the World

The concept of Islamic Banking is several decades old. The first attempt to establish an Islamic financial institution took place in Pakistan in the late 1950s with the establishment of a local Islamic Bank in a rural area. Some pious landlords who deposited funds at no interest, and then loaned to small landowners for agricultural development initiated the experiment. The borrower did not pay interest on the credit advanced, but a small charge was levied to cover the Bank's operational expenses. The charge was far lower than the rate of interest.

The second pioneer experiment of putting principles of Islamic Banking and finance into practice was conducted in Egypt from 1963 to 1967 through the establishment of the Mit Ghamar Savings Bank in a rural area of the Nile Delta. The experiment combined the idea of German savings Bank with the principles of rural Banking within the general framework of Islamic values. The Bank's operation was based on the same Islamic principle i.e. no-interest to the depositors or from the borrower. This was the first Islamic Bank in an urban setting based in Cairo. The Bank is a public authority with an autonomous status. The principles of operation of the Naser Social Bank are very similar to those of the Mit Ghamr Savings Bank. However, the latter offers a full range of normal Banking services and a wide range of investment activities through equity participation.

Islamic Banking, contemporary to that in Egypt, emerged in Malaysia. It was a financial institution developed liar the pilgrims of Malaysia. These institutions were established in response to what was the contention of the Malaysian Muslims that money spent on pilgrimage must be *Halal* and free from `*Riba*'. Consequently, Pilgrims Savings Corporation was established in 1963, which was later on incorporated into the Pilgrims Management Fund Board in 1969.

Later on, the Dubai Islamic Bank was established in 1975. Since then, a number of Islamic Bank and financial institutions have been established of different parts of the world and have been functioning successfully.

A significant development in Islamic Banking has been the granting of an Islamic Bank license in Saudi Arabia to the fifty-year old "Al-Rajhi Company", a firm noted for its currency, exchange and commercial activities, whose assets exceed $5 billion. The firm began its operation in 1985 under the name of "Al-Rajhi Banking Investment Corporation."

22.   Islamic Banking In Bangladesh

Bangladesh is the third largest Muslim country in the world with around 160 million populations of which 90 percent are Muslim. The hope and aspiration of the people to run banking system on the basis of Islamic principle came into reality after the OIC recommendation at its Foreign Ministers meeting in 1978 at Senegal to develop separate banking system of their own. After 5 years of that declaration, Bangladesh established her first Islamic bank "Islami Bank Bangladesh Limited" in 1983. At present, in Bangladesh, out of 56 banks, 8 full fledged Islamic Bunks and 16 conventional banks(including three FCBs) have been working in the private sector on the basis of Islamic Shariah. Alongside, one non-bank Islamic financial institution named 'Islamic Finance and Investment

Limited' (IFIL) has also been operating in the system as Islamic NBFI since 2001. Islamic banks and non-bank financial institutions in Bangladesh since their inception have been gaining popularity in spite of some problems in their operation.

At present, 8 full-fledged Islamic banks viz.

1) Islami Bank Bangladesh Limited (IBBL:1983),
2) The ICB Islamic Bank Limited (the-then Al-Baraka Bank Limited and Oriental Bank   Limited) (OBBL:1987),
3) Al-Arafah Islami Bank Limited (AIBL:1995),
4) Social Islami Bank Limited (SIBL:1995),
5) Shahjalal Islami Bank Limited (SJIBL:2001),
6) Export Import Bank of Bangladesh Limited (EXIM Bank:2004),
7) First Security Islami Bank Limited (FSIBL: 2009) and
8) Union Bank Limited (UBL:2013).

16 conventional banks have been operating in Bangladesh in line with the Islamic Shariah. The first Islamic bank, Islami Bank Bangladesh Limited (IBBL) was established in March, 1983 to conduct banking activities on the basis of the basic tenets of Islamic Shariah. Later, The Al-Baraka Bank Limited (currently ICB Islamic bank Limited) was established as the second interest-free Islamic bank in Bangladesh in March, 1987. The third and fourth Islamic banks of Bangladesh namely Al-Arafah Islami Bank Ltd. and Social Islami Bank Ltd. started their business in Bangladesh from September 27, 1995 and November 25, 1995 respectively. In the year 2001, the fifth private sector Islamic bank "Shahjalal Islami Bank Limited" started her banking operation. The sixth Islamic bank is the Export Import Bank of Bangladesh Limited. This traditional bank has converted her banking policies and principles in line with Islamic Shariah in 2004 and started operation as an Islamic bank. The seventh Islamic bank First Security Islami Bank Limited converted in 2009 to resume operation in line with the glorious Islamic Shari'ah. The only foreign Islamic bank "Shamil Bank of Bahrain EC (Islamic Bankers)" which is the largest Islamic bank in the world opened a branch in Dhaka in August, 1997 (later on, after several stage of mergers, this bank is renamed now as Bank Alfalah Limited operating in Bangladesh as an interest based bank having one Islamic banking branch in Dhaka). Besides, 16 traditional banks have been operating in the country on Islamic Shariah basis from 18th December, 1995 alongside the Islamic banks. These conventional banks have also established their own Shariah Supervisory Councils to guide their activities conforming to Islamic principles.

23.   Role of The Bangladesh Government and Bangladesh Bank

The objectives of the monetary policy are to secure stability in the value of money and regulate the banking system prudently. Bangladesh Bank issued license in 1983 for establishment of first Islamic bank in Bangladesh "Islami Bank

Number of Bank Branches of Islamic Banks (June, 2016)

	Name of the Bank	Urban	Rural	Total
A)	**Full-fledged Islamic Banks**	**601**	**397**	**998**
1	Islamic Bank Bangladesh Ltd	217	87	304
2	ICB Islamic Bank Ltd.	28	5	33
3	Social Islami Bank Ltd.	65	66	131
4	Al-Arafah Islami Bank Ltd.	70	63	133
5	EXIM Bank Limited	59	46	105
6	Shahjalal Islami Bank Ltd.	59	34	93
7	First Security Islami Bank Ltd.	77	73	150
8	Union Bank Ltd	26	23	49
B)	**Islamic Banking Branches of Coventional Banks**	**18**	**3**	**21**
1	The City Bank Ltd	1	0	1
2	AB Bank Ltd	1	0	1
3	Dhaka Bank Ltd	2	0	2
4	Premier Bank Ltd	2	2	4
5	Prime Bank Ltd	5	0	5
6	Southeast Bank Ltd	4	1	5
7	Jamuna Bank Ltd	2	0	2
8	Bank Alfalah Ltd	1	0	1
9	HSBC Ltd	0	0	0
C)	**Islamic Banking Windows of Conventional Banks**	**25**	**0**	**25**
1	Sonali Bank Ltd.	5	0	5
2	Janata Bank Ltd.	0	0	0
3	Agrani Bank Ltd.	5	0	5
4	Pubali Bank Ltd.	2	0	2
5	Trust Bank Ltd	5	0	5
6	Standard Bank Ltd	2	0	2
7	Bank Asia Ltd	5	0	5
8	Standard Chartered bank	1	0	1
D)	**Tota=A+B+C**	**644**	**400**	**1044**

Source: Bangladesh Bank

Bangladesh Limited". The Bangladesh Government also participated in establishing first Islami Bank by taking 5% share in the paid up capital. From the very beginning, considering lack of Islamic financial markets and instruments in the country, Bangladesh Bank granted some preferential provisions for smooth development of Islamic banking in Bangladesh. Among the preferential provisions, the following are important:

1) Currently, the scheduled commercial banks have to maintain a CRR (cash reserve ratio) averaging 6.5 percent daily on a bi-weekly basis against average total demand and time liabilities of the second preceding month, with an obligation to maintain daily minimum 6.0 percent cash against the same demand and time liabilities held by the bank. The current rate of SLR (statutory liquidity reserve) for conventional banks is 13.0 percent of demand and time liabilities. In case of Islamic shariah-based commercial banks, the rate of SLR is 5.5 percent of the demand and time liabilities. This discriminating provision had facilitated the Islamic banks to hold more liquid funds for more investment and thereby generate more profit.

2) Under indirect monetary policy regime, Islamic banks were allowed to fix their profit-sharing ratios and mark-ups independently commensurate with their own policy and banking environment. This freeness in fixing PLS ratios and Mark-up rates had provided scope for the Islamic banks to follow the Shariah principles independently for realizing goals of Islamic Shariah.

24. Relationship Between Central Bank and Islamic Bank

A study regarding "The Relationship between Central Banks and Islamic Banks" prepared by IAIB was submitted to the third Expert Level Meeting on Islamic Banking Studies (Dhaka, 1989). The recommendations adopted by the meeting include:

- The provision of financial assistance by the Central Banks in the form of Mudaraha deposits with the Islamic banks and by way of providing refinance to the Islamic banks under Mudaraba/Musharaka or any other Islamic mode of finance;

- Refinance facilities on the broils of PLS;

- Opening of current accounts at the Central Banks with occasional overdrawing facilities free of any charge and participation in the bank's clearing house;

- Regulation and Supervision of Islamic banks as applicable in interest-based banking in respect of permission for establishing banks or opening share capital, appointment of directors and auditors, foreign exchange regulations etc.;

- Lower liquidity requirements on the deposits accepted by Islamic banks till such time as appropriate Islamic financial instruments which can be counted towards liquidity requirements become available;

- For inspection of the Islamic banks, the Central Bank's personnel may be adequately trained in Shariah-based banking operations and the central banking authorities may consider preparing separate guidelines for inspection, keeping in view the special character of Islamic banks.

25.   Role of Bangladesh Bank in Promoting Islamic Banking in Bangladesh

Unlike Bangladesh, in most Muslim countries a special law is passed prior to the establishment of an Islamic bank, which specifies the rules and regulations for the institution willing to engage in banking business based on Islamic principles. In Malaysia for example, the Islamic Banking Act 1983 was passed by Parliament prior to the establishment of the Bank Islam Malaysia Berhad in 1983 and this law applies to any Islamic banking institutions wishing to operate in Malaysia. However, despite having their own laws, Islamic Banks in most Muslim countries have to conform to other laws and regulations. Similarly, in the case of disputes or legal actions between banks and their customers, matters are referred to civil courts. For instance, the commercial transactions of Islamic Banks in Malaysia come within the jurisdiction of the civil court. Therefore, any legal proceedings between Islamic Banks and their customers are to be handled by the normal civil court.

Though there is no complete Islamic Banking Act till date for controlling, guiding and supervising the Islamic banks in Bangladesh, some Islamic banking provisions have already been incorporated in the amended Banking Companies Act, 1991 (Act No. 14 of 1991). Bangladesh Bank did not set up any separate Department at its Head Office to control, guide and supervise the operation of the Islamic banks. Inspection and supervision of the Islamic banks operation are being scrutinized by the Bangladesh Bank as per the general guidelines framed for the conventional banks. So, ensuring of the implementation of Shariah principles in the Islamic banks are being conducted by their own Shariah Councils. The role of Bangladesh Bank in controlling, guiding and supervising the Islamic Banks in Bangladesh in accordance with Islamic Shariah is very minimal. In observing the

Shariah implementation status of the Islamic banks, Bangladesh Bank examines only the report of the respective banks' Shariah Councils. However, the inspectors and supervisors of Bangladesh Bank are not equally familiar with the technicalities of the different operational methodologies of the Islamic banking. This is because of the fact that there is no separate Department to look into this important matter and any concerted effort to devise separate inspection and supervision guidelines for the Islamic banks.

26.   Measures Adopted by Bangladesh Bank

Regarding the suggestions put forwarded by the study report of the IMF, Bangladesh Bank has already been complying with the following guidelines:

a.   Some legal provisions have been incorporated in the amended Bank Companies Act, 1991.

b.   For analysis of the operational risks of the Islamic banks, CAMEL rating framework is being used by the concerned Department of Bangladesh Bank.

c.   Information is being disclosed by the Islamic banks as per the same format designed for the conventional banks. A workshop was held in Bangladesh Bank in 1995 on "Islamic Banking Inspection Methodology" to devise separate inspection methodology for the Islamic banks. However, follow-up research work is going on this issue in the Bangladesh Bank.

27.   Rapid Expansion of Islamic Banks In Bangladesh

In view of the rapid expansion of Islamic banks in Bangladesh, Bangladesh Bank Issued a letter to the Islamic banks to carefully address and examine the upcoming problems in due time. To help actualize those, Bangladesh Bank identified the following problems and accordingly advised all Islamic banks on 5th March, 1997 to take appropriate measures on them through mutual discussion and co-operation:

a.   Development of an Inter-Bank Islamic Money Market.
b.   Constitution of Central Shariah Supervisory Board.
c.   Preparation of draft Islamic Banking Act.
d.   Establishment of Islamic Insurance Company.
e.   Development of New Financial Products in line with Islamic Shariah.
f.   Constitution of Consortium/Syndicate by the Islamic banks for large financing.

IBCF and Central Shariah Board in Bangladesh: In response to Bangladesh Bank's call, "Islamic Banks Consultative Forum (IBCF)" was constituted by the Islamic banks and banks having Islamic banking branches or windows in 1997 to take appropriate decision on the above identified areas. Later on, a Central Shariah Board of the Islamic Banks in Bangladesh has also been formed with the active participation and financial contribution of the said banks and banking branches. Membership to these forums is optional for the Islamic banks and financial institutions.

Government Islamic Investment Bond: In October, 2004, Bangladesh Bank has issued a *Mudaraba* bond named "Government Islamic Investment Bond" on behalf of the government as a first ever Islamic financial instrument in Bangladesh to facilitate the Islamic banks and financial institutions to invest their funds (to be calculated as an outlet for maintaining SLR). Government Islamic Investment Bond has been playing an important role in developing the Islamic financial instruments in Bangladesh. Islamic banks and financial institutions are actively participating to park their cash surpluses and enhance their return on their investments.

Focus Group on Islamic Banking: Recently, a Focus Group on Islamic Banking has been constituted in Bangladesh Bank to develop necessary guidelines to facilitate setting up of Islamic bank, Islamic bank subsidiary or branches in Bangladesh. Bangladesh Bank has issued Islamic Banking guidelines in September 2009 and thereby it is hoped now that implementation of this guideline will pave the way to bring the Islamic financial sector in close adherence to Shariah.

Member to the Islamic Financial Services Board, Malaysia: Recently, Bangladesh Bank has become member to the Islamic Financial Services Board, based on Malaysia, the body established to issue prudential and supervisory standards for the Islamic banking and finance industry. The existing supervisory process and procedures will be redesigned to evolve in line with the best international Islamic standards. Regulatory and supervisory standards, which can specifically address the unique peculiarities of the Islamic banking operations, are necessary to promote resilience and competitiveness of the Islamic banking sector. In this regard, the work of the IFSB would act as a catalyst to the development of a stronger and robust supervision framework in Bangladesh.

Working Group on Islamic Banking: In addition to that, a working Group on Islamic banking has been constituted at Bangladesh Bank to implement Strategy # 8 of Bangladesh Bank Strategic Plan 2010-2014. The working group has been working to develop Islamic monetary and liquidity instruments and supervision / inspection manual for Bangladesh Bank supervisors.

ICB AMCL Islamic Mutual Fund: To facilitate the Islamic capital market in the country and to attract the investors who want to invest in 'Shariah-based financial products, the government owned Investment Company 'Investment Corporation of Bangladesh (ICB) has introduced `ICB AMCL Islamic Mutual Fund' for Taka 100 million in 2005 with the approval of the Securities and Exchange Commission. ICB Capital Management Limited, a subsidiary of ICB is the sponsor and ICB is the Trustee & Custodian of the Fund. ICB AMCL is acting as the Asset Manager of the Fund.

IBBL Mudaraba Perpetual Bond (MPB): Islami Bank Bangladesh Limited has issued a bond named Mudaraba Perpetual Bond (MPB) of Taka 3,000 million in October, 2007 which is the first of its kind with a view to serve multiple purposes like creating a vibrant bond market in Bangladesh, creating new avenues of investment for the prospective Islamic investors etc. From the viewpoint of the Islami Bank, the main purpose of the bond issue is to raise fund to maintain the capital adequacy requirement ratio of the Bank. As per the existing requirement of Bangladesh Bank, all commercial banks are required to maintain capital adequacy @10% of the risk weighted assets of the bank.

The purpose of the issuance of the MPB is to enhance the ability of the bank to make further investments by increasing the Capital Adequacy Ratio. One of the main objectives is to utilize the fund to be raised in prospective/profitable sectors. It is to be mentioned that through the issuance of the MPB, IBBL is going to play a pioneering role in creating a bond market in Bangladesh, as this will be the first of its kind in the country. It is worthwhile to mention that, through the issuance of MPB, IBBL will be able to reduce its cost of fund substantially, which will ultimately be beneficial for the stakeholders. It is to be further mentioned that, the fund raised through issuance of MPB will be utilized in the profitable investment programs of the Bank more profitable. In addition to the income derived from deployment of Mudaraba fund, the bondholders will be entitled to get a rate of profit equivalent to 10% of the rate of dividend to be declared by the Islami Bank Bangladesh Limited.

Islamic Banking in Conventional Banks

One of the important developments in Islamic banking in last few years has been the entry of some conventional banks in the market and their use of Islamic modes of financing through their Islamic branches, windows or units. It necessitates and encourages the globalization of Islamic banking, which includes some of the giants in the banking and finance industry. Bangladesh was not indifferent to this turning move. Presently, 16 conventional banks have opened a number of Islamic banking branches alongside their interest based branches. These conventional banks should focus on the safeguards that ensure the Islamic nature of these branches such as separation and compliance with Shariah. Separation of Islamic banking branches includes separation of capital, accounts, staff employed and office. However, the most important thing is compliance with the dictates of Shariah. There should be strong Shariah supervisory boards in order to prepare the model agreement, to approve the structure of every new operation and lay down the basic guidelines for each and every mode of financing. There must be also some Shariah scholars employed to monitor the compliance with Shariah in daily basis. Besides, there should be an annual review of the transaction carried out during the year. The staff of the banks should also go through training program in order to understand the basic Islamic principles and the philosophy governing commercial transactions in order to implement it in their day-to-day work.

Islamic Non-Bank Financial Institutions in Bangladesh

Non-bank Financial Institutions (NBFIs) represent one of the most important segments of financial system and play very important role in mobilizing and channeling resources in Bangladesh. The NBFIs comprise investment and finance companies, leasing companies etc. numbering 34 (till 2016) are regulated by the Financial Institutions Act, 1993 and the regulations made there under. Out of 34 non-bank financial institutions, two NBFIs called 'Islamic Finance and Investment Limited' and Hajj Finance Company Limited have been functioning in line with the Islamic Shariah since 19 April 2001.

28.   Recognition by Bangladesh Bank

Though Bangladesh Bank has permitted Islami Bank of Bangladesh Ltd to carry on the banking business with Shariah Principal in 1983, there was no any legal framework under which Islamic banking business can run. Meantime, 8 banks have obtained permission from Bangladesh Bank to conduct Islamic banking, such as Islami Bank Bangladesh Ltd, Al-Arafah Islami Bank Ltd, Social Islamic Bank Ltd., Shahjalal Islamic Bank Ltd., Export Import Bank of Bangladesh Ltd.,

First Security Islamic Bank Ltd. and Union Bank Ltd. Apart from that some conventional banks have got permission to open Islamic Banking Branches / Windows / Subsidiary such as Prime Bank Ltd, Dhaka Bank Ltd, Southeast Bank Ltd, The Premier Bank Ltd, Jamuna Bank Ltd, HSBC-Amanah, Standard Bank Saadiq, The City Bank Ltd, and AB Bank Ltd.etc.

As Islamic Banking has become a part of mainstream banking in Bangladesh, Bangladesh Bank, at least promulgated Guidelines for Islamic Banking through BRPD circular No. 15, dated 09 September, 2009. By this circular Islamic banks have got a legal framework as well as recognition by Bangladesh Bank as well as Government of Bangladesh.

Now we may highlight a limitary of the guideline:

a) Regarding formalities of Shariah Council in Section-III of the guideline it is embodied that "The Board may form an independent Shariah Supervisory Committee with experience and Knowledgeable persons in Islamic Jurisprudence". By using 'may' it has not been compulsory to form 'Shariah Council'. In this regard we like to quote from comments of expert of Islamic Banking: "An Islamic Bank does not only have to have a Board of Directors, but it also has to have a Shariah Advisory Board. This is most important where Islamic Bank operate in a Society, which does not fully apply Shariah laws. The board shall possesses a high degree of independence both internally and externally". So, the formation of Shariah Board must be mandatory.

b) In appendix-III of the guideline it is mentioned that "Profit Sharing Ratio (PSR) between the Mudaraba depositors the bank (Mudarib) should be declared before the starting of accounting year / at the time of Mudaraba Contract and to be duly disclosed to the Mudaraba Depositors".

To determine the obligation to the depositors the Profit Sharing Ratio should not be flexible. In this regard Bangladesh Bank can fix up the Profit Sharing Ratio like SLR and CRR. In Malaysia the profit sharing ratio is 70:30 which means that 70% of total income of the Bank to be distributed to the Mudaraba depositors. In Bangladesh different Islamic bank declares different profit sharing ratio. For the sake of depositors Bangladesh Bank can fix up the profit sharing ratio, so that no bank can deprive the depositors.

c). Except Izara Bill Baia Investment, Islamic Banks apply Mark-up profit on investment account as per agreed rate of profit during disbursement of investment. That is why the figure of total investment in General ledger carries the actual investment plus Mark-up. As a result the figure of investment of Islamic Bank appears to be inflated than the outstanding actual investment. Due to inflated investment amount Islamic bank faces inconvenience in meeting capital Adequacy ratio and other obligation of Bangladesh Bank. As such, the "Investment" item under specimen of Balance Sheet (Appendix-II) of said Guidelines should be "Investments (without Mark-up)".

d). Profit earned after the expiry of investment deal cannot be transferred in to income account as per Shariah principle. The said profit is treated as compensation money (if realized later on) which is not clarified in the guidelines in question.

e). In the guidelines there is a provision from the conventional Banks to obtain license for opening Islamic Banking Branch (es). Actually, it is impossible to separate the fund of Islamic banking branch. In case of transaction in General Account the fund cannot be segregated. Moreover, if the said Islamic banking branch does not deploy the fund in investment financing, the depositors may be deprived remarkably. Moreover, dual policy in some bank can create mistrust of customers of Islamic banking branch on the principle of Shariah. So, dual principle policy should not be encouraged.

f). In case of Bai-Muazzal & Bai-Murabaha, generally a deal is allowed for a maximum period of one year. Sometimes the borrower asks for time more than one year for adjustment of the deal. In such case a banker cannot allow (though Shariah does not object) time more than one year as per Bangladesh Bank directives. Moreover, some times before expiry of a deal (say one year) the borrower request the banker to extend validity period for justified reason. In that case under prevailing system a banker cannot extend the validity as the Mark-up meanwhile has been exhausted. To cope with the situation of a bonafide borrower there should be certain clarification in the guidelines of Bangladesh Bank.

29.   Misconception on Islamic Banking

In Bangladesh, most of the people do not know the procedure of the Islamic Banking. As there is a limited scope to gather knowledge of Islamic Banking the following misconceptions are hindering the growth of Islamic Banking in Bangladesh:

Misconception- 1

"It is said that the profit allowed by Islamic banks is actually interest. It has been named profit by them as they receive it in a alternative way."

Actually, it can be said that this misconception can be removed if the difference between profit and interest is understood. For instance, Mr. 'X' gave Tk.100 to Mr. 'Y' as a loan at an interest of Tk.10 repayable within one year. In another case, Mr. 'A' sold a property of Tk.100 at Tk.110 to Mr. 'B' on deferred payment basis repayable within one year. Are the benefits of the both transactions same? In fact, the transaction made between Mr. 'X' and Mr. 'Y' is on the basis of interest against loan. And the transaction made between Mr. 'A' and Mr. 'B' is on the basis of profit derived from buying and selling. Misconception lies with many men as they do not find any difference between interest and profit.

Misconception- 2

"It is said that the buying and selling showed by Islamic Bank at the time of investment is mere paperwork, it has no existence practically."

In fact, it can be said that in the Bai-Muazzal investment system, Islamic Bank asks the investment-client to apply to the bank after fixing the price of the commodities he wants to buy. The bank verifies whether the price of the commodities is genuine. Being satisfied, the authorized officer issues a pay order or DD in favor of the seller. At the same time a contract is executed between Bank and the client where it is stipulated that the commodities are sold to the client in cash which is repayable within one year along with determined profit.

Here, there is no scope for any fake transaction. But some Islamic Banks nominate the client to act as buying agent (which is in compliance with Shariah) of the Bank and Bank disburse the investment (determined invoice value) through the account of buying agent. Seeing this procedure, it might appear that this arrangement is mere paper-transaction. It is, in fact, true, but if the Shariah allows the appointment of buying agent then there is nothing unethical. Whatever the procedure of the trading is, the intention of buyer and seller is actually important. And that intention is to remain refrained from interest.

Misconception- 3

"It is said that Islamic Banks offer fixed rate of profit on deposit as the conventional banks do. In fact, what the Islamic Banks offer on deposit in the name of profit, is nothing but interest".

It is nothing but a misconception. Islamic Bank never offers fixed rate of profit on the deposit. At the time of opening of a Savings or deposit scheme account it is stipulated that by using the deposit the bank will pay a portion of income which derives from his deposit, as for example, 65 : 35. It means that the depositor will get 65 percent of the total profit that the bank earns and the Bank will get rest 35 percent. The said 65 percent of profit is credited to the account of depositors on the date of maturity or as per agreement. It is notable that in case of mudaraba accounts like savings account, fixed deposit account etc, the rate of profit on deposit declared by the Banks is provisional one, not fixed. It means that the actual rate might be more or less after calculating the bank's profit and loss at the end of accounting period. If profit is credited to any account before calculating the profit and loss (such as fixed deposit) then it is adjusted after completion of the calculations. That is, if excess profit is credited, then it is deducted and if less profit is credited, then more profit is credited after final calculation of profit and loss accounts.

Therefore, it is not true that Islamic Bank offers fixed rate of profit on deposit.

Misconception- 4

"It is said that if investment (loan) is taken from Islamic Bank, then it must be repaid with fixed rate of profit, which is similar to the interest given in the conventional banks."

It is another misconception. The excess amount between purchase & sale price with a risk of loss is profit. The amount which is predetermined upon principal amount for a certain period with certain rate is interest. If someone sells a commodity determining fixed rate of profit, then it won't be unethical. Because, here the rate has been determined upon the cost price. In the Murabaha system, at the time of allowing the investment, the Bank delivers the commodity after fixing the rate of profit. For instance, I bought the commodity at Tk.100. It will be sold if a profit of 15% is given. In another case, buying the commodity at Tk.100, it will be sold to the buyer at Tk.115 without declaring the cost price. The two transactions have no difference. It does not mean that it will be interst if it is expressed in terms of percentage.

Misconception- 5

"It is said that whatsoever the Islamic bank tells that it carries out business on the basis of profit and loss, it is not actually true. In fact, Islamic Bank doesn't share any loss with the client."

It is also a misconception. Islamic Banks do business on the basis of profit and loss, though it may not do the business on that basis also. When the Islamic Bank accepts deposit, then definitely it is on the basis of Mudaraba principle i.e., on the basis of profit and loss. That means if the Islamic Bank can earn profit by utilizing the accepted deposit, then the client will get a portion of it at the agreed rate and if loss happens, then the depositor must share the loss. Both parties will share the loss – this is the Mudaraba principle. But when the Islamic Bank invests in the Murabaha system, then it doesn't share the loss. Because in the Murabaha system, bank does not promise to share the loss. Whether the Islamic Bank will share the loss, it depends on the terms and condition laid down in the contract. As for example, if the business is in Musharaka system, then in this case two or more people or institutions provide the capital on the basis of partnership. The bank is a partner in this case. If profit is earned in the business then it will be distributed as per the contract and if loss is incurred then partners have to share the losses in proportionately as per proportion of capital invested.

So, it is not true that Islamic Bank doesn't take risk of loss.

Misconception- 6

"It is said that though Islamic Bank does not deal in interest, but in case of transaction with Bangladesh Bank, does Bangladesh bank provide profit?"

It is true that Bangladesh Bank transacts with the commercial Banks on the basis of interest. And that's why the Statutory Liquidity Reserve (SLR) for Islamic Bank has been fixed at 5.50% whereas the SLR for conventional banks is 13%. To avoid interest, Islamic Banks keep entire amount of SLR with Bangladesh Bank in cash (interest free) or in Islamic Bond.

30. Growth of Islamic Banking in Bangladesh

*Conventional + Islamic. Conventional banks which have Islamic banking branches do not maintain SLR individually.

At the end of December, 2015, out of 56 banks in Bangladesh, eight PCBs (Private Commercial Banks) operated as full-fledged Islamic banks and 16 conventional banks (including three FCBs) were involved in Islamic banking

*Table 01: Comparative Position of the Islamic Banking
Sector (as of end December 2015)*

(billion Taka)

Particulars	Islamic Banks	Dual Banking*	All Banking Sector	Islamic Banking Sector	Share of Islamic Banks among all Banks
1	2	3	4	5 (2+3)	6
Number of banks	8	16	56	24	42.86
Deposits	1552.2	89.4	8033.5	1641.6	20.43
Credits	1305.5	81.7	5952.9	1387.2	23.30

Source: Bangladesh Bank Report.

through Islamic banking branches. The Islamic banks have continued to show strong growth since its inception. Table 01 shows that the deposits of the Islamic banks and Islamic banking branches of the conventional banks stood at Tk.1641.6 billion at the end of December 2015 which accounted for 20.43 percent of total deposits. Total credit (Investment) of the Islamic banks and Islamic banking branches of the conventional banks stood at Tk.1387.2 billion at the end of December 2015 representing 20.30 percent of total credit of the banking system of the country.

The comparative position of Islamic Banking sector in 2009 and 2015 shows a remarkable growth of the sector over that period. Over the about six years deposits of Islamic banking sector has increased 2.59% while it was 0.91% in growth of credit (investment). The notable growth was registered in the growth of number of banks involved in Islamic banking business in Bangladesh i.e. 9.53%.

It is reported that a number of applications have been submitted to the Bangladesh Bank either for new Islamic bank or for conversion of existing conventional banks into Islamic banks. The above scenario shows a keen interest of Islamic banking by Bangladeshis which may be treated as a great threat to the conventional banking.

31.   Prospects in Bangladesh

Like other Muslim countries Islamic Banking has been growing fast in Bangladesh. So it has tremendous prospects in future. Islamic bank's prospects are enumerated below:

Table 2: Comparative Position of the Islamic Banking
Sector (as of end June 2009)

(billion
Taka)

Particulars	Islamic Banks	Dual Banking*	All Banking Sector	Islamic Banking Sector	Share of Islamic Banks among all Banks
1	2	3	4	5 (2+3)	6
Number of banks	7	9	48	16	33.33
Deposits	428.0	36.4	2603.1	464.4	17.84
Credits	411.5	22.8	1939.9	434.4	22.39

Source: Annual Report 2008-2009, Bangladesh Bank.

a)   Islamic Banking has started its journey in Bangladesh in 1983 through opening only one Islamic Bank i.e. Islami Bank Bangladesh Ltd. Now, the banking sector of Bangladesh has got 8 full fledged Islamic Bank and 16 other partially operated Islamic Bank. Out of 56 commercial Banks 24 banks are involved with Islamic banking which is 43%. That means, almost half of the banks are being operated with a belief in Shariah. The growth shows that the entire banking sector may come under the umbrella of Shariah Banking in near future. And that will be a branding of Islamic Banking in the globe which Bangladesh deserves.

b)   Allah has forbidden Interest. *Allah has permitted trading and forbidden 'Riba'* (usury*)* **(**Surat Al Baqarah, Verse 275). A Muslim can not deals in Interest if he believes in Qur'an. In Bangladesh 90% people are Muslim. So there is a good prospect of Islamic Banking in Bangladesh. If the clients get opportunity to bank with Islamic Bank, the majority of them will obviously route their business with Islamic Banks.

c)   Islamic Banks do business on the basis of profit and loss basis which other banks can not do. The Musharaka and Mudaraba are the unique modes of Investment of Islamic Banks which are operated on the basis of profit and loss. But due to lack of honesty, integrity and transparency of the client these mode of investments could not be used widely. An in-depth research is needed to explore a dependable *modus operandi* with a view to establish the Musharaka and Mudaraba investment system in the economic environment of Bangladesh.

d) As the Islamic Banks use their funds in asset-backed investment operations, it can help to reduce the inflation in the economy.

e) Islamic Bank allow *Quard Hasana* investment with out profit in emergency cases and to the less fortunate people, which helps to eradicate poverty of the society.

f) Islamic Bank is growing fast across the world. As such, a good business opportunity will be created through Islamic Banks with Islamic Banks of other countries.

g) It is essential to establish Islamic Common Market with the support of Muslim countries. As the Islamic economy is expanding well, the Islamic Common Market may be visualized soon. At that time the business of Islamic Banks will increase remarkably.

h) Bangladesh has been experiencing a sharp growth in Islamic Banking. But Bangladesh could not enter in Islamic capital market like Sukuk as yet. Securities and Exchange Commission of Bangladesh can play a vital role to introduce Sukuk operations in prospective Islamic capital market of Bangladesh. A vast number of investors of Bangladesh can be attracted in capital market by introducing Sukuk in the capital market of Bangladesh. The Muslim investors of all over the world especially Middle East are interested to invest their money in Sukuk. So we can attract huge amount of foreign investment in Sukuk by introducing it through a Shariah Advisory Committee that can be constituted under the guidance of Security and Exchange Commission.

32. Recommendations

01. Mudaraba and Musharaka financing are the unique types of Islamic financing. As these types of financing are based on true declaration and honesty, Islamic banks did not extend their investment at a remarkable volume which is now (June, 2016) at a minimum level (only 1.86% of total investments). They should pay more attention to use the Mudaraba and Musharaka mode of financing.

2. As per contract the clients have to adjust their investment deal on or before maturity. After maturity Islamic banks cannot transfer their profit in to their income account. But most of the clients do not adjust their liabilities within maturity period. In that situation many Islamic Banks create new deals for adjustment of old deals before expiry of the

deal which is not fair practice. To overcome the situation, a penal charge may be imposed if the client does not adjust the investment deal with in expiry.

3. Islamic banks cannot transfer the profit on investment into their income account after expiry of the deal. However, that profit is transferred to compensation accounts. After accounting period that compensation amount cannot be used in their normal course of transactions. It is observed that banks have to allow waiver of profit and principal investment due to some obvious reasons like, death of client, genuine business loss, change of government regulations, and adverse situation in liquidation of securities etc. In those cases the compensation money of bank can be used on humanitarian ground (if shariah permits).

4. There are 16 conventional banks in Bangladesh which are doing Islamic banking through window or separate branch. The management of the bank is earning profit as per shariah by one hand and earning interest (not permissible in shariah) by another hand, as if somebody has two wives, one is lawful and another is illegitimate, which is a question of morality. To uphold the image of the Islamic law (Quran and Sunnah) dual banking system should not be permitted and there should not impose any hindrance in the path of opening of new Islamic bank or conversion of conventional banks into the Islamic Banks.

5. Bangladesh has become a role model of Islamic Banking. But Bangladesh could not enter in Islamic capital market like Sukuk as yet. Securities and Exchange Commission of Bangladesh can play a vital role to introduce Sukuk operations in prospective Islamic capital market of Bangladesh. A vast number of investors of Bangladesh can be attracted in capital market by introducing Sukuk in the capital market of Bangladesh. The Muslim investors of all over the world especially Middle East are interested to invest their money in Sukuk. So we can attract huge amount of foreign investment in Sukuk by introducing it through a Shariah Advisory Committee that can be constituted under the guidance of Security and Exchange Commission.

6. In case of Bai-Muazzal & Bai-Murabaha, generally a deal is allowed for a maximum period of one year. Sometimes the borrower asks for allowing time more than one year for adjustment of the deal. In such case a banker cannot allow (though Shariah does not object) time more than one year as per Bangladesh Bank directives. Moreover, some times

before expiry of a deal (say one year) the borrower requests the banker to extend validity period for justified reason. In that case under prevailing system a banker cannot extend the validity as the Mark-up meanwhile has been exhausted. To cope with the situation of a bonafide borrower there should be certain clarification in the Guidelines for Islamic Banking of Bangladesh Bank.

7. In international trade, Islamic banks can not avoid interest. While crediting interest in Islamic Bank's Nostro accounts maintained with the overseas banks Islamic banks can not reject it. However the interest is used in philanthropic activities. But while Islamic Banks are obliged to pay interest (such as, interest to be paid on DP bill) it cannot avoid the interest. To avoid such type of transaction there is a requirement of a Islamic International Forum like ICC (International Chamber of Commerce) of which all Islamic Banks across the globe may be the members. Bangladesh may be the pioneer to initiate formation of such Forum.

8. Where there is an Islamic Bank it should be given preference to nominate L/C advising bank, negotiating bank, add-confirming bank etc. while doing international business in order to shariah compliance and to boost up Islamic Banking sector through out the world.

9. There is no accounting standard to be followed by Islamic Banks. Accounting and Auditing Organization for Islamic Financial Institutions (AAOIF) can play a vital role for setting internationally acceptable accounting standard.

10. As per Article-5 of Uniform Customs Practice for Documentary Credit (UCP-600), Banks deal with documents and not with goods, services or performance to which the documents may relate. On that contrary Islamic Banks deal with goods by way of buying-selling, Rental or Partnership. So separate rules for Islamic Banks required being adapted.

11. All the mode of investment of Islamic Bank are almost asset-backed. As such, there is less possibility of defaulting of investment and suit to be filed against entrepreneurs if norms of shariah are complied with. The performance of Money Loan Court is not satisfactory which an inherent weakness of prevailing conventional banking is. The nation can get rid of the such situation by practicing Shariah based Islamic banking.

12.   To ensure the growth of the Islamic Banking we must have dispute settlement institutions or Islamic courts that understand the form of the contracts so that these can be interpreted and enforced accordingly

33.   Conclusion

The Islamic banking sector of Bangladesh, due to popular support and market demand continued to grow at a rapid pace which is reflected by the increasing branch network of Islamic Banking Institutions. Islamic Banking Industry in Bangladesh has been highly contributing to spur economic growth and generate employment in the country to fulfill the vision of the government to reach the country at Middle Income Level by the year 2021. Thereby, this banking industry with more than 20% market share and 28543 employees have been playing a very dominant role in mobilizing deposits and financing in the real sector industries, services and other key sectors of the economy and collecting about a one-third portion of total foreign remittances in Bangladesh. At present 43% of existing commercial Banks are directly involved with running their shariah based banking. As the growth of Islamic banks in Bangladesh is increasing fast, there is a possibility to lead the Islamic banking sector in the globe by the Islamic banking of Bangladesh in near future. So the Government of Bangladesh should pay more attention to develop the Islamic Banking sector of Bangladesh.

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Firm Strategies and the Economic Governance of Global Industries

MD. ANISUR RAHMAN*

Abstract: *Difference between developed and developing countries are very remarkable, technologically, socially and economically. Automation and Digitalization in production and service sector is affecting the global value chain, where the developed countries are taking advantage more than that of developing countries because of their affordability of the modern technology in automation and digitalization. Increasing the existing gap between developed and developing countries. Artificial Intelligence and Robotic technology has a potential in productivity as an enhancer. But when it will take place as a factor of production, will drive a new growth formula for the world. To get the extra advantages of automation and digitalization, the leading firms are creating a value chain for their own is, individual firm with multiple suppliers.*

Introduction

21st Century is the revolutionary century for the industrial revolution which we called the age of 4th industrial revolution. Global Value Chain has become the economy's backbone and central nervous system. The fragmentation of global value chain is fueled by technological, economical and social changes of the world.

Lower production costs earn the higher profit in business. The global industrial leaders are moving through the world for the sophistication of their production system to reduce the production cost, which is the major factor for the production of goods to stay competitive among the competitors.

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* Assistant Professor, Department of ICT, Daulatpur College, Kushtia
  E-mail: arahmankst@gmail.com

To reduce production cost developed nations are using the technologies together at the different stages of production and services like, Artificial Intelligence, Ultra intelligence, Next Generation Robotics, 3D Printing, Biotechnologies, Genetic Engineering Technologies, Nanotechnologies, Computer and Internet Technologies to transform manufacturing and production system to boost up the production speed and lessen the production cost.

In future, the use of sophisticated technology in production sector will help the industrialists to diversify the raw materials according to the requirement of the production process which is another system to reduce production cost and to stay risk free in competitive market.

Ability to capture and store energy will be another advantage for the developed countries in future, and the availability of low-cost energy would be a compound upon the advances in technology and diversified raw materials.

In the future distribution system the use of technology will impact upon the cost of goods and their services to reach at the user, the technologies are RFID, Drones, Driverless Trucks, Automated Warehouse etc., all in these sectors need very few human skilled labors.

The world consumer behavior has changed. The information about the products are very available and purchase of the products from anywhere of the world is very easy. The companies are directly involved with the global marketing are well informed about the customers demand, and they know very well about, how to do it.

So, a "New Paradigm Model" is very easy to apply for the industrially developed countries upon the developing countries, which will be a way of new thinking about consumption. Moreover in business, the idea is the same, a new way of looking at things.

World industrial leaders are looking for their profit maximization in industrial production and service sectors and emphasizing upon new modern technologies, low cost energy, diversified raw materials and consumption trends towards their goods for their expected business goal.

Development of Automation and Digitalization

Rapid development of automation and digitalization are creating changes in the nature of production and services over the world, which is a factor of 4th industrial revolution.

Automation is that, from where any country cannot hide them from this environment. Because in the present decade,it is an important part of global business. Almost all the countries of the world are connected with the internet for the transaction of their business and commerce. The automation in home, institution and in business centers by different types of devices are increasing over the world. For the security purposes many organizations of the world are connecting with the internet. Now, it is a growing trend of the world that, most of the cars of the world is connecting with the internet system for the security and advanced driving information.

For automation the world is rapidly depending upon computer and internet system. Which require a central computer system for data and information is called cloud computing. Cloud computing is going to be a big deal for the developed countries, because of it's low cost service, any time any place access and capacity of load sharing.

The growing trend of automation and internet of things is rising the question of internet security and employment. Moreover, the cloud computing is rising the question about the dependency upon the service provider and can limit the local innovation of the developing countries in computer sector.

In manufacturing, production and service sectors the industrialists are looking for the modern technologies to reduce the cost of their goods to stay competitive in the market and to maximize their profit. To stay risk free in the market, developed countries are using Artificial Intelligence and Robotic technology to increase their productivity, reducing the cost of goods and to maximize their profit.

The installation of robotics and artificial intelligence technology in production sector is much expensive. It is affordable for the developed countries but not for the developing countries. Accenture (a research organization) analyzed 12 developed economies that together generate more than 50 percent of the world's economic output, and found that artificial intelligence has the potential to double their annual economic growth rate by 2035.

Almost every aspect of our daily life has become digitalized. Artificial Intelligence can utilize data to assist in many tasks what the world have never seen before. The world economy is entering in a new era in which artificial intelligence has the potential to overcome the physical limitations of capital and labor and open up new sources of value and growth. Artificial Intelligence has become another productivity enhancer. But when it will be a new factor of production will transform our thinking about growth.

The AI Growth Model:

This model adapts the traditional growth model by including AI as factor of production.

Traditional Growth Model   :   Capital + Labor + TFP = Growth

Adapted growth Model   :   Capital + Labor + TFP + AI = Growth.

AI as new factor of production it will drive the growth at least three important ways. First, it will create new virtual workforce. Second, it will enhance the skill and ability of the existing workforce. Third, it will drive the innovation.

In a study at the University of Johannesburg, they saw that, artificial intelligence has been applied successfully to fill the gap that exist in information required to make informed decision. It is found to them, that the use of artificial intelligence machine changes the degrees in which the theory of bounded rationality, efficient market hypothesis and prospect theories are applicable.

With the over accelerating development of technology, the world is moving towards consumer economy to knowledge-based economy, which will transform the tangible assets into intangible assets and our world economic system will operate a new growth formula.

The growth formula is as follows:

IA > MI – therefore – IC + AI =W

Which translate into Intangible Asset (IA) is greater than Money Supply (MI) – therefore – Intellectual Capital (IC) plus Artificial Intelligence (AI) equals to Wealth.

Executive office of the president of the USA declared on December 20, 2016 about the Artificial Intelligence, Automation and the Economy that, AI and related fields have opened up new market and new opportunities for progress in critical areas such as health, education, energy, economic inclusion, social welfare and environment which will continue to create wealth. But the Americans have to take aggressive policy action to take full advantage of the AI driven automation, and to ensure their continued leadership in the creation and use of Artificial Intelligence.

Increasing trend of profit maximization and the automation and digitalization of manufacturing

And production sector is widening the technological inequality between developed and developing countries, because the technological impact of third

industrial revolution has not yet reach in many developing countries of the world. At the phase of 4th industrial revolution technologically the developed countries will be stay at higher position than 3rd industrial revolution period, in comparison with the developing countries.

At the period of 4th industrial revolution the developing countries will be the low and mid type technology consumer for their production system. The low and mid type technology of production is mainly dependant upon different type of energy and there will be a huge possibility of that, the developing countries will be the highest energy consuming area in future. Acquiring energy and the availability of energy will be a major factor of production in the developing countries will inspire the developed countries more to enter in the global energy politics in future, which can influence the more in global arms race, where another type of value chain is running within the block chain of the power countries.

Automation and digitalization in production sector is a technological transformation, require more skilled labor. To adopt in the new technological production environment, the present skill set of the world should be developed. Accordingly for the decentralization of production technology, the industries will be established in the urban area and to meet the labor demand the rural and agricultural labor will migrate to the urban area and in agriculture based industries.

Use of different type of energy and the over population in urban areas for industrial urbanization in developing countries will create environmental pollution in future. Where the developed countries are suggesting the developing countries to established the environment related project which are also high tech automated and expensive to established.

Thus the developed countries are trying to shifting the value chain towards automated and digitized and want to give some priority to the developing countries to produce the intermediate goods for their consumption by creating another value chain with the developing countries, which will be the barrier for the developing countries to enter in the developed markers with their final products. Because, the final products will be manufactured and distributed by the developed countries by using automated and digitized technology which will ensure product quality, maximum production per hour, less wastage.

Automation and Dizitalization in Service Sector

The increasing importance of fragmentation of production involves services. The fragmentation of production depends on a part is production value chain and other

is on trade. Demand on ICT in business service sector is increasing globally. Where there need minimum investment and have the scope of maximum employment within short period of time. So, that many developing countries are trying to take the advantages of service value chain, by developing their present skill set of manpower and providing them globally.

The increasing demand of digitalization in service sector for rapid transportation, distribution and services are causing the needs of skill development of workforces both in developing and developed countries according to the quality of goods and services. So, electronic infrastructure and human capital are the most important factor for the service value chain. According to the development of training and research capabilities, the developed countries are involving much in high tech production service sectors and the developing countries are involving mainly in the areas where there required lower wage services.

GVC Is Changing the Global Political Economy

International political economy is an interaction in international relations of the pursuit of wealth and the pursuit of power. Political globalization is a must for the developed countries for economic globalization. So, there has been a rise in the influence and power of international and regional institutions such as W.B, IMF, BRIC, EU, OECD, UN, WTO, and ASEAN. These international and super national actors are increasingly shaping domestic politics.

The better and cheaper price for product and services and its availability, easier access to capital and commodities, increased competition are the advantages of economic globalization where firms can diversify their investment markets and can contribute to economic growth.

Governments of different nations, and their relation with each other is the key factor for political globalization. Developing countries want to work with their developed international friend countries to gain influence internationally. And the developed countries want their market of goods and finances to take advantage of economic globalization.

In developed countries Artificial Intelligence and robotics has become viable both in commercial and military sectors. Which lead the political globalization to pursuit wealth and power which will affect the strategic direction of the leading firms. The firms of developed countries are decentralizing their production unit in many developing countries for the cheaper intermediate product by transferring technology in exchange with low cost labor and land and in some sector the final

products too, because of the rising trend of labor cost in developed countries. The developing countries are going to be the highest energy consuming countries in future. For the decentralized industries and their low-cost production, low cost energy, energy availability and secure of energy is a must for the developed countries where military involvement are much. And now the developed countries are using Artificial intelligence and Robotic technology to increase their military strength. They are also transferring military technology in developing countries for their low-cost military production within their block chain. So, some of the leading firms of the developed and developing countries are changing their strategy.

Higher Value and Higher Performance

Artificial Intelligence, Advanced Robotics, Internet of Things, Wearable and 3D printing technologies are transforming the global production system and creating new wave of competition among the competitors. These technologies are breaking the geographic barrier in decision making for the firm that, where and how the production and marketing for consumption will take place to maximize the profit.

Automation and digitalization touch every steps of global value chain. Their convergence rises a new set of strategic choices related to value. Which deal with, how value is created within firms and redistributed among the society, countries and global value chain.

Proximity of the consumers is the key value driver. Very few companies of the world already take their policies to take the advantages of digitalization in production and competition. But firm at the different stages of the world should redefine their strategies to capture higher value and performance for profit and growth and to stay relevant with the global value chain.

Moving up the Value Chain

If we have to challenge the notion of moving up the value chain, both the developed and developing countries should upgrade their production system and value creation. Global market opportunity for the third world is very limited. Again, the production system digitalization is improving the capacity of developed countries to gain approximately double growth for them. So, only moving up the value chain as the principal way to upgrading is not the truly globalization policy.

Automation and digitalization technology should be truly global. More effort is needed to ensure all countries, developed and developing, and a wide range of

world culture should be included in collaborative research and technology transfer. Here is also requiring a continuous dialogue between Government, Firms, Politicians and Military Leaders for the policy of adoption of technologies in the society and in the world in a cooperative and coordinating manner. Firms of the develop and developing countries should work jointly to find the liberalized solution about the requirement of new skilled labor, scopes for unskilled labor, global business model, innovation and growth, environment which are created by automation and digitalization of production and services.

Governance Mechanism to Integrate Connectivity

In the period of 4th industrial revolution technological changes has a significant role in global value chain. The production system is changing rapidly. The global firms are decentralizing their production in the different areas of the world for ensuring the lower production cost and intermediate production as an input for their final production. Production system integration and connectivity of production made a new world order in global economy.

At the changing global production and business environment, governance mechanism of the firms should reengineer. From the developing part, production system integration, new innovation, incremental research and development, development of present skill set and knowledge acquisition and from the developed part, investment, technology transfer, production and market data sharing will make a sustainable relation between investors, producers and buyers.

Governments of the different countries of the world should ensure the global market and resources for free access for all the industry players of the world and restrict the development of mass destructive technology like Autonomous, Nuclear, Chemical and Biological Weapons, which influencing the global arms race and affecting global economy.

EMNE Altering the Global Value Chain

EMNE is altering the dynamics of global value chain. The internationalization of EMNEs is mainly depends upon to acquire new advantages around the world to reduce the production cost of goods and services, where lower wage labor force and energy sources are available and have good local and regional market, the firms from developed countries choose these areas of developing countries named hot location.

Because in the developed countries, living standard are high and the labor wages are rising remarkably to maintain their higher living expenses. And the people movement is rising against the environmental pollution.

The developed countries are transforming their production system towards digitalized advanced technology dependent industry and they are shifting their market in higher income areas of the world. Because these high-tech industrial products have a very limited market in the lower income countries like aero, space and ocean based industrial products.

The developed countries are decentralizing their industries to the developing countries for a market within the lower income people and lower cost production as an input for their high tech industrial final products. On the other hand, they are shifting their market in the higher income areas for their high-tech industrial products.

EMNE is Affecting the Participant of GVC

The increased internationalization of EMNEs is affecting the chain participants in many ways. The developed countries are decentralizing their production unit in the developing countries are the industries are dependant upon new intermediate type of technology and lower labor wage and different type of energy consuming. Creating unemployment for increasing skilled industrial workforces demand, pure agricultural workers are shifting in urban areas for new unskilled industrial jobs, urban population density is increasing. For consuming the deferent types of energy, environment of the developing countries are going polluted and increasing health hazards. Governments of the developing countries are under political pressure.

Firms of the developing countries are facing the shorter product life cycle in competition with the rapid innovation and integration in the production system of the developed countries for the same products, which is affecting local production and shortening the local and global market.

Increasing military involvement in energy resources is rising the question of military expenditure and war fear in the both developed and developing countries. Large multinational firms are losing the market and free access in energy without participating in the military powers block chain.

A very popular and recent concept in the world is WPM world product mandate is an organizational response to market and product diversity where MNE delegate for a single product worldwide to particular national subsidiary. WPM is

an innovative project through from formulation to implementation. WPM comprises suitable entrepreneurs but where there are not suitable entrepreneurs WPM would not be succeed like artificial intelligence and robotics in the third world countries for production and it's decentralization, because of it's affordability.

Development Implications for Economic, Sectoral and Firms

GVC lead by the investment decision within the firms located in the different areas of the world. Under the changing nature of global value chain the participants mainly the developing countries should follow some development implication for economic upgrading to attract the FDI and to increase the export volume. Development of political stability, Regulatory reform for inspiring innovation for both in production and service sector, Flexibility on tariff and other business restriction, Institutional development for human resource development, Technical skill development, Initiatives to reduce transportation cost within the regional and global market, Follow the preferential trade agreement policy for attracting global investment and not the regional investment only. Increase logistic support and initiatives to increase employment opportunities, initiatives to protect environment and infrastructure development.

GVC Facilitating the Local Firms and the Country

Sectoral development mainly service sector is not yet much developed in many developing countries, but here is a variety of causes for sectoral development. Because of the increasing demand of the firms in different stages of production (research, design, innovation.), distribution and post distribution services there required a huge number of people to operate these tasks efficiently. More sophisticated service required more skilled labor. Developing countries should have take initiatives for skilled service sector workforce. If the service sector workforce cannot be affordable in domestic market that can be adopted in external market for participating in the GVC.

SME can play a dynamic role in developing countries, because SME is not participating as a provider of large input in GVC production line. By contributing in micro level innovation SME can produce the goods can fill the local requirement of goods and services, which is a primary input for the developing countries to enhancing the intermediate production of the country and GVC.

Women in the different areas of the world mainly in the third world countries are not participating widely in economic activities, those who are participating are by

vary lower labor wage. Globally initiatives are to be taken to increase the women workforce skill and to employ them in different stages of GVC.

Firms should reform the policy for the wider participation in GVC from the developing countries. Small and medium size firms should integrate their production system to stay relevant with the GVC. They should emphasize upon R&D for new innovation of technologies for goods and services by minimum cost to stay competitive.

Requirements of efficient supply chain management are an increasing demand in GVC. Firms should develop a skilled workforce and policy for an efficient supply chain management. They have to use transportation instrument for lower cost faster distribution system, is the demand for final producers. For the faster distribution the developed countries are using the technologies like RFID, Drones, Automated warehouse, Driverless trucks. Though there required a very few human labor.

Global value chain facilitates the local firms in different ways. If a firm is percipient in global value chain can receive FDI from the final producer countries for intermediate input for their production and the local firms can export these intermediate goods in the world market. For global standard products the local firm needs to integrate the production system where new technologies and innovation ideas can build up the local knowledge. Local firms can build up a supply chain both in internal and external market. For research, design and innovation in production sector a service sector is required with a knowledge-based workforce.

The local country will facilitate from the global value chain, increase of the foreign investment, development of competitive regulatory authority both government and private sector, new employment, increase of human development aids, increase of knowledge-based manpower for tomorrows knowledge-based economy.

The Spillover Effect of GVC

Spillover effects of global value chain on local firms and their global competitiveness are, as the global economy is unilateral so the imbalance redistributes within the participants of global value chain in different level of production, distribution and services for a balance trade. Local firms mainly the intermediate producers and their trading build the efficiency of the firm. In the global market the increasing demand of intermediate goods, local firm's

innovation capacity for higher productivity increase the competitiveness of the firm in global context by trading of its production and services. Lower labor and production cost and market size is not the only factor of business and trade but now it is a major factor of business and trade from which hot locations the product will be manufactured by low cost and can be distributed within a large market by a minimum transportation cost. As for an example, CHINA and INDIA are the country for low cost production by using lower labor wage in exchange with technology transfer and they have a good initial market but a new hot location is Bangladesh from where the goods can be produced by minimum cost and can be distributed within the major part of the region including India.

Managerial Implications to Survive GVC

The managerial implication for different type of integration of the firms should be dynamic to stay competitive in the global competitive market both for the production and service sector. It would not be wise to stay at the last lower end point of the value chain. By integrating the strategy, structure and performance it is possible to deliver better quality product and services within the agreed timeframe. The firm can stay relevant with the value chain.

There is no specific method of changes fit for every firm. It is an approach to adopt with the requirements of competitiveness both internally or externally for a firm. At the changing nature of global value chain, strategically there are a set of factors that are relevant with the global Transformation of value chain. These are, political, economical, technological, social, environmental and legal. Managers are the leaders of changes. They should remember the factors relevant with the strategic change to stay competitive in the global business environment. Managers should emphasize upon the value added to his goods and services for competitiveness, continuous innovation is to gain on productivity.

Managers should follow a shared vision of his strategic change in business decision making to stay relevant with the global value chain. Small and medium size firm managers should made a policy about how they can contribute in domestic market to fill the domestic demand and to contribute as a primary input for intermediate production and services. Large scale firm managers should made the policy about how they could contribute to fill the domestic demand and to contribute as an intermediate input for final production by exporting their production and services.

Firm's performance depends upon its competitiveness. The innovation designed to increase the quality of goods and services, productivity and cost leadership are

the key factor for a firm competitiveness both in local and global market. So the managers should follow the market by different type of information network to guide its innovation requirements.

Survival of GVC

World product mandate and the global industries can be the survival and the prosperous for a truly global value chain. For which a global production circuit is needed. Production decentralization under local licensing, for cost benefit and for a planned surplus production can maximize the profit for global industries and local industries can build up their capacity to increase productivity to contribute in GDP and global economy. Individual firms and their own global value chain cannot be a solution for a sustainable global value chain.

GVC and the Firm Relationship

There are two type of shifts affecting firm's relationship in the world. These are, individual firm and multiple suppliers, other is multiple firms and multiple suppliers. When an individual firm is in production either in a centralized or decentralized location, they supply their goods according to their supply chain and policy which is not the free access for all the suppliers, the supply chain is not truly global in this form and the production is not affecting global productivity and economy. Because the demand is restricted for the individual firm and the supply is for their own. Here the development of production and distribution can earn profit for an individual firm who have the capacity much, will be the winner.

On the other type of firm relationship is Production is not centralized, it is decentralized regionally or globally according to the size of required benefit of the country and the firm, then the production is supplied by different firm according to the market size and destination and the demand of the goods and services. This type of relationship between the firms can made a relationship between demand and supply and between developing and developed countries where a truly global value chain can take place for sustainable global growth for each country can achieve the global requirement of flat world.

These two types of global value chain in quite different in nature for capital accumulation and distribution for global growth.

Conclusion

Technological gap between developing and developed industrial courtiers of the world is very remarkable. In the 21st century at the age of 4th industrial revolution, rapid development of automation and digitalization in production and service sector making more economic and social gap between developed and developing countries. Artificial intelligence and robotic technology is playing a vital role in automation and digitalization in the developed countries as productivity enhancer. But when it will be the factor of production, productivity will increase more with minimum cost can increase the existing gap between developing and developed countries socially, economically.

To get the opportunities of automation and digitalization, lead firms are creating a value chain which is, individual firm and multiple suppliers is opposing the economic globalization is based on multiple firms and multiple suppliers. These two types of global value chain in quite different in nature for capital accumulation and distribution for global growth. Interdependency between these two types of global value chain by interchanging the similarities can contribute to a flattening of the differences.

Technical Summary

The world economy is entering in a new era, Where Artificial Intelligence and Robotic technologies have the potentiality as a productivity enhancer, but as a factor of production artificial intelligence can drive the global growth. It will widen the existing gap between developing and developed countries. To get the extra advantages of these technologies, leading firms are creating their own GVC. That is, individual firm and multiple suppliers, contradicting the global participation in GVC, which is multiple firm and multiple suppliers.

Governance mechanism of firms and governments should reshape to build up interdependency between these two types of GVC by finding the methods of interchanging the similarities according to the size of required benefit for the firms and for the countries participating in GVC.

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A Relational Study on Satisfaction, Loyalty, Switching Cost & Word of Mouth: A Study of Islamic Bank in Bangladesh

MIHIR KUMAR ROY*
SHAHRIAR PARVEZ**
FATEMA TUZ ZOHORA***
RATNA AKTER****

Abstract: *The study was undertaken to investigate the relationship between customer loyalty vis-à-vis word of mouth and customer satisfaction. Data for the study were collected both from secondary and primary sources. For primary data collection, total sample strength of the study was 80 and systematic sampling technique was used for the purpose. The SPSS version 21 software was employed for data analysis. The result shows the correlation among switching cost, customer satisfaction (employee competence, reliability, product innovation, pricing, physical evidence, convenience), word of mouth and customer loyalty. Through two step wise regression, the study find out employee competence, pricing, physical evidence and convenience fail to enter into the regression equation, which indicates that it was not significantly related with customer loyalty. employee competence, reliability, product innovation, pricing, physical evidence and convenience failed to enter into the regression equation, which indicates it was not that significantly related with word of mouth..From the study discussion product innovation, product reliability and switching cost were an important factor to gain customer satisfaction. So product innovation is important so the bank should continue this stage to gain overall good position in satisfactory level at the*

* Professor, Department of Business Administration, City University, Dhaka, Bangladesh
** Assistant Professor, Department of Business Administration, City, University, Dhaka, Bangladesh
*** Lecturer, Department of Business Administration, City University, Dhaka, Bangladesh
****Graduate Student, Department of Business Administration, City University, Dhaka, Bangladesh

banking sector. Product reliability result is not significant so the bank management should modifie their management system to improve reliability for which customer loyalty can be possible to increase in the bank. Another aspect is switching cost the result of which was not so encouraging. Now customers are switching their account from this bank and the bank management should take decision so that switching over of accounts from the bank can be improved. If the bank management wants zero percent switching cost to their bank, they would improve reliability product.

1.1   Statement of the problem

By providing better client services specially of banks which can create a positive image to the customer's mind. In the mean time, banking sector has introduced some modern banking schemes that has got high market demand. and the banking sector has got lot of competitors. as well as bank account holders now have many alternatives to choose according to their need. To maintain the top position in the market, Banks have to analyze the factors that influence customer loyalty and word of mouth. The present study will throw lights on this issue

1.2   Objectives of the Study

The objective of the study was to analyse the relationship between switching cost and customer satisfaction (including all dimensions) with word of mouth and customer loyalty in FSIB.

In specific tern, the objectives of the study are as follows:

To give an overview of First Security Islamic Bank ltd.
To analyse the relationship among the variables
To suggest policy implications arising out of the study

2.0   Review of Related Literature:

2.1   Definition of Customer Satisfaction

Customer satisfaction is one of the core objectives of the Banks of Bangladesh. Taking decision to provide better facility to the customers is not easy in this fast changing environment especially in Bangladesh. So, before making a decision the every necessary information is carefully scrutinized by different departments and different people who have gained expertise in their related field. Thus, it helps both in making correct decision and smoothen the process to satisfy the customer

need quickly. Customer Service is the set of behavior that a business man undertakes during its interaction with its customers. It can also refer to a specific person or desk which is set up to provide general assistance to customers. Gaining high levels of customer satisfaction is very important to a business because satisfaction customers are most likely to be loyal and to make repeat orders and to use a wide range of services offered by a business. Customer satisfaction is equivalent to making sure that product and service performance meets customer expectations. Customer satisfaction is the perception of the customer that the outcome of a business transaction is equal to or greater than his/her expectation. Customer satisfaction occurs when acquisition of products and/or services provides a minimum negative departure from expectations when compared with other acquisitions. In the era of the globalization, management of the companies is more concerned about Customer Satisfaction, which leads to profitability. Satisfied customers are central to optimal performance and financial returns. In many places in the world, business organizations have been elevating the role of the customer to that of a key stakeholder over the past twenty years. Customers are viewed as a group whose satisfaction with the enterprise must be incorporated in strategic planning efforts. Forward-looking companies are finding value in directly measuring and tracking customer satisfaction (CS) as an important strategic success indicator. Evidence is mounting that placing a high priority on CS is critical to improved organizational performance in a global marketplace. Customer satisfaction measurement helps to promote an increased focus on customer outcomes and stimulate improvements in the work practices and processes used within the company. It is commonly known that customer satisfaction is related to customer loyalty, which in turn is related to profitability (Storbacka et al, 1994).

Customer satisfaction addresses the customers' overall feeling towards an organization which included service quality, product quality, etc. Customer satisfaction is a term used frequently in marketing. It is often seen as a key performance indicator within business. Cadotte and Turgeon (1996) defined satisfaction as an emotional post-consumption response that may occur as the result of comparing expected and actual performance (disconfirmation), or it can be an outcome that occurs without comparing expectations. It is however important to determine the satisfaction level of customers. Quality in service can be determined by the extent to which customer need and exception can be satisfied (Banerjee 2012).

Customer satisfaction is becoming an increasingly important topic in many firms and in academic research. According to Law, Hui, and Zhao (2004), since the

customer's interaction with the service provider and the service-producing process have a significant impact on the customer's perception of service quality and subsequently influence customers' satisfaction. The physical element of customer satisfaction is product related elements, which are, in fact, not considered as a source of competitive advantage for telecommunication providers, since the service providers are in a position to imitate their competitors' products (Ganesan, 1994).In the above definition the researchers tried to express the customer satisfaction which is now a days an important issue in many companies where they try to provide many better service by their own techniques . Bitner and Hubert (1994) used four items to measure the customers' overall satisfaction with the service provider. The writer explains the concept of satisfaction, i.e. the customers' satisfaction with a discrete service encounter.

Halstead *et al.*(1994) regard satisfaction as an effective response, focused on product performance compared with other product durability.

2.2   Customer loyalty

Customers make decisions about where to spend their time, money and effort. Every day it makes differentiate then competitors.

There are different types of customer loyalty. Loyalty refers to a positive attitude towards a brand in addition to purchasing repeatedly (Day, 1969); a relationship between relative attitude towards an entity and repeat purchase behavior (Dick and Basu 1994); a situation when repeat purchase behavior is accompanied by psychological bond (Jarvis and Wilcox, 1977); and repeat purchase intention and behaviors. In the above definitions, customer loyalty has been generally described as occurring when customers:

Frequently purchase a good or service overtime; and take favorable attitudes towards good or service, or towards the company supplying the good or service.

Customer loyalty is purchase behavior like customer satisfaction. Customer loyalty, (Pritchard and Howard, 1997), is concerned with the likelihood of a customer returning, making business referrals, providing strong word-of-mouth, as well as providing references and publicity (Bowen and Shoemaker, 1998).

Loyal customer increases the customer percentage, Loyal customers are less likely to switch to a competitor due to a given price inducement, and these customers make more purchases compare to less loyal customers (Baldinger and Rubinson, 1996). Although most research on loyalty has focused on frequently purchased packaged goods (brand loyalty), the loyalty concept is also important

for industrial goods (vendor loyally), services (service loyalty), and retail establishments (store loyalty) (Dick and Basu, 1994). Accordingly, customer loyalty constitutes an underlying objective for strategic marketing and management planning (Kotler ,1984) and represents an important basis for developing a sustainable competitive advantage (Kotler and Singh, 1981). Many authors have suggested that loyalty is a relational construct (Jacoby and Kyner, 1973; Sheth and Parvatiyar, 1995). However, Dick and Basu (1994) argued that much of the existing research on customer loyalty has focused on measurement and segmentation issues, and that more emphasis should be placed on integrating loyalty into the longer body of marketing theory. The authors developed a framework for customer loyalty that combines both attitudinal and behavioral measures. The authors proposed that loyalty is determined by a combination of repeat purchase levels (Repeat patronage behavior) and relative attitude (level of attachment). Relative attitude, which refers to "a favorable attitude that is high compared to potential alternatives", is determined by attitude strength and attitudinal differentiation. (Dick and Basu, 1994). The combination of the strength of individuals' repeat patronage behavior and relative attitude leads to four specific conditions of loyalty.

2.2.1 Two levels of customer loyalty

Researchers have shown that there are important conceptual differences between person to person (i.e. sales person loyalty) and person-to-firm (i.e. store loyalty). Indeed Beatty *et. al*. 1996 found that a customer's primary loyalty was to the sales associate, which passively influences a customer's loyalty to the store. In yet another study conducted, it was found that positive feelings towards the contact employee often carry relationship between sales person loyalty and store loyalty has been demonstrated, and the former is an antecedent to the latter (Macintosh and Lockshin, 1997). Hence, following the research findings put forth by Macintosh (1997), when a customer is highly to his/her sales person, he/she will also be highly loyal to the company and employees that sales person. This view is re-enforced by a study which found out that positive feelings about the sales person do translate into positive feelings about the company (Reynolds & Beatty, 1999), as a customer's loyalty to the company will be manifested through his or her loyalty to the contact employee.

2.3   Switching cost

Switching costs are the negative costs that a customer incurs as a result of changing suppliers, brands or product .Although most prevalent switching costs

are monetary in nature, there also psychological, effort and time based switching costs. According to Porter (1998), switching cost is the cost involved in changing from one service provider to another. In addition to measurable monetary costs, switching costs also include time and psychological effort involved in facing the uncertainty of dealing with a new service provider (Dick and Basu, 1994; Guiltinan, 1989). According to Jackson (1985), it is the sum of economic, psychological cost, and physical costs. It includes the psychological cost of becoming a customer of a new firm, and the time effort involved in buying new brand (Klemperer, 1995; Kim et al., 2003). Hence, switching cost varies from customer to customer (Shy, 2002). Psychological cost is a perceived cost stemming from social bonds that form in the course of time and the uncertainty and risk associated with switching to an unfamiliar brand (Patterson and Sharma, 2000; Sharma, 2003). Thus the switching cost can vary from customer to customer. The definition provided by Porter (1998) will be considered as switching cost in this study. Switching costs, which can be defined as the technical, financial or psychological factors which make it difficult or expensive for a customer to change brand (Selnes, 1993). According to AletiVilagine´s (1994), the switching costs can be broken down as follows:

The customer's personal costs, reference to tradition and the client's habits, to effort in terms of the time and commitment needed to evaluate new alternatives, to the economic advantages associated with loyalty, to the social and psychological risks stemming from making a wrong choice, and to the established contracts with the supplier company; and Costs associated with the product, such as the costs of redesigning the process of production or consumption, investment in related equipment, and contractual costs.

2.4   Definition of word of mouth

Oral or written recommendation by a satisfied customer to the prospective customer of a good or better service, consider to be the most effective form of promotion, Advertising is paid and non personal communication Repeatedly, research has shown the importance of consumer word of mouth (WOM) in formation of attitudes (Bone, 1995), in a purchase decision-making context (Bansaland Voyer, 2000) and in the reduction of risk associated with buying decisions (Murray, 1991). Scholars agree that WOM is especially critical for the success of service providers (Berry and Parasuraman, 1991). Word of mouth is referred to as product-related conversation, personal recommendations, informal communication, and interpersonal communication. Higie, Feick, and Price, 1987 instate two distinctions between word of mouth activities and commercial mass

communication. First, the word of mouth communicator is in direct, face-to-face contact with the receiver while mass communication relies on different types of media to transmit information. Second, as word of mouth is a consumer-dominated channel of information, the communicator is thought to be independent of the marketer Mersha, and Adlaka, 1992. As a result, it is perceived as a more reliable, credible, and trustworthy source of information. All of above information provide that word of mouth means where customer provide promotion among the other customer, it can be occur face to face, they also take information from friend and relative. Word-of-mouth communication is defined by Kurtz, and Clow (1991) as the extent to which a customer informs friends, relatives and colleagues about an event that has created a certain level of satisfaction. Anderson (1986) defines Word-of-mouth communications as informal, person-to person communication between a perceived noncommercial communicator and a receiver regarding a brand, a product, an organization, or a service. Henthorne, and Henthorne *(1994), w*hile dealing with Telecommunication industry, explained that administrators can typically recount examples of customers' outcomes that result in favorable or unfavorable word of mouth. If the outcomes of the customer are positive, word of mouth will be favorable. But, if the outcomes are negative, word of mouth will be unfavorable. Even though the telecommunication provider may have quality service for his customers, the word of mouth generated from the customers can be extremely significant for the provider's image. The response of management will often dictate the duration of consumer reaction. Again, Managers have long acknowledged that positive word of mouth is good for business, often marketing considerable portions of the marketing budget for image-enhancement or public relations campaigns. Within the telecommunication industry, substantial numbers of consumers choose a particular provider on the basis of a positive word of mouth recommendation by a friend or family member (Reidenbach, and Sherrel, 1986).

2.5   Relationship between switching cost and customer loyalty

It has been suggested that the degree of switching costs may have an influence on customer loyalty in a given industry (Anderson and Fornell, 1994; Dick and Basu, 1994; Fornell, 1992; Gremler and Brown, 1996). Andreasen (1982; 1985) found empirical support for the effect of high switching costs on customer loyalty in relation to medical services. In addition to customer uncertainty and structure of the market, the level of competition and loyalty programmers (e.g. membership programmers, customer clubs, seasonal tickets in theatres and opera houses) may increase the perceived and actual cost of switching (Gruen and Fergusson, 1994;

Gummesson, 1995). In other words, in the presence of switching cost, customers who might be expected to select from a number of functionally identical brands display brand loyalty (Klemperer, 1987).In conclusion, it appears that there is a positive relationship between the level of switching costs and customer loyalty in services. When the costs of switching brand are high for the customer, there is a greater probability that the customer will remain loyal in terms of repeat purchase behavior, because of the risk or expense involved in switching and because of the accompanying decrease in the appeal of other alternatives (Wernerfelt, 1991; Selnes, 1993; Klemperer, 1995; Ruyter et al., 1996; Anto´nMartı´n et al., 1998). However, if loyalty is defined as true loyalty, the relationship between this construct and the switching costs is not so simple. For example, it might easily be that the customer repurchases, but due to his dissatisfaction, he does not recommend the product or service to others. Moreover, the effect of switching costs on loyalty varies with the type of industry, the category of the product and the characteristics of the customer (Fornell, 1992). In the banking industry, Sheth and Parvatiyar (1995) found some factors that may inhibit customer exit in retail banking; for instance, the length of their relationships with the bank; the fact that they knew, and were known by, the branch staff; and the perception that closing/transferring accounts was difficult. These factors, whether real or perceived, act as exit barriers.

2.6   Relationship between customer satisfaction and customer loyalty

There has been a growing interest in recent years in analyzing the factors influencing customer loyalty. As a result, there are numerous works in marketing which have attempted to explain the relationships between customer loyalty and the various variables regarded as antecedents, the most significant of which are customer satisfaction, and, to a lesser degree, switching costs (Bearden and Teel, 1983; La Barbera and Mazursky, 1983; Kasper, 1988; Bloemer and Lemmink, 1992; Cronin and Taylor, 1992; Fornell, 1992; Oliva *et al*., 1992; Anderson and Sullivan, 1993; Bloemer and Kasper, 1993, 1995; Boulding *et al.,* 1993; Berne´, 1997; Oliver, 1999) Wernerfelt (1991), Selnes (1993) and Klemperer (1995) consider that customer loyalty increases considerably when switching costs and customer satisfaction converge, although a competitor will find it more difficult to capture a customer of a rival brand when the customer's loyalty is based on satisfaction than when it is based on switching costs. Customer satisfaction together with barriers or the switching costs are the key factors affecting loyalty (Asuncio´nBeerli, 2001).

2.7   Relationship between customer satisfaction and word of mouth communication

When a customer praises the company, this behavioral response is indicative of the customer's decision to remain with the firm. Parasuraman *et al.*'s (1988, 1991b) results indicated that when consumers' perceptions of service quality are high, consumers are willing to recommend the company to others. Reichheld and Sasser (1990) also support this notion. Further, Boulding et al. (1993) found that service quality relates positively to saying positive things regarding the company to others. Other researchers (see Richins, 1983; Scaglione, 1988; Singh, 1988) have indicated that when consumers perceive to have experienced inferior service performance they are likely to engage in complaining behavioral responses to third parties (i.e. exhibiting negative word-of-mouth communications). In general, these negative communicational responses stem from the dissatisfaction felt by the consumers due to poor service quality. Finally, Zeithaml et al. (1996), in their multi company/multi-industry study of the relationship between customer satisfaction and behavioral intentions, inferred that customer satisfaction is positively associated with communicational behavioral intentions (e.g. intention to recommend the service producer and/or complaining Up-to-date information was not available. Don't give the data from there source document. The bank officer is very busy with their jobs, which lead a little time to consult with them

3.0   Operational Definition

3.1   Research Questions

This study proposes to investigate the following questions:

Table 1: Operational Definitions of Measured Variables

Measured Variable	Operational Definitions
Customer Satisfaction :	will be operationally defined by Ganesan, 1994 and Halstead *et al.* (1994)
Customer Loyalty :	will be operationally defined by Jarvis and Wilcox, 1977; Dick and Basu, 1994.
Switching cost :	will be operationally defined by Jackson (1985),Guiltinan, 1989
Word-of-Mouth :	will be operationally defined byHigie, Feick, and Price, 1987

Is there a significant relationship between switching cost and customer loyalty in context of Bank FSIB Limited?

Is there a significant relationship between customer satisfaction and customer loyalty in context of Bank FSIB Limited?

Is there a significant relationship between customer satisfaction and word-of-mouth in context of Bank FSIB Limited?

3.2   Research Hypotheses

The hypotheses derived from research questions are as follows:

There is a significant relationship between switching cost and customer loyalty in context of Bank FSIBL.

There is a significant relationship between customer satisfaction and customer loyalty in context of Bank FSIBL.

There is a significant relationship between customer satisfaction and word-of-mouth in context of FSIBL.

4.0   Methodology

4.1   Research Design

The purpose of the study was to measure correlations among the variables.

The current study research wants to show the relationships among switching cost, customer satisfaction (employee competence, reliability, product innovation, pricing, physical evidence, convenience), customer loyalty and word of mouth in the context of FSIB Limited. There switching cost, customer satisfaction (including all dimensions) will act as independent variable, and customer loyalty and word of mouth will act as dependent variables. This research used a correlational study to investigate the existence of relationships between measured variables. The researchers investigate the effects of measured variables and analyses the relationships among the variables, the design is known as co-relational (Graziano Raulin 1997); Zikmund, 2000). Leedy and Ormrod (2001) states that: "a correlational study examines the extent to which differences in characteristics in variable are related to differences in once or more other characteristics or variables. A correlation exists if, when one variable increases, another variable either increases or decreases in a somewhat predictable fashion". In correlation analysis, the researcher has no control over the values of the variables under study. Instead the researcher merely observes how the variables of interest vary in the natural environment. As the current study was carried out in the natural environment of the organization, the researcher interfered minimally

with the normal flow of the events. With this in mind, the present study uses correlational study to discover or establish the existence of relationship, interdependence between the measured variables. Theresearcher also used step-wise regression analysis for finding which independent variable(s) individually and collectively provide a meaningful contribution towards the explanation of the dependent variable.

4.2. Sampling Method

In this research, the researchers gather information's from the account holders of FSIB Limited. The study was conducted only in Savar due to time and budget constraints. The sample frame for this study was the account holders of city university branch provided by the bank. Through systematic sampling a sufficient number of 80 out of 4000 population were obtained to meet the requirements of the statistical techniques. So the researcher selects 1 respondent to every 50 respondent.

K=N/n so 4000/50 =80

4.3   Survey Instrument

Due to lack of secondary data (e.g. articles, journals, and banking publications) in the case of FSIB Limited, it was required to investigate primary data's for analyzing the problem. To collect data's from primary sources, a set of structured questionnaire was distributed among the account holders during office hours. The questionnaire was a useful method to collect data's from the account holders for the following reasons-

The researchers conducted survey on 80 respondents. To interview such a large sample of account holders would have been time consuming and difficult. For this reason the survey was conducted through a structured questionnaire rather than direct interview.

The postal system of our country is very slow. Hence, mail survey will be too time consuming to be feasible for this country.

The internet facility is not widespread in our country aspects .online survey will also be in-appropriate for this study.

Earlier studies conducted on the variables of the current study, the researcher used questionnaire for their study.

A 5 point Liker scale was used for all research variables.

4.4 Data Collection

Due to lack of journals, year book and banking publications, it was required to analyze primary data to investigate the research questions. Researcher used a set of structured questionnaire to collect data's from the primary sources.

Secondary Sources
Monthly transaction record of the bank.
Annual Reports.
Web Sites FSIB published documents.
Primary Sources:

Study area: First security Islami Bank Limited, City University Branch, Ashulia, Savar, **sample:** The account holders of FSIB Limited, City University Branch.(n=80)

Data collection instrument: Questioner survey based on five points Likert scale.

Face to face conversation with bank officers
Questionnaire survey.
Personal observation – during bank hour.
Discussion with the bank personnel.
Work in different departments of the bank- accounts opening, accounts, clearing, foreign exchange & remittance departments.
Face to face conversation with the client.
Facing some practical situation related with the day to day banking activity.

4.5 Data Analysis

The study was a co-relational study. After collecting data's from the respondents, researcher used co-relational matrix to identify whether relationships exist between the measured variable or not. Then, the researcher calculated the mean and standard deviation of all customer satisfaction dimensions to identify the variable having most influence on customer loyalty. For this research SPSS version 21 was being used as the statistical data analysis instrument as it present better flexibility in data analysis.

5.0 Findings from Questionnaires

5.1 Reliability Coefficient and Descriptive Statistics

The reliability coefficients, means and standard deviations of all the constructs in the current study are displayed in Table 2.The coefficient alphas for the different constructs were computed using the reliability procedure in SPSS (version 21.0).

Nunnally (1978) suggested that for early stages of any research the reliability of .50 -.60 is sufficient. The reliabilities of all the constructs in this study found to be above the standard set by Nunnally (1978).

Mean scores have been computed by equally weighting the mean scores of all items.On a five point scale mean score for Employee competence is 4.39 (sd = .43). The mean score for Reliability is 4.30 (sd = .50). The mean score for Product innovation is 4.18 (sd = .63). The mean score for Pricing is 4.46 (sd =.44). The mean score for Physical evidence is 4.37 (sd=.49) and the mean score

Table 1: Descriptive statistics, and Reliability Coefficient of Switching cost, Customer Satisfaction(Employeecommitment,,reliability,productinnovation,pricing,physicalevi dence,convenience),swicthing cost, word of mouth and customer loyalty.

	No of item	Mean	SD	Alpha
Emp_com	5	4.39	.43	.63
Pro _relia	4	4.30	.50	.55
Pro _inn	4	4.18	.63	.58
Pro _Price	3	4.46	.44	.51
Phy _Evi	5	4.37	.49	.76
Conv	3	4.55	.44	.63
Swt_C	3	4.49	.51	.69
Cutt_loy	3	4.27	.61	.55
WOM	3	4.20	.52	.69

Note: n =80

for Convenience is 4.55 (sd= .44). The mean scores of customer satisfaction of FSIB Ltd. range from 4.18-4.55 indicating that account holders are quite satisfied with the quality of services provided by the bank. The mean score for Switching costs is 4.49 (sd = .51). The mean score for Customer Loyalty is 4.27 (sd = .61). The mean score for Word of Mouth is 4.20 (sd =.52).

5.2 Correlation analysis

A correlation analysis was conducted on all the variables to explore the relationship between variables. In interpreting the strength of relationships between variables, the guidelines suggested by Rowntree (1981) were followed his classification of the correlation coefficient (r) is as follows:

to 0.2	Very weak, negligible
0.2 to 0.4	Weak, low
0.4 to 0.7	Moderate
0.7 to 0.9	Strong, high marked
0.9 to 1.0	Very strong, very high

The bivariate correlation procedure was a subject to a two tailed test of statistical significance at two different levels highly significant (p<.001) and significant (p<.01) or (p<.05). The results

Correlation analysis for all the variables is shown in Table 2.The result shows that the correlation among Switching cost, Customer Satisfaction (Employee competence, reliability, product innovation, pricing, physical evidence, convenience), word of mouth and customer loyalty. The variables significantly and positively correlated with customer loyalty were Employee competence (r= .62, p<.01), Reliability (r=.70, p<.01), product innovation (r=.82, p<.01), pricing

Table 2: Correlation Matrix for Switching cost, Customer Satisfaction (Employee competence, reliability, product innovation, pricing, physical evidence, convenience), word of mouth and customer loyalty

	Emp_c	Pro_reli	Pro_inn	P_price	Phy.evi	conv	Swct_c	Cus_loy	WOM
Emp_Com	—	.51**	.58**	.51**	.40**	.44**	.88**	.62*	.50**
Pro reli		—	.52**	.45**	.51**	.38**	.56**	.70**	.23**
Pro _Inn			—	.56**	.41**	.27**	.61**	.82**	.31**
Pro _Price				—	.51**	.34**	.57**	.62**	.33**
Phy_Evi					—	.51**	.50**	.53**	.35**
Conv						—	.51**	.43**	.26**
Swt_C							—	.70**	.52**
Cust_Loy								—	.31**
WOM									

Note: **p<.01

Word of Mouth

(r=.62, p<.01), physical evidence (r=.53, p<.01), convenience (r=.43, p<.01) and switching cost (r=.70, p<.01).

The variables significantly and positively correlated with word of mouth were Employee competence (r= .50, p<.01), Reliability (r=.23, p<.01), product innovation (r=.31, p<.01), pricing (r=.33, p<.01), physical evidence (r=.35, p<.01), convenience (r=.26, p<.01) and switching cost (r=.52, p<.01).

5.3   Stepwise regression

Two Stepwise regression analyses were performed to identify the relationship between Switching cost, Customer Satisfaction (Employee competence, reliability, product innovation, pricing, physical evidence, convenience), word of mouth and customer loyalty FSIB L.

Table 3A Explain that in banking sector Product innovation (p <.001), Reliability (p <.01) and switching cost (p <.01) were found to be statistically significantly related with customer loyalty. Employee competence, pricing, physical evidence and Convenience fail to enter into the regression equation, that shows it was not that significantly related with customer loyalty like the other variables. These

Table 3A: Stepwise Regression on Customer Loyalty

Variable	B	SEB	β	R2	ΔR2
Step 1				685	
Product innovation	0796	.061	.828***		
Step 2				.786	.101
Product innovation	.605	.060	.629***		
Reliability	.454	.075	.375***		
Step 3				.806	.02
Product innovation	.526	.064	.548***		
Reliability	.376	.077	.311**		
Switching cost	.224	.082	.189		

  **p<.01, ***p<.001

results provided a partial support for hypotheses .These three predictor variables together explained 81% of the variance in Customer loyalty, Product innovation, reliability and switching cost explain about 69%, 10% and 2% of the variance in customer loyalty.

Table 3B depicts that in banking sector switching cost (p <.001) was found to be statistically significantly related with word of mouth. Employee competence, Reliability, product innovation, pricing, physical evidence and Convenience failed to enter into the regression equation, which indicates it was not that significantly related with word of mouth. These results provided a partial support for hypothesis. Switching cost explained 28% of the variance in word of mouth.

6.0   Assessment of research hypotheses

Hypotheses 1

There is a significant relationship between switching cost and customer loyalty in context of FIB Limited.   From the bivariate correlation analysis (Table, 2), it has been found that switching cost and customer loyalty are significantly correlated

Table 3B: Stepwise Regression on Word of Mouth

Variable	B	SEB	β	R2
Step 1				279
Switching cost	.538	.098	.528***	
***p<.001				

(r= .70, p<.01). This result shows full support to research hypotheses 1.

In the case of regression analysis (table 3A), switching cost (p <.01) was found to be statistically and significantly related with customer loyalty. Switching cost explained 2% variance in customer loyalty, which provides support to research hypothesis 1.

Hypotheses 2

There is a significant relationship between customer satisfaction and customer loyalty in context of FSIBL. From the bivariate correlation analysis (Table. 2), it has been found that customer satisfaction (including all dimensions) and customer loyalty are significantly correlated .The variables significantly and positively correlated with customer loyalty were Employee competence (r= .62, p<.01), Reliability (r=.70, p<.01), product innovation (r=.82, p<.01), pricing (r=.62, p<.01), physical evidence (r=.53, p<.01), convenience (r=.43, p<.01)These result shows full support to research hypotheses 2.

In the case of regression analysis (table 3A) Product innovation and Reliability were found to be statistically significantly related with customer loyalty. Employee competence, pricing, physical evidence and Convenience failed to enter into the regression equation, which indicates it was not that significantly related with customer loyalty like the other variables.

Hypotheses 3

There is a significant relationship between customer satisfaction and word-of-mouth in context of FSIB Limited. From the bivariate correlation analysis (Table. 3), it has been found that customer satisfaction (including all dimensions) and word of mouth are significantly correlated. Employee competence (r= .50, p<.01), Reliability (r=.23, p<.01), product innovation (r=.31, p<.01), pricing (r=.33, p<.01), physical evidence (r=.35, p<.01), convenience (r=.26, p<.01The variables (customer satisfaction dimensions) significantly and positively correlated with word of mouth were Employee competence. This result shows full support to research hypotheses 3.

In the case of regression analysis (table 3B) Employee Competence, Reliability, product innovation, pricing, physical evidence and convenience were not found to be statistically significantly related with word of mouth

Recommendations and Conclusion

Recommendations

From above discussions, it was found that FSIB Ltd. needs to pay more attention in some of the areas like customer satisfaction (employee commitment, reliability, product innovation, pricing, physical evidence, convenience), and switching costs to ensure more customer loyalty and to achieve more recognition from them through word-of-mouth. Therefore, FSIB Ltd can improve its physical facilities, increase the intensity of dependable services in case of reliability and provide more efficiency in identifying and solving the problems of the account holders.

 To increase the satisfaction level of the account holders; FSIBL should provide emphasis in some promotional activities. In the current market, consumers have the perception that the other banks (i.e. Standard Chartered, SIBL, EBL) are providing extra facilities compared to FSIBL. To take the top position in the market, FSIBL has to provide different types of consumer promotions such as-introduce loans with low interest, and they can introduce innovative online banking systems. Now-a-days the other banks are focusing on these types of promotional activities. FSIB also need to this types of step, it can be recommended that the bank also take care to improve Product reliability and switching cost to gain top position in society.

Conclusions

The study proves that the correlation between customer loyalty and word of mouth corelated with Customer satisfaction (Employee competence, reliability, product innovation, pricing, physical evidence, convenience) and switching cost (independent variable). But stepwise regression shows only three independent variables that is product innovation, product reliability and switching cost are related to the customer satisfaction of FSIBL, City University branch.

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Evolution of Economic Science An Introduction to Osman Gani's Foundations of Economic Science

M. Maniruzzaman*

Abstract: *This paper briefly reviews the work of Osman Gani written in his book Foundations of Economic Science which is an outcome of his 40 years experience as student and teacher of economics. In addition, it provides a brief description of the evolution of economic science from classical economics from the time of Adam Smith through neoclassical micro economics from the time of Alfred Marshall, L. Robins and Paul Anthony Samuelson; Keynesian macro economics and Karl Marx's Labor Theory of Value.*

Following Osman Gani, it emphasizes that the economists have for long period been doing economic arts to provide policy prescription and we have just laid the foundation of the economic science. For Osman Gani, economics is redefined as study of the quantities and kinds of goods and services that have economic value by gainful exchange. To him, economic science must be based on observation and analyses of the causal process and any subject matter in economic science must be mathematically expressible. In economic science, making assumption is irrelevant and there is no place of inferential statistics or probability while descriptive statistics of observed facts are acceptable.

Finally, the paper recommends for the economists to participate in a study circle to expedite a move towards making economics a science from the stage of political economy through practicing scientific methods in economic studies. This will help better to address the problems of allocation of resources, poverty, equity, efficiency and sustainability.

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* Social Management Specialist, Municipal Governance and Services Project, Local Government Engineering Department/ World Bank. E-mail: maniruz@gmail.com.

1.   Introduction

When I read Osman Gani's Foundations of Economic Science, I didn't understand much. Because the courses in economics taught us that economics is a social science. Osman Gani taught us thinking differently. The pioneering work I am introducing today is an outcome of his 50 years of study as a student and teacher of economics. Although I have read it immediately after published in 2003, I was able to understand the fundamentals of it as late as in 2017. He explained it in a couple of hours sitting early this year. It is fortunate that the Bangladesh Economic Association includes a sub-theme "Evolution of Economic Sciences" for the upcoming BEA conference to be held in July 2017. I took this opportunity to present his work to the fellow economists. After this brief introduction Osman Gani will present his economic science what he called consistent economics.

What Osman Gani wants to mean that we have just laid the foundation of economic science. He argues with strong justification that we have so far studied economic arts and not economic science. The questions often asked to the economists concern reducing unemployment and poverty, increasing per capita GDP or GNP, improving equity or equality of distribution and improving environmental as well as institutional sustainability. Economists have also been dealing with the maximization or optimization of the gains of utility or welfare or wealth but these have been answered with the use of tools or methods that are not part of science although economics has reached a point in rigor far ahead of other branches of social science.

Osman Gani showed that the optimization theory does not work. In the real world the parties involved gain from exchange and price of a commodity is higher than its marginal cost. The difference is the gain of the producer or seller. Similarly, the consumer derives benefit higher than marginal utility. The difference is the gain of the consumer. Although economists intended to study exchange (Whatley 1832) the neoclassical revolution turned it into a study of allocation (Robins 1932) ignoring the pursuit of gain. As an example, to agent "A" utility of two apples and two bananas is equal and to "B" utility of two apples and four bananas is equal. But "A" gets three bananas from "B" for selling two apples. Here he gets extra benefit of one banana. Similarly "B" pays three bananas for two apples and thus gains one banana.

Osman Gani saluted Socrates for favoring knowledge to wealth and for the teaching that power comes from scientific knowledge. Universally, knowledge in science means knowledge of causation. Once causal relation is identified, the past is known and the future is also known. Then there is no need to worry about

prediction of the future. Causal explanation has no time limit and it is true forever and with certainty. Probability theory or statistical inference is meaningless in economic science but descriptive statistics of observed values are fine. Inferences are not permissible as they are based on the assumption of vague randomness and it is not acceptable in science.

Economic science is not a matter of giving opinion and it must be based on observation and analyses of the causal process. It must be kept in mind that "those know write equation" and "those not know give opinion". Any subject matter in economic science must be mathematically expressible such a $Y=p*q$ where Y is income of a farmer selling banana, p is price of banana and q is quantity of banana sold. It cannot be one taka more or less and it has no underlying assumption like other things remaining unchanged. It simply states that a farmer who sold q amount of banana and prevailing market price p, his income is y taka.

Science appeals to reason and expects skeptic reader to demand explanation. Science must use mathematics to prevent probable distortion of meaning. Economists should remember Alfred Marshall saying that use math to present what you have found but not to find what you are looking for. Osman Gani cautioned that same as too many words loses clarity, too much of math not relevant to economics may also destroy clarity and even hide meaning.

Economics is not a study of how people foresee the future and plan for it, bears risk and adopts contingency plans. Instead, economics is the study of the quantities and kinds of goods and services that have economic value by gainful exchange. Osman Gani argues that the preferences and expectations that the economists use are analytical concepts to make sense of observed outcomes. These are not empirical concepts and there is no need to look into the minds of people. Studying mind of people is a job of psychologists and not of the economists.

Osman Gani quoted Bertrand Russell saying that the point of philosophy is to start with something so simple that seems not worth stating, and ends with something so paradoxical that no one will believe it. To give an example, Osman Gani says that economic science starts with very simple fact that one who is to get something must pay for it and ends up with the finding that price is not determined by demand and supply, it requires in addition, a mutual agreement between two traders who are involved in the deal. He argues that demand and supply of apple together determine the quantity of apple traded. Price of apple counted in bananas cannot be determined by the demand and supply of apples only but by the demand and supply of both banana and apple and by agreement between banana and apple

traders. At least one of the two traders must arbitrate to agree on a price ratio, say two apples for three bananas. And, the price is not equal to marginal cost or marginal utility.

The diamond-water paradox provides a good example demonstrating that utility of usefulness has nothing to do in determining price. The uncritical mind supposes that price is determined by demand which is linked to a vague sense of usefulness and forgets to consider availability or supply. Once supply is taken into consideration together with demand and the agreement between buyer and seller, the price is determined. Another paradox to quote is persistence of hunger amidst plentiful food supply. It is also paradoxical that 92% of the people not eating enough are food producers (farm labor, farm women, marginal farmers etc.) while 96% of the well-fed people do not produce food. Reader may know from rural respondents in Bangladesh that most of the farmers rearing one or two cows can't drink milk and can't afford milk even for the children.

Osman Gani provided some examples of paradoxes like above that explain limitations of the previous economic theory:

- Everybody believes that the demand and supply determine price which is incorrect. Actually, demand, supply and mutual agreement between buyer and seller determine price.
- Everybody believes that trade happens when demand is equal to supply. If this was the case, plentiful of food supply and hunger could not exist together. The hungry people simply do not have enough income to buy food because their income is suppressed by artificially set low price of the produces or low wages.
- Everybody thinks that economics does study the market or the exchange process. But it studies allocation and mistakes allocation for exchange.
- Everybody treats money as a store of value as one of its "four functions". But money is simply a medium of exchange.
- Everybody thinks that economics cannot be unified and it must stay divided between micro and macro. Osman Gani says that micro and macro can be unified and the same set of tools can be applied to the micro and macro economics.
- Everybody believes that economists are always divided to make statement. It happens so because they give opinion without applying scientific methods.

Osman Gani laid the foundation of the economic science recognizing human ingenuity as following:

- Humans as two legged-animal invented trade as an alternative to natural plunder to acquire goods from strangers rather than producing directly or even going into barter. Because, by trade or exchange one can get more than what could be directly produced,
- Humans created market as an institution to permit and facilitate peaceful and gainful trade,
- Humans invented fiat money as the most powerful tool to conduct trade, and
- Humans found out how new knowledge can be turned into both power and wealth.

2.   Evolution of Economic Theory

2.1   Classical Economics

To classical economists, economics was a study of wealth and welfare. To Osman Gani, this is a vague definition as wealth is not necessarily an economic subject. In biology, animals decide how to produce (meaning hunt) and divide. Earliest humans were hunters and gatherers where killed animals and fruits were wealth. In political arena, the king or queen could decide how to acquire wealth often by invasion and distribute by political will without economic considerations like productivity, efficiency, profit or cost. Classical economics was indeed political economy which is still the case and its concerns were more political than economic. To Osman Gani, welfare is not a legitimate part of any science, though it is part of all arts. Classical economics saw non-intervention in the market was based on a moral judgment which is not a subject matter of science. The belief that the market mechanism is coordinated by invisible hands that maximizes welfare has no scientific basis since it cannot be proven by observation of facts. The reality is that the market functions though and is coordinated by the actions of the intermediaries.

A unique subject matter of economics that other sciences cannot handle is the voluntary exchange of profit. All entrepreneurs produce for profit and all traders do business for profit and not for welfare. The traders and producers are not "*Anjumane Mofidul Islam*" type philanthropic organizations. So, philanthropy which cannot be measured and objectively observed is not a subject matter of economics but the profit and exchange are. Economics can be justified as a separate science if it studies exchange as a unique kind of event not studied by other sciences. The classical economics did attempt to study exchange but without consideration of profit motive and saw market as a naturally installed institution rather than a manmade institution operated through the intermediaries.

2.2   Neoclassical Economics

The neoclassical economists defined economics as a study of the allocation of scarce resources which have alternative uses. To Osman Gani, this is a too narrow definition because it excludes exchange. This exclusion happens because the process of exchange is not within the grasp of optimization analysis. Exchange is not allocation. It requires agreement between different people and involves payment. The neoclassical economics deals with the consumers or household and firms as economic actors maximizing utility and profit respectively but ignored the presence and in fact the need for the intermediaries and exchange.

Daniel Torrez defined Neoclassical Economics on 12 Apr 2016 as "a set of solutions to economics focusing on the determination of goods, outputs, and income distributions in markets through supply and demand" (https://www.quora.com/What-is-neo-classical-economics downloaded on 29 May 2017). This determination is often mediated through a hypothesized maximization of utility constrained by individual income and of profits of firms constrained by cost of production employing manpower and other factors of production, available information and in accordance with rational choice theory. Neoclassical economics dominates microeconomics, and together with Keynesian economics forms the neoclassical synthesis which dominates mainstream economics today. Although neoclassical economics has gained widespread acceptance by contemporary economists, it is facing criticism like use of many unfounded and unrealistic assumptions that do not represent real situations (**John Hines 19 Jan 2016** https://www.quora.com/What-is-neo-classical-economics downloaded on 29 May 2017) .

The classical "substance" theories of value, which took value to be a property inherent in an object, gradually gave way to a perspective in which value was associated with the relationship between the object and the person obtaining the object. Several economists in the 1870s and 1880s began to base value on the relationship between costs of production and "subjective elements," later called "supply" and "demand."

The framework of neoclassical economics summarizes that buyers attempt to maximize their gains by increasing their purchases of a good or service until what they gain from an extra unit is just balanced by what they have to give up to obtain it. In this way they maximize "utility". Likewise, individuals provide labor to firms that wish to employ them by balancing the gains from offering the marginal unit of their services (for the wage they would receive) with the disutility of labor itself—the loss of leisure. Similarly, producers attempt to produce units of a good so that the cost

of producing the incremental or marginal unit is just balanced by the revenue it generates. In this way they maximize profits. Firms also hire employees up to the point that the cost of the additional hire is just balanced by the value of output that the additional employee would produce. This came to be known as the Marginal Revolution in economics. (E. Roy Weintraub http://www.econlib.org/library/Enc1/ NeoclassicalEconomics.html downloaded on 29 May 2017).

Neoclassical economics, the resulting equilibrium was "best" in the sense of optimization explained by marginality. **E. Roy Weintraub claims** scientificness of neoclassical economics (an economics professor at Duke University and associate editor of *History of Political Economy http:// www.econlib.org /library/Enc1/NeoclassicalEconomics.html downloaded on 29 May 2017).*

Osman Gani does not subscribe to this view and instead is critical of it, not just for the dependence on unrealistic assumptions, but also for not inclusion of exchange to determine allocation and the intermediaries involved as crucial agent.

2.3   Karl Marx

According to the labor theory of value of Karl Max the amount of labor time necessary to produce commodities that governs their relative prices (POSTED BY ZERA | 04:03 | Karl Marx's Labor Theory of Value http:// www. economictheories.org/2008/07/karl-marx-labor-theory-of-value.html downloaded ob 03 June 2017). In his theory, value of a commodity is measured by amount of abstract labor (skilled labor converted to equivalent unskilled labor by productivity). He saw capital as accumulated past labor accrued to the capitalist by exploitation or extraction of surplus value. To Marx, labor is the only means of production. Land is a gift of nature to humanity and if someone claims it as land lord is simply an exploiter. Entrepreneurship to the extent of skills or expertise can be converted to labor equivalence and to the extent of capital is accumulation of exploited past labor.

2.4 J. M. Keynes

Keynesian economics is a school of economic thought founded by the UK economist John Maynard Keynes (1883-1946) and developed by his followers. In 1936, at the height of the great depression, Keynes' landmark book The General Theory Of Employment, Interest And Money caused a paradigm shift for economics: it suddenly replaced emphasis from study of the economic behavior of individuals and companies (microeconomics) to the study of the behavior of the economy as a whole (macroeconomics).

To Keynes the <u>aggregate demand</u> created by households, businesses and the government and not the dynamics of free markets is the most important driving force in an economy. This theory further asserts that free markets have no self-balancing mechanisms that lead to full employment. Keynesian economists urge and justify a government's intervention in the economy through public policies that aim to achieve full employment and price stability. This idea has greatly influenced governments all over the world accepting their responsibility to provide full or near-full employment through measures (such as deficit spending) that helps stimulate aggregate demand. http:// www. businessdictionary.com/ definition/Keynesian-economics.html downloaded on 29 May 2017.

3.   Determining Price

In the neoclassical allocation theory, price is determined by the equilibrium of demand and supply at individual level and value is p*q. But actually this equilibrium fails to determine price as is claimed in the previous paradigms. In fact, demand and supply determine quantity traded and not price. Price is determined by demand, supply and agreement between the buyer and seller arbitrated by at least one of the above two agents.

To give an example, farmer Abu sells 5 bags of rice to Dr. Bibi and in return gets Tk 1,000 which is worth 5 bags of rice. Price of rice is Tk 200 per bag. Dr. Bibi sells medical service to Tailor Chini and gets Tk. 1000 which is worth 5 packages of medical advice with drugs. Each package of medical service is Tk 200. Tailor Chini sells 5 pairs of lungi and Punjabi to farmer Abu which is worth Tk. 1000, each pair price Tk. 200. Everybody sold all that is produced and got all that is demanded. Here demand is not need but the amount that is bought at prevailing price.
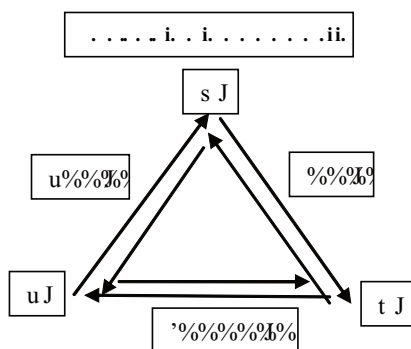
In the exchange model shown in Fig.1 above, A is farmer Abu, B is Dr. Bibi and C is tailor Chini selling rice, medical service and cloths respectively. Please note that farmer Abu needs cloth and not medical service hence, tailor Chini needs medical service and farmer. So, barter is no possible and each agrees to accept money as medium of exchange and trade happens. The outer triangle arrows show flow of traded goods/ service while the inner triangle arrows show flow of money.

What happens with the exclusion of money from the above model? Abu produces 5 bags rice as Bibi demands 5 bags. Then Bibi cannot sell medical service as Chini can't pay as Bibi does not want cloth. Chini finally agrees to take rice for the medical service and Abu accepts rice for cloth. Then rice becomes medium of exchange which did happen in the distant past. Gradually direct and indirect barter have been replaced by kori, gold, silver, metal coin and paper bill became medium of exchange.

Abu might have needed 6 packages of medical service but could not afford more than five. In this circumstance Abu won't produce 6 bags of rice as he cannot sell an extra bag. Similarly, the other two will also produce and sell 5 units even if capacity could be higher and need were higher. Here production is not maximized and it is kept at a level that is demanded. Marginal cost of producing the 6th unit of each could be lower but this rule does not help and optimization does not occur.

Making them having higher level employment by producing and selling an extra unit would require extra 200 taka pumped into the system. This can be in the form of bond, say Abu provided 200 taka loan with money coming from others or from the state in the form of bond. Then production will increase by one unit for each. Thus employment is increased and level of consumption is also increased. With

Figure 2: Model including Middleman
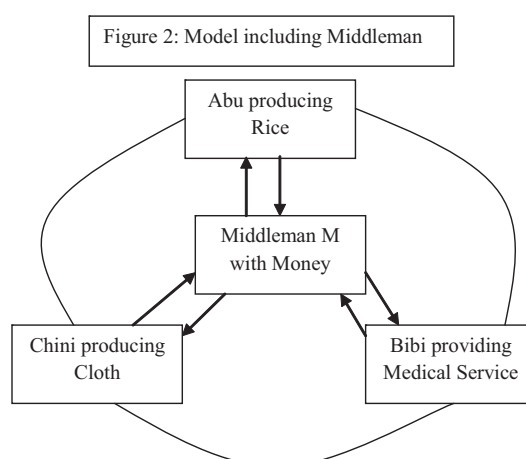
the inclusion of money as medium of exchange and the middleman trading the model is modified as follows.

Here, Abu, Bibi and Chini, everybody sells respective goods and service to the middleman M and everybody is paid in money. Everybody sold 6 units and got 6 units through M. The price Tk. 200 per unit includes profit charged by the middleman M.

4.   Conclusion and Recommendation

4.1   Conclusion

1. Following Bertrand Russell economic science begins its point with a very simple fact that people must pay to get something in exchange and ends up with a highly controversial conclusion that demand and supply do not determine price, they determine quantity bought and sold. Determining price requires agreement between buyer and seller and in such deal at least one of the two agents must arbitrate to set price.

2. Economic science is not for giving opinion, it must be based on observation of facts and the statements must be expressed in the form of equation.

3. Inferential statistics has no place in economic science and probability calculation is of no use. Economic science cannot make conclusion based on even 99.9% probability. The conclusion must be based on 100% observation of facts. Descriptive statistics of observed values are fine to economic science.

4. Humans are not just two-legged animals. Also they are not just rational animal. They are far above that and as alert being humans build institutions like market and create money as medium of exchange.

5. Market mechanism is not coordinated and welfare ensured by invisible hands rather market functions through the deliberate actions of intermediary agents.

6. People tend to blame middlemen unnecessarily. Economy has to operate through intermediaries, the days of barter are gone and it is absurd for a farmer of Fulchari to sell water gourd in Dhaka even if price is five times higher in Dhaka.

7. Money supply can efficiently address the problem of involuntary unemployment. Similarly, monetary and fiscal measures can address the

problems of inequality, poverty, environmental and institutional sustainability etc. By these measures aggregate demand can be increased to higher potential levels to reach near full employment situation.

8. Economist has so long been divided and failed to give agreed decision as the methods and tools applied failed to be scientific.

9. Economics has so long been divided between micro and macro for the failure to apply science in it.

10. Finally, it should be made clear that economists have for long period been doing economic arts to provide policy prescription and we have just laid the foundation of the economic science.

4.2 Recommendation

We have just one recommendation and would like to announce open invitation to the audience initiate and participate in a study circle to practice economic science. The study circle may be lead and sponsored by the Bangladesh Economic Association in cooperation with the Dhaka School of Economics, universities, BIDS and other relevant institutions. We may also cooperate in this regard with the universities and other relevant institutions outside of the country.

Solution Zero

Rezaul Hoque[*]

Quite unexpectedly an aura of pre-election mood prevails in the country. PM told her party loyalists to take preparations for next election. BNP said it would not take part any election under this election commission. In response AL leaders said it would cost BNP its registration.

In this backdrop possibility of another January 5 election looms large. Economist magazine in its Democracy Index downgraded Bangladesh as a "hybrid regime". Could next election graduate Bangladesh a "full democracy" or push it to the abyss of political impasse?

In order to search the answer we need to analyze the outcomes of next election under current EC. Let's assume we are dealing with 3 parties here: Awami League (A), BNP (B) and the rest (C). Participation in the election is denoted by "5" while "0" indicates a rejection.

In this 3-party game the outcome is a triple where the first element represents the choice made by A, second one represents B's choice and the third one stands for C's choice. A game mentioned in the chapter "Contract, Coercion, Intervention" of Kaushik Basu's highly laudable book "Beyond The Invisible Hand: Groundwork for A New Economics" deeply inspired me to model this game.

(5,5,5) is the outcome when all the parties take part in election. (5,0,5) represents an outcome where BNP opts out of election; (5,0,0) means a parliament full of uncontested ruling party MPs; finally, (0,0,0) indicates there is no election.

Before we go further, we need to make some assumptions:

   1. Each party possesses a preference relation and it is quasi-transitive.

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*   Researcher, https://rezaulhoque.wordpress.com.

2. Each party prefers "5" to "0".

3. One party's action has no externality on others.

4. If several parties change their actions, then a party who is not one of them can be affected.

If we apply Pareto Principle, then we will see (5,0,0) is Pareto superior to (0,0,0); (5,0,5) is Pareto superior to (5,0,0); and (5,5,5) is Pareto superior to (5,0,5).

All the parties are better off with the outcome (5,5,5) and the outcome secures its position as the equilibrium.

This is not the end of the story. The problem with the (5,5,5) is that it possesses some risk. If the losing party rejects the election results the country may slide into political turmoil. Prisons may be filled with political prisoners and eruption of political violence may derail the democracy again.

So the parties face two stark choices: election that may lead to violence and no election. The likelihood of political violence is so large that two parties change their position and decide (based on their own judgements) not to take part in election. Govt in this case does not want to be dubbed as "Authoritarian regime" and decides not to hold election. Clearly, (0,0,0) is the new outcome and it Pareto dominates (5,5,5).

But please note that in this case Pareto optimality has been compromised and we have to accept a Pareto inferior good.

However, if we view the game in light of "subliminal preference" (a complete and transitive relation), then it is once again back on Pareto track.

This is basically an ordering created by fine tuning as few as possible instances of perceived indifference into strict preference.

Under this subliminal preference (0,0,0) stands out to be the Pareto optimal outcome.

This game can be best interpreted as a clash between act-consequentialism and rule-consequentialism.

These are moral systems in which goodness of a behavior is judged in terms of its consequences.

Moral decision procedure of an act-consequentialist works like this: on each occasion, an agent would decide what to do by calculating which act would produce the most good.

Meanwhile, decision procedure of rule-consequentialist goes like this: At least normally, agents should decide what to do by applying rules whose acceptance will produce the best consequences. And with the aid of these rules s/he figures out the act that is morally wrong.

Now let's make some adjustment to our game. Let's introduce a moral agent who is not a player but has to advise each party on its choice of action.

Imagine our moral agent turns out to be an act-consequentialist. His piece of advice to each party is to choose"5" over"0". Thus the social outcome is (5,5,5).

Now imagine our moral agent is a rule-consequentialist and needs to choose between the following two rules:

Rule 1: Whenever parties face a choice between take part in election that may lead to catastrophe (5) and no election (0), they should opt for no election.

Rule2: Whenever parties face choice between election (5) and no election (0), they should choose election (5).

Obviously, the moral agent will throw its weight around rule 1 as it leads to Pareto optimal outcome. In this case the social outcome is (0,0,0).

It is obvious that (0,0,0) is strictly preferred to (5,5,5). It is important to note that rule-consequentialism here led us to different recommendation from act-consequentialism and at the same time led to a Pareto superior outcome.

The boycott of election by major opposition parties means the parties will create pressure on govt so that it will undertake electoral reforms, which is necessary to make a level playing field for all parties.

As for the govt, it will be difficult for it to organize another opposition less election because international community will not accept the election and Bangladesh's status will be further downgraded.

To make the next election acceptable govt needs to ensure participation of all the parties.

How does a party like BNP make govt accept its electoral reforms? Technically speaking it is not the official opposition party in the current parliament and it is in disarray as thousands of its supporters were thrown into jail. It still enjoys support of millions of Bangladeshis.

Despite its precarious position in politics, BNP has to cry for greater electoral reforms. It needs few more voices from other parties to make the cry stronger.

If the Man-with-mustache joins the Lady-in-pink to press for more electoral reforms, then the Lady-in-chair has to concede something to opposition parties that will create a favorable ground for all the parties in next election.

Now it is up to the main opposition parties. If they see little risk of violence and go for election then they will end up with (5,5,5). If they decide to listen to the moral agent they will opt for no election, (0,0,0).

Notes:

1. A person's preference is said to be quasi-transitive if x is preferred to y and y is preferred to z, then x is preferred to z. Unlike the transitivity of preference, quasi- transitivity does not require the indifference relation to be transitive. A person with quasi- transitive preference may be indifferent between x and y and between y and z, but prefer x to z.

2. It can be seen as a normative rule that says a Pareto improvement, a change that leaves at least one person better off and no one worse off, is socially desirable and so should not be thwarted by state or anybody of that matter. However, it can be discarded when it is self-contradictory in the sense that its repeated use leads to a Pareto inferior state.

3. Transitivity: If a person considers x to be at least as good as y, and considers y to be at least as good as z, then the person must consider x to be at least as good as z.

4. If (5,5,5) is at least as good as (5,0,5), and (5,0,5) is at least as good as (5,0,0), and (0,0,0) is at least as good as (5,0,0), then (0,0,0) is at least as good as (5,5,5).

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MICAII Model: How to Unlock Latent Potentialities of Slow Learners

MD. AZIZUR RAHMAN*

Abstract: *MICAII is an abridged of six words: motivation, inspiration, cooperation, appreciation, incentive and intervention. MICAII has been innovated in a yearlong action research held in 5 schools in Bhanga and Sadarpur Upazilas in Faridpur district and 5 schools in Rangamati district in year 2009-10 under the financial support of TQI-SEP project, Ministry of Education. The research has tried to find out the causes of slow learners in first step, then to innovate the devices/techniques for mainstreaming the slow learners in second step, later on to apply devices in the field in third step, to exchange views and evaluate impacts of devices application in two regional seminars respectly held at Bhanga pilot school in Bhanga in Faridpur district and Rani Dayamomi High School in Rangamati district. Sixty five causes were found behind slow learners. They were synthesized and further synthesized in the seminars and focused group discussions with headmasters, teachers, SMCs, guardians, local leaders, education officers, Upazila Nirbahi officers and district commissioners. Finally one cause lack of love of teachers for students was developed through evolution. As a solution to the problem it has been admitted by all concerns that to build love in the mind of teachers for students is the necessary as well as sufficient condition. Then the question arises how to build love for students in the mind of teachers. Through yearlong action research on different techniques/devices it has been found that teachers have many limitations of internal and external nature. As a result teaching profession has been following a lime path from solemn vow to business, The time path is: Solemn Vow Profession Job Business.*

With this time path the devotion has trend towards zero. In this critical situation of teaching profession it is required to build love in the mind of

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* Professor, Department of Economics, Notre Dame University Bangladesh, Dhaka

teachers to create devotion, dedication and commitment for solution of slow learners problems. This was our central problem. To solve this problem the research has been trying to find out an unique solution by experimenting different devices. The MICAII is the final output of the experiment of devices. MICAII has been proved successful in building love in mind of teachers for students for bridging all gaps generated between student and teacher. The study has assessed the impact of each word on students, teachers, guardians and SMCs with special reference to students. It has tested the sequential consequence of each word, the substitutability and complementing property of the words. After in-depth testing the MICAII device has been developed. It has been proved to be effective in building love in the mind of teachers. It fulfills the gaps between students-teachers and works as an accelerator for mainstream the slow learners. It follows a path as below:

MlCAIIxC Tolerance Empathy Love Peace Grand Bliss

It accelerates slow learners towards mainstream and facilitates the fast learners further for optimization of utilization of potentiality. Each word of MICAII related with building of live in the mind of teachers for students. For instance when teachers will try to motivate s/he is to love student. Motivation will be possible when love will remain in it. Same is true with other words like inspiration, cooperation, appreciation, incentive and intervention. Six individual loves will produce grand love and fulfill the gap laying between teacher and student.

Background

MICAII is an abridged form of six words: motivation, inspiration, cooperation, appreciation, incentive and intervention. MICAII is innovated through 33 years of informal research and a formal action research of one-year duration under the sponsorship of TQI-SEP innovation fund, Ministry of Education. In the year 1969 I appeared at SSC final examination from Baisharashi SS Academy, Sadarpur, Faridpur. Examination centre was in Zila School, Faridpur. We three out of 63 got first division. The majority got second division and the second highest got third division. Except me the other two who got first division were Utam Kumar Das and Nikhil Chandra Saha. Very few students failed in the examination. These failing students raised question in my mind that did they have any deficiency in merit as they did not succeed in examination. Since then I had been seeking the answer of the question. Similar question rose before me in 1972 when immediately after liberation war I appeared at HSC examination from Govt. Rajandra College, Faridpur. Many students got first division. But some of us who

obtained first division in SSC got second and third divisions in HSC. What did make them impossible? Was it due to deficit of merit? This question has been logging me since long.

After appearing at Master's final examination 1975 (held in 1976) in the Department of Economics, University of Dhaka I had joined in National Foundation for Research on Human Resource Development (NFRHRD), Dhaka as Research Assistant. There I had the opportunity to come to the close contact of Prof. Dr. Rizanul Islam and Dr. S A Kader the eminent researcher and economists of the country. I had learnt from them how to conduct research especially on human resource development. Later on I joined as Lecturer in Economics in B.M. College, Barisal after completing BCS (Education) in 1979. There 1 got the opportunity to work with slow learners. The term slow learner indicates those students who remain behind the main stream of pupils.

From the Department of Economics, Govt. B.M. College, Barisal I had started the informal research on slow learners. I found one student who was very inattentive in the class and was very much engaged in student politics. His quality was that he was very polite and respectful to teachers.

The then time Prof. Md. Hanif was the Chairman of the Department of Economics. One day in the Departmental meeting I proposed to organise a monthly seminar on different economic issues for students of Economics for improvement of their creativity and understanding. Prof. Md. Hanif with all teachers appreciated the proposal and gave me responsibility to organise the seminar. It was decided in the meeting that six students among the article presenters would be selected on the basis of marks given by individual teacher separately for awards and cost of awards would be borne from seminar fund. As initiator I organised the first seminar on population problem in Bangladesh. About thirty-five honours and master's students presented papers in the daylong seminar. Among them six students were selected on the basis of individual teacher evaluation and awarded prize and certificate. The date was fixed and title of second monthly seminar was decided on Decentralization of Banks and Industries in Bangladesh. I mentioned earlier that one student who was very engaged in politics did not attend class at all. I would not mentioned his name. I targeted the said student to present a paper. Accordingly, I proposed him to prepare a paper for presentation. He regretted his inability. I tried to motivate him and finally I was successful. He wrote a paper on Denationalization of Banks: A Case Study of Public Bank and presented in the seminar. His paper was selected as first one obtaining the highest marks, and got champion prize. This reward brought a great

change in his life and turned him towards a grand bliss. On this occasion he came to know about his ability and became very attentive in studies. Previously he had an idea that economics is very hard and considered himself as very weak. From this seminar he was inspired and he stood second class first in both Honours and Masters final examinations under Dhaka University among all honours teaching colleges and now he is a second-grade officer in BCS (Admn.) cadre.

During my stay in Govt. B.M. College. Barisal I was very much successful in mainstreaming the slow learners by unlocking their latent potentiality through motivation, inspiration, cooperation, appreciation, incentive and intervention. Similarly, 1 did the same in Govt. Haragonga College, Munshigonj, Jagannath University College, Dhaka, Govt. Rajandra College, Faridpur and Eden Girls College, Dhaka as Professor of Economics.

In every college the students of Economics Department considered economics as a very hard subject. So, they set their vision to obtain at best a second class in Honours and Masters Examinations. This was so because all the teachers of Economics Department give a initial message to the students during the time of collection of admission form that Economics is very hard subject. Besides this from day to day sessions they used to say that economics is very difficult. From this message the students build a vicious circle of abilities among themselves that -produce poor performance. That is why the students of Economics Department in different Honours and Masters teaching colleges did not find first class under National University since. I tried to break down this vicious circle of merit. For the first time the students of the Department of Economics got message from me that Economics was very easy. Economics is a subject of understanding like Mathematics and not to get by heart. I told them that they had the latent potentiality to obtain first class in Economics. If they tried, they would surely be successful. I motivated them. They became aware of their unlimited latent potentiality.

From my message the students of Economics became confident and blazed. They cordially attempted and became successful. When I was Chairman in the Department of Economics, Govt. Eden Girls College, Dhaka one student of my department got first class in Masters Examination for first time in National University in Economics. In the preceding year five students of my department got first class in Honours Examination for the first time. One girl stood first in Honours Examination in Economics. From then the number of first class holders was increasing day by day.

This number reached to forty five in-Economics department, in Eden Girls College, Dhaka in the last year of my tenure. From Govt. Eden Girls College,

Dhaka I was awarded gold medal as the best teacher at national level by the Ministry of Education, Govt, of Bangladesh. They also gave me a certificate. This was for very extra ordinary contribution of mine for academic excellence of students.

As principal I did the experiment in Govt. Ananda Mohan College, Mymensingh, Govt. Titumir College, Dhaka and Govt. Shree Bordi College, Shree Bordi, Sherpur. The average pass rate rose from 63% to 86% with three first class first in three departments in Govt. Ananda Mohan College, Mymensingh during 2002-2004. In Govt. Titumir College, Dhaka average pass rate improved from 55% to 95% during 2004-2007. In Govt. Shree Bordi College no Golden A+ and A got admission in intermediate (XI) classes. But in HSC final examination two students got Golden A+ and three students got A+ with ever highest increase in passing rate. This result was very exceptional throughout the country. Because usually in HSC examination the performance of students reduced than in SSC examination. But in Govt. Shree Bordi College the result was reverse during my time. My time of these three colleges was golden age. This was possible due to introduction of motivation, inspiration, cooperation, appreciation, incentive and intervention devices. Immediately after two years I was awarded gold medal and certificate as the best principal at national level by the Ministry of Education from Govt. Ananda Mohan College, Mymensingh. After my departure none of these colleges including those ones, where I was chairman in the Department of Economics, did not keep the pace what they had achieved during my time. That is why teachers, guardians and students of these institutions called the period of mine as golden age. This was due to extraordinary contribution in education as principal.

As a chairman of the Managing Committee of Brahmankanda A.S. Academy (High School), Pukhuria, Bhanga, Faridpur I did there the experiment with the failing students of SSC test examination. Twenty five students were disallowed in the test of class ten. Most of them were girls. I allowed them all by taking commitment of students and guardians that guardians would give time for studies of their words as proposed by me. The guardian would had been remaining sitting before their wards for three hours in the evening. I also made special coaching for these learners by teachers. In these special classes the students were remained busy in studies from 10 a.m. to 4 p.m. with a break of one hour in between. I gave hope of incentive to the teachers from school fund after getting positive results of these students. I allowed them all to appear at SSC examination. Twenty three students out of twenty five succeeded with five placed in second division. This tremendous result with three month efforts was possible for introduction of

MICAII. These are the background of MICAII. For innovation of MICAII, Muktijudh Sadhinatar Itihas Gobeshana Foundation gave goia meaai in iuiu.

Statement of the Problem

Slow learners problem is acute and massive in Bangladesh. All educational institutions have this problem. I have enquired 150 schools among the best level 50, mid level 50 and the worst level 50. These were secondary schools of urban and rural areas. These schools were selected from the districts of Dhaka, Faridpur,. Barisal, Comilla, Sylhet and Rangamati on the basis of SSC.

Table 1: The table shows the percentage of fast, mid and slow learners of
150 selected secondary schools as per SSC result of 2010

School category	Fast learners average (%)	Mid learners average (%)	Slow learners average (5)
The Best Schools (50)	20	40	40
Mid Level Schools (50)	10	45	45
The Worst Schools (50)	5	30	65
Average ()%	11.67	38.33	50

Examination result - 2010. The classification of learners as per head masters report given in table 1.

The fast learners were defined as those who are regular in class, understand lecture of all teachers of good and bad quality, want to obtain golden either A+ or A+. They are able to put themselves in the top position in respect of internal examinations of the considered institutions. They get interest in studies. They sit in the front line of class room. They have aim and goals in most cases. They maintain good relation with teachers. They build friendship with fast learners. They do not mix with slow learners.

The mid learners are more or less regular in class. They are in the list below fast learners and above slow learners. In respect of merit they are considered as average. These students want to obtain A or B+. They have little bit interest in study. They usually sit in the mid lines of the class. They have aim and goals in flexible trend. They have loose relation with teachers. The slow learners are irregular in class. They do not understand their teachers. They do not get any interest in study rather they consider learning as a burden. Their names remain at the bottom of the list. They usually sit on the back benches of the class. They consider studies as unnecessary efforts. They have no aim and goal. They attend

to classes under some pressure. They have either very loose relation or no relation with their teachers. They are always discouraged in studies and try to find way to leave study. They do not find chance to be the friend of fast and mid learners. Even they do not develop friendship among themselves. They possess an inferior complex among themselves. School environment becomes very much intolerable to them.

Table 1 shows the classification of students in 150 schools. The best schools have on average 20% fast, 40% mid and 40% slow learners. The mid level schools have 10% fast, 45% mid and 45 slow learners. The worst schools have 5% fast, 30% mid and 65% slow learners. If we make an average it is found that only 11.67% is fast, 38.33% is mid and 50% is slow learners These slow learners have latent potentiality to obtain golden At in all internal and public examinations. The MICAII model research have found this evidence from long-run action research that if slow learners get proper attention and intensive care from their teachers they can obtain golden A+ in all examinations. These proper attention and intensive care together generate love. This love will be an output of MICAII if it is introduced. If the teachers practise MICAII in the teaching-learning process a spontaneous love will be built in the minds for their students. The slow learners are slow because they do not get love from their teachers. The .teachers can not love them due to presence of many constraints.

The existing problem of the society is that in primary cycle 9% of the primary aged children do not come to school. They belong to extreme poor families. These guardians and their children do not find any meaning of schooling. According to their knowledge, the potentiality of their children is very limited and completely inadequate for learning. So they do not send their wards to schools. They lack confidence and future vision. Another vital problem in primary cycle is that about 48% of enrolled students do not complete primary cycle and cause dropout before PSC.

MICAII is itself a device sequentially evolved through long-run action research. Further it is a model which has many devices and tools developed through long-run action research. The present paper is prepared on the basis of the opinion expressed by headmasters, teachers, guardians, students, SMCs and elite classes. On the basis of the opinion of the above section of people the paper has attempted to answer the questions of what, why, who, how, which and whom on MICAII. That is the paper has tried to answer seven questions of seven Ws about MICAII. These answers will make MICAII easy to understand, to think, to plan, to implement and to evaluate.

Table 2: Six fundamental problems of Bangladesh education
and their immediate impact

Sl.	Problem	Affected Section	Immediate Impact
1.	Out of School Children (9%)	Extreme poor, Socially excluded section	Total illiterate population is increasing Elongating poverty. Increasing poor-rich gap
2.	Dropout rate at primary level (48%)	Ultra poor and poor of rural and urban slum areas	These dropout students join to the illiterate section in future. Wastage of resources invested. Rising haves - have nots gap
3.	Dropout rate at secondary level (61%)	Ultra poor, poor and lower middle class of rural areas and poor. Slump poor of slum areas	Increasing rural-urban and haves-have nots gaps Wastage of human capital and investment resources
4.	Failure rate between - ten classes (42%) before Board registrcninetion	Ultra poor, poor and lower middle class of rural areas and slum poor of urban areas	Increasing rural-urban and haves-have nots gaps. Wastage of human and invested resources
5.	Deteriorating quality of Education	Middle class, poor, ultra poor of rural areas and poor of urban slum	Wastage of human capital and invested resources. Creativity is declining Unemployment is rising. Reducing human productivity
6.	UNESCO s four pillars (Faure 1972, and Delors 1996) of learning are not achieved. The four niliars are • • Learning to be • Learning to do • Learning to know • Learning to live together	The nation as a whole	Broken peace, social instability, Defeated access, equity and excellence. Education can not reach world standard

Rationale of the Study

The study was undertaken to answer some vital questions about MICAII. It is said that MICAII would be able to solve the problems of slow learners. One year long action research conducted in 10 secondary schools in Rangamati and Faridpur

districts the study found that 65 causes are responsible for generation of slow learners. For mainstreaming the slow learners by handling 65 causes were simply impossible. As a result, for easy handling and simple solution the causes were synthesized to 21 in first step and 1 in final. The one cause found is lack of love in the mind of the teachers for students. MICAII has been innovated as a device to build love in the mind of the teachers for solving the problems of slow learners. It enables them to unlock their latent potentiality and bring them in the mainstream. In no way it causes any discrimination for fast learners. Rather fast learners become more faster.

The present study has tested the hypothesis that every child whenever arrives on the earth s/he is endowed with very valuable unlimited latent potentiality to do undo. The achievement of golden A+ is very minimum with comparison to his/her capabilities. MICAII is a revolutionary process to break down the traditional belief of the society. The traditional belief of the society is that a very few of the many students will get A+, few will get A, the next few will get grades below A and many will be unsuccessful. This will be so because there is a difference between God gifted merits. The society (teachers, guardians, students, SMCs and other surrounding people) believe that by nature some are meritorious, some are less meritorious and others are non meritorious. MICAII has placed a new belief by closing down the old one that a child whenever arrives on the earth s/he is endowed with the unlimited latent potentiality, s/he gets the potentiality to obtain A+ at all examinations either internal or external at a minimum. That is each child has inner latent capability to obtain golden A+ at all examinations at a minimum. It is difficult to believe this statement due to the trend of traditional belief which has been flowing in the society since long back. The rationale of the study is that it would answer many questions to be asked about MICAII because it has to shut down the long traditional belief and replace a new idea.

Objectives of the Study

To collect opinions of the concerned people who are conversant about MICAII to answer the questions of eight Ws (what, why, who, how, whom, whose and which). To evaluate the effectiveness of MICAII in achieving goals by unlocking the latent potentiality of slow learners to bring them in the mainstream. To assess whether MICAII would undervalue the fast learners and thus hinder their progress.

- To determine the effect of MICAII in respect of access, retention, equity, creativity and excellence.

- To find out the role of MICAII in optimizing the utilization of human potentiality and enhancing productivity.

Research Hypothesis

Whenever a child arrives on the earth s/he is inculcated with the latent potentiality to obtain golden A+ in all examinations of her/his student life at a minimum. Thus the slow learners have the capability to obtain golden A+ in all examinations. Medical research has found that the greatest scholars like Socrates, Albert Einstein, Sir Ijack Newton, Thomas Alva Edison, Adam Smith, Alfred Nobel utilized 5% to 25% potentiality. The general masses use very insignificant fraction/portion of their latent potentiality. So the highest portion of human potentiality remains unutilized in case of every human being. Consequently human capital formation productivity and value adding capacity stand at sub-optimal level. This causes lot of wastages of human resources. Consequently it affects GNP negatively. By utilising the untapped human potentialities the world can reach the grand bliss.

Methodology

The study would use both primary and secondary data. The data was collected from action research going on in six secondary schools in Dhaka urban and sub-urban areas, one past action research in ten high/secondary schools, five each in Rangamati district and Faridpur district participants of one day orientation course, 5 day training course on MICAII model and headmasters and principals of Educational Administration and Management Training Course were interviewed. Data were collected through questionnaire, observation and focus group discussion (FGD) and from school documents. The interviewees were headmasters, teachers, students, SMCs, guardians and local elites.

The table given below shows categories and number of interviewees.

The study used mostly qualitative data which are very much related with questionnaire. Also some quantative data were used which was collected from primary and secondary sources. To test the reliability of the data cross checking was made wherever it was possible.

Mathematical form of MICAII Model

MICAII Model is used to unlock the latent potentiality of learners. It is an abridged form of six words : motivation, inspiration, cooperation, appreciation,

Table 3: Interviewees categories and numbers

SI.	Category	Numbers	Tools used
1.	Headmasters of 16 high schools under MICAII action research	16	Interview Schedule and Discussion
2.	Teachers	320	Questionnaire and FGD
3.	Students	1600	Questionnaire and FGD
4.	SMCs	80	Interview Schedule and Discussion
5.	Guardians	320	Questionnaire and Discussion
6.	Trainees of one day MICAII Training program	336	Questionnaire
7.	Trainees of 5 day MICAII Training course	425	Questionnaire and workshop presentation
8.	Headmasters and Principals of Educational Administration and Management Training course	220	Questionnaire and workshop presentation

incentive and intervention. It makes slow and mid learners fast and accelerate fast learners further. The functional form of this model is: $HP = /f(m, i_o, c, a, i_1, i_2)$

Here HP = Human potentiality, f " = function, m = motivation, i_0 = inspiration, c = cooperation, a = appreciation, i_j = incentive, I_2— intervention The linear form of the function : $HP = eim + e_2 i_0 + 6_3 c + e_4 a + esii + e\&i_2$

Where $C \setminus$ ....e_6 indicate the coefficient of respective variable. The value of HP will be 1 or 100% which means full potentiality of humanbeing. The compound form of this equation is :

$$HP = E\ M^\alpha\ r^B_0\ \ C^Y\ _{I,}s\ _U$$

Where E is the coefficient of the function. Here it indicates the potentiality of human being which is unlocked naturally.

The value of $\alpha + \beta + \gamma + s + t = 1$. So the function is homogeneous of degree one. It will give a unique value. If all variables work in full swing the 100% potentiality of human being will be unlocked and acts as human capital. When HP will less than 100% it means that some human potentiality is remaining latent. The optimum value of HP will be 1 and in percentage it will be 100.

Presentation and Analysis

First of all the question was raised what is MICAII ? In answering this question the innovator has an explanation of his own. MICAII is an abridged form of the

*Table 4: This table shows categories of tools used for data collection
in the action research area*

SI.	Name of Tools	Purpose of use
1.	Observation	To see the real situation, environment, surrounding nature, people and their behavior pattern
2.	Interview Schedule	To record the answers of the interviewees where questionnaire is not possible to use
3.	Questionnaire : Open ended, : lose ended.	To collect information from interviewees
4.	Group presentation on different components of MICAII like motivation, inspiration, cooperation, appreciation, incentive and intervention	To assess the effectiveness of each item
5.	Group debate on one component vs other components of MICAII	To assess the substitution and complement components ofMICAII
6.	Seminar for synthesizing the causes of	To synthesize the causes of slow learners for unique solution
7.	Focus Group Discussion (FGD)	Raising different issues ad discussion on it for collection of views
8.	Democratic evaluation	Trainees expressed their opinion individually and others evaluated them by giving marks separately
9.	TQI-SEP Ministry of Education sponsored Research study on Identification of causes of undesirable performance of slow learners at secondary level	Information of this study was used as secondary data for present study
10.	By vote of participants in motivational campaign by raising hands on different issues	To assess opinions of different stakeholders like students, teachers, headmaster, guardians, SMCs and local elites at mass scale

words motivation, inspiration, cooperation, appreciation, incentive and intervention. These words are selected through long formal and informal researches at secondary and higher education levels. It is innovated to fulfill the gaps found in teaching-learning process in action research. MICAII will bridge the gaps between teacher and student, student and student, teacher and teacher, headmaster-teacher, student-guardian and guardian-teacher. The research held on

Identification of causes of undesirable performance of slow learners at secondary level institutions in Bangladesh found that there were 6o causes for slow learner. it was, difficult to soive these numerous problems. 10 fma an unique solution of these problems the causes were synthesized and further synthesized through two seminars held at Rani Dayamoni High School at Rangamati and Bhanga Pilot High School at Bhanga, Faridpur. The synthesized one cause of slow learners was lack of love of teachers for students. That is the learners need love of teachers for unlocking their latent potentialities. The fast learners get love from their teachers and can unlock their latent potentialities to the some extent. The mid learners get empathy from their teachers and can unlock their latent potentialities partially. The slow learners do not get love rather they get negligence from their teachers because they are bad. They cannot unlock their latent potentialities. They do not get message either from their teachers or from their guardians that they have potentialities like any fast learner. Only the difference is that the fast learners have been able to unlock their latent potentialities. That is they are awake up. The slow learners even do not know about their potentialities. So they are not able to unlock them.

Rather they get negative message from their teachers that they are cow/donkey/goat and they have no merit. Their guardians who are mostly illiterate and poor get these messages that their wards are called cow/donkey/goat by their teachers as they have no merit. They become annoyed with their words. So they lose love of their parents. Consequently they become loveless lonely in the world. Ultimately they become dropout from the institutions. These slow learners very badly need love of the teachers. MICAII builds love in the mind of teachers for students. It creates love spontaneously in the mind of teachers. This love makes fast student more and more faster and mid and slow learners faster. The first message of MICAII to the slow learners is that they have unlimited latent potentiality. If they unlock it they surely can do undo. So they certainly can do what the fast learners can. Therefore, MICAII is a device that build love in the mind of teachers for the learners which can unlock the latent potentialities of slow learners. Thus slow learners can obtain golden A+ in all examinations of their life and can build a good career for themself, inner, family, society, nature and world peace. Thus they can arrive at grand bliss.

Some questions were asked to students, teachers and headmaster what were the situation in their schools before MICAII action research.

From table 5 it is clear that teachers do not ever say students that they have potentiality. All students including headmasters and teachers admit that students

Table 5 shows the prevailing situations of the schools
in action research areas before the initiation of MICAII

	Headmasters		Teachers		Students	
	Yes	No	Yes	No	Yes	No
Do any teacher ever say formally that each student has unlimited/much potentiality/ merit, simple merit?	Nil	100%	Nil	100%	Nil	100%
Do the students know about their capabilities	20%	80%	15%	85%	Nil	100%
Do the teachers ask any question to slow learners in any time	10%	90%	20%	80%	Nil	100%
Do fast learners build friendship with slow learners ?	Nil	100%	Nil	100%	10%	90%
Do guardian ask their wards to mix with fast learners ? Do teachers love slow learners ?	100% 5%	Nil 95%	100% 5%	Nil 95%	95% Nil	5% 100%
Is there any discrimination in the behavior of teachers ? Do teachers appreciated the students for good performances ?	95% 10%	5% 90%	95% 20%	5% 80%	100% 5%	Nil 95%
Do teachers cane students ?	80%	20%	75%	25%	90%	10%
Do you believe that few students have merit endowed by the creator and many others do not have ?	100%	nil	100%	nil	100%	nil
Do you believe that slow learners have deficit in merit for studies ?	95%	5%	97%	3%	85%	15%
Do teachers scold students ?	95%	5%	95%	5%	98%	2%
Do you belief that very few students have potentiality to ootain golden A+ and many others do not have ?	100%	nil	100%	nil	100%	nil
Do you believe that if try hard slow learners can do the best result ?	20%	80%	15%	85%	5%	95%
Do you consider that slow learners are burden for the institutions ?	75%	25%	80%	20%	40%	60%
Do you ever think that something should done for slow learners ?	50%	50%	45%	55%	80%	20%
Do you think that with some steps slow learners can be brought in the mainstream ?	5%	95%	5%	95%	90%	-10%
Has any institution taken ever any step to bring slow learners in mainstream ?	nil	100%	nil	100%	nil	100%

are never told about their unlimited latent potentiality. So it may be stated that students are doing the effort of learning without knowing their capabilities. 100% students say that teachers never tell that every one of all students has latent potentialities. Headmasters and teachers ask them to learn. But they never tell them that they have capabilities to learn. Both teachers (85%) and headmasters (80%) admitted that the students do not know about their capabilities; even though they do not say students that they have latent potentialities. That is, the teaching community does not know about the necessity that students are required to be made confident about their capabilities before start of learning. Whether teachers did ask question to slow learners (90%) headmasters, teachers (80%) and students (100%) told that teachers did not ask question to slow learners.

To answer the question whether fast learners build friendship with the slow learners 100% headmasters, 100% teachers and 90% students answered in the negative. That is the fast learners do not build friendship with slow learners. Headmaster and teachers and most of the students admit that all guardians asked their wards to mix with the best learners. From FGD we came to know that even the guardians of slow learners desire their words to build friendship with fast learners. But the fast learners always try to avoid them. On question whether teachers love slow learners it shows that 95% headmasters, 95% teachers and 100% students reply in the negative. Another related question was whether there was discrimination in the behavior pattern of teachers. In reply 95% headmasters, 95% teachers and 100% students stated that there was discrimination in the behavior of teachers. On another question whether they do believe that few students have merit' endowed by creator and many others do not have 95% headmasters, 97% teachers and 85% students reply in the positive. They believe that slow learners have deficit in merit for studies. 100% headmasters, 100% teachers and 100% students believe that very few students have potentiality to obtain golden A+ and many others do not have. Only 20% headmasters, 15% teachers and 5% students believe that if they try hard the slow learners can do the best. Big majority of them believe that slow learners cannot. 75% headmasters, 80% teachers and 40% students state that slow learners are burden for the society. 50% headmasters, 45% teachers and 80% students feel that something should be done for slow learners. Only 5% headmasters, 5% teachers and 90% students believe that slow learners can be brought in the mainstream by taking some steps for them. In reply whether any institution has taken ever any step for slow learners the cent percent respondents say no. Teachers do not appreciate students, as per the opinion of majority respondents. Moreover teachers cane and scold students.

Guardians of students were asked about slow learners whether they do know about the potentiality of their wards. Their responses are shown in table 6.

Table 6: This table shows responses of guardians auuui poieniiaiiiy of iearners

Question	Yes	No
Do you believe that every learner has potentiality to do better in examinations	20%	80%
Do you believe that every student possesses potentiality to obtain golden A+	nil	100%
Do you ever tell your wards that they have potentiality/merit to obtain A+	nil	100%
Do you know about the unlimited latent potentiality of slow learners	ml	100%
Do you believe that very few students have merit and many have not merit	95%	5%
Do you ever hear from your wards that teachers have appreciated him/her for good performances	nil	100%
Do teachers cane students	98%	2%
Do teachers scold students	100%	nil

All the views expressed by headmasters, teachers and students mentioned above are endorsed by guardians. From above analysis it is found that head masters, teachers, students and guardians believe that among students very few are meritorious and they can, many others are not meritorious and they cannot. This is the trend of the society. As a result very few students dream to obtain golden A+ and endeavor to get it. The many 4thers do not dare to dream to obtain golden A+ or even A. So question of endeavor does arise on the part of them. A psychological divide in the class remains from the beginning. This statement is proved by the data given by students of 16 high schools under MICAII project area.

From table 8 it is very clear that the schools chosen for MICAII action research are in good progress. They are very rapidly going to reach the excellence. The' average achievement in column 4 is determined by teachers and headmasters separately. Average of their figure is shown in the table : 8

From table 9 it is found that headmasters, teachers, students and guardians do not know about the words motivation, inspiration, cooperation, appreciation, incentive and intervention used as tools for teaching learning process. Even they knew very less about the use and effectiveness of these words in teaching learning process. It was found during focus group discussion.

*Table 7: The ability of students to obtain golden A + as **Expressed** by them by raising hands before and after MICAII. Students from **VI** to X were **ajiked** to raise their hands who want to*

Before MICAII has been s t a r t i		
Range of students	Raise hands (average number	Do not raise hands (average number)
1 to 20 raise hands 80 to 97 do not raise hands	10%	90% 90%
After MICAII has been started		
1 to 100	100%	Nil
Before MICAII		
Number of students who are trying to obtain golden A+		
Range	Raising hands	Do not raise hands
	Average (5)	
3 to 20	10%	
80 to 97		90%
After MICAII		
1 to 100 100%		Nil
Do you believe that every body comes on the earth with the minimum potentiality to obtain golden A+ in all		
examinations he/she appear		
1 to 100 100%		Nil

In respect of variables mentioned in table: 8 the achievement of the schools is 72% on an average. This is very high achievement in two years period. To achieve the UNESCO four pillars of learning : Learning to be; Learning to do, Learning to know and Learning to live together (Faure 1972 and Delors 1996) the introduction of MICAII model is the vital need of the society.

Findings

MICAII h a s already brought fundamental changes in the schools of project area. It has changed the mind set-up of the students, teachers, headmasters, SMCs and guardians. Before implementation of MICAII only 10% students desired to obtain and tried for golden A+. After implementation of MICAII cent percent students want to obtain and try for golden A+. This has been possible for introduction of MICAII that is motivation, inspiration, cooperation, appreciation, incentive and intervention. Ms Shereen Akther, programme Officer, UNESCO, Dhaka office,

Table 8: The achievement of in 16 schools with regards to different variables before and after MICAII

Variable/item	Achievement after MICAII	Achievement before MICAII	Net Achievement after MICAII
Cane	No use at all	used by many teachers	100%
Scolding by teachers	No scolding prevails	Scolding by almost all teachers was in practice	100%
Headmasters' belief	Every student has potentiality to obtain golden A+ at a minimum	Very few students had potentiality to obtain golden A+	100%
Teachers' belief	do	do	100%
Students' belief	do	do	100%
Guardian belief	do	do	100%
SMCs belief	do	do	100%
Dropout Gender equality	There is no dropout More girls are coming forward	There was dropout Stagnant position	100% 72%
Failure	Has been reducing	There was lot of failure	60%
Repeatition	do	do	60%
Retention	All students are retaining except transfer cases	Retention was less	Not determined
Occurrence of eve teasing	No	There were some	90%
Socialization of Students	Increasing rapidly	Very rare	72%
Rate of success in internal examination	Rising at a high rate	was low	75%
Rate of pass at public examinations	Increasing at a high rate	Moderate	50%

Variable/item	Achievement after MICAII	Achievement before MICAII	Net Achievement after MICAII
Students creativity	Increasing	Decreasing due to only application of getting by heart	45%
Reading habit of students	Increasing	Decreasing	55%
Introduction of MICAII	Increasing at a high rate	There was none	60%
Introduction of group learning	Increasing	do	70%
Introduction of group competition	do	do	70%
Friendship of fast learners with slow learners Student-student relation	do	do	70%
	Excellent	There is none There was at a very low	1 OU /o
Student-teacher relation	Excellent	level	80%
Teacher-guardian relation	Very good	There was none	65% ___
Slow learner-teacher relation	Very good	There was none	68%
Student devotion Teachers' commitment	Increasing at a high rate increasing	Almost nil There was none	72% 55%
Ensuring of inclusive education	Introducing at a high rate	There was none	72%
(Teachers' dedication	Increasing	There was work	58%
Good Governance	increasing	There was none before *An*	72%
Teachers* motivation Out of school children in catchments area	increasing rapidly They are coming to school at a high rate than that of other areas	do There was no progress	/U/o 50%
Average achievement			72%

Table 9: This table shows the level of knowledge of students, teachers, headmasters and guardians before and after the MICAII action research.

	Headmasters' knowledge		Teachers knowledge		Guardians knowledge		Students knowledge	
	Yes	No	Yes	No	Yes	No	Yes	No
Have you ever heard about the words : motivation, inspiration, cooperation, appreciation, incentive and intervention as tools for teaching learning process	10	90%	10	90%	Nil	100%	Nil	100%
Have you applied these words in your teaching-learning process directly ?	Nil	100%	Nil	100%	Nil	100%	Nil	100%
Have you used these words in your teaching-learning process indirectly ?	10%	90%	5%	95%	Nil	100%	Nil	100%
Have you any idea about effectiveness of these words ?	Nil	100%	Nil	100%	Nil	100%	Nil	100%

Source: Primary data collected from fields.

Dhaka was present in prize distribution functions held at Matuail pilot high school, Jatrabari, Dhaka and Rustom Ali High School, Demra, Dhaka. There when students were asked to raise their hands who want to obtain golden A+, all students of all classes raised their hands.

By seeing the scenario she stated that her heart was trembling that all students were so courageous to raise their hands to obtain golden A+. She stated it as a tremendous achievement of MICAII. It has been able to change mental set up of all persons related to schools.

In a short period of time MICAII has made headmasters, teachers, students, guardians and SMCs believed that every student has latent potentiality/merit to obtain golden A+ at a minimum. This belief is helping them to try to ensure golden A+ for all students. All the variables those lead institutions towards excellence are enhancing at a rapid rate in these schools under MICAII project area. MICAII has achieved tremendous achievement in respect of gender equality. The female students are now more ambitious by the message that they have unlimited latent potentiality. If they can unlock they can do undo. The rate of dropout is zero. All students are very good friend to each other. Students socialization has been increasing rapidly and there was no occurrence of eve-teasing. This has been possible because MICAII group learning and competition have brought them under the bondage of friendship. Now they are all brothers and sisters. The teachers and headmasters were asked to compare the training on

MICAII to other training they had got before. All respondents stated that MICAII training was consistent with the reality. Teachers can always introduce it. They can introduce with or without help of tools. For effective teaching-learning process use of MICAII devices are necessary as well as sufficient condition for development of education. Finally they called MICAII training as an excellent one which they never received before. They also mentioned that the training(s) they received before has/have no impact on their students. But MICAII training has deep and constant impact on their students. Many teachers mentioned that when they go to the classes the MICAII tools come to their memories and they always use them.

Out of school children belong to every extreme poor family. Their guardians believe that their children have deficit in merit. If they are sent to school they would be the back benchers. But message MICAII is that every child has the potentiality/merit to obtain golden A+ at a minimum. This message has changed their traditional faith. Now they are confident about their childrens' latent potentiality/merit. Therefore they can see the full moon in the sky of their children. With high vision they are sending their children to schools at a higher rate.

Mainstreaming the slow learners by unlocking their latent potentialities. It is to fasten the fast learners. It is building love in the mind of teachers for students. The MICAII is called a model because the words:
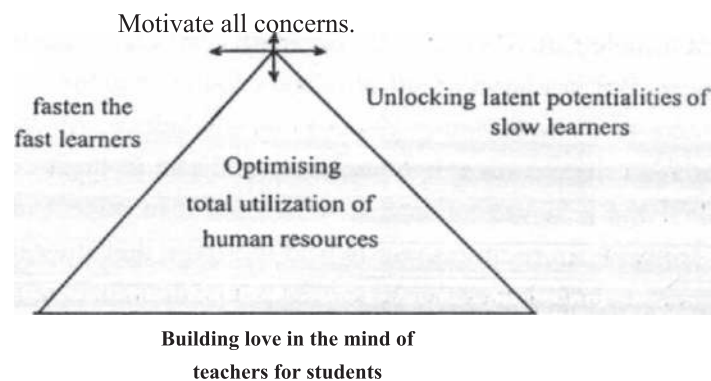
As mentioned earlier, dropout has been nil in the area since MICAII action research. This has been possible due the rising ambition of slow learners. Failure rate has been reducing in the MICAII action research area at a high rate. This has been possible due to change of attitude and aptitude of headmasters, teachers, guardians and finally students due to MICAII slogan that every student has latent

potentiality to obtain golden A+ af a minimum. This has changed scenario of the area. Because since MICAII every student wants to obtain golden A+ and accordingly s/he has been endeavoring to reach there with all constraints. From above analysis it is possible to answer the question what is MICAII. MICAII is a model for motivation, inspiration, cooperation, appreciation, incentive and intervention are totally able to unlock human potentiality for optimization of human capital. It fulfills the necessary and sufficient conditions for maximum utilization of human resources. In presence seven tensions generated by social changes as determined by UNESCO MICAII would be able to build love in the mind of teachers which is the most essential and only vital input for unlocking unlimited latent potentiality of learners. It will ensure access, equity, retention, inclusion, quality, creativity and finally total excellence. In one important report of UNESCO there have been identified seven tensions such as:

- The Global and the local
- The universal and the individual
- Tradition and Modernity
- Long - term and short - term consideration
- The need for competition and the concern for equality for opportunity
- The extra ordinary expansion of knowledge and human beings capacity to assimilate it
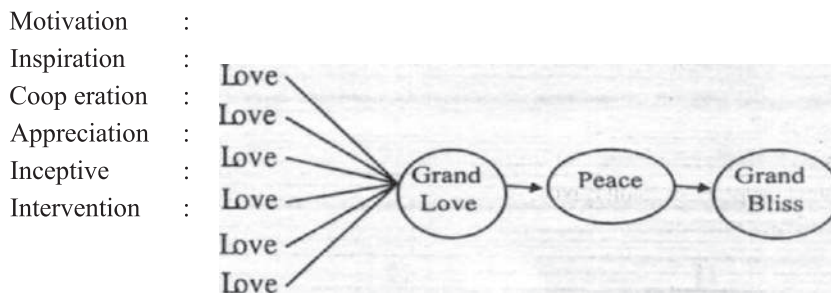- The spiritual and the material

These 7 tensions are faced by all human being including teachers

MICAII can overcome these tensions and build love in the mind of teachers. These tensions cannot stop MICAII. It is a complete method in all respects. So it is called a model.

Another question is why MICAII. In reply it may be mentioned that it is to motivate, to inspire, to cooperate, to appreciate, for incentive and for intervention. All these six forces build devotion, dedication, commitment and confidence among students. These are vital inputs. These inputs give output: access, retention, equity, quality, creativity, gender equality, inclusion and excellence. So MICAII is to end dropout, fail, and repetition, out of school children, social exclusion, disparity and discrimination. It is to unlock unlimited latent potentiality of human being and ensure maximum utilization of human capital. It is to enlighten all to be, to do, to know and to live together.

The next question about MICAII is who will do the above tasks. Answer is students, teachers, headmasters and guardians. These people will do. For MICAII they would feel urge to do. MICAII will build grand love. The six words of

MICAII are directly and indirectly related to the process of building love. They all together will generate grand love.

Motivation   :
Inspiration   :
Coop eration   :
Appreciation   :
Inceptive   :
Intervention   :

Love
Love
Love
Love
Love
Love

Grand Love → Peace → Grand Bliss

This model will follow a time path as mentioned below :

Tolerance   Empathy Love Peace   Grand Bliss

MICAII

This grand love will urge all concerns to optimize the utilization of human potentiality. The next question about MICAII is how it will work. The MICAII will develop a firm bondage among students, teachers, headmasters and guardians. It will be a bondage of love for reaching grand bliss. It will generate inner force, willpower and dedication. The tools will be group learning, group competition, motivational campaign, seminar, workshop, meeting, debate, student-student friendship building etc. Firstly students will be motivated about their latent potentialities and then they would be inspired to work accordingly by those tasks. The next question: MICAII is for whom. In answer it may be mentioned that MICAII is especially for the slow learners. But in whole MICAII is for all students. Because it invites slow learners to come to the position of students who obtain golden A+. At the same time it urges faster learners (who want to obtain A+) to go forward further. In a nutshell it urges slow learners to be fast. It urges fast learners to be more faster. Thus it accelerates the process and maintains dynamism. So MICAII is for the student community as a whole. The last question is which of many paths of learning will be followed. The answer is that it will follow the path of love which is the most power full device in the world. So MICAII will follow the path which will empower the students to move forward. The last question is about whose activities. MICAII warms up students to be green to move forward, to think fresh and to do good for all. It unlocks the unlimited latent potentiality of each and every student whose benefit touches individual, family, society, nation, world and the nature. Table : 10 shows the achievements of MICAII in 16 schools at a glance.

Table 10: Achievements in 16 schools in MICAII action research area at a glance

Item	Achievements
Access	Increases
Dropout rate	Reduces to almost zero
Retention	Rises
Out of school children	Decreases
Enrolment	Increases
Fail rate	Decreases
Pass rate in internal examination	Rises
Pass rate in public examination	Rises
Students participation in learning process	Enhances
Teachers' commitment	Accelerates
Students' motivation	Rises
Slow learners	Becomes faster
Every student wants	To obtain golden A+
Every student has been trying	To obtain golden A+
Slow learner-fast learner relation	Very friendly. Fast learners helps slow learners to learn
Teaching learning environment	Inclusive and participatory
student's creativity	Rises
Quality of Education	Enhances
Extra and co-curricular activities	Increases than before
Teacher-student relation	Improves
Guardian's cooperation	More than before
Use of cane	There is no use. Previous there was use
Scolding	There is no scolding. Previously it was
Eve-teasing	There is eve-teasing. Previously there was some
Students absenteeism	Reduces
Home task	Every student can solve home task because fast learner helps slow learners
Student earness to learn	Increases tremendously
Students confidence	Ever high
SMCs attention towards school	Very high
Student's morality	Rises
Student's social activities	Increases
Student's patriotism	Rises by magazine competition
Excluded students	Student-teacher take care of them

Recommendations

MICAII has proved its ability to change the traditional belief of the community: "very few would obtain golden A+ and many cannot" in action research area which has been substituted by the slogan that every student can obtains golden A+. Everyone has latent potentiality/merit to obtain golden A+ at a minimum. MICAII training should be extended throughout the country to change the

conservative view of the nation by new idea that every one shall be able to do. No one shall remain behind rather come forward. Dissemination and implementation of MICAII will optimize human resources. MICAII action research will be extended to all primary and secondary schools.

Conclusion

MICAII has replaced the traditional belief that very few can and many cannot by the new idea that everyone can. MICAII has been able to raise the full moon in the sky of all students. They set goal to reach there by harnessing their unlimited human potentialities. This will enrich the nation by optimizing human capital. For doing so MICAII model training and action research should be extensively operated at every level of education.

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Trade between Bangladesh and India:
An evaluation

Sᴜɴᴊɪᴅᴀ Kʜᴀɴ*
Nᴀᴡᴀᴢᴇᴇsʜ Mᴜʜᴀᴍᴍᴀᴅ Aʟɪ**

Abstract: *Bangladesh's trade with India increased tremendously especially in the 1990s. The average annual growth rates of Bangladesh's trade with India, during 1980 to 1995, were much higher than those with the SAARC and the world. The growing bilateral trade deficit with India has risen from $774 million in FY 2000, to $1,933 million in FY 2005, and $2,910 million in FY 2010. Bilateral trade also takes place through informal trade between the two countries. As a consequence, the actual deficit would be significantly higher, notwithstanding the fact that, with tariffs coming down, informal bilateral trade has perhaps been on the decline in recent years. We can see that India is getting benefit from the trade surplus with Bangladesh. Bangladesh is suffering from the trade imbalance due to non-competitiveness to produce competitive products at low cost. So it should be alleviated, which may create benefit both for Bangladesh and India. From the study we can depict some current scenario about Bangladesh and India trade relationship and get some idea how win-win situation can be attained through trading.*

Key Words: *Trade, Export, Import, Trade Barriers, Exchange rate*

Introduction

The trade relationship has had a significant effect on bilateral relationship. The geographical proximity of India to Bangladesh has made it one of its largest trading partners. India's trade with Bangladesh has apparently speedy growth in

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* Lecturer, Department of Business Administration, Daffodil International University, Bangladesh
   E-mail: sunjida.bba@diu.edu.bd

** Research Associate, Center for Breakthrough Thinking in Bangladesh
   E-mail: nawazeeshmuhammadali111@gmail.com

recent years. There are pressing concerns in Bangladesh regarding the large bilateral trade deficit with India and the large volumes of informal imports from India across the land border which avoid Bangladeshi import duties. However, there are few analytical studies that indicate the likely impact of such phenomena, the present report tries to draw out current scenario of bilateral trade between Bangladesh and India and to measure the gap between two nations and selecting issues for further research about how can these gaps be mitigated.

Bangladesh has long shared common intents for closer economic integration within the South Asia region. Given the historic, cultural and economic ties between India and Bangladesh, the two nations have always been more than neighbors, sharing not only common borders and rivers but also culture, language and heritage that were further bonded by shared memories and sacrifices during our independence war, 1971. India was the first nation who declared Bangladesh as a separate and an independent country. Being one of the major players in South Asia, both India and Bangladesh greatly impact the socio-political and economic demography of the region and relations between them influences the fate of South Asia. Both the countries can benefit immensely by enhancing bilateral trade and investment. The trade relationship of Bangladesh and India has witnessed rapid growth in recent years.

Bangladesh and India are in business operation for a very long period of time. The trade between these two countries has significant contribution to the economy. Bangladesh has efficiency in producing some products and India is also efficient in some sectors. So Bangladesh exports those products which have her absolute advantage and so does India. Both the countries vision is to meet the essentials of the people of those countries for which they try to fulfill their vision through mission ultimately lead to fulfill goals. By trading, the products both the countries can maximize the wealth of their countries. Research question of the study is how official trade can be beneficial for both the countries?

Literature Review

Waheeduzzaman (2002) observed that restrictions have been reduced and incentives are many in this region. Yet then, concern about the regulatory framework, bureaucracy, marketing infrastructure is there. Piecemeal approach may not take the big picture into account.

World Bank (2006) commented that the static simulation results show export expansion for India in all products except garments. In these instances, consumer welfare gains far outweigh losses in government revenue or producer surplus in

Bangladesh. But these gains could be extremely limited unless infrastructure and administrative capacities are expanded at the borders.

Basu and Datta (2007) depicted that Bangladesh should follow an appropriate exchange rate policy and aim at diversification at export structure in order to avoid Dutch disease and to reduce bilateral trade deficit.

Gazi et al. (2014) observed that Indian manufacturing sector is strong and have diversified product support; this advantageous position and location advantage attract Bangladesh business community to import capital machinery, raw materials and finished goods from India causing high import growth.

Sobhan (viewed on 2016) argued that as India emerges as a global power and its economic ties deepen with Western, countries as well as developing countries, current trends suggest that the current focus of India on its Look East Policy would gain further traction. Greater initiatives are required by both countries to replace the acrimonies and contentious relationship of the past with a relationship based on mutual benefit.

Hindustan Times (2015) found that the trade volume of $6.5 billion is impressive but of this, Bangladesh's exports to India account for a mere $500 million. India needs to narrow the gap. India's plans to invest more in Bangladesh need to be speeded up. There is a growing feeling among sections in Bangladesh that the growing trade only benefits India. For India, Bangladesh plays a key role in its sub-regional connectivity plans which include Nepal and Bhutan.

Ministry of Commerce, GOB (2016) observed that Trade between India and Bangladesh could almost double to $10 billion by 2018, if non-tariff barriers and infrastructure related-issues are resolved,

Rahman (2016) commented that under SAFTA, trade can benefit Bangladesh if trade creation outweighs trade diversion. Trade creation is feasible only when trade policies pursued by both countries are conciliatory in nature. Bangladesh requires more sympathetic outlook from India because of the perpetual imbalance in trade.

From the study we observe that there is a research gap, which through our study we want to overcome.

Objectives of the study

The study underscores the trend, structure and current picture of Bangladesh-India trade with an econometric view. The aim of the study is to sketch out:

- The current export situation of Bangladesh with India
- The current import situation of Bangladesh with India
- Existing scenario about Bangladesh and India trade relationship
- Some suggestions for win –win situation in trading for both the countries.

Methodologies of the study

Time period of the data collection was 1990 to 2014. Two type's data are collected:

- Primary
- Secondary

The study determined regression equation and analysis to understand the trade relation between the two countries using SPSS software.

Time period of the study was 1990 to 2014.

In the study we have used following regression equations:

$$Mbd= f (Mi, Ex, Dm) \qquad\qquad (1)$$
$$Xbd = f (Xi, Ex, Dm) \qquad\qquad (2)$$
$$Ex = f (Mbd, Xbd, Dm) \qquad\qquad (3)$$
$$Ex=f (Mi, Xi, Dm) \qquad\qquad (4)$$

(In these model also need to consider total import, export of the both countries)

Where,

Mbd= Import to Bangladesh from India
Xi=Export from India to Bangladesh
Ex=Exchange rate of Bangladesh Taka in terms of US Dollar
Xbd=Export from Bangladesh to India
Mi=Import to India from Bangladesh
Dm=Dummy Variable

Here we will use dummy variable to see whether structural change occurs. For the period 1990 to 2003 we shall consider Dm=1 and for Dm=0 for the period 2004 to 2014.If dummy variable is positive it will indicate there is a structural change and vice versa.

A priori relationship in equation (1) is that import from Bangladesh to India is a function of Import to India from Bangladesh, Exchange rate and dummy variable. We shall consider a negative relationship among import from Bangladesh as any import from this country occurs then an import payment receipt means foreign

exchange inflows to Bangladesh but if import to India is higher than it will have negative impact and in case of exchange rate appreciates import will decline and dummy variables positive indicate structural change occurs in a significant manner and vice versa.

A priori relationship in equation (2) is that export from Bangladesh to India is a function of Export from India to Bangladesh, Exchange rate and dummy variable. We shall consider a negative relationship among export from Bangladesh that means Export from India to Bangladesh will be much higher rate and ultimately lead to balance of trade deficit in favor of Bangladesh and in case of exchange rate appreciates export will decline and dummy variables positive indicate structural change occurs in a significant manner and vice versa.

A priori relationship in equation (3) is that exchange rate is a function of Import to Bangladesh, export from Bangladesh and dummy variable. We shall consider that when exchange rate appreciates import to Bangladesh will rise as more products can Bangladesh buy while export from Bangladesh will be negative as exportable commodities are costlier and dummy variables positive indicate structural change occurs in a significant manner and vice versa.

A priori relationship in equation (4) is that exchange rate is a function of Import to India, export from India and dummy variable. We shall consider that when exchange rate appreciates import to India will decline as less products can Bangladesh sell while export from India will be positive as exportable commodities of India will rise and dummy variables positive indicate structural change occurs in a significant manner and vice versa.

The study has also done some diagrammatic representation.
Estimated Results
Equations No. 1
Dependent Variable: Mbd
method: Ordinary Least Squares
Regression equation before estimation will be as follows:
$$Mbd = \alpha + \beta_1 Mi + \beta_2 Ex + \beta_3 DM + e \ldots (1)$$

Estimation Results

From: Table: 1(a) we observed that mean value of Import from Bangladesh is .015366 and standard deviation is 175.55while import from India is .0019180 and standard deviation is 1662.26.Mean value of Exchange rate is 0.5565142 and standard deviation is 14.75.Mean value of dummy variable is .48 and standard deviation is .51.

Table 1 (a): Descriptive Statistics

	Mean	Std. Deviation	N
Mbd	1.5366E2	175.55062	25
Mi	1.9180E3	1662.26040	25
Ex	5.565142E1	14.7522915	25
DM	.4800	.50990	25

a. Dependent Variable: Mbd

From Table 1(b), we observed that only import from India is positive at 1% level of significance. But other variables including constant term are insignificant. The equation provides a good fit at 91.4% of the observed variation in Import from Bangladesh. We found that if the import from India rises by 1%, then the import from Bangladesh will raise by 0.10%. Durbin-Watson statistics is 1.389, which indicates that no autocorrelation prevails at 5% level of significance. F statistics is significant at 1% level of significance.

Table 1(b): Report of the result of the Regression Equation

Variable	Coefficient	Std.error	T-statistic	Prob.
C	-140.630	148.558	-.947	.355
Mi	.100	.016	6.179	.000
Ex	1.474	2.728	.540	.595
DM	44.601	49.165	.907	.375
Adjusted R-squared		0.914	F-statistic	85.985
Durbin-Watson stat.		1.389	Prob(F-statistic)	0.0000

Figure 1(a) is histogram of the numerical data used in the regression equation:1. It is a probability distribution of the continuous distribute.

From Figure 1(b)-we observed that residuals are normally distributed.

Equations No. 2

Dependent Variable: Xbd
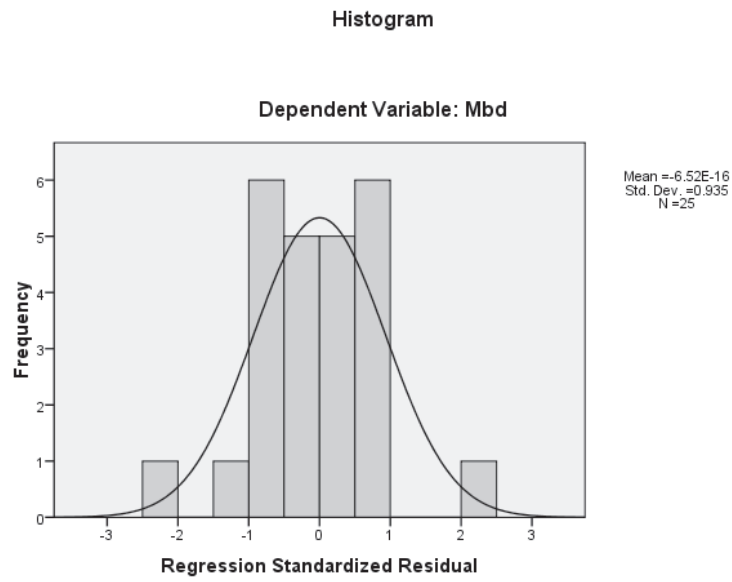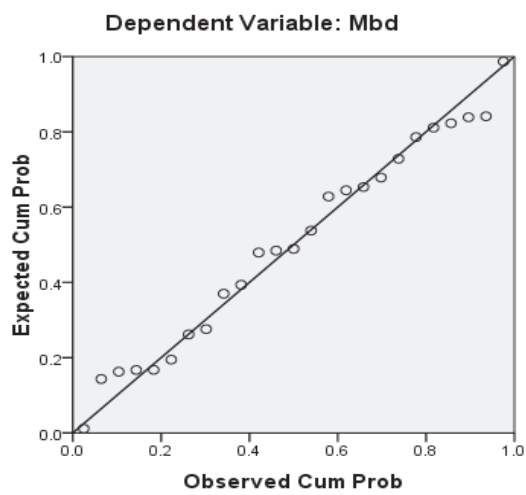
Figure 1 (a): Histogram

Figure 1(b): Normal P-Plot of regression standardized residual

Method: Ordinary Least Squares

Regression equation before estimation will be as follows:

$Xbd = \alpha + \beta_1 Xi + \beta_2 Ex + \beta_3 DM + e \ldots$ (2)

Estimation Results:

Table 2(a): Descriptive Statistics

	Mean	Std. Deviation	N
Xbd	1.9180E3	1662.26040	25
Xi	1.5366E2	175.55062	25
Ex	5.565142E1	14.7522915	25
DM	.4800	.50990	25

From: Table 2(a) we observe that mean value of export to Bangladesh is .001918 and standard deviation is 1662.26 while export to India is .015366 while standard deviation is 175.55. Mean value of Exchange rate is 0.5565142 and standard deviation is 14.75.Mean value of dummy variable is .48 and standard deviation is .51.

Table 2(b): *Report of the result of the Regression Equation*

Variable	Coefficient	Std.error	T-statistic	Prob.
C	-1354.701	1188.196	-1.140	.267
Xi	6.483	1.049	6.179	.000
Ex	39.721	20.406	1.947	.065
DM	137.459	403.427	.341	.737
Adjusted R-squared		0.937	F-statistic	120.963
Durbin-Watson stat.		.945	Prob(F-statistic)	0.0000

From Table: 2(b), we observed that Export to India is positive at 1% level of significance. Exchange rate is significant at 10% level of significance. But other variables including constant term are insignificant. The equation provides a good fit at 93.7% of the observed variation in Export to Bangladesh. We found that if

the Export to India rises by 1%, then the Export to Bangladesh will raise by 6.483%. Durbin-Watson statistics is 0.945, which indicates that autocorrelation prevails. F statistics is significant at 1% level of significance.
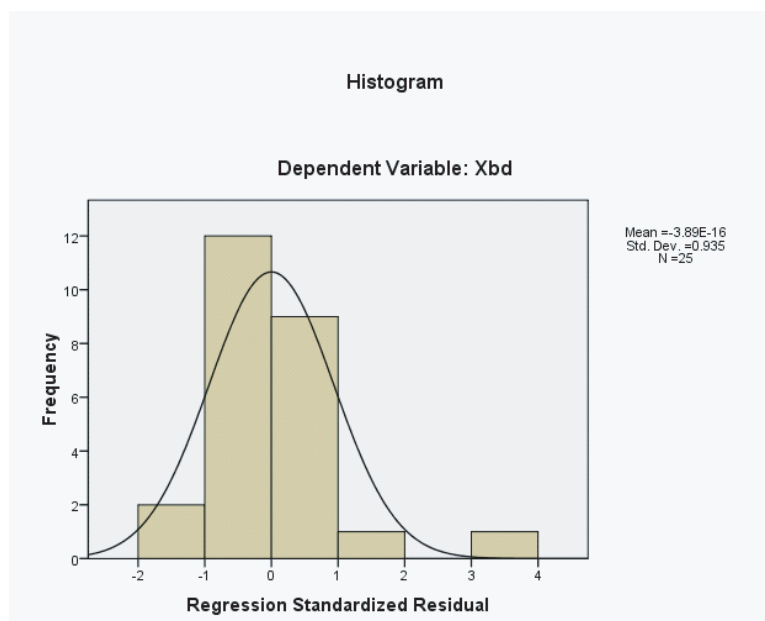
Figure 2(a): Histogram

Figure 2(a) is histogram of the numerical data used in the regression equation:1. It is a probability distribution of the continuous distribution.

Equations No. 3

Dependent Variable: EX

Method: Ordinary Least Squares

Regression equation before estimation will be as follows:

$$EX= \alpha + \beta_1 Mbd + \beta_2 Xbd + \beta_3 DM + e \ \dots \ (3)$$

Estimation Results:

From: Table 3(a) we observed that mean value of exchange rate is .5565142 and standard deviation is 14.75229 while import from Bangladesh is .015366 while standard deviation is 175.55. Mean value of export to Bangladesh is .001918 and standard deviation is 1662.26. Mean value of dummy variable is .48 while standard deviation is .51.

From Fig.2(b)-we observed that residuals are normally distributed.

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Xbd
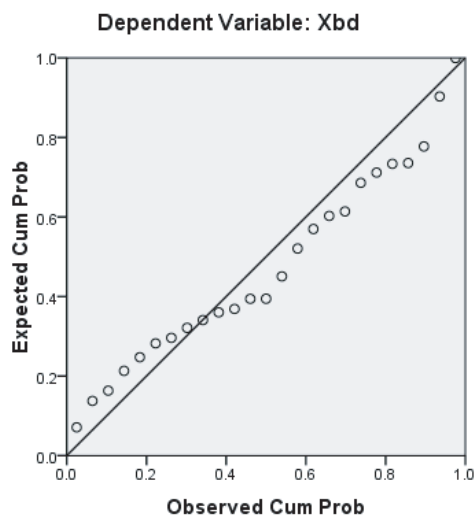
From Table 3(b), we observed that constant term is positive at 1% level of significance. Export to Bangladesh is significant at 10% level of significance. But import from Bangladesh is insignificant. The equation provides a good fit at

Table 3 (a): Descriptive Statistics

Variable	Mean	Std. Deviation	N
Ex	5.565142E1	14.7522915	25
Mbd	1.5366E2	175.55062	25
Xbd	1.9180E3	1662.26040	25
DM	.4800	.50990	25

92.3% of the observed variation in exchange rate. We observed that if the Export to Bangladesh rises by 1%, then the exchange rate will rise by 0.004%. Durbin-Watson statistics is 0.910, which indicates that autocorrelation prevails. F statistics is significant at 1% level of significance.

Figure 3(a) is histogram of the numerical data used in the regression equation:1. It is a probability distribution of the continuous distribution.
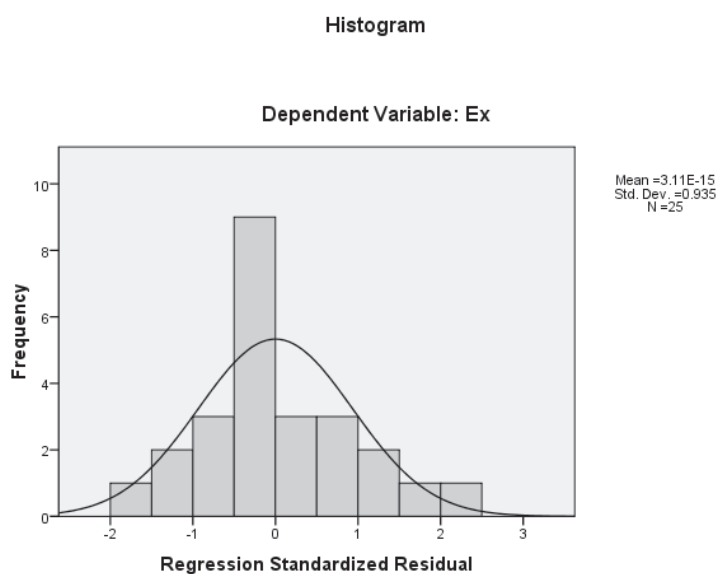
Figure 3(b): Normal P-Plot of regression standardized residual

Table 3(b): Report of the result of the Regression Equation

Variable	Coefficient	Std.error	T-statistic	Prob.
C	53.792	2.730	19.707	.000
Mbd	.009	.017	.540	.595
Xbd	.004	.002	1.947	.065
DM	-14.480	2.423	-5.977	.000
Adjusted R-squared		0.923	F-statistic	97.036
Durbin-Watson stat.		.910	Prob(F-statistic)	0.0000

From Fig. 3(b)-we observe that residuals are normally distributed.
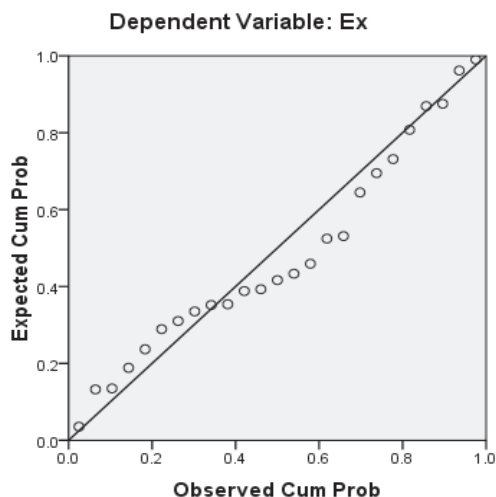
Figure 3(a): Histogram

Equations No. 4

Dependent Variable: EX

Method: Ordinary Least Squares

Regression equation before estimation will be as follows:

Figure 3(b): Normal P-Plot of regression standardized residual

EX= α+ β₁Mi+ β₂Xi+ β₃DM+ e … (4)

$$EX = \alpha + \beta_1 Mi + \beta_2 Xi + \beta_3 DM + e \dots (4)$$

Estimation Results

From: Table 4(a) we observed that mean value of exchange rate is .5565142 and standard deviation is 14.75229 while import from India is. -0019180 and standard

Table: 4(a)Descriptive Statistics

Variable	Mean	Std. Deviation	N
Ex	5.565142E1	14.7522915	25
Mi	1.9180E3	1662.26040	25
Xi	1.5366E2	175.55062	25
DM	.4800	.50990	25

deviation is 1662.26040. Mean value of export to India is .015366 and standard deviation is 175.55062. Mean value of dummy variable is .48 while standard deviation is .51.

From Table 4(b), we found that the constant term is significant at 1% level of significance. Import from India is significant at 10% level of significance. Dummy variable is significant at 1% level of significance which indicates structural changes. But export to India is insignificant. The equation provides a good fit at 92.3% of the observed variation in Import from Bangladesh .We observed that if the import from India rises by 1%, then the exchange rate will raise by .004. Durbin-Watson statistics is .910, which indicates that autocorrelation prevails. F statistics is significant at 1% level of significance.

Table 4(b): Report of the result of the Regression Equation

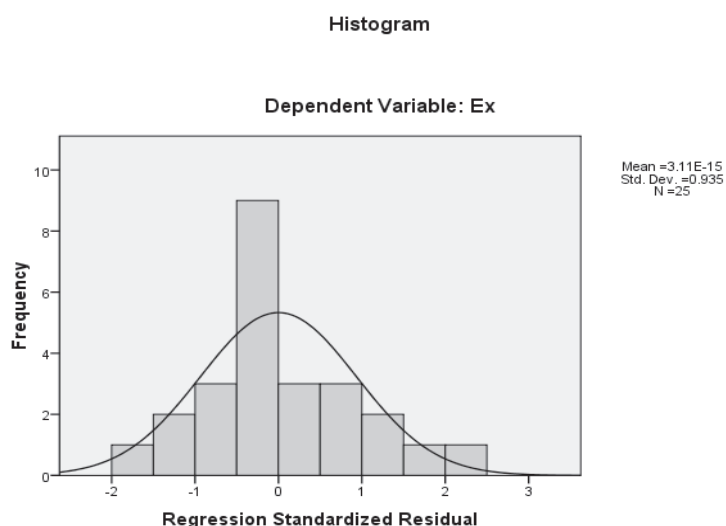| Variable	Coefficient	Std.error	T-statistic	Prob.
C	53.792	2.730	19.707	.000
Mi	.004	.002	1.947	.065
Xi	.009	.017	.540	.595
DM	-14.480	2.423	-5.977	. .000
Adjusted R-squared	.923	F-statistic	97.036	
Durbin-Watson stat.	.910	Prob(F-statistic)	0.0000	

Figure 4(a): Histogram

Figure 4(a) is the histogram of the numerical data used in the regression equation 1. It is a probability distribution of the continuous distribution.

Figure 4(b): Normal P-Plot of regression standardized residual

Figure 4(b): Normal P-Plot of regression standardized residual

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Ex
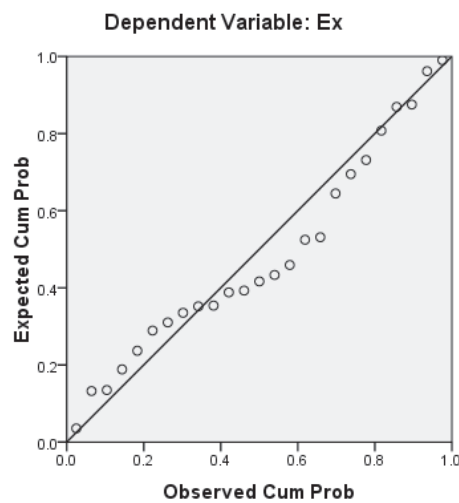
Business performance of Bangladesh and India

Imports from India to Bangladesh

A significant share was accounted for by cotton, yarn and fabrics, and other inputs which are used by Bangladesh's export-oriented industries such as readymade garments. Indeed, such imports from India help Bangladesh maintain a trade surplus with some of the other important trading partners, including the US (Bangladesh's bilateral trade surplus with the US was about $3,480 million in FY 2010). Many of Bangladesh's import-substituting and other industries get their raw materials, intermediate inputs and capital machineries from India.

India exports a wide range of products to Bangladesh. About a third of total exports were primary agricultural, fish and livestock products, 6.6% processed foods and drinks (including animal foods), and most of the rest manufactured products. Leaving aside textile and clothing exports, most of which go duty free

to Bangladesh RMG exporters, India was supplying 21.5% of Bangladesh's total recorded imports for use in the domestic market. Adding unrecorded smuggled imports, the Indian share of total imports for the Bangladesh domestic market is plausibly between 30% and 35%.

Export to India from Bangladesh

Since 2001/02 Bangladesh's officially recorded exports to India have been increasing fairly rapidly, and this increase was sustained until fiscal year 2005/06 when it rose to around $200 million. However, it was from a very low level of only $50-60 million in 2001/02. It is still a miniscule share of India's total imports (less than 0.1%) and only about 1% of Bangladesh's total exports. About two thirds of Bangladesh's exports to India consist of just two products, anhydrous ammonia (which is imported duty free as an input into

Three quarters of Bangladesh's exports are ready made garments, most of which go the US and Europe. Bangladesh RMG producers appear to have a marked labour cost advantage over RMG producers in India, owing to lower wages and similar labour productivity, but India's specific duties on garments appear to have prevented any substantial penetration of its domestic markets by developing country clothing producers including Bangladesh. Under SAPTA, Bangladesh RMGs benefits from Indian preferences –mainly either 50% or 60%-and these are applied to reduce both the ad valorem and the specific components of compound tariffs.

In 2004 India's officially recorded exports to Bangladesh were about $1.7 billion but its imports from Bangladesh were just $78 million. Indian exports to Bangladesh grew very rapidly during the 1990s, and have continued to grow since 2000 (Fig 2.1). By contrast Bangladesh exports to India-almost zero in the early 90s-have stagnated at very low levels at well below $100 million annually. In inflation adjusted US dollars they are presently about the same as they were 20 years ago during the 1980s. Since 1996/97 Indian exports to Bangladesh (in nominal US dollars) have been growing at 9.1% annually, just slightly above the general rate of growth of its total merchandise exports (8.4%), but India's imports from Bangladesh over the same period have grown on average at only 3% annually, compared to average growth of its total imports of 9.2%. Consequently Bangladesh's bilateral trade deficit with India has been increasing rapidly, on average at about 9.5 % annually.

For India, trade with Bangladesh is a very small part of its total trade-just over one percent since the mid-1990s, and currently about 3 percent of its total exports and

a miniscule share (0.01%) of its total imports (Fig 2.2). For Bangladesh (Fig 2.3) however, India has now become the largest single source of its imports (about 16% of the total, ahead of China and Singapore) and accounts for about a tenth of its total trade, despite exports to India which have declined to only slightly above 1 % of total exports.

The two-way trade in FY 2013-2014 was US$3.411 billion with India's exports to Bangladesh accounting for US$2.86 billion and imports US$0.274 million. The trade between the two countries in the last six years is as follows:
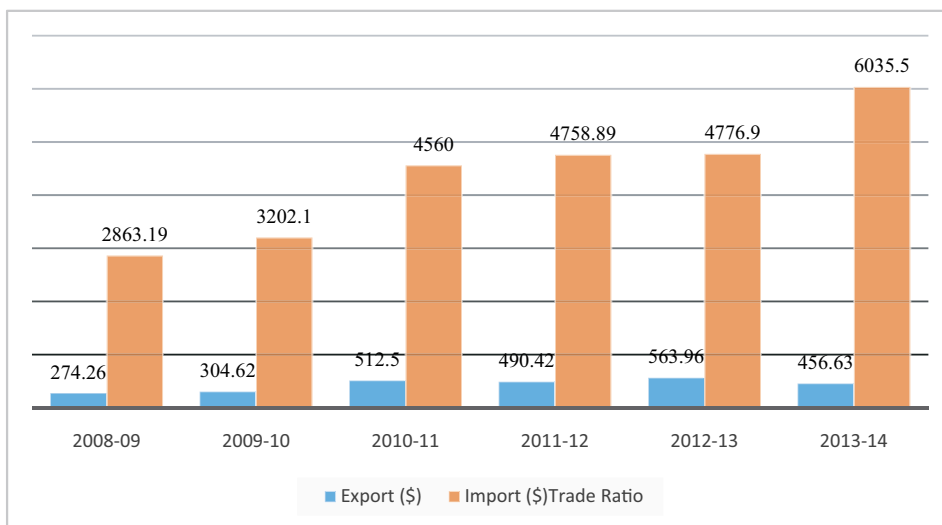
The commodities are allowed to be exchanged in the designated Border Haats in local currency and/or barter basis. Each individual is allowed to purchase only as much of the locally produced commodities which are reasonable for bona-fide

personal/family consumption. Estimated value of such purchases shall not be more than respective local currency equivalent of US$50 (fifty) for any particular day.

India's trade with Bangladesh has increased substantially from US$1857.57 million in 2006-07 to US$ 4053.15 million in 2010-11. The trend in trade between India and Bangladesh is given in Table below:

Bangladesh has always been trade deficit with India, and recently it has increased exponentially. Indo-Bangladesh trade has remained lopsided, dominated by Indian exports, with Indian imports from Bangladesh occupying very low levels.

Major Obstacles behind Indo-Bangladesh Trade Imbalance

- Tariff and Non-Tariff Barriers
- Bilateral Exchange Rate
- Productivity and Structural factors

(a) Overvalued Exchange rate: Downward adjustment of the taka/rupee make exports uncompetitive and leads to import due to cheaper price of goods and services. In spite of import liberalization, unofficial imports from India have become profitable because of hassle free trade, low cost due to nonpayment of tariff imposition etc.

(b) Tariffs: Bangladeshi products face tariff, Para-tariff and non-tariff barriers. The exporters are subject to pay Rs. 300.00 as laboratory test fee for each type of food items. India imposes tax and VAT as central value added tax on apparels of Bangladesh origin defying SAFTA agreement. Such tariff impositions are also on leather shoes, fruit juices, jams and pickles, fish etc.

(c) Non-Tariff Barriers: It is undeniable that Indian Government has put a number of nontariff barriers to discourage imports from Bangladesh. Indian Customs authority asks for laboratory tests for each and every consignment of food products, cosmetics, leather and textile products which delays the clearance of consignments and hinders exports of Bangladeshi products to India. Other conditions affecting the entry of Bangladeshi products to Indian market are over classification of goods for customs purposes, bindings of chemical test, customs valuation ,non-acceptance of certificates of rules of origin, arbitrary imposition of tariff values ,quality standards, permission from Indian government, requirement to collect health certificate, quarantine requirements, inadequate land customs infrastructure, labeling and marking provision and unexpected harassment like filing false cases for alleged violation of rules regarding health, weights and

measures. Refusal to grant SAPTA concessions; rejecting consignments on false pretext, etc. are also the constraints affecting bilateral business.

(d) Poor Production Structure: We always keep in mind that India has a negative attitude to import goods from Bangladesh but it is also undeniable that Bangladesh lack capacity to manufacture export quality goods. India itself is a big producer and exporter of most of the products that Bangladesh can export. However, India's restrictive trade policies are the root cause of Bangladesh's slow growth of exports to India.

Conclusion

A nation's overall trade deficit, rather than a bilateral trade deficit, is what matters. Bangladesh's trade deficit with India has been consistently offset by trade surpluses with other countries, especially with the US and the EU, and by worker remittances. These surpluses have in turn supported the exchange rate of the Taka with other currencies, including the Taka/Rupee rate, and have both enabled, and have been a consequence of, macroeconomic policies which have avoided destabilizing fluctuations in the balance of payments, domestic prices and the exchange rate. As in other countries, there is no economic logic in the idea that trade should be balanced with individual trading partners, and the real concerns behind contrary arguments are usually efforts to prevent or moderate import competition.

Bangladesh has not been able to capture a greater share of the Indian import market should redirect our attention as to how we could take advantage of the opportunities the growing Indian import market offers us. Thus, it is of critical importance that the current momentum of our export to the Indian market be sustained through concerted and targeted measures so that our ambition of reducing trade deficit with India may be actually realized on the ground.

Recommendations

- To defuse the inverse effects of India favored trade, necessary provisions should be assimilated in the policy documents and bilateral agreement.
- Government should seriously study the effects of existing business of Bangladesh with India and take proper initiative accordingly
- To explore and exploit the opportunities in the growing import market of India.
- A larger share of imports can be paid for by the exports

- Along with traditional exports, non-traditional export items have made their place in the export basket of Bangladesh.
- Official channel of business should be encouraged by both the govt. so that smuggling can be avoided.
- Bangladeshi entrepreneurs, industrialist should produce diversified exportable products at low cost with competiveness assessing demand for Indian market so that they can be easily exported to India.

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Measuring the Shadow Economy of Bangladesh, India, Pakistan, and Sri Lanka (1995-2014)

M. Kabir Hassan Blake[*]
Rayfield Makeen Huda[**]

Abstract: *The underground, or "shadow," economy has many negative consequences for society at large. While evidence supports the assertion that the shadow economy is large and growing, the secretive nature of the shadow economy makes it notoriously difficult to measure accurately. Following the MIMIC model of Schneider (2006), we quantify the shadow economies of Bangladesh, India, Pakistan, and Sri Lanka for the years 1995-2014. We find that the average size of the shadow economies of these countries as a percentage of total officials GDP range from the mid-20s to low-30s, with a clear upward trend. Further, we find that size of government is significantly positively associated with size of the shadow economy, while GDP per capita and fiscal freedom are significantly negatively associated with size of the shadow economy.*

I.   Introduction

The underground, or "shadow" economy is commonly characterized by informal, hidden, or illegal economic activity. Generally speaking, the shadow economy consists of any unreported income that derives from the production of goods and services. Schneider (2006) provides a more specific, very useful working definition of the shadow economy: "the shadow economy includes all market-based legal production of goods and services that are deliberately concealed from public authorities for the following reasons—to avoid payment of income, value added or other taxes; to avoid payment of social security contributions; to avoid

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[*]   Laureate in Islamic Banking and Finance, Professor of Finance and Hibernia Professor of Economics and Finance and Bank, New Orleans, LA 70148, E-mail: KabirHassan63@gmail.com
[**]   Professor, Business Department of Economics and Finance University of New Orleans, LA 70148

having to meet certain legal labor market standards, such as minimum wages, maximum working hours, safety standards, etc.; and to avoid complying with certain administrative procedures, such as completing statistical questionnaires or other administrative forms." In this paper we use Schneider's definition of shadow economy activities. Thus we do not examine either the informal household economy or illegal criminal activities such as drug dealing and robbery.

The presence of the shadow economy can have a profound negative impact on the economy at large. Chief among potential negative effects is the loss of tax revenue. Diminishing tax revenue leads to an attendant diminution in the quality of publicly funded goods and services. A country's health is reflected in the quality of its tax-funded infrastructure. Public education is especially important as the education level of a country's residents forms the backbone of its economy. The diversion of income from the formal economy to the shadow economy may lead to public schools falling short of meeting a baseline standard of educational quality. This will in later life manifest itself in lower household income, wealth, status, and health. Poor education and poverty are inextricably linked and reinforce each other in a vicious cycle.

Another harmful characteristic of the shadow economy is that its workers are not protected by labor laws and are thus especially vulnerable to exploitation. When shadow economic activity takes place in abusive workplace environments such as sweatshops, addressing the reality of the shadow economy becomes a human rights issue. It is important to redirect shadow economic activity into legitimate economic activity so that workers can enjoy a transparent and fear-free workplace in which their employers are held accountable to the law.

The rise of the shadow economy is in some ways a response to inefficiencies in the official economy. Thus, compiling data on the shadow economy can assist in the process of remedying shortcomings of the official economy. Some potential remedial measures include rethinking unnecessarily burdensome regulations, streamlining an overly complicated and unresponsive government bureaucracy, and reducing endemic government corruption.

But before anything can be done to reduce the negative impacts of the shadow economy, first a reliable and accurate assessment of its size and scope must be done. It is particularly important to quantify the shadow economy in lower income and developing countries that do not have the robust, stable public institutions of the developed world. With this in mind, we aim to identify the determinants of the shadow economy and estimate the size of the shadow economy in Bangladesh, India, Pakistan, and Sri Lanka over the period 1995-2014.

II. Literature Review

While the shadow economy is intrinsically hard to quantify, many studies have attempted to do so. Dreher and Schneider (2006) use empirical data from a cross-section of 120 countries and a panel of 70 countries over the period 1994-2002 to uncover the relationship between the shadow economy and corruption. Dreher and Schneider's study differs from the previous literature on this topic by incorporating a broader selection of countries that includes both high income and low income countries.

They find that contrary to previous studies, corruption does not significantly impact the shadow economy. The crux of their paper is that corruption and the shadow economy function as substitutes in high income countries and as complements in middle and low income countries. Greater regulatory burden triggers greater corruption, while rule of law and democracy inhibit corruption. They do admit the caveat that their analysis suffers from a scarcity of high quality data, especially over time.

Building on Dreher and Schneider's 2006 work, Schneider (2006) also performs an empirical analysis of the correlation between the shadow economy and corruption. His study increases the sample size to 145 countries over the period 1999-2003, with the sample segmented into developing, transition, Communist, and highly developed OECD countries. Schneider uses the DYMIMIC (dynamic multiple- indicators multiple-causes) model as well as the currency demand approach to measure the size of the shadow economy in the sample countries. He finds that the average size of the shadow economy as a percentage of official GDP is similarly high in developing countries and transition countries, at 38.7% and 40.1%, respectively. The shadow economy is considerably lower in OECD countries, at 16.3% of the official GDP. As in Dreher and Schneider (2006), he finds that in low income countries presence of a shadow economy increases corruption, while in high income countries the presence of a shadow economy serves to decrease corruption. The fact that the shadow economy is positively associated with corruption and is so much larger in developing countries underscores the importance of accurately measuring it.

Buehn and Schneider (2008) elaborate and improve on the MIMIC model in analyzing economic loss caused by the shadow economy in France over the period 1982-2006. They take the standard MIMIC model, which is a type of structural equations model which treats the shadow economy as a latent variable. This means that the shadow economy is a hidden, or unobserved, variable that is assumed to be influenced by several observable and measurable causal and indicator variables. The MIMIC model provides a way to reveal the relationship

between the causal and indicator variables and the unobservable latent variable. However, the traditional MIMIC approach has shortcomings when looking at time series data. Information is lost when taking first differences of no stationary variables. This is especially problematic because most macroeconomic data is no stationary. To solve this problem, Buehn and Schneider develop an EMIMIC (error correction multiple-indicators multiple-causes) model which incorporates cointegration and error correction in order to analyze the French shadow economy over the long-run. Examining the cointegration between variables allows for the detection of the long-run equilibrium relationship between variables while including error correction allows for measurement of short-run dynamics. Buehn and Schneider find that the French shadow economy grew from 12.88% of official GDP in Q1 1982 to 15.93% of official GDP in Q4 of 2006.

III.   Data and Methodology

To measure the size of the shadow economy in Bangladesh, India, Pakistan, and Sri Lanka over the years 1995-2014, we follow the modified MIMIC approach of Dreher and Schneider (2006). Our causal variables are size of government, share of direct taxation, fiscal freedom, business freedom, unemployment rate, and GDP per capita. Our indicator variables are growth rate of GDP per capita, labor force participation rate, and currency. The data on government size, unemployment, and GDP per capita are gathered from the World Bank. The data on fiscal freedom and business freedom are obtained from the Heritage Foundation as part of the Economic Freedom Index. The full definition of each causal and indicator variable can be found in the Appendix.

The standard MIMIC model contains two parts: the structural equation model and the measurement model (Buehn and Schneider, 2008). The structural equation model is as follows:

Where is the latent variable, in this case, the shadow economy; is a (1xq) vector of time series variables; is a (1xq) vector of coefficients describing the causal relationships between the latent variable and its causes; and is the error term denoting the unexplained component.

The measurement model describes the relationship between the latent variable and its indicators and is as follows**:**

Where is a (1xp) vector of time series variables; is a vector of disturbances where every ε is a white noise error term; and λ is the magnitude of the projected change of an indicator for a unit change in the latent variable.

We run the MIMIC model on a series of 42 developing counties given data for the period 1996-2016. We exclude data regarding share of direct taxation due to missing values. Once we have obtained coefficients using the MIMIC method, we then translate these coefficients into absolute cardinal values by using year 2000 shadow economy values from Schneider (2006). This is necessary because the MIMIC model only yields relative, not absolute, values.

IV. Results

Table 1 presents the summary statistics for our four sample countries over the years 1995-2014. All four countries can be characterized as low income developing

Table 1: Summary Statistics

Country	Variable	Mean	Median	Std.	Min	Max
Bangladesh						
	Government Size	5.07	5.10	0.19	4.63	5.
	Unemployment	3.87	4.30	0.75	2.50	5.
	GDP Per Capita	1839.7	1657.92	43.6	1050.6	3138.24
	Financial Freedom	28.50	30.00	10.6	10.00	50.00
	Business Freedom	50.42	40.00	11.9	40.00	70.80
India						
	Government Size	11.27	11.08	0.78	10.01	12.80
	Unemployment	3.97	4.00	0.29	3.50	4.
	GDP Per Capita	3079.4	2718.71	294.5	1500.6	5679.59
	Financial Freedom	33.00	30.00	4.58	30.00	40.00
	Business Freedom	49	55.00	7.67	35.50	55.00
Pakistan						
	Government Size	10	10.34	1.33	7.78	12.65
	Unemployment	5.	5.50	1.02	5.00	7.
	GDP Per Capita	349	3439.96	87.9	2452.7	4833.66
	Financial Freedom	45	45.00	10.7	30.00	70.00
	Business Freedom	64	70.00	7.78	55.00	72.50
Sri Lanka						
	Government Size	10	10.34	1.33	7.78	12.65
	Unemployment	7.	7.70	2.37	4.00	12.20
	GDP Per Capita	630	5575.51	465.2	3284.2	11210.30
	Financial Freedom	49	45.00	13.3	30.00	70.00
	Business Freedom	72	70.00	4.76	68.20	85.00

countries with limited financial and business freedom. India, Pakistan, and Sri Lanka's government size are all similar, clustered slightly above 10, while Bangladesh is roughly half that size, registering a 5.07. Bangladesh and India have low unemployment at slightly less than 4%, while Pakistan's unemployment is just less than 6%. Sri Lanka, while having the highest GDP per capita, also has the highest unemployment, at 7.32%. Furthermore, Sri Lanka is the most volatile, as it has the highest standard deviation for four out of five variables.

Table 1 shows summary statistics for our four sample countries for the years 1995-2014. Government Size, Unemployment, and GDP Per Capita are collected from the World Bank. Financial Freedom and Business Freedom are gathered from the Heritage Foundation as part of the Economic Freedom Index.

Table 2 contains the results of difference in means testing for our sample countries. The results indicate that there are statistically significant differences between the population means for almost all pairs of countries for almost all macroeconomic variables obtained from the World Bank. However, differences in means for the freedom scores obtained from the Heritage Foundation are not statistically significant.

Table 2: Difference in Means Testing

	Bangladesh (1)	India (2)	Pakistan (3)	Sri Lanka		
Government Size	5.07	11.27	10.04	10.04		
Unemployment	3.87	3.97	5.97	7.32		
GDP Per Capita	1839.76	3079.40	3496.03	6308.5		
Financial Freedom	28.50	33.00	45.50	49.00		
Business Freedom	50.42	49.72	64.49	72.79		
Government Size	-6.20***	-4.96***	-4.96***	1.24*	1.24***	0.00
Unemployment	-0.10	-2.11***	-3.46***	-	-	-
GDP Per Capita	-	-	-	-	-	-
Financial Freedom	-4.50	-17.00	-20.50	-12.50	-16.00	-3.50
Business Freedom	0.70	-14.07	-22.37	-14.77	-23.07	-8.30

Table 2 shows difference in means testing for the subject countries. (*** < 0.01, ** < 0.05, * < 0.10)

Table 3 illustrates the correlation among the dependent variables. Seven out of the ten possible pairs of variables exhibit statistically significant correlation. The only

pairs of variables that are not statistically significantly correlated are government size and unemployment, government size and business freedom, and business freedom and financial freedom. The highest correlations are between business freedom and unemployment (67%) and business freedom and GDP per capita (56%).

Table 3: Correlation

	Government size	Unemployment	GDP Per Capita	FIN Freedom	BUS Freedom
Government size	1				
Unemployment	0.16	1			
	(0.16)				
GDP Per Capita	0.32***	0.36***	1		
	(0.00)	(0.00)			
FIN Freedom	0.35***	0.35***	0.21*	1	
	(0.00)	(0.00)	(0.07)		
BUS Freedom	0.15	0.67***	0.56***	0.12	1
	(0.18)	(0.00)	(0.00)		
	(0.18)	**(0.00)**	**(0.00)**	**(0.28)**	

Table 3 represents the correlation of dependent variables, with number in parentheses denoting p=values (***<0.01, **<0.05, *0.10)

Table 4 presents the results of our MIMIC estimation. It is clear that size of government, degree of fiscal freedom, and GDP per capita are the key drivers of the shadow economy. The size of government has a positive relationship with the size of the shadow economy. The bigger the government is, the bigger the shadow economy tends to be in our four sample countries. This may be due to our sample countries having inefficient, bloated bureaucracies that do not effectively provide public goods. Not surprisingly, GDP per capita is significantly negatively related to the size of the shadow economy. This is consistent with the hypothesis that wealthier, more developed countries tend to have smaller shadow economies. Fiscal freedom is also negatively associated with the size of the shadow economy, albeit at a lower level of statistical significance.

Table 4 represents the results from running the MIMIC model on a series of 42 developing countries given data for the years 1996-2016. P-values are given in in parentheses (*** < 0.01, ** < 0.05, * < 0.1). Column (1) represents the MIMIC model with the share of direct taxation included while Column (2) excludes direct

Table 4: MIMIC Estimation Results

Causal Variables

	(1)	(2)
Size of Government	0.25***	0.27*** (0.00)
	(0.00)	
Share of Direct Taxation	0.06** (0.00)	
Fiscal Freedom	-0.26*	-0.22** (0.09)
	(0.04)	
Business Freedom	-0.11*	-0.05** (0.07)
	(0.04)	
Unemployment Rate	0.00	0.02*** (0.21)
	(0.00)	
GDP Per Capita	-0.26***	-0.22***
	(0.00)	(0.00)
Indicator Variables		
Growth rate of GDP per capita	-1.78***	-1.01*** (0.00)
	(0.00)	
Labor Force Participation Rate	0.43	0.32 (0.76)
	(0.54)	
Currency	1	1
Chi2	400.23	634
DF	14	12
N	721	832

taxation. Following Schneider et. al (2006), we exclude direct taxation because of missing values.

Finally, Table 5 reveals the size of the shadow economies of Bangladesh, India, Pakistan, and Sri Lanka for the years 1995-2014. We use the year 2000 shadow economy size data of Schneider (2006) as the baseline from which we translate the coefficients obtained from the MIMIC method to absolute values. Sri Lanka has the largest shadow economy, followed in descending order by Bangladesh, India, and Pakistan. Figure 1 illustrates this data graphically, clearly showing the stark upward trend in the shadow economy over time. This upward trend is especially pronounced in Sri Lanka and Bangladesh over the last decade.

Table 5 represents the estimation size of shadow economies for four selected countries: Bangladesh, India, Pakistan, and Sri Lanka. Numbers provided are

Table 5: Size of Shadow Economy (% official GDP)

| Year	Bangladesh	India	Pakistan	Sri Lanka
	43.64	34.94	32.32	55.54
2013	39.66	32.62	31.08	52.65
2012	37.56	30.45	30.09	50.73
2011	35.07	28.73	29.41	46.13
2010	32.57	26.82	28.62	42.03
2009	31.08	24.88	28.40	38.79
2008	29.58	22.56	27.40	37.67
2007	28.00	21.82	27.74	35.11
2006	27.44	23.55	26.95	31.68
2005	21.71	25.67	24.16	29.17
2004	22.96	26.45	22.23	27.93
2003	21.86	26.75	22.03	26.08
2002	21.28	26.71	20.70	24.42
2001	20.76	25.75	20.48	23.65
2000	19.86	24.41	19.98	23.56
1999	19.05	23.37	19.09	22.80
1998	21.50	21.69	18.51	22.02
1997	20.91	20.79	18.18	20.83
1996	20.54	20.21	19.56	19.04
1995	20.43	20.01	20.56	21.34
Mean	26.77	25.41	24.37	32.56

percentages of the official GDP.Each shadow economy is estimated by using the methodology of Schneider et. al (2006). After estimating using the coefficients from Table 4, the absolute values are calibrated using year 2000 shadow economy values from Schneider et. al (2006).

V.   Conclusion

Though the shadow economy is by its very nature notoriously difficult to measure, numerous studies have undertaken the task. The many negative effects of the shadow economy make the mission of accurately quantifying it all the more urgent. This is especially true in low income developing counties such as Bangladesh, India, Pakistan, and Sri Lanka. The reasons for the proliferation of

shadow economic activity are manifold: refusal to pay taxes or contribute to social security; inability or outright refusal to abide by labor laws (i.e. minimum wage laws, child labor laws, workplace safety laws, worker legal status laws); reluctance to deal with burdensome government regulation; unwillingness to go through the proper channels of a plodding government bureaucracy; desire to hide illegal activities from the authorities, etc.

These reasons are especially prevalent in lesser developed or lower income countries where the official sector is not as efficient in providing public goods. In such countries, there is a great need for prudent and effective policies to combat the shadow economy. The first step in combating the shadow economy is to accurately quantify it. To this end, we use the MIMIC model of Schneider (2006) to measure the size of the shadow economies of Bangladesh, India, Pakistan, and Sri Lanka. We find that the shadow economies in these countries are substantial; the average size as a percentage of official GDP over the period 1995-2014 is 26.77% for Bangladesh, 25.41% for India, 24.37% for Pakistan, and 32.56% for Sri Lanka. Furthermore, there is a clear upward trend in the size of the shadow economy in each country. We also find that the size of the shadow economy is negatively related to GDP per capita, financial freedom, and business freedom, while it is positively related to size of government.

Figure 1: Shadow Economy Size Over Time
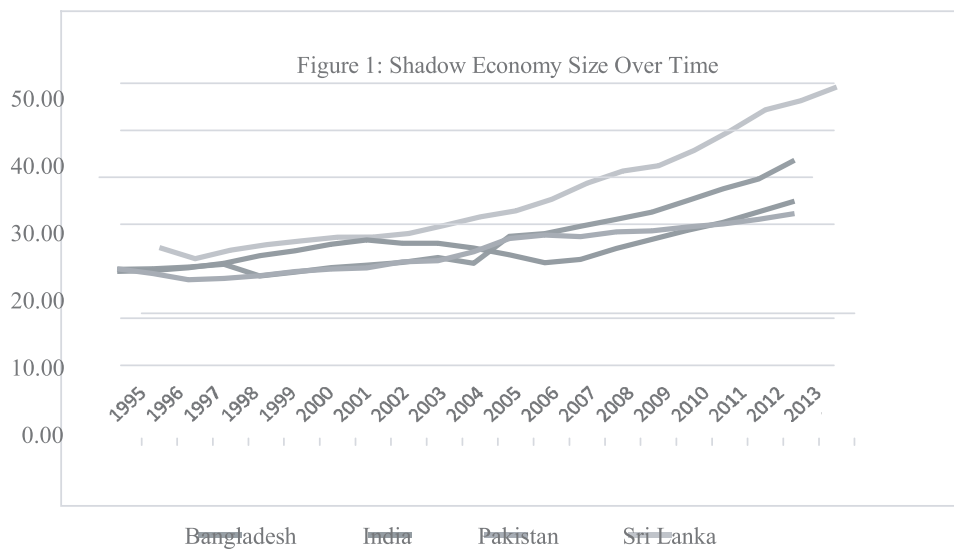
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Know? IZA Discussion Paper No. 2315, 1-65.

Appendix: Variable Description

Variable Name	Variable Description	Source
BUSINESS FREEDOM	Subcomponent of the Economic Freedom Index. It measures the time and efforts of business activity. It ranges from 0 to 100, where 0 = least business freedom, and 100 = maximum business freedom.	Heritage Foundation
ECONOMIC FREEDOM	Economic Freedom Index. It ranges from 0 to 100, where 0 = least economic freedom and 100 = maximum economic freedom.	Heritage Foundation
FISCAL FREEDOM	Subcomponent of the Economic Freedom Index. It measures the fiscal burden in an economy, i.e., top tax rates on individual and corporate income. It ranges from 0 to 100, where 0 = least fiscal freedom, and 100 = maximum degree of fiscal freedom.	Heritage Foundation
CURRENCY	M0 over M1. It corresponds to the currency outside the banks (M0) as a proportion of M1.	International Monetary Fund

Variable Name	Variable Description	Source
LABOR FORCE PARTICIPATION RATE	This corresponds to the labor force participation rate, total (% of total population). Labor force participation rate is the proportion of the population that is economically active.	World Bank
GDP PER CAPITA (PPP)	This corresponds to the GDP per capita based on purchasing power parity (PPP) (constant 2005 international $). GDP PPP is gross domestic product converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the U.S. dollar has in the United States. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2005 international dollars.	World Bank
UNEMPLOYMENT RATE	Unemployment, total (% of total labor force). Unemployment refers to the share of the labor force that is without work but available for and seeking employment. Definitions of labor force and unemployment differ by country.	World Bank

Impact of Stringent Capital Requirements on Bank Crises: South Asian Perspective

RIPON ROY[*]
ROKEYA KHATUN[*]

Abstract: *This paper investigates the impact of stringent capital and regulatory standards on bank crises in South Asia using a multivariate panel logit model. We have followed the conventional and widely used definition of banking crises suggested by Demirguc-Kunt & Detragiache (1998), Davis & Karim (2008), Hosni (2014) and Wong et al. (2010). According to them banking crisis occurs when the banking sector's non perfoming loan ratio exceeds 10 percent. The logit model is widely used in the empirical literature on the causes of banking crises since its inception by Demirguc-Kunt & Detragiache (1998). In the model the probability of banking crisis is assumed to be a function of a set of potential explanatory variables. We have taken a general-to-specific approach by progressively reducing the general model with including only those explanatory variables that are statistically significant at 1%, 5% and 10% level, as done by Caggiano & Calice (2011) and Yan et al. (2012). By using the above function we have got that the likelihood of a bank crisis is negatively associated with capital adequacy ratio, GDP growth and private sector credit to GDP, while positively associated with real interest rate. Particularly, we have found that the likelihood of a crisis would be reduced by 18 basis points if capital adequacy ratio is raised by 1 percentage point.*

JEL Classification: *E52 (Monetary Policy), E58 (Central Banks and Their policies)*

Keywords: *Global Financial Crisis, Non-Performing Loans, Multivariate Logit Model*

*   Joint Director, Governor Secretariat, Bangladesh Bank, E-mail: ripon.roy@bb.org.bd.
**   Deputy General Manager, Governor Secretariat, Bangladesh Bank,
     E-mail: rokeya.khatun@bb.org.bd.

1.   Introduction

The banking industry of South Asia[1] generally proved its resilience during the Global Financial Crisis of 2007-2008. This development was achieved due to the implementation of stringent regulatory and supervisory standards within a stable, sounder and more flexible macroeconomic management framework over the past decade. Stringent capital ratios are expected to reduce the probability of systematic banking crises and smaller output volatility, thereby, leading to welfare gains. On the other hand, these tighter capital requirements are passed through an increased lending rate as the banks shift the burden to their customers. This in turn reduces consumption - investment and finally the growth rate of real economy through 'Bank Lending Channel'.

South Asian countries are making stronger efforts in line with BASEL reforms. Afghanistan, Bhutan, and Maldives have not yet implemented Basel II, but they are compliant with Basel I (Sophastienphong & Kulathunga, 2010; Financial Stabilty Institute, 2012). Bangladesh, India, Nepal, Pakistan, and Sri Lanka have already embraced various stages of Basel II. Some of these countries have even started working to implement BASEL III in coming years. These new macro and micro prudential regulations are helping these countries to address the issue of financial stability through improved management of risk and supervision. But the relevant costs of rising lending rate should also be taken under consideration in determining the net welfare gain of these accords. Therefore, in spelling out a strategy to move with BASEL III, it is important to assess the implications of regulatory reforms on the economic performance of these countries.

We have showed the real GDP, trend of real GDP, capital adequacy ratio and nonperforming loans for India, Bangladesh, Pakistan, Nepal and Sri Lanka from 1996 to 2013 in Graph 1.

The graphs for each country show strong negative association between capital adequacy ratio and nonperforming loans. The correlation coefficients between the two variables in Bangladesh, India, Nepal, Pakistan and Sri Lanka are - 0.68, - 0.75, - 0.40, - 0.42 and - 0.74 respectively while for the whole panel data set it becomes - 0.51. These results provide some evidence that tighter capital requirements might contribute to the resilience of South Asian banking industry through lowering the ratio of nonperforming loans.

[1.]   Afghanistan, Bangladesh, Bhutan, India, *the* Maldives, Nepal, Pakistan and Sri Lanka

Graph 1: Real GDP and Trend (Billion, USD), Non Performing Loan (NPL) and Capital Adequacy Ratio (CAR)

Source: Compiled by authors from GFSR (2014); CBW; GFSA (2010) and WDI Database (2014)

Barrell et al. (2009) and Kato et al. (2010) build reduced form probit models for investigating the statistical relationship of probability of crisis occuring with bank capital and liquidity. Wong et al. (2010) used a cost-benfit analysis approach to assess the impact of tightened capital ratios for Hong Kong. By using a probit model for estimating banking crises and vector error correction models (VECM) for estimating long term output reduction, they concluded that regulatory reforms would bring a net long term gain for Hong Kong economy. Gambacorta (2011) also used a VECM approach to evaluate the new regulatory standards for the US economy over the period 1994 to 2008. They found that the estimated positive benefit of reforms through reducing the probability of banking crises and associated banking loss overrun the negative effects on the level of output.

There is no other study investigating the macroeconomic impacts of new regulatory capital accords for the South Asian countries as per the best of our knowledge. Our work on the issue, thus, will contribute to fill the gap. The estimation of the model is done using annual data over the period 1996-2013 for five South Asian countries which are Bangladesh, India, Nepal, Pakistan and Sri Lanka. The other three countries (Afghanistan, Bhutan and Maldives) are excluded for lack of sufficient data.

2.   Estimating the Probability of Bank Crises

A multivariate panel logit model is used to estimate the impact of tighter capital requirements on bank crises. The model is widely used in the empirical literature on the causes of banking crises since its inception by Demirguc-Kunt & Detragiache (1998). In the model the probability of banking crisis is assumed to be a function of a set of potential explanatory variables. Given the hypothesized functional form, typically linear, the estimated logit gives the estimated probability of crisis. The dependent variable probability of banking crisis is a binary variable which takes a value of 1 if country i is hit by a crisis at time t and 0 otherwise.

$$P_{i,t} = \phi\left(\square_k Z_{k,t}\right) = \sum_{k=1}^{K} \square_k Z_{k,t}$$

where represents a set of macroeconomic variables including capital adequacy ratio, real interest rate, private sector credit to GDP as well as growth of GDP deflator, GDP, current account balance, terms of trade and credit. The set of the explanatory variables are chosen following other recent works in the subject, particularly Demirgüç-Kunt et al. (2006), Barrell et al. (2009), Wong et al. (2010)

and Caggiano & Calice (2011).   be the vector of k parameters to be estimated and ϕ the cumulative probability density function which is assumed here to be logistic. The log-likelihood function of the model that must be maximized is:

$$\ln(L) = \sum_{i=1}^{n} \sum_{t=1}^{T} \{ R_{i,t} \ln[\phi(\Upsilon 'Z_{k,t})] + (1 - R_{i,t} \ln[1 - R_{i,t}]\}$$

We have followed the conventional and widely used definition of banking crises suggested by Demirguc-Kunt & Detragiache (1998), Davis & Karim (2008), Hosni (2014) and Wong et al. (2010). According to them banking crisis occurs when the banking sector's non perfoming loan ratio exceeds 10 percent. We have taken a general-to-specific approach by progressively reducing the general model with including only those explanatory variables that are statistically significant at 1%, 5% and 10% level, as done by Caggiano & Calice (2011) and Yan et al. (2012).

Table 1: Banking Crisis Determinants [a]

Dependent Variable: Probability of Bank Crises					
	Model 5	Model 4	Model 3	Model 2	Model 1
Capital Adequacy Ratio	-0.798***	-0.759***	-0.948**	-1.153**	-1.168**
GDP Growth	-0.472*	-0.719**	-0.674*	-0.885*	-0.896*
Private Sector Credit to GDP	-0.365***	-0.394***	-0.469***	-0.538***	-0.541***
Real Interest Rate	0.386***	0.400***	0.569**	0.683**	0.717**
Private Sector Credit Growth		0.065	0.095*	0.165**	0.163*
GDP Deflator Growth			0.203	0.283	0.292
Current Account Balance Growth				0.001	0.001
Terms of Trade Growth					0.023
McFadden R-squared	0.720	0.734	0.747	0.767	0.768

[a] The regression includes a constant term,
*Indicates statistical significance at the 10% level,
**Indicates statistical significance at the 5% level,
*** Indicates statistical significance at the 1% level.

The estimated result shows that an increase in capital adequacy ratio, GDP growth, private sector credit to GDP reduces the probability of banking crises across all the five models in statistically significant way. We find that high real interest rate and private sector credit growth are positively associated with banking crises across Model 1-5 and Model 1-3 respectively in statistically significant way. Our coefficient of interest is the coefficient attached to capital adequacy ratio which is robustly significant across all the specifications at 5% level (at 1% level in Model 4-5). We can also observe that the origin of banking crisis in South Asia is mainly influenced by real economy indicators (real GDP growth and real interest rate) and banking sector indicators (capital adequacy ratio, private sector credit to GDP and credit growth) while the external sector indicators (terms of trade and current account balance) do not have any statistically significant impact on banking crisis. This result implies that the external factors have limited role to play on the banking industry of South Asia. We can also compute the expected benefit from the estimated model through calculating the marginal effect of a change in the explanatory variable of our interest. To derive the marginal effect of capital adequacy ratio on the probability of crisis the following function is used:

$$\frac{\partial E \ (Probability \ of \ Bank \ Crisis \mid Capital \ Adequacy \ Ratio, \ \beta)}{\partial \ Capital \ Adequacy \ Ratio} = f(-Capital \ Adequacy \ Ratio' \beta)\beta_{Capital \ Adequacy \ Ratio}$$

where E(Probability of Bank Crisis|.) is the conditional expected value of bank crisis, is the vector of parameters and f(.) is the logistic function. By using the above function we have got a value of 0.18 as the marginal effect of capital adequacy ratio on the probability of banking crises from Model 5. This implies that the likelihood of a crisis would be reduced by 18 basis points if capital adequacy ratio is raised by 1 percentage point.

Conclusion

Implementation of new capital and liquidity requirements under BASEL III framework has emerged as a crucial issue for banking sector reforms in South Asia. The reforms are making the South Asian banking sector more resilient by reducing the probability of systematic banking crisis, thus, creating a welfare gain by eliminating negative output shock and reducing output volatility. But at the same time tightened capital requirements are passed from the banks to their customers through an increased lending rate which in turn inversely influences consumption-investment and finally GDP. By using a panel multivariate logit model and median output loss for a banking crisis, we have found that the

likelihood of a crisis would be reduced by 18 basis points if capital adequacy ratio is raised by 1 percentage point. Almost all the countries are maintaining a capital adequacy ratio much above 10 percent except Nepal. As mentioned earlier, we have not tried to derive the optimal level of capital requirement in our paper. Rather we have tried to assess how the South Asian countries should go with implementing BASEL accords.

We must mention some caveats that remain in the study. First, it was really difficult to get data for all of the variables of these countries over 1996-2013 from a single source. When the sources changed, some minor fluctuations were observed which might produce some bias in the results. This can be addressed in further research on this topic. Second, model limitations and particularly mapping capital ratios with relevant BASEL regulations inevitably influence the results. Finally, we have not incorporated liquidity in our model following Caggiano & Calice (2011), Kapp & Vega (2014) as well as not having sufficient data. However, Wong et al. (2010), Gambacorta (2011) and Yan et al. (2012) used loan to deposit ratio (LTD), liquidity to deposit ratio (LIQ) and net stable funding ratio (NSFR) respectively as liquidity terms in their models.

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Appendix

A.1. Definitions and Sources of Variables

Variables	Definitions	Sources
Capital Adequacy Ratio (CAR)	Bank Regulatory Capital to Risk-Weighted Assets (%)	Global Financial Stability Report (GFSR) Data, International Monetary Fund (IMF), 2014; Central Bank Websites (CBW)
Nonperforming Loans (NPL)	Bank nonperforming loans to total gross loans (%)	GFSR, IMF, 2014; CBW; Getting Finance to South Asia (GFSA), 2010
Return on Equity (ROE)	Bank return on equity (%)	GFSR, IMF, 2014; CBW; GFSA, 2010
GDP Deflator (GD)	GDP Deflator Growth	World Development Indicators (WDI) Database, 2014
GDP (Y)	Real GDP	WDI Database, 2014
GDP Growth (YG)	Real GDP Growth	WDI Database, 2014
Private Sector Credit (CREDIT)	Domestic credit to private sector (% of GDP)	WDI Database, 2014
Private Sector Credit Growth (CG)	Growth of domestic credit to private sector	WDI Database, 2014
Real Interest Rate (r)	Nominal interest rate adjusted for inflation as measured by the GDP deflator (%)	WDI Database, 2014
Terms of Trade (TOT)	Net barter terms of trade	WDI Database, 2014
Lending Rate (L)	Bank rate that usually meets the short and medium term financing needs of the private sector (%)	WDI Database, 2014
Current Account Balance (GCAB)	Current Account Balance Growth	WDI Database, 2013

A.2. Banking Crises Determinants (Logit Results – Model 5)

Dependent Variable: CRISES

Method: ML - Binary Logit (Quadratic hill climbing)

Date: 12/29/14   Time: 21:37

Sample: 1996 2013

Included observations: 90

Convergence achieved after 6 iterations

Covariance matrix computed using second derivatives

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	22.70130	6.321939	3.590875	0.0003
CAR	-0.798115	0.285930	-2.791293	0.0052
GY	-0.472510	0.261132	-1.809467	0.0704
CREDIT	-0.365827	0.105360	-3.472177	0.0005
R	0.386753	0.142696	2.710332	0.0067

McFadden R-squared	0.720238	Mean dependent var		0.622222
S.D. dependent var	0.487548	S.E. of regression		0.246734
Akaike info criterion	0.482057	Sum squared resid		5.174616
Schwarz criterion	0.620935	Log likelihood		-16.69256
Hannan-Quinn criter.	0.538061	Deviance		33.38512
Restr. deviance	119.3338	Restr. log likelihood		-59.66692
LR statistic	85.94871	Avg. log likelihood		-0.185473
Prob (LR statistic)	0.000000			

Obs with Dep=0	34	Total obs		90
Obs with Dep=1	56			

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Keywords: *Global Financial Crisis, Non-Performing Loans, Multivariate Logit Model*

* Joint Director, Governor Secretariat, Bangladesh Bank, E-mail: ripon.roy@bb.org.bd.
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1.   Introduction

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[1]   Afghanistan, Bangladesh, Bhutan, India, *the* Maldives, Nepal, Pakistan and Sri Lanka

Graph 1: Real GDP and Trend (Billion, USD), Non Performing Loan (NPL) and Capital Adequacy Ratio (CAR)

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$$P_{i,t} = \phi \left(\beta_k Z_{k,t} \right) = \sum_{k=1}^{K} \beta_k Z_{k,t}$$

where represents a set of macroeconomic variables including capital adequacy ratio, real interest rate, private sector credit to GDP as well as growth of GDP deflator, GDP, current account balance, terms of trade and credit. The set of the explanatory variables are chosen following other recent works in the subject, particularly Demirgüç-Kunt et al. (2006), Barrell et al. (2009), Wong et al. (2010)

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The log-likelihood function of the model that must be maximized is:

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[a] The regression includes a constant term,
*Indicates statistical significance at the 10% level,
 **Indicates statistical significance at the 5% level,
*** Indicates statistical significance at the 1% level.

The estimated result shows that an increase in capital adequacy ratio, GDP growth, private sector credit to GDP reduces the probability of banking crises across all the five models in statistically significant way. We find that high real interest rate and private sector credit growth are positively associated with banking crises across Model 1-5 and Model 1-3 respectively in statistically significant way. Our coefficient of interest is the coefficient attached to capital adequacy ratio which is robustly significant across all the specifications at 5% level (at 1% level in Model 4-5). We can also observe that the origin of banking crisis in South Asia is mainly influenced by real economy indicators (real GDP growth and real interest rate) and banking sector indicators (capital adequacy ratio, private sector credit to GDP and credit growth) while the external sector indicators (terms of trade and current account balance) do not have any statistically significant impact on banking crisis. This result implies that the external factors have limited role to play on the banking industry of South Asia. We can also compute the expected benefit from the estimated model through calculating the marginal effect of a change in the explanatory variable of our interest. To derive the marginal effect of capital adequacy ratio on the probability of crisis the following function is used:

$$\frac{\partial E\ (Probability\ of\ Bank\ Crisis\ |\ Capital\ Adequacy\ Ratio,\ \beta)}{\partial\ Capital\ Adequacy\ Ratio}$$
$$= f(-\ Capital\ Adequacy\ Ratio^{'}\beta)\beta_{Capital\ Adequacy\ Ratio}$$

where E(Probability of Bank Crisis|.) is the conditional expected value of bank crisis, is the vector of parameters and f(.) is the logistic function. By using the above function we have got a value of 0.18 as the marginal effect of capital adequacy ratio on the probability of banking crises from Model 5. This implies that the likelihood of a crisis would be reduced by 18 basis points if capital adequacy ratio is raised by 1 percentage point.

Conclusion

Implementation of new capital and liquidity requirements under BASEL III framework has emerged as a crucial issue for banking sector reforms in South Asia. The reforms are making the South Asian banking sector more resilient by reducing the probability of systematic banking crisis, thus, creating a welfare gain by eliminating negative output shock and reducing output volatility. But at the same time tightened capital requirements are passed from the banks to their customers through an increased lending rate which in turn inversely influences consumption-investment and finally GDP. By using a panel multivariate logit model and median output loss for a banking crisis, we have found that the

likelihood of a crisis would be reduced by 18 basis points if capital adequacy ratio is raised by 1 percentage point. Almost all the countries are maintaining a capital adequacy ratio much above 10 percent except Nepal. As mentioned earlier, we have not tried to derive the optimal level of capital requirement in our paper. Rather we have tried to assess how the South Asian countries should go with implementing BASEL accords.

We must mention some caveats that remain in the study. First, it was really difficult to get data for all of the variables of these countries over 1996-2013 from a single source. When the sources changed, some minor fluctuations were observed which might produce some bias in the results. This can be addressed in further research on this topic. Second, model limitations and particularly mapping capital ratios with relevant BASEL regulations inevitably influence the results. Finally, we have not incorporated liquidity in our model following Caggiano & Calice (2011), Kapp & Vega (2014) as well as not having sufficient data. However, Wong et al. (2010), Gambacorta (2011) and Yan et al. (2012) used loan to deposit ratio (LTD), liquidity to deposit ratio (LIQ) and net stable funding ratio (NSFR) respectively as liquidity terms in their models.

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Appendix

A.1. Definitions and Sources of Variables

Variables	Definitions	Sources
Capital Adequacy Ratio (CAR)	Bank Regulatory Capital to Risk-Weighted Assets (%)	Global Financial Stability Report (GFSR) Data, International Monetary Fund (IMF), 2014; Central Bank Websites (CBW)
Nonperforming Loans (NPL)	Bank nonperforming loans to total gross loans (%)	GFSR, IMF, 2014; CBW; Getting Finance to South Asia (GFSA), 2010
Return on Equity (ROE)	Bank return on equity (%)	GFSR, IMF, 2014; CBW; GFSA, 2010
GDP Deflator (GD)	GDP Deflator Growth	World Development Indicators (WDI) Database, 2014
GDP (Y)	Real GDP	WDI Database, 2014
GDP Growth (YG)	Real GDP Growth	WDI Database, 2014
Private Sector Credit (CREDIT)	Domestic credit to private sector (% of GDP)	WDI Database, 2014
Private Sector Credit Growth (CG)	Growth of domestic credit to private sector	WDI Database, 2014
Real Interest Rate (r)	Nominal interest rate adjusted for inflation as measured by the GDP deflator (%)	WDI Database, 2014
Terms of Trade (TOT)	Net barter terms of trade	WDI Database, 2014
Lending Rate (L)	Bank rate that usually meets the short and medium term financing needs of the private sector (%)	WDI Database, 2014
Current Account Balance (GCAB)	Current Account Balance Growth	WDI Database, 2013

A.2. Banking Crises Determinants (Logit Results – Model 5)

Dependent Variable: CRISES

Method: ML - Binary Logit (Quadratic hill climbing)

Date: 12/29/14   Time: 21:37

Sample: 1996 2013

Included observations: 90

Convergence achieved after 6 iterations

Covariance matrix computed using second derivatives

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	22.70130	6.321939	3.590875	0.0003
CAR	-0.798115	0.285930	-2.791293	0.0052
GY	-0.472510	0.261132	-1.809467	0.0704
CREDIT	-0.365827	0.105360	-3.472177	0.0005
R	0.386753	0.142696	2.710332	0.0067

McFadden R-squared	0.720238	Mean dependent var	0.622222
S.D. dependent var	0.487548	S.E. of regression	0.246734
Akaike info criterion	0.482057	Sum squared resid	5.174616
Schwarz criterion	0.620935	Log likelihood	-16.69256
Hannan-Quinn criter.	0.538061	Deviance	33.38512
Restr. deviance	119.3338	Restr. log likelihood	-59.66692
LR statistic	85.94871	Avg. log likelihood	-0.185473
Prob (LR statistic)	0.000000		

Obs with Dep=0	34	Total obs	90
Obs with Dep=1	56		

Status of Investment Climate in Bangladesh Comparing with Selected Asian Countries

Sonjoy Chkaraborty*

Abstract: *Fifteen Asian selected economy's comparative investment climate has been examined in this study. These economies are Bangladesh, India, Sri Lanka, Pakistan, China, Malaysia, Thailand, Indonesia, Vietnam, Singapore, Hong Kong, Philippine, Cambodia, Lao P.D.R and Korea. In spite of lowest wage rate and lowest business operating cost components in Bangladesh, per-capita FDI and FDI-GDP ratio is significantly low compared to other 14 selected Asian countries. The target of Perspective Plan of Bangladesh (2010-2021) is to achieve middle income country by 2021 and for this reason Bangladesh has to attain 8% GDP growth rate by 2020. For achieving 8% growth rate, 32% to 35% investment of GDP is required. Target of 7th Five Year Plan is to achieve 34.4% of Gross Domestic Investment and 9.56 billions USD FDI by 2020. At present, Investment is only 28.9% of GDP and FDI is only around 1% of GDP(2.23 Billion SUD in 2015). Due to low per capita income, rapid enhancement of domestic investment is not very easy and in such a situation, FDI can play a very important role to fill up the investment gap though it is may not always true. For attracting more FDI, Bangladesh have to be more concern about infrastructural development, Need-based Skilled Human capital, Doing Business factors, Getting Electricity, Registering Property, Getting Credit, Protecting Minority Investors, Trading Across Borders, Enforcing Contracts, Resolving Insolvency, Economic Freedom, Business Freedom, Labor Freedom, Trade Freedom, Investment Freedom, Global Competitiveness factors, Global enabling trade fsctors, Business Environment, Human Capital, Global Innovation factors, Governance Indicators and Labor Cost etc.*

***Key Words:** Investment Climate, Foreign Direct Investment, Per capita FDI, DFI-GDP ratio.*

*   Deputy Secretary, Prime Minister's Office, Bangladesh

1.   Introduction

The Investment climate is affected by many factors, including: skilled workers, poverty, crime, infrastructure, workforce, national security, political instability, regime uncertainty, taxes, rule of law, property rights, government regulations, government transparency and government. According the Perspective Plan of Bangladesh (2010-2021), the target is to achieve middle income country by 2021 and for this reason Bangladesh has to attain 8% GDP growth tare (Attaining average real GDP growth of 7.4% per year over the 7th Five Year Plan period). For achieving 8% growth rate, 32% to 35% investment of GDP is required. At present, Investment is only 28.9% of GDP (around 22% is private investment and 6.9% is public investment). Target of 7th Five Year Plan to achieve 34.4% of Gross Domestic Investment and 9.56 billion USU FDI by 2020. For attaining the targeted level investment, proper investment climate is essential. "First consumption, then savings or investment"- is the human character. Bangladesh is lower-Middle income country. So, it is very difficult to increase the investment very rapidly. For this reason, FDI can play, the very important role to fill-up the gap between the present investment level and required investment level. The government gave importance to accelerate FDI, because FDIs brings their better technological and managerial skills and knowledge about international marketing conditions, are expected to improve the productivity as well as export performance of host country firms by creating certain positive externalities known as 'spill overs'. In 7th Five Year Plan, the targeted Investment is to reach 34.6 percent of GDP by 2020 (around 26.7% is private investment and 7.8% is public investment) and Inflow of FDI is to achieve $9.6 billion by FY20. However, in 2015, inflow of FDI is only 2.235 Billion USD. So, it is a great challenge for Bangladesh.

Generally Foreign Direct Investment means "Establishing or expanding business operations into a foreign country with transfer of capital".FDI is defined by UNCAD as "An investment involving a long-term relationship and reflecting a lasting interest and control by a resident entity in one economy. The World Bank World Development Indicators defines inward FDI as "the net inflows of investment to acquire a lasting management interest in an enterprise operating in an economy other than that of the investor" (World Bank 2006, p. 319). Inward FDI not only serves the long-term financial interests of foreign investors, it can also play a significant role in the growth dynamics of host countries. FDI can fill the "investment gap" by providing capital for domestic investment in one hand and can also can fill the "foreign exchange gap" by providing foreign currency through initial investments and subsequent export earnings on the other hand

finally, FDI can help close the "tax revenue gap" by generating tax revenues through creation of additional economic activities (Smith, 1997). FDI has an important effect on economic growth of third world countries by creating bridge between the gap of domestic savings and investment and introducing familiarizing the up to date technology and management skill from developed countries (Mottaleb, 2007). Many empirical studies have revealed that FDI can also help generate domestic investment in matching funds, facilitate transfer of managerial skills and technological knowledge, increase local market competition, create modern job opportunities and increase global market access for export commodities, etc. At the end of the Cold War in the early 1990s in a new political dynamics, LDCs become heavily dependent on foreign public aid regardless of their political ideological learning, to find out alternative sources of foreign private capital and the FDI is getting its importance to fill the shortage of capital. Before taking decision of investment, an investor search the investment climate for smooth return of his capital. In this article industrial climate of more or less 15 selected Asian countries like Bangladesh, India, Sri Lanka, Pakistan, China, Malaysia, Thailand, Indonesia, Vietnam, Hongkong, Philippine, Cambodia, Lao PDR, Korea and Singapore have been compared.

Availability of natural resource, labour quality, inflation of the country, domestic economic environment, market size, quality of infrastructure, labor cost, economic openness, return on capital, political stability are the determinants of FDI is identified by the most of studies. There are many instances of conflicting findings regarding the direction of influence of the determinants of FDI (Chakrabarti, 2001). FDI sources endeavoured to invest in developing countries with the object of obtaining increased imports of primary products which are vitally important for the country. Natural resources like oil, natural gas, iron, coal, copper, bauxite and other metals are targets in this type of investment (Kojima, 1978). Regarding political instability, Barro (1991) and Corbo and Schmidt-Hebbel (1991) state that it creates an uncertain economic environment detrimental to long-term planning, which reduces economic growth and investment opportunities. Economic freedom, trade openness, market size, human capital, political instability plays the significant determinants of FDI in Bangladesh, India, Nepal, Pakistan and Sri Lanka (Quazi and Mahmud, 2006). Jaspersen et al (2000) and Asiedu (2002) found that the rate of return on investment positively affects FDI, while Wheeler and Mody (1992) and Asiedu (2002) found that availability of infrastructure significantly boosts FDI. Market size, GDP growth, trade openness / access to international market and quality of labor are the major determinants that have significant impact on the FDI inflow in Pakistan (. The

study also found no impact of market potential and communication facility on the attraction of FDI inflow in Pakistan (Rehman. A. et al, 2009). Though, there are a lot of study regarding the positive impact of FDI, Sadik and Bolbol (2001) investigate the effect of FDI through technology spillover on overall total factor productivity for India, Pakistan, Bangladesh and Srilanka over a 10-year period. They find that FDI has not had any manifest positive spillover on technology and productivity over and above those of other types of capital formation. In a study of the impact of economic freedom and investment climate on FDI in Latin America, Quazi (2007) found that FDI inflow is negatively correlated with policy changes that result in diminished economic freedom, and excessive bureaucracy and inefficient financial markets have created locational disadvantages for Mexico vis-à-vis other countries in the region.

2.   Objective of the Paper

The broad objective of this paper is to compare the investment climate of Bangladesh with selected countries in Asia- India, Sri Lanka, Pakistan, China, Malaysia, Thailand, Indonesia, Vietnam, Singapore, Hong Kong, Philippine, Korea, Lao PDR and Cambodia. This paper is also designed to accomplish the objectives to identify the determinants that measure the investment climate and to identify the barriers of inflow of FDI in Bangladesh

3.   Methodology

This is actually a literature survey study. An exploratory research has been conducted in preparing the paper. The methodology includes simple statistical tools such as mean, standard deviation, correlation and percentage. This paper is primarily based on secondary information. Internet resources from various websites had been facilitating in locating and gathering data. The relevant secondary data are collected from Statistics Department and Research Department of Bangladesh Bank (Central Bank of Bangladesh), Bangladesh Investment Development Authority (BIDA), Bangladesh Economic Trend, Bangladesh Economic Review, World Investment Report 2015 published by UNCTAD various survey, websites, journals, working papers, books and newspapers etc. These data has been analyzed to compare the investment climate Bangladesh, India, Sri Lanka, Pakistan, China, Malaysia, Thailand, Indonesia, Vietnam, Singapore, Hong Kong, Philippine, Korea, Lao PDR and Cambodia.

4.   Defining Indestment Climate

Investment Climate may be defined as the economic and financial conditions in a country that affect whether individuals and businesses are willing to lend money and acquire a stake in the businesses operating there. An idea of Investment climate is easy to perceive, but difficult to define precisely. According to the World Development Report 2005, investment climate is the set of location-specific factors shaping the opportunities and incentives for firms to invest productively, create jobs, and expand. Clearly, this definition is wider, which encompasses government policies, institutions and behavioral environment that have significant influence on costs, risks and barriers to business. It has emphasized on a good investment climate is the one that serves the society as a whole on the one hand (through its impact on job creation, lower prices, and broadening the tax base) and serves all firms, including both large and small, on the other. A sound investment climate not only encourages more investment, but also promotes higher productivity because of increased competition.

For Bangladesh to make significant impact on the existing poverty incidence, annual GDP growth of 7-8 percent is needed (Razzak, A. and Raihan, S., 2007). Considering the experience of the past 30 years or so, it can be inferred that a growth rate of 7 percent would require an investment-GDP ratio of more than 30 percent as against the current level of 26.89 percent (www.economywatch.com). Seventh FYP projected to attain the 8% growth rate and 34.6% investment of GDP. When investment is based on domestic saving alone, we have to sacrifice current consumption for future prosperity. At a low level of income it is a very difficult option and for this reason investment from foreign sources (such as foreign direct investment or FDI) can greatly help a country achieve higher growth without constraining the current consumption too much.

In recent times discussion of investment climate becomes an important issue in the Business arena. There are a number of cross-country comparisons in different reports often seem to be conflicting, giving rise to controversies and misunderstandings. These make it difficult for the policy makers to derive necessary inputs from the analyses that are made available. The underlying methodologies and their implications for investment, business activities and overall economic growth are often not clear to most of the stakeholders while they pay maximum attention to the ranking of the countries that a number of studies provide. There has not been any serious attempt to provide a simple presentation of these analyses evaluating the usefulness of the cross-country comparisons. As such, this article has been given attention of ten Asian countries and compared their investment climate to Bangladesh and then to explore the real problem for attracting FDI.

5.   Status of Investment Climate in Bangladesh Comparing with Selected Countries

There is a lot of indices to measure the investment climate of a country. Few of the indices like Doing Business Index, Getting Electricity Index, Registering Property, Getting Credit, Protecting Minority Investors, Trading Across Borders, Enforcing Contracts, Resolving Insolvency, Index of Economic Freedom, Business Freedom, Labor Freedom, Trade Freedom, Investment Freedom, Global Competitiveness Index (GCI), Global enabling trade index (ETI), Business Environment Rankings, Status of Human Capital, Knowledge Economy Index, Human Capital Index, Global Innovation Index, Infrastructure Country Ranking, Governance Indicators, Industrial Unit Labor Cost, Economic Feeedom Index are are presented here to evaluate the investment climate of 15 Asian economies including Bangladesh.

(a)   Doing Business Index

The Doing Business project provides objective measures of business regulations for local firms in 189 economies and selected cities at the subnational level. Here, economies are ranked on their ease of doing business, from 1–189. A high ease of doing business ranking means the regulatory environment is more conducive to the starting and operation of a local firm. The rankings are determined by sorting the aggregate distance to frointer scores on 10 topics, each consisting of several indicators, giving equal weight to each topic. The rankings for all economies are benchmarked to 1, June 2015. Bangladesh ranks 174th among a total of 189

Figure 1: Rank of Bangladesh Economy (among 189 countries)
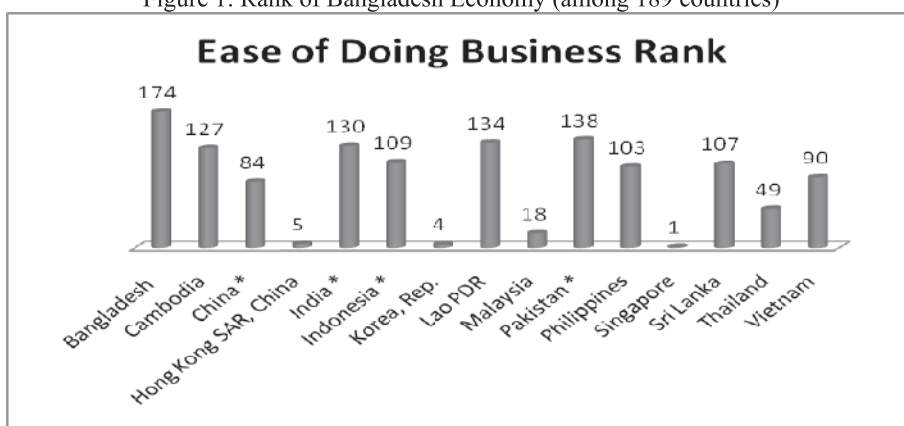
Source: Doing Business index, 2016
Note: Smaller values represent better doing business situations.

Table 1 : Comparative Rank of Ten |Seleeted Economy of Asia (among 189 countries)

Economy	Starting a Business 117 (7th)	Dealing with Construction Permits 118 (5th)	Getting Electricity 189 (World worst)	Registering Property 185 (15th)	Getting Credit 133 (14th)	Protecting Minority Investors 88 (9th)	Paying Taxes 86 (5th)	Trading Across Borders 172 (15th)	Enforcing Contracts 188 (15th)	Resolving Insolvency 155 (14th)
Bangladesh	117	118	189	185	133	88	86	172	188	155
Cambodia	180	181	145	121	15	111	95	98	174	82
China	136	176	92	43	79	134	132	96	7	55
Hong Kong	4	7	9	59	19	1	4	47	22	26
India	155	183	70	138	42	8	157	133	178	136
Indonesia	173	107	46	131	70	88	148	105	170	77
Korea, Rep.	23	28	1	40	42	8	29	31	2	4
Lao PDR	153	42	158	66	70	178	127	108	92	189
Malaysia	14	15	13	38	28	4	31	49	44	45
Pakistan	122	61	157	137	133	25	171	169	151	94
Philippines	165	99	19	112	109	155	126	95	140	53
Singapore	10	1	6	17	19	1	5	41	1	27
Sri Lanka	98	77	81	153	97	49	158	90	161	78
Thailand	96	39	11	57	97	36	70	56	57	49
Vietnam	119	12	108	58	28	122	168	99	74	123

Source: Doing Business index, 2016

Note: Smaller values represent better doing business situations.

countries considered in terms of the overall ease of doing business' indicators. It provides paying taxes (86th), and protecting minority investors (88th) are relatively easier.

However, the country performs very poor in terms of getting electricity (lowest in the world, 189th), enforcing contract (188th), registering property (185th), trading across border (172rd) resolving insolvency (155rd) and dealing with construction permit (118rd).

It is found that, among the 15 Asian countries, position of Singapore is first (also first in the world ranking) and the position of Bangladesh is the last (174th in the world ranking). Korea (4th), Hong-Kong (5th) and Malaysia (18th) is also in the very good position considering the world ranking. Among the 10 indicators, getting electricity is the top most problematic for Bangladesh and its position of rank is 189th. It is interesting to learn from the aforementioned report that overall doing business is very difficult for Bangladesh comparing above 15 countries.

(B)   Index of Economic Freedom

Economic freedom is the fundamental right of every human to control his or her own labor and property. In an economically free society, individuals are free to work, produce, consume, and invest in any way they please. In economically free societies, governments allow labor, capital, and goods to move freely, and refrain from coercion or constraint of liberty beyond the extent necessary to protect and maintain liberty itself. For over two decades, the Index of Economic Freedom has measured the impact of liberty and free markets around the globe, and the 2016 Index confirm the formidable positive relationship between economic freedom and progress. The ideals of economic freedom are strongly associated with healthier societies, cleaner environments, greater per capita wealth, human

In economically free societies, governments allow labor, capital and goods to move freely, and refrain from coercion or constraint of liberty beyond the extent necessary to protect and maintain liberty itself. Index of economic freedom based on 10 quantitative and qualitative factors, grouped into four broad categories, or pillars, of economic freedom and they are Rule of Law (property rights, freedom from corruption), Limited Government (fiscal freedom, government spending), Regulatory Efficiency (business freedom, labor freedom, monetary freedom) and Open Markets (trade freedom, investment freedom, financial freedom).

Economic freedom index 2016 reported that Bangladesh has shown remarkable macroeconomic resilience, and its economy has grown steadily over the past five years. Nonetheless, overall entrepreneurial activity is disadvantaged by an

Figure 2: Index of economic freedom' 2016 (considering 178 countries)

Source: The Heritage Foundation, in partnership with Wills Street Journal for Index of
 Economic Freedom
Note: Smaller values represent better position.

uncertain regulatory environment, poor infrastructure, and the absence of effective long-term institutional support for private-sector development. Snapshot of Economic Freedom index, 2016 of Bangladesh is:

- 2016 Economic Freedom Score: 53.3 (down 0.6 point)
- Economic Freedom Status: Mostly Unfree
- Global Ranking: 137th
- Regional Ranking: 29th in the Asia–Pacific Region
- Notable Successes: Management of Public Finance
- Concerns: Rule of Law and Open Markets
- Overall Score Change Since 2012: +0.1

The report presented also, economic development remains hampered by the fragile rule of law. Corruption and marginal enforcement of property rights have driven people and enterprises out of the formal sector. The government's inability to provide basic public goods further limits opportunities for business development and job growth.

(c)   Investment Climate Assessment (ICA) surveys

Investment Climate Assessment is also the World Bank's development efforts around the world. ICAs are the voice of the firms. It is an innovative tool used to evaluate the competitiveness of the private sector and identify ways that firms can improve productivity. The objective of ICA is to evaluate the state of the private sector, identify the key constraints to increasing firm productivity, evaluate how competitive firms in a particular country are with respect to those of in our

Table2: Openness Indices of Economic Freedom, 2016

Country	Monetary Freedom, 2016	Investment Freedom, 2016	Financial Freedom, 2016	Labor freedom, 2016	Tariff Rate, 2016	Tax Burden (% of GDP), 2016	Business Freedom, 2016	Trade Freedom, 2016	Fiscal Freedom, 2016
Bangladesh	68.2 (15th)	45 (10th)	30(13th)	62.5 (5th)	10.7 (14th)	9(1st)	52.6 (13th)	63.6 (14th)	72.7 (14th)
Cambodia	78.1	60	50	62.5	8.9	12.4	32.3	72.2	90.5
China	70.6	30	30	62	3.6	19.4	54.2	72.8	69.7
Hong Kong	81.8	90	90	89	0	15.7	97.4	90	92.6
India	72.8	35	40	47.8	7	16.7	47.6	71	77.1
Indonesia	74.3	40	60	49.3	2.3	11.8	54	80.4	83.4
Korea	82.6	70	80	50.6	7.7	24.3	91.1	74.6	73.8
Laos	71.3	35	20	57.6	13.2	15.3	55.9	58.6	86.1
Malaysia	84.5	60	60	71.5	4.3	15.8	91.4	81.4	85
Pakistan	71.5	55	40	42.1	10	10.5	61.2	65	79
Philippines	77.7	60	60	57.1	4.3	13.3	63	76.4	79
Singapore	81.8	85	80	90.7	0	13.8	95	90	91.2
Sri Laanka	71.5	35	40	56.5	6.3	11.6	70.3	72.4	85.1
Thailand	70.9	50	60	62.5	6.2	16.2	76.3	77.6	81.1
Vietnam	70.6	25	40	62.6	3.5	18.9	58.3	83	79.3

Source: Index of Economic Freedom, 2016, available at
http://www.heritage.org/index/explore?view=by-variables

Figure 3: Open Market Index, 2015
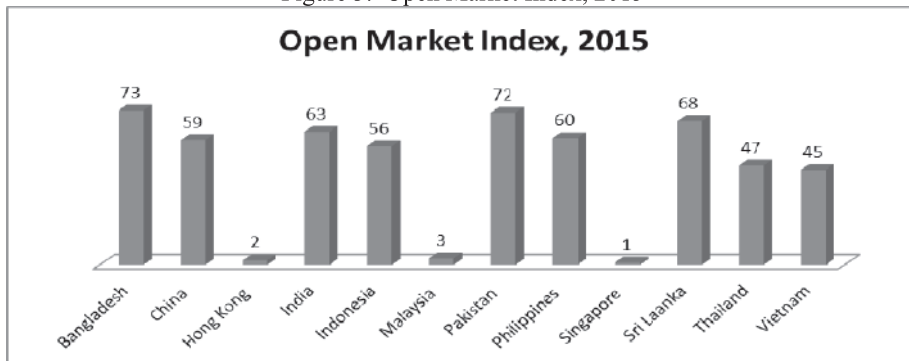
Source: The Open Markets Index (OMI) is collected from the Open Markets Index (OMI,) 2015
Note: The Open Markets Index (OMI) is prepared by International Chamber of
Commerce comprising four key components and these four components are observed
openness to trade, trade policy, foreign direct investment (FDI) and infrastructure for
trade. It is prepared on among 75 countries.

neighboring countries or in other regions of the world, and identify policies that will alleviate obstacles and improve firm productivity and export competitiveness.

The ICA survey conducted in Bangladesh covered 1,442 firms were interviewed from April 2013 through September 2013 from 09 business sectors – food,

Figure 3: Firms' Perception about Major Constraints to Business Operation in Bangladesh
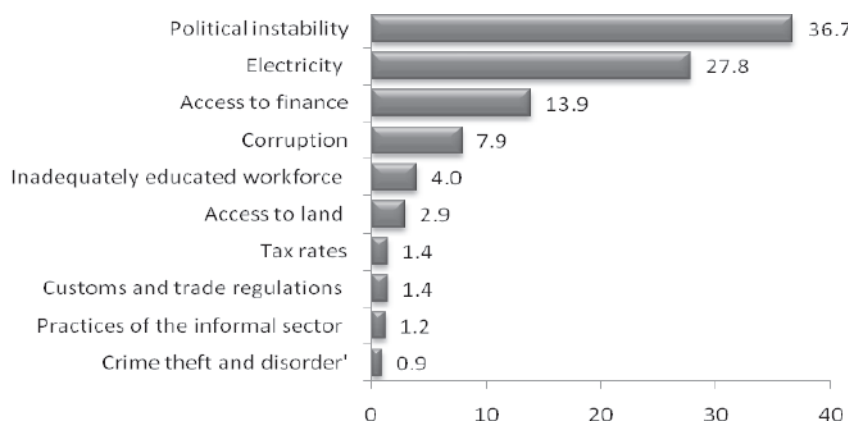
Source: World Bank, 2013

garments, leather products, chemical and chemical products, furniture, other manufacturing, retail, other services, motor vehicle and transport. The main conclusions from the study are : (1) Bangladeshi manufacturing firms report very high levels of capacity utilization, (2) Bangladeshi firms are also exporting at higher rates compared to businesses in other countries, (3) Female inclusion in economic activity lags behind most countries, (4) The Bangladeshi private sector considers political instability as the biggest business environment obstacle, (5) Electricity outages are numerous and of short duration, and (6) Firms in Bangladesh experience a high level of corruption when obtaining licenses and utility connections.

Business owners and top managers in 1,442 firms were asked to choose the top ten business environment obstacles. According to their opinion political instability is the most severe problem, with about more than one-third (36.7%) of the surveyed firms considered it as a major constraint. It was followed electricity (27.8%), access to finance (13.8%), corruption (7.9%), indicated educated workforce (4.0%), access to land (2.9%), tax rate (1.4%), custom and trade regulation (1.4%), the practice of the informal sector (1.2%), crime theft and disorder (1.2%).

(d)   Global Competitiveness Index (GCI)

The index is prepared by World Economic Forum (WEF). The World Economic Forum (WEF) is a Swiss nonprofit foundation, based in Cologny, Geneva. The World Economic Forum (WEF) is publishing the Global Competitiveness Report (GCR) since 2004. The report states that it is based on the latest theoretical and

Figure 4: Global Competitiveness Index Ranking for some selected countries
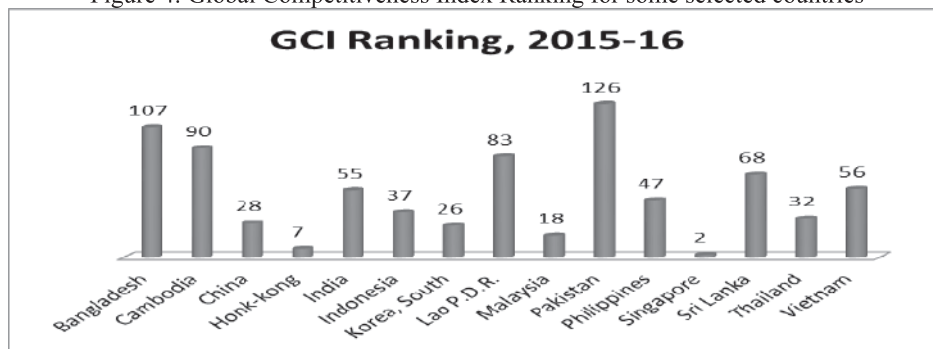
Source: Global Competitiveness Report of WEF 2015-16
http://reports.weforum.org/global-competitiveness-report-2015-2016/
competitiveness-rankings/

empirical research. It is made up of over 110 variables, of which two thirds come from the Executive Opinion Survey, and one third comes from publicly available sources such as the United Nations. The variables are organized into twelve pillars, with each pillar representing an area considered as an important determinant of competitiveness. It attempts to provide what is known as the competitiveness rankings of countries.

The Global Competitiveness Index integrates the macroeconomic and the micro/business aspects of competitiveness into a single index. Competitiveness is defined as the set of institutions, policies, and factors that determine the level of productivity of a country. The level of productivity, in turn, sets the level of prosperity that can be reached by an economy. The productivity level also determines the rates of return obtained from investments in an economy, which in turn are the fundamental drivers of its growth rates. GCI is the weighted average of many different components, each measuring a different aspect of competitiveness. The components are grouped into 12 categories, The pillars of competitiveness are institutions, infrastructure, macroeconomic environment, health and primary education, higher education and training, goods market efficiency, labor market efficiency, financial market development, technological readiness, market size, business sophistication, R & D innovation.

The GCI index examines the potentials of countries across the world to achieve growth that is sustainable in the medium and long term. Figure 4 provides the GCI rankings for some selected countries in 2015-16, in terms of the individual GCI Components, Bangladesh Ranked 109th in the Basic requirements index, 105th in the Efficiency enhancers index, and 123rd in the Innovation and the sophistication factor index in 2014-15. On the whole, the country ranked at 107th among the 140 countries. Among the 12 pillars, Bangladesh is assessed to have the worst in the institutions pillar (ranked at 129th), while the relative positions of market size (rank 40th) is comparatively better. Among the 15 Asian countries, performance of Banglation is only better than Pakistan.
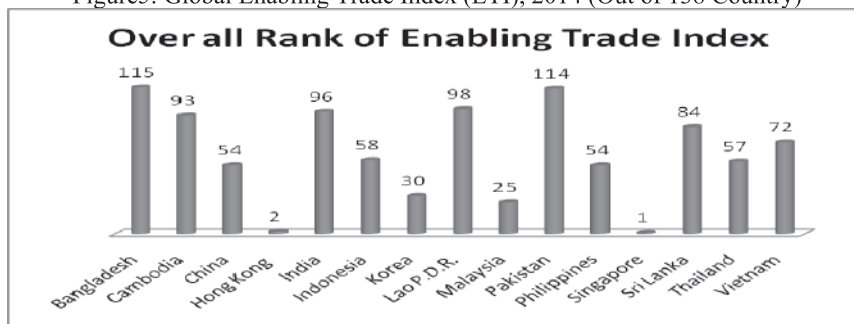
(E)   Global Enabling Trade Index (ETI)

It is also prepared World Bank Economic Forum. Lawrence et al. (2008) have defined global enabling trade index (ETI) as "a comprehensive index that measures the factors, policies and services, facilitating the free flow of goods over borders and destinations". For the 2014 edition, ETI coverage from 138 economies, which together account for 98.8% of world GDP and 98.3% of world merchandise trade. There are four key issues or sub-indexes implicit in the ETI.

These are market access, border administration, transport and communication, infrastructure and the business environment. Market access is an index which measures the ease with which policy and cultural framework welcomes foreign goods into a country.

The second subindex assess the extent to which border administration facilitates the entry of goods that are permitted. The moment goods have been allowed to enter the border, the next effort is to get them to their destinations. It is the third sub-index that measures this. The fourth sub-index evaluates the overarching regulatory and security environment impacting on the transport business in the country. It is important to mention here that each of the four sub-indexes is

Figure5: Global Enabling Trade Index (ETI), 2014 (Out of 138 Country)

Source: Global Enabling Trade Index (ETI) (Out of 138 Country), 2014
Note: Lower values represent better Position.

composed of a number of pillars of enabling trade. There is a total of ten pillars in this regard, these are: 1. Tariffs and non-tariff barriers, 2. Proclivity to trade, 3. Efficiency of customs, administration, 4. Efficiency of import-export produces, 5. Transparency of border administration, 6. Availability and quality of transport infrastructure, 7. Availability and quality of transport services, 8. Availability and use of ICTs, 9. Regulatory environment and, 10. Physical security .

Figure 5 and table 3 represents the index enabling trade (ETI). In this index rank of Bangladesh is 115, which is worst among the 15 Asian countries. Among the four sub-index, Bangladesh's position is comparatively better in Market Access Sub-index (6th Position).

(f)   Business Environment Rankings: Which country is best to do business in?

The Economist Intelligence Unit's prepared the Business Environment Rankings for 82 countries. According to the Economist Intelligence Unit's, Singapore looks

Table 3: Global Enabling Trade Index (ETI), 2014 (Out of 138 Countries)

Country Name	Market Access Sub-index	Broder Administration Sub-index	Infrastructure Sub-index Index	Operating Environment Sub-index
Bangladesh	57 (6th)	123 (15th)	103 (14th)	99 (14th)
Cambodia	36	108	77	74
China	119	48	36	37
Hong Kong	37	11	2	1
India	136	74	67	73
Indonesia	20	69	64	61
Korea	120	19	7	55
Lao P.D.R.	39	114	115	68
Malaysia	40	33	23	27
Pakistan	133	72	94	116
Philippines	11	71	89	82
Singapore	2	1	1	2
Sri Lanka	104	87	83	53
Thailand	51	56	46	75
Vietnam	34	86	60	81

Source: Global Enabling Trade Index (ETI) (Out of 138 Country), 2014
Note: Lower values represent better Position.

set to remain the world's most investor-friendly location in 2014-18, retaining its number-one spot for the 2009-13 period. Hong Kong and Switzerland also defend their second and third place position. Asia is a diverse region, and there are large differences between the overall scores and global rankings of its top four countries (Singapore, Hong Kong, Australia and New Zealand) and its poorest performers (Bangladesh and Pakistan, in 69th and 74th place respectively, out of the 82 countries ranked) (See figure 6). The gap reflects the widely varying levels of economic development and political stability between these countries, alongside sharp differences in the underlying structure shaping laws and regulations of foreign investment. In this index, Bangladesh perform only better than Pakistan and Srilanks (see figure 6)

(g)   Status of Human Capital

Economist Theodore Schultz invented the term "human capital" in the 1960s to reflect the value of human capacities. He believed human capital was like any other

Figure 6: Business Environment Rankings (Out of 82 countries)
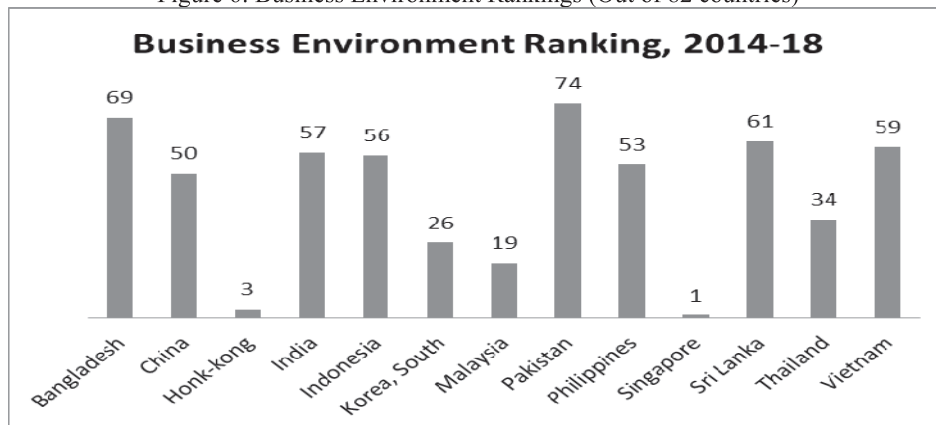
Source: Business Environment Rankings, 2014-18; available at: http://going-lobal.economist.com/en/2014/05/26/businessenvironmentrank/ Retrived on 24-09-16
Note: Larger valur indicate lower performance

type of capital; it could be invested in through education, training and enhanced benefits that lead to an improvement in the quality and level of production. Suppose, every resource is available, but no skilled human to utilize the resource for the creation of utility to fulfill the need is meaningless. In this contest, skilled worker is the most essential element of the investment climate. The concept of human capital recognizes that not all labor is equal and that the quality of employees can be

improved by investing in them; the education, experience and abilities of employees have economic value for employers and for the economy as a whole. There are many organizations and tools to measure the knowledge or skilled of a worker or the whole society of economy. Few of the measures are presented to compare the quality of worker for the concern 15 Asian countries.

Knowledge Economy Index: The Knowledge Economy Index (KEI) is prepared by World Bank takes into account whether the environment is conducive for knowledge to be used effectively for economic development. It is an aggregate index that represents the overall level of development of a country or region towards the Knowledge Economy. The KEI is calculated based on the average of the normalized performance scores of a country or region on all 4 pillars related to the knowledge economy - economic incentive and institutional regime, education and human resources, the innovation system and ICT.

The 4 pillars of the Knowledge Economy framework are:

- An economic and institutional regime to provide incentives for the efficient use of existing and new knowledge and the flourishing of entrepreneurship;
- An educated and skilled population to create, share, and use knowledge well;
- An efficient innovation system of firms, research centers, universities, consultants and other organizations to tap into the growing stock of global knowledge, assimilate and adapt it to local needs, and create new technology;
- Information and communication technology to facilitate the effective creation, dissemination, and processing of information.

World Bank prepared many other indices which also measure the quality of worker or strength of manpower. % of Urban population, % of the working population, Internet Users Rate are also the indicator of human resource or can be used as a proxy variable of labor quality or human resource. It is assumed that the urban population is more skilled than the rural people. In Bangladesh, it is the 34.27% in the year of 2015 which is the 10th position among the 15 Asian countries. On the other hand, only 9.6 percent people use the internet in Bangladesh. The World internet user rate is 40 percent and it is 16.6 percent in South Asia and 46.9 percent in East Asia (available at: https://knoema.com/ infographics/okfysj/moving-towards-knowledge-economy). Certainly, using the internet an important indicator of skilled workers. This internet user rate is marginally larger than only Cambodia.

The Human Capital Index: The Human Capital Index seeks to serve as a tool for capturing the complexity of education, employment and workforce dynamics so that various stakeholders are able to make better-informed decisions. Last year's edition of the World .

Economic Forum's Human Capital Report explored the factors contributing to the development of an educated, productive and healthy workforce. This year's

Figure 7: Knowledge Economy Index (out of 146 countries)

Knowledge Economy Index, 2012
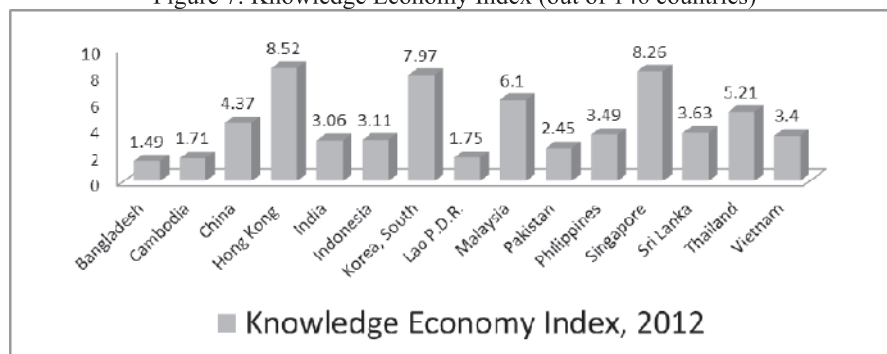
Source: Knowledge Economy Index,2012: Availavle at:
https:/knoema.com/atlas/topics/World-Rankings/Knowledge-Economy-Iedge-Economy-Index
Note: Higher value indicates better performance

edition will extend the analysis by focusing on a number of key issues that can support better design of education policy and future workforce planning. Bangladesh's ranks is 104 among the 130 countries and only performed better than India, Lao PDR, Pakistan.

Global Innovation Index: Global index Rank, 2016 in prepared on the 128 countries of the world. In today's economic climate, innovation—technological innovation in particular—is considered to be a major force for economic growth. The convergence of data analytics, commerce, and technological progress is seen as a key driver of innovation in the global economy. Moreover, entrepreneurship, evolving business models, and technological progress are at the heart of innovation. Innovation is now widely recognized as a central driver of economic growth and development. The Global Innovation Index (GII) aims to capture the multi-dimensional features of innovation by providing a rich database of detailed metrics for 128 economies, which represent 92.8% of the world's population and 97.9% of global GDP. As UN Secretary-General Ban Ki-moon noted at the UN Economic and Social Council in 2013, the GII is a 'unique tool for refining innovation policies... for providing an accurate picture on the role of science, technology and innovation in sustainable development'.

Table 4: Knowledge Economy Index Ranking, Urban Population,
Internet Users, % of population (15-65)

| Bangladesh	Knowledge Economy Index Ranking (KEI), 12	Urban Population (Proxy Variable of Labor Quality), 2015	% of population (15-65), 2015)(Proxy Variable of Strength of Economy), 2015	Internet Users (%) (Is the proxy variable of Technically efficient manpower), 14
Bangladesh	**137 (15th)**	**34.27 (10th)**	**65.57 (10th)**	**9.6 (13th)**
Cambodia	132	20.72	64.27	9
China	84	55.61	73.21	49.3
Hongkong	18	NA	NA	NA
India	110	32.74	65.59	18
Indonesia	108	53.74	67.13	17.14
Korea	29	82.47	72.88	84.33
Lao PDR	132	38.61	61.41	14.26
Malaysia	48	74.70	69.09	67.5
Pakistan	117	38.75	60.49	13.8
Philippines	93	44.37	63.47	39.69
Singapore	23	100	72.77	82
Sri Lanka	101	18.35	66.12	25.8
Thailand	67	50.37	71.81	34.89
Vietnam	104	33.59	70.16	48.31

Source: Urban Population, % of population (15-65), Internet Users (%) is collected from
World Bank Open Data source and Knowledge Economy Index, 2012 Ranking is collected fro
https://knoema.com/infographics/okfysj/moving-towards-knowledge-economy

Among the 14 Asin countries, Bangladesh position is the worst, considering the overall rank. Efficiency score is one of the important components of measuring the GII. Ratio of the Output Sub-Index score over the Input Sub-Index score is only 0.52 in the case of Bangladesh (lowest position among the 14 Asian countries).

(h)   Infrastructure Status of Bangladesh Comparing Asian Countries

In the empirical as well as the theoretical literature, there is a broad consensus that a country's endowment with infrastructure represents a critical factor to sustain economic growth, attract foreign direct investment (FDI) and promote trade. Straub (2008) finds that most, though far from all empirical studies show a

Figure 8: Human Capital Index, 2016 of 14 Asian countries (Out of 130 Country)
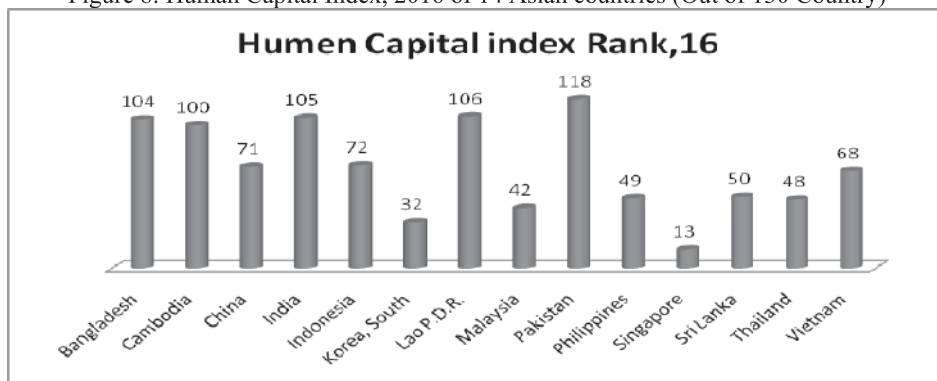

Source: Human Capital Index, 2016
Avail at: http://reports.weforum.org/human-capital-report-2016/rankings/
Note: Larger vale indicates lower performance

significantly positive effect of infrastructure on output and growth. Straub (2008: 4) also notes that "in surveys assessing the investment climate, businesses usually rank deficient infrastructure as an important barrier to their operations and growth." Particularly in developing countries, deficient infrastructure can seriously affect the people's daily life and work. Asiedu (2002: 111) argues that "good infrastructure increases the productivity of investments and therefore stimulates FDI."

Infrastructure is one of the very important determinants of investment. There is a strong correlation between infrastructure and foreign investment. Targeted at

Figure 9: Overall Rank of GII, 2016 (Among 128 countries)
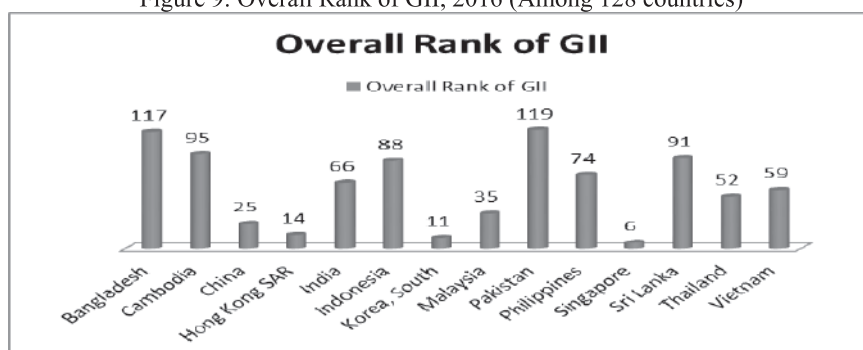
Source: www.globalinnovationindex.org
Note: Smaller rank indicates better performance and greater
score indicates better performance.

economic infrastructure helps developing countries attract higher FDI inflows through improving their endowment with infrastructure in transportation, communication, energy and finance. Aid in infrastructure appears to have surprisingly strong direct effects on FDI (Donaubauer et. al., 2015). Infrastructure is public goods in nature, as well as large volume of financing is involved and return of capital is comparatively low and slow (though reliable), market mechanism does not function efficiently. For this reason, national and international organizations should take special types of policies and regulations for supplying the efficient level of infrastructural investment.

Infrastructural Investment is essential for the long term economic development of a country. Key infrastructure assets create additional economic benefits by supporting urbanization and industrial growth and providing better access to adjoining countries and stronger trade links. This, in turn, accelerates growth in GDP per capita and therefore the ability to derive greater financial returns. Infrastructure development creates the linkage between developed and undeveloped nations. Due to the characteristics of positive spillover effect on the infrastructure, undeveloped nation's infrastructural investment should get the top priority for the creation of the better world and attracting foreign investment.

Many studies find a positive and important contribution of infrastructure provision to economic growth, but quite a few studies have found a weak or negligible impact. According to the infrastructure index, prepared by Rob Mooren (2014) and Donaubauer et al. (2014), it can be summarized that there is a positive relation between infrastructure investment and economic development. Though, there is no yardstick of optimum level of infrastructure, but a rough rule of thumb is that total investment needs appear to be more than 7 per cent of gross domestic product (GDP) in low-income countries and about 3 per cent of GDP in upper middle-income countries (McCawley, 2010). An infrastructure index is prepared by Donaubauer, Mayer, Nunnenkampin 2014 for 140 countries. Among the 140 countries Bangladesh's overall Rank is 111, which is only above the Pakistan and Cambodia (Among the considered 15 Asian countries).

Asian Development Bank Institute (ADBI) prepared a working paper in 2010 regarding Asian countries on 32 Aian countries. This paper estimates the need for infrastructure investment, including energy, transport, telecommunications, water, and sanitation during 2010-2020, in order to meet growing demands for services and facilitate further rapid growth in the region. By using "top-down" and "bottom -up" approaches, this paper provides a comprehensive estimate of Asia's need for infrastructure services. The estimates show that developing countries in

Table 5: Table of A New Global Index of Infrastructure Country Ranking;
Overall infrastructure and sub-categories (Out of 140 Countries)

Country	Total (Rank)	Transport	Energy	ICT	Finance	2010 (over all index)	2000 (over all index)	1990 (over all index)
Bangladesh	111 (12th)	127 (14th)	113 (10th)	90 (8th)	52 (8th)			
Cambodia	120	57	129	121	80			
China	28	17	71	47	5	28	35	58
Colombia	96	107	73	96	101	81	89	95
India	35	6	117	109	16	34	37	52
Indonesia	102	106	106	80	74	84	77	85
Lao PDR	98	65	120	NA	109			
Malaysia	38	72	76	41	7	37	33	42
Pakistan	116	83	116	102	84	91	69	96
Philippines	90	105	92	86	57	76	64	94
Singapore	2	2	9	16	2	2	3	4
Sri Lanka	93	113	82	97	67	78	86	97
Thailand	58	112	86	54	21	54	44	51
Vietnam	60	94	72	77	32			

Sourc: Donaubauer, J, Mayer B., Nunnenkamp, P., (2014)
Note: Larger Value Indicate Lower Position

Asia require financing of US$776 billion per year for national (US$747 billion) and regional (US$29 billion) infrastructure during 2010-2020 to meet growing demand. According to the estimation, Bangladesh's need 144903 million USD, that is, yearly 13173 million USD for the infrastructure expenditure. At the same time, 11.56% of GDP is required for Bangladesh infrastructural investment (4.92% for transport, 1.24% for electricity, 4.22% for ITC and 1.19% for water and sanitation), which is the second highest amount among the 11 Asian countries. This indicates the infrastructural weakness of an economy.

To estimate the requirements of infrastructure expenditure, land area, population, urbanization, the share of agriculture value-added in GDP, the share of manufacturing value-added in GDP, and GDP annual growth is considered as variables. Land area is assumed to be constant and equal to 2005 figures in each country. The sources of projections for population and GDP growth include the World Bank, ADB, and the International Monetary Fund (IMF). The growth rates projected by IMF's World Economic Outlook (WEO) for 2008-2013 were used as the base case (IMF 2006).

There are many other variables, which is used as a proxy variable of infrastructure. Technology Index, Quality of Port Infrastructure Index, Fixed Telephone (%) are also considered as infrastructural status of a country. Bangladesh Ranked 198th for Technology Index, which is only better than Cambodia. The Fixed telephone user rate is the lowest and

(I)   Governance Indicators

According to World Bank, governance can be broadly defined as the set of traditions and institutions by which authority in a country is exercised. This includes (1) the process by which governments are selected, monitored and replaced, (2) the capacity of the government to effectively formulate and implement sound policies, and (3) the respect of citizens and the state for the institutions that govern economic and social interactions among them. The Worldwide Governance Indicator (WGI) report six aggregate governance indicators for 215 countries and territories covering i) Voice and Accountability, ii) Political Stability and Absence of Violence, iii) Government Effectiveness, iv) Regulatory Quality, v) Rule of Law, and vi) Control of Corruption. Governance literature that attempts to analyze cross-country growth, and trade and investment flows. There are many indicators in this regard, but here we consider six, developed by Kaufmann et al. (1999, 2002), reflecting different aspects of governance. These governance measures combine information (mostly subjective) for up to 60 indicators from a number of sources. The voice and

Table 6: Table of National Infrastructure Investment Needs in Asia:
2010-2020 (Out of 32 Asian Countries)

Country / Sub region	% of Total Asian Investment Need	Estimated Investment Needs (US$ millions)	Investments as Percentage of Total			Total Investment per Year	Total Investment per Capita (US$)	2008 GDP Per Capita (Constant 2000 US$)
			New Capacity	Maintenance	Total			
Pakistan	2.172%	178,558	53%	47%		16,233	650	1075
Cambodia	0.163%	13,364	51%	49%		1,215	511	918
Indonesia	5.476%	450,304	70%	30%		40,937	1,087	1981
Lao PDR	0.138%	11,375	56%	44%		1,034	475	1833
Malaysia	2.287%	188,084	79%	21%		17,099	5,151	6962
Philippines	1.546%	127,122	53%	47%		11,557	1,225	1407
Thailand	2.103%	172,907	72%	28%		15,719	2,640	2566
Viet Nam	1.335%	109,761	53%	47%		9,978	647	1273
Bangladesh	1.762%	144,903	54%	46%		13,173	462	906
India	26.421%	2,172,469	64%	36%		197,497	718	1,906
Sri Lanka	0.461%	37,908	52%	48%		3,446	1,199	1,881

Source: Asian Development Bank Institute (ADBI). (2010). pp 12:
https://www.adb.org/sites/default/files/publication/156103/adbi-wp248.pdf, Retrived on 23.9.16

Table 7: Infrastructure Investment Needs as a % of Estimated GDP 2010-2020

(Out of 32 Asian Countries)

Country	Transport	Electricity	Investment as % of Estimated GDP		Total
			Telecommunications (ITC)	Water and Sanitation	
Pakistan	2.65%	2.68%	2.22%	0.73%	8.27%
Cambodia	4.43%	0.95%	2.97%	0.36%	8.71%
Indonesia	3.88%	0.98%	0.97%	0.35%	6.18%
Lao PDR	10.62%	0.00%	2.40%	0.60%	13.61%
Malaysia	1.94%	4.42%	0.27%	0.04%	6.68%
Philippines	2.30%	1.87%	1.22%	0.65%	6.04%
Thailand	0.58%	3.69%	0.45%	0.19%	4.91%
Viet Nam	2.07%	3.12%	2.38%	0.54%	8.12%
Bangladesh	4.92%	1.24%	4.22%	1.19%	11.56%
India	5.67%	3.23%	1.87%	0.34%	11.12%
Sri Lanka	4.23%	1.00%	1.39%	0.22%	6.85%

Source: Asian Development Bank Institute (ADBI). (2010). pp14
https://www.adb.org/sites/default/files/publication/156103/adbi-
wp248.pdf; Retrived on 23.9.16
score value of Quality of Port Infrastructure Index is 3.56, which is only
larger than Lao PDR (2.18), and the Philippines (3.22). This picture describes
the authenticity of the global index of infrastructure country ranking
position. which is presented earlier.

accountability indicator measures citizens' abilities to take part in the selection of government; political stability measures the probability that the government would be destabilized by some unconstitutional means; government effectiveness

Table 8: Technology Index, Quality of Port Infrastructure Index, Fixed Telephone (%)

Country	Technology Index (Proxy variable of Infrastructure)' 12	Quality of Port Infrastructure Index* (Proxy variable of Infrastructure), 15	Fixed Telephone (%) (Proxy variable of Infrastructure), 14
Bangladesh	138 (14th)	3.56 (12th)	0.61 (14th)
Cambodia	142	3.71	2.34
China	93	4.55	17.90
Hongkong	10	NA	Na
India	121	4.21	2.13
Indonesia	113	3.81	10.37
Korea	29	5.23	59.54
Lao PDR	124	2.18	13.36
Malaysia	52	5.57	14.61
Pakistan	96	4.08	2.65
Philippines	107	3.22	3.09
Singapore	15	6.66	36.19
Sri Lanka	110	4.28	12.49
Thailand	65	4.49	8.46
Vietnam	74	3.91	6.01

Source: Technology Index is collected from https://knoema.com/atlas/topics/
World-Rankings/Knowledge-Economy-Index/Information-and-Communications-
Technologies-Index and Quality of Port Infrastructure Index is collected from
 World Bank open source (Technology Index's,
lower value indexindicates better performance)
* Quality of Port Infrastructure Index: WEF (1=extremely underdeveloped to
7=well developed and efficient by international standards)
 (*Here higher value index better performance)

reflects the quality of 'inputs' like public service and bureaucracy that are required to implement policies effectively; regulatory quality measures the quality of government policies; rule of law reflects the extent to which people have faith on the rules and to the extent they comply with the rules; control of corruption indicates the level of corruption. The values of governance indicators range from -2.5 to 2.5 and the higher the value the better the governance outcomes. In a table

Table 9: Aggregate Governance Indicators for Selected Countries: 2010 and 2015

Country	Voice and Accountability		Political Stability		Government Effectiveness		Regulatory Quality		Rule of Law		Control of corruption	
Year	2010	2015	2010	2015	2010	2015	2010	2015	2010	2015	2010	2015
Bangladesh	**37.44**	**30.54 (7th)**	**9.95**	**10.95 (14th)**	**25.84**	**24.04 (14th)**	**22.49**	**17.31 (13th)**	**25.59**	**27.40 (15th)**	**14.76**	**18.27 (15th)**
Cambodia	22.27	18.72	26.54	43.81	18.66	25.48	35.89	35.10	12.80	17.31	6.67	12.50
China	5.21	4.93	25.12	27.14	58.37	68.27	44.50	44.23	45.02	43.75	32.38	50.00
Hong Kong	63.03	63.55	78.67	83.33	93.78	99.04	100.0	99.52	91.00	94.71	94.76	92.31
India	60.66	60.59	12.32	16.67	56.46	56.25	39.23	39.90	54.50	55.77	36.19	44.23
Indonesia	47.87	52.22	20.85	24.76	47.37	46.15	37.32	47.12	31.75	39.90	25.24	38.46
Korea, South	69.19	69.46	54.98	52.38	84.69	80.29	78.95	84.13	81.52	80.77	69.05	69.71
Lao P.D.R.	5.69	4.43	35.55	60.48	20.10	36.54	17.70	23.56	19.43	25.48	7.62	19.71
Malaysia	33.65	36.45	51.66	54.29	82.78	76.92	70.81	74.52	65.88	71.63	62.86	65.87
Pakistan	26.07	27.09	0.47	0.95	24.88	27.40	30.62	29.33	27.49	23.56	13.33	23.56
Philippines	48.34	51.72	5.21	20.95	55.50	57.69	44.98	52.88	33.65	42.31	22.38	41.83
Singapore	40.76	42.86	89.57	93.33	100.0	100.0	98.09	100.0	92.89	96.63	98.57	97.12
Sri Lanka	30.33	35.96	18.01	46.67	48.80	53.37	45.93	51.92	53.55	59.62	43.33	45.19
Thailand	32.23	23.65	9.48	15.71	62.20	65.87	56.46	63.46	49.29	53.85	48.57	43.75
Vietnam	8.53	10.84	50.71	48.57	45.93	55.29	28.23	33.65	34.60	46.15	31.43	39.42

Source: Aggregate Governance Indicators 2010 and 2015, available at: http://info.worldbank.org/governance/wgi/index.aspx#reports

Note: Lower values represent poorer government performance

of governance indicator, depending on the point estimates, all the countries are ranked. A lower rank means worse governance and vice versa.

It appears from Table 9 that, Bangladesh perform better in 2015 than 2010 in the three indicators like Political Stability, Rule of Law, Control of corruption. However, Bangladesh performs poorly in 2015 compared to 2010 in other three indicators. In terms of political stability Bangladesh performed extremely poor among the concern 15 countries in 2015 except Pakistan. Bangladesh's relative position is comparatively better in voice and accountability indicator (37.54 in 2010 and 30.54 in 2015), which is also poorer than Hong-kong, Malaysia, Philippine, Singapore, India and Indonesia. In case Government Effectiveness, Bangladesh performs only better than Lao PDR. The ranking of political stability is the worst in Bangladesh.

(j)   Transparency International's Corruption Perception Index

The Corruption Perceptions Index ranks countries/territories based on how corrupt their public sector is or perceived to be. A country/territory's score indicates the perceived level of public sector corruption on a scale of 0 - 100, where 0 means that a country is perceived as highly corrupt and 100 means that a country is perceived as very clean. A country's rank indicates its position relative to the other countries/territories included in the index.

In the recent years, the index that has been the most talked mostly about in Bangladesh, is the Transparency International's Corruption Perception Index (CPI). The CPI ranks countries in terms of the extent to which corruption is perceived to exist among public officials and politicians.

It is a composite index, drawing on corruption-related data gathered from the perception of selected groups of people. It reflects the views of business people and other observers who are supposed to be knowledgeable about the business environment and practices in the countries under evaluation. According to CPI report 2015, among the 167 countries, Bangladesh's position is 137, which is only better than the position of Combodia among the selected 15 Asian countries.

(k)   Investment-Related Costs Comparison

The 23rd Survey of Investment Related Costs in Asia and Oceania Japan External Trade Organization (JETRO) conducted a comparative survey of investment-related costs in 41 major cities and regions throughout Asia and Oceania in the

period between December 2012 and January 2013. The survey revealed that Japanese companies are mainly concerned about wages.

The Japan External Trade Organization (JETRO) has conducted a survey in 41 major Asian cities on investment-related costs in 2013 for the fiscal year of 2012. Amongst the set of mainly 06 cost components a. Wages, b. Land price, office rents, etc c. Public utility rate d. Transportation e. Tax f. School fee and these

Selected Asian Countries (out of 168 countries)
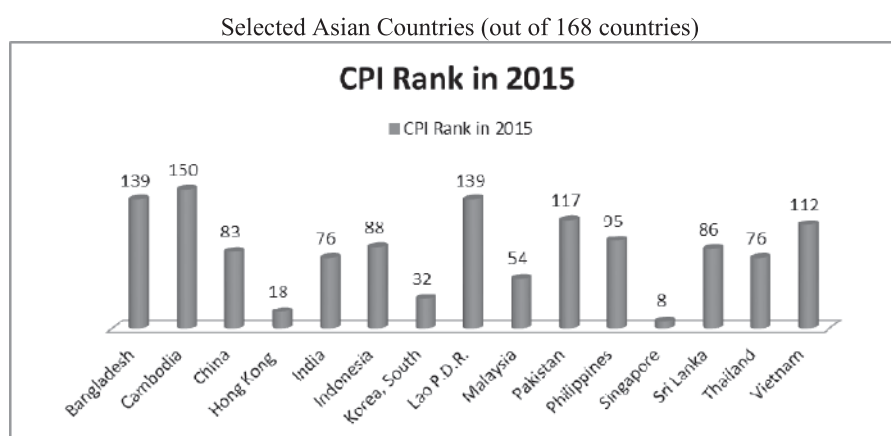
Source: Transparency International's Corruption Perception Index, 2015
Note: Higher values represent higher corruption,

broad cost components are sub-divided into 35 cost-components. Most of the cases of cost components, Dhaka has the cheapest cost. In table of The Investment-Related Cost Comparison of Survey of the Concern Selected Asian Countries' represents the seven important cost component of 14 country's capital city. Except Corporate income tax rates all other i.e. 6 other cost components are the lowest in Dhaka city. The report highlighted a few numbers of disadvantages for Dhaka such as (1) container transportation costs, (2) rate of corporate income tax (3) Regular gasoline price and (4) Corporate income tax rate.

According to 2015 JETRO Survey on Business Conditions of Japanese Companies in Asia and Oceania, the top five problems in Bangladesh are:

a.   Difficulty in local procurement of raw materials and parts
b.   Quality of employees
c.   Completed custom clearance
d.   Wage increase
e.   Difficulty in quality control

Figure: Nominal General Worker Wage Rate, 2015

Nominal General Worker Wage Rate, 2015

| | 100 | 162 | 424 | 1,889 | 230 | 250 | 1,895 | 179 | 317 | 185 | 262 | 1,608 | 143 | 348 | 185 |

Bangladesh (28), Cambodia (31), China (450), Hong Kong (26), India (148), Indonesia (178), Korea (66), Laos (11), Malaysia (145), Pakistan (14), Philippines (54), Singapore (33), Sri Lanka (10), Thailand (290), Vietnam (289)
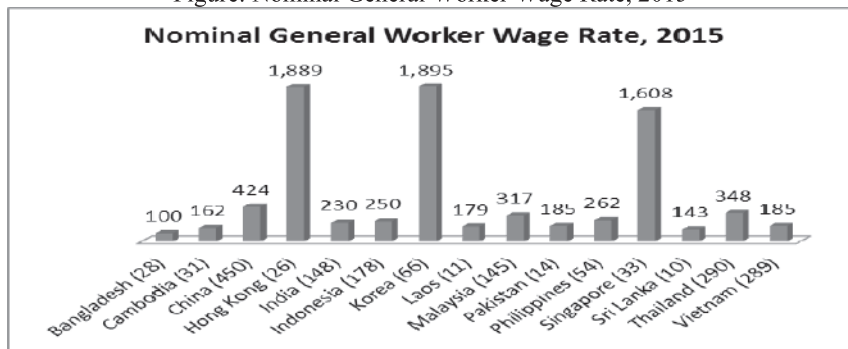
Source: Wage rate is collected from 2015 JETRO Survey on Business
Conditions of Japanese Companies in Asia and Oceania

Lowest wage, but wage increase problem in Bangladesh: A Contradiction

One of the very important contradiction is that wage rate is the lowest is Bangladesh but the report of the JETRO Survey on Business Conditions of Japanese companies in Asia and Oceania, 2015 presented that wage rate increase is the second most problematic for the Japanese investment in Bangladesh. The nominal wage rate is presented in the JETRO survey report. Chakraborty (2015) shows that the productivity adjusted wage rate of the manufacturing all employees is the significantly higher in Bangladesh comparing Asian country (see, following figure). Low wage is the indicator of low productivity, less efficient, more

Figure 5: Aggregate ULC of Manufacturing all Employee, 2013

ULC of Average of Manufacturing all Employee

| 1.31 | 3.92 | 0.65 | 1.19 | 0.9 | 0.71 | 0.91 | 3 | 1.15 | 1.04 | 0.41 |

Bangladesh, India, Indonesia, Sri Lanka, China, Malaysia, Thailand, Cambodia, Philippines, Hong Kong, South Korea
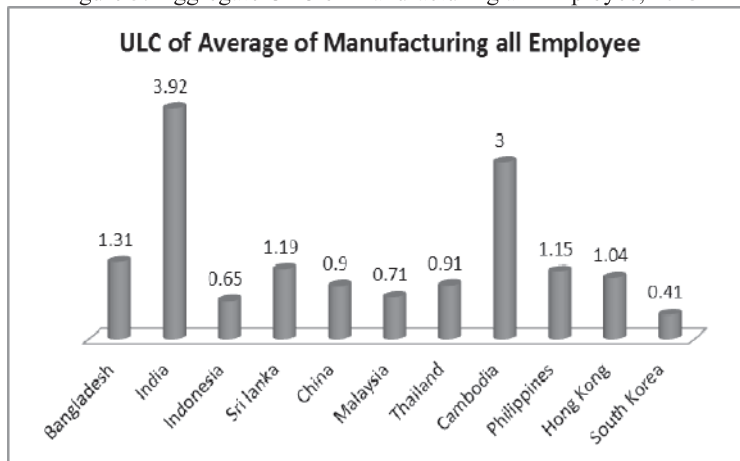
Source of Data: Chakraborty (2015), Unpublished

Table 10: The Investment-Related Cost Comparison of Survey of the Concern Selected Asian Countries' Main City

Country	Per capita FDI, 14	Industrial Estate (land) Rent (per sq.m.)	Electricity Rate for Business Use(per kwh)	Water Rate for Business Use (per cu. M)	Gas Rate for Business Use (per cu. m.)	Diesel Price (1liter)	Corporate Income tax Rate
Bangladesh (Dhaka)	9.6	0.1	0.07	0.34	0.03	0.85	37.50%
Cambodia	112.89	0.1	0.15	0.24	-	1.29	20%
China	94.19	4.77	0.13	0.99	0.45	1.2	25%
Hong Kong	24035.1	-	0.148	0.59	-	1.6	16.50%
India	26.57	3.93	0.12	1.82	-	0.86	30%
Indonesia	88.74	5	0.07	1.29	-	0.46	25%
Korea	196.31	0.25	0.07	0.05	-	1.85	22%
Lao PDR	107.76	0.03	0.08	0.06	-	1.06	24%
Malaysia	361.15	-	0.1	0.68	-	0.59	20%
Pakistan	9.44	-	0.08	0.39	-	1.13	35%
Philippines	62.54	3.67	0.14	1.84	-	1.03	30%
Singapore	12344.86	6.51	0.13	1.81	0.19	1.32	17%
Sri Lanka	45.46	-	0.08	0.59	-	0.9	12%
Thailand	185.54	6.9	0.15	0.31	-	0.99	20%
Vietnam	101.4	0.17	0.5	0.34	-	1.05	25%

Source: The 23rd Survey of Investment Related Costs in Asia and Oceania, May 2013, Overseas Research Department Japan External Trade Organization (JETRO)

aggressive (as the worker can nor maintain standard life). Comparatively, general workers are more efficient than the managers and engineers in Bangladesh. Because, Lower level workers' skill is inelastic with respect to investments.

If the wage rate is significantly lower, then there may have a serious labor unrest and for that reason the investors become shaky. In the Global Competitiveness Report 2007-2008 © 2007 World Economic Forum mentions that Competitiveness depends not on costs, but on productivity. Low wages can be a sign of low competitiveness, not a competitive advantage. High wages in a country, if they are justified by high productivity, can be an excellent value. (Chakraborty, 2014; available at: http://bea-bd.org/site/images/pdf/037.pdf).

Optimum pricing is the marketing or management world has always been a challenge. While 'low pricing' may affect the productivity and overall image or accessibility of the product, Out of the market pricing or non-sustainable pricing may seriously impact the core competitiveness of the product or the industry segment as a whole. (Mamun Rashid, Minimum wage for RMG workers, Financial Express, Dhaka, Tuesday, August 27 2013). So, we can see that, low wage cannot harvest the good outcome for attracting FDI. Including the lowest wage rate, investment related most of the costs are low in Bangladesh compared to the ten Asian countries concern. On the other hand, the government is providing a lot of incentives for the foreign investors such as corporate tax holiday, reduced tariff on import of raw materials and capital machinery, bonded warehousing facility, export subsidy, fund for export promotion, export credit guarantee scheme and many others. In spite of all these comparative advantages, per capita FDI and FDI/GDP ratio is the lowest among the 15 Asian countries.

6.   Consequence of the Investment Climate

Table 12 shows that per capita FDI of Bangladesh is the lowest among 15 concern countries except Pakistan. If we examine the above analysis, we can observe that most of the cases, Bangladesh performs better than only Pakistan and Cambodia. These indicators were Doing Business, Dealing with Construction Permits, Getting Electricity, Registering Property, Getting Credit, Protecting Minority Investors, Trading Across Borders, Enforcing Contracts, Resolving Insolvency, Index of Economic Freedom, Business Freedom, Labor Freedom, Trade Freedom, Investment Freedom, Global Competitiveness Index (GCI), Global enabling trade index (ETI), Business Environment Rankings, Status of Human Capital, Knowledge Economy Index, The Human Capital Index, Global Innovation Index, Infrastructure Country Ranking, Governance Indicators, Industrial Unit Labor Cost, Openness Indices of Economic Feeedom Index etc.

Table11: Industrial Unit Labor Cost (Calculation is done by using Industrial Value added in 2010, Yearly Wage Rate of 2010 and Industrial Employment in 2010 and Yearly Wage Rate in 2010)

Country	ULC of Manufacturing worker	ULC of Manufacturing Engineer	ULC of Manufacturing Manager	ULC of Average of Manufacturing all Employees
Bangladesh	0.34	0.92	2.69	1.31
India	1.36	3.12	7.28	3.92
Indonesia	0.27	0.50	1.17	0.65
Sri Lanka	0.47	1.08	2.02	1.19
China	0.53	0.78	1.40	0.90
Malaysia	0.25	0.66	1.22	0.71
Thailand	0.36	0.69	1.68	0.91
Cambodia	1.15	3.70	4.14	3.00
Philippines	0.46	0.80	2.19	1.15
Hong Kong	0.62	0.89	1.60	1.04
South Korea	0.32	0.39	0.52	0.41

Source: Chakraborty, S (2015)

FDI can play a vital role for increasing Investment, but for that reason conducive or attractive or business friendly environment is essential. Foreign investors are not satisfied due to the weak socioeconomic framework of Bangladesh. Corruption and religious consideration also encourage them to divert their investment to other neighboring countries (Rahman et. al. 2011). But, fortunately FDI growth rate of Bangladesh was significantly higher (44%) in 2015 (UNCTAD Report, 2015). For continuing this FDI growth or above, Bangladesh has to be more concern about infrastructural development, need-based human capital and governance indicators and also above mentioned indicators of investntment climate.

7.   Reliability of the Investment Climate indices

Table 12: FDI, FDI-Population Ratio, FDI-GDP ratio,
of the Selected Asian Countries

Country	Gross Investment (% of GDP)	Total FDI Inflow, 2014 (Million USD)	FDI/GDP*100, 2014	Per capita FDI, 14
Bangladesh	28.972	1526.70 (3rd)	0.88 (13th)	9.60 (14th)
Cambodia	22.5	1730.36	10.31	112.89
China	43.334	128500.00	1.24	94.19
Hong Kong	21.791	114055.00	39.16	15749.75
India	33.256	34416.76	1.69	26.57
Indonesia	34.562	22579.55	2.54	88.74
Korea	27.972	9898.50	0.7	196.31
Lao PDR	NA	720.84	6.15	107.76
Malaysia	25.093	10799.16	3.19	361.15
Pakistan	15.118	1747.00	0.72	9.44
Philippines	20.852	6200.53	2.18	62.54
Singapore	26.29	67522.99	22.04	12344.86
Sri Lanka	27.853	944.25	1.18	45.46
Thailand	24.132	12565.73	3.11	185.54
Vietnam	27.581	9200.00	4.94	101.4

Source: FDI is Collected From UNCTAD Website, Gross Investment is collected from Economy watch(http://www.economywatch.com/economic-statistics/) and Other
data are collected from World Bank Open Source Data Bank, FDI/GDP*100 and
Per capita FDI is own calculation.
Note: FDI inflow of Hongkong is collected from Santander Trade Portal (available at:
 https://en.portal.santandertrade.com/establish-overseas/hong-kong/foreign
-investment, Retrieved on 29-09-16)

In this study, 9 core index (or core variable) and 41 sub-index (or sub-variables, those influences the investment, especially DFI has been analyzed in this study. The core indices are Doing Business Index, the Global Competitiveness Index, Economic Freedom Index, Enabling Trade Index, Knowledge Economy Index, Business Environment Rankings, Global Humen Capital Index, Global Innovation Index, Technology Index. This index should have a positive influence on Investment or FDI. Table 13 represents the correlation value and its level of significance to the FDI-GDP Ratio and per capita FDI with the all 9 core variables.

All the variables are strongly correlated to the FDI-GDP Ratio and per capita FDI with a high level of significance. These core indices are prepared on more than 40 sub-indices. The correlation between most of the variables show the logical relationship to the FDI-GDP Ratio and per capita FDI except electricity (see

Table 13: Correlation Value the Determinants of FDI (Core Variables)

	Determinants of FDI (Variables)	FDI-GDP Ratio	Level of Significance (t-two tail)	Per capita FDI	Level of Significance (t-two tail)
1	Doing Business Index, 16	0.477*	0.072	0.541**	0.037
2	Global Competitiveness Index 2015-16	0.559**P	0.030	0.615**	0.015
3	Economic Freedom Index World Rank	0.974***	0.000	1.000***	0.000
4	Enabling Trade Index, 2014	0.725***	0.002	0.774***	0.001
5	Knowledge Economy Index, 2012	0.578**	0.024	0.668***	0.007
6	Business Environment Rankings	0.770***	0.001	0.932***	0.000
7	Global Human Capital Index	0.770***	0.001	0.932***	0.000
8	Global Innovation Index	0.520**	0.056	0.593**	0.025
9	Technology Index 12	0.919***	0.000	0.964***	0.000

***Correlation is significant at the 0.01 level (2-tailed).
**Correlation is significant at the 0.05 level (2-tailed).
*Correlation is significant at the 0.010 level (2-tailed).
Note: For avoiding the confusing relation among the variables, according to principle of economics, the inverse value of the Index rank has been considered during the measure of correlation value.

Appendix-D). The two variables, Electricity including energy and finance do not show the logical relationship (as correlation coefficient is negative) though not statistically significant. If Cambodia, Hongkong, Lao-PDR, Singapore and Vietnam are cxcluded, then correlation to the FDI-GDP Ratio (0.60) and per capita FDI (0.35) of electricity index becomes logical as it is positive. One of the most interesting points is that cost component of investment like industrial estate (land) rent, electricity rate for business use, water rate for business use, gas rate for business use and diesel price shows no impact of FDI though Bangladesh is a very competitive position in these variables compared to concern 15 Asian countries.

8.   Conclusion

According to the Ease of Doing Business indicator, among the concern 15 Asian countries the position of Bangladesh is (174th) and among the 10 indicators of Ease of Doing Business, getting electricity is the top most problematic in the world (189th). On the other hand, JETRO survey reveals, Bangladesh is the most cost comparative advantageous countries for operating a business. Despite this advantageous situation per capita FDI is the second lowest among the concern 15 Asian countries. This study reveals that, cost component of investment like industrial estate (land) rent, electricity rate for business use, water rate for business use, gas rate for business use and diesel price shows no impact on FDI though Bangladesh is very much competitive or advantageous situation in these determinants.

Bangladesh should develop its own indicators of business environment and investment climate, especially in the arena of governance indicator, infrastructural development and skilled manpower. Keeping aside the inter-country ranking, Bangladesh needs to develop a pragmatic way of studying investment climate issues and taking the necessary corrective measures. Comprehensive multi-level corrective measures such as policy level, institutional level, and enterprise level can be formulated. At first the policy makers with stakeholders may devise accurate and priority basis short-, medium-, and long-term strategies to overcome the difficulties of the investment climate and have to implement through the institutions. It is also true that for harvesting better success, enterprise will have to be dynamic, innovative and they also have to maintain regular well-informed interaction amongst other enterprise, institutions and policy makers have to identify the problem and have to take remedial measures.

"In 1990, US Economist Robert Lucas argued that according to economic law, the capital would flow from developed to underdeveloped country. But in reality, this

is not happening. We get a rational explanation of the Lucas statement in the quarterly publication of IMF, 2007. The report identified that the productivity of capital drastically decreased in the underdeveloped country due to infrastructural problem, unskilled manpower and corruption. The report further stated that in such a situation, if the capital flows, it will be occurred in the rapidly developing country but this is also not happening. IMF Economist up to 2007 and then the Governor of the Indian Reserve Bank, Raghuram Rajaon mentioned in his famous book 'Front Lines' that a country's economic growth will be more speedily if the country invests from his own resource." (Raruk Moinuddin, Doinik Prothom-Alo, 13, October, 2014, translated form). So, the policy makers should be more serious for the domestic investment and then FDI as well as policy makers and relevant stakeholders have the opportunity to learn from high ranking (performed better in various indicators of investment climate) countries.

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Appendices

Appendix A: Calculation of the Productivity Adjusted Wage Cost or Unit Labor Cost (ULC)

ULC is defined as the cost of labor required to produce one unit of output1. It is used as a measure of competitiveness because labor compensation is often a major component of the cost structure and, therefore, influences prices. It is calculated as the ratio of average labor compensation in nominal terms to average labor productivity2:

ULC =w n / AL P= w n / (VA r/ L) = w n/ ((VA n / P)/ L) ------------------------- (1)

where, ULC is the unit labor cost, wn is the nominal wage rate (i.e., dollar or taka per worker), ALP is average labor productivity, VAr is real value added (in dollar or taka of a base year), L is the number of workers, and P is the deflator for value added3. The argument is that, in low productivity countries (sectors), a high wage rate can make production costly and jeopardize long-run profitability. In high productivity countries (sectors), however, a high average wage rate can be offset by high productivity and, therefore, can be fully compatible with long-run profitability. In other words, the argument that competition from lower foreign wages can damage domestic industries is not fully correct. What matters is the wage rate (average labor compensation) relative to labor productivity, i.e., the unit labor cost. A common use of ULC is the comparison of cost competitiveness across countries. A common argument is that a lower ULC makes a country more competitive.

In other words, if a country's ULC increases faster than that of its foreign competitors, this will reduce the competitiveness of the home country, thereby reducing market shares and negatively affecting economic growth.

Appendix B: Index of Overall Global Innovation Index and Efficiency Score and Rank

Country Name	Overall Rank	Overall Score	Efficiency Score*	Efficiency Rank
Bangladesh	117	22.9	.52	107
Cambodia	95	27.9	.59	90
China	25	50.6	.90	7
Hong Kong SAR	14	55.7	.61	83
India	66	33.6	.66	63
Indonesia	88	29.1	.71	52
Korea, South	11	57.1	.80	24
Lao P.D.R.	NA	NA	NA	NA
Malaysia	35	43.4	.67	59
Pakistan	119	22.6	.64	71
Philippines	74	31.8	.71	49
Singapore	06	59.2	.62	78
Sri Lanka	91	28.9	.70	54
Thailand	52	36.5	.70	63
Vietnam	59	35.4	.84	11

Source: Global Innovation Index,2016; available at-www.globalinnovationindex.org
Note: Smaller rank indicates better performance and greater score indicates better performance.
*Efficiency Score is the ratio of the Output Sub-Index score over the Input Sub-Index score.

Appendix C: Scientific and technical publications, University/industry research collaboration, Expenditure on education, University ranking average score top 3 universities

Country Name	Scientific and technical publications* (Out of 127)	University/industry research collaboration*** (Out of 123)	Expenditure on education*** (Out of 118)	University ranking average score top 3 universities**** (Out of 73)
Bangladesh	111	119	116	66
Cambodia	98	105	107	73
China	50	31	NA	7
Hong Kong SAR	NA	27	89	4
India	77	49	83	20
Indonesia	127	29	95	41
Korea, South	25	25	3	9
Lao P.D.R.	NA	NA	NA	NA
Malaysia	55	12	22	28
Pakistan	71	91	110	49
Philippines	123	54	105	47
Singapore	29	5	101	16
Sri Lanka	110	100	117	67
Thailand	86	44	53	36
Vietnam	95	86	21	73

Source: https://www.globalinnovationindex.org/gii-2016-report

*   Scientific and technical publications: A Number of scientific and technical journal articles (per billion PPP$ GDP), 2015

**   University/industry research collaboration Average answer to the survey question: In your country, to what extent do people collaborate and share ideas between companies and universities/research institutions? [1 = not at all; 7 = to a great extent], 2015

***   Expenditure on education: Government expenditure on education (% of GDP) | 2012
        Quality Education Institute and Research Conduct:

Appendix D: Correlation Matrix

Correlation Value the Determinants of FDI (Sub-Index / Variables)

	Determinants of FDI (Variables)	FDI-GDP Ratio	Level of Significance (t-two tail)	Percapita FDI	Level of Significance (t-two tail)
1	Monetary Freedom, 2016	0.479*	0.071	0.480*	0.070
2	Investment Freedom, 2016	0.697***	0.004	0.724***	0.002
3	Financial Freedom, 2016	0.610**	0.016	0.655***	0.008
4	Labor freedom, 2016	0.798***	0.000	0.790***	0.000
5	Tariff Rate, 2016	-0.530**	0.042	-0.590**	0.021
6	Tax Burden (% of GDP), 2016	-0.003	0.991	0.014	0.961
7	Business Freedom, 2016	0.483*	0.068	0.593**	0.020
8	Trade Freedom, 2016	0.606**	0.017	0.635***	0.011
9	Fiscal Freedom, 2016	0.684***	0.005	0.584**	0.022
10	Starting a Business	0.926***	0.000	0.955***	0.000
11	Dealing with Construction Permits	0.462*	0.083	0.511**	0.052
12	Getting Electricity	-0.023	0.936	0.041	0.885
13	Registering Property	0.356	0.192	0.409	0.130
14	Getting Credit	0.665***	0.007	0.553**	0.033
15	Protecting Minority Investors	0.880***	0.000	0.927***	0.000
16	Paying Taxes	0.935**	0.000	0.973***	0.000
17	Trading Across Borders	0.382	0.160	0.435	0.105
18	Enforcing Contracts	0.273	0.326	0.349	0.203
19	Resolving Insolvency	-0.020	0.942	0.041	0.884
20	Market Access Sub-index	0.358	0.190	0.401	0.139
21	Broder Administration Sub-index	0.416	0.123	0.471*	0.077
22	Infrastructure Sub-index Index	0.712***	0.003	0.766***	0.001

Correlation Value the Determinants of FDI (Sub-Index / Variables)

23	Operating Environment Sub- index	0.975***	0.000	1.000***	0.000
24	Internet Users (%) 14	0.330	0.249	0.514*	0.060
25	Global Index of Infrastructure	0.039	0.892	0.084	0.765
26	Transport	0.024	0.933	0.070	0.805
27	Energy	-0.048	0.865	-0.014	0.961
28	ICT	0.238	0.413	0.299	0.299
29	Finance	-0.003	0.992	0.049	0.861
30	Voice and Accountability, 2015	0.284	0.304	0.384	0.158
31	Political Stability, 2015	0.710***	0.003	0.679***	0.005
32	Government Effectiveness, 2015	0.570**	0.027	0.657***	0.008
33	Regulatory Quality, 2015	0.617***	0.014	0.689***	0.005
34	Rule of Law, 2015	0.569**	0.027	0.671***	0.006
35	Control of corruption, 2015	0.618***	0.014	0.721***	0.002
36	Industrial Estate (land) Rent (per sq.m.)	0.235	0.487	0.438	0.178
37	Electricity Rate for Buss. Use(per kwh)	0.096	0.733	0.027	0.924
38	Water Rate for Business Use (per cu. M)	0.067	0.813	0.145	0.607
39	Gas Rate for Business Use (per cu. m.)	-0.121	0.922	-0.130	0.917
40	Diesel Price (1liter)	0.462*	0.083	0.462	0.083
41	Corporate Income tax Rate	-0.448*	0.094	-0.408	0.131

***Correlation is significant at the 0.01 level (2-tailed).

**   Correlation is significant at the 0.05 level (2-tailed).

*   Correlation is significant at the 0.010 level (2-tailed).

Note: For avoiding the confusing relation among the variables,
according to principle of economics, the inverse value of the
Index rank has been considered during the measure of correlation value.

Appendix E: Regarding FDI in 7th Five Year Plan

Bangladesh has among the most liberal FDI regime with (a) no limits on income and profit repatriation, (b) 100% foreign ownership allowed, (c) joint ventures without restrictions on shareholding, (d) all sectors open to FDI except few restricted on national security grounds, and (d) generous tax holidays. Yet, the fact that Bangladesh is only a minor player in FDI with $1.5-2 billion of inflows in FY2014 compared to India's $28 billion, Indonesia's $18 billion, Malaysia's $12 billion, and Vietnam's $10 billion says a lot about the lack of a sufficiently favourable investment climate. For FDI to flow in the investment climate has to be conducive for foreign investors to feel confident that not only will returns be high but the risks are low. The Government must recognize that the FDI sector is an integral part of the economy – essential to restructuring the economy and raising national competitiveness.—by putting in place market economy institutions and a sound legal framework; building an advanced and integrated infrastructure, particularly transport and ports; removing complexity in land entitlements and mutations, and developing a quality workforce. Furthermore, improving the investment climate requires concerted actions involving, among other things,

(a) Provision of adequate power supply,
(b) further business deregulation to build a dynamic export-oriented economy,
(c) financial sector reforms,
(d) reforms in tax and customs administration,
(e) legal reforms that ensure enforcement of contracts,
(f) setting up more special economic zones to overcome the land constraint,
(g) branding of special products (i.e. khadi, silk, jamdani)
(h) improving overall governance, and
(i) ensuring socio-political stability.

Appendix F: Seventh Plan Sectoral Public Investment Allocation (Taka billion)
ADP by Broad Categories in Constant FY16 Prices (Public Investment)
(7th Five Year Plan Projections)

Sl.	Sector	FY16	FY17	FY18	FY19	FY20
1	General Public Services	41.8	30.9	34.9	38.8	43.4
2	Defence	4.2	3.0	3.4	3.8	4.2
3	Public Order and Safety	15.3	18.0	20.3	22.5	25.2
4	Industrial and Economic Services	21.0	29.9	35.2	41.0	47.7
5	Agriculture	59.0	75.2	84.8	94.2	105.6
6	Power and Energy	184.8	191.5	189.9	211.1	236.1
7	Transport and Communication	234.3	278.2	310.5	343.3	385.5
8	Local Government and Rural Development	181.8	212.6	239.6	266.2	297.8
9	Environment and Climate Change	4.8	6.8	7.7	8.6	9.6
10	Housing and Community Amenities	18.9	16.6	18.7	20.8	23.2
11	Health	53.3	64.0	72.2	81.6	92.8
12	Recreation, Culture and Religion	8.3	10.1	11.1	12.3	13.8
13	Education and Technology	121.1	173.7	207.0	230.6	258.3
14	Social Protection	37.5	47.1	53.3	59.4	66.6
	TOTAL	970.4	1141.6	1287.8	1431.0	1600.

Source: 7th Five Year Plan, Bangladesh

Appendix F: 7th Five Year Plan Savings and Investment Targets in Context

Targets	Base Year 2010	Progress under 6th FYP 2015	7th FYP 2020
National Savings (% of GDP)	29.44	29.01	32
Gross Domestic Investment (% of GDP)	26.25	28.97	34.4
FDI ($ billions)	0.913	1.60	9.56

Source: 7th Five Year Plan, Bangladesh

Do Exchange rate changes have symmetric or asymmetric effects on the remittance flow of Bangladesh from Saudi Arabia? Evidence from Time Series data from 1990 to 2016

MOHAMMAD ABUL KASHEM[*]

Abstract: *This paper attempts to study the impact of exchange rate changes on wage earners remittance inflow from Saudi Arabia (SA) to Bangladesh (BD) for the period of 1990,Q3-2016,Q3. Both linear and non-linear ARDL in the adjustment processes are employed for Bahmani-Oskooee (2016) ARDL trade model to figure out the exchange rate impact on inward remittance flow. We observe both the short-run and long-run symmetric effects of exchange rate changes on the remittance influx to Bangladesh from Saudi Arabia. The coefficient of the real exchange rate variable is positive and significant in linear ARDL. In non-linear ARDL as well, symmetricity is observed in terms of duration and sign of the inward remittance of Bangladesh from Saudi Arabia. Simply, remittance from Saudi Arabia to Bangladesh is significantly and positively elastic with exchange rate means that higher exchange rate will induce migrant labourers to send higher level of remittance from abroad.*

Keywords: *Wage Earner Remittance flow, Exchange Rate, Linear and Non-linear ARDL.*

JEL Classification *F31*

1. Introduction

Inward remittance earning by the expatriate workers of Bangladesh is an important topic for many empirical researchers of Bangladesh. Continuous remittance influx helps Bangladesh economy to keep it current account balance

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[*] Joint Director, Monetary Policy Department, Bangladesh Bank, Dhaka

positive since 1990s. Like many other developing countries though the trade balance of Bangladesh is negative the overall current account balance is positive due to the role of ceaseless remittance influx particularly from Middle Eastern, South East Asia, Europe and North American countries. However, Saudi Arabia is the highest contributor in remittance earning of Bangladesh since the maximum level of migrant workers are staying in this country. The earlier researches put their concentration on overall remittance income of the country but the country specific attempt is not yet done by the empirical researchers. Initially, the studies attempts to show the link between devaluation and income level of the host countries through VAR analysis. The aggregation bias inherent in these studies could be circumvented through studies on bilateral remittance of a specific country with her partners. This issue is always boldly ignored by the existing research works of remittance flow between two countries. The currents trend rests mainly on panel data basis which is done by the cross country disaggregated data. However, country specific remittance flow between or among several partners provides a new cue to reexamine the symmetric or asymmetric link in a meaningful way. This author failed to get any research work that explores exchange rate impact in case of Bangladesh remittance earning from Saudi Arabia.

As remittance earning for developed countries has very little importance the researchers of those countries are highly reluctant to employ themselves for such works. That's why, there are scant empirical work on the link between the exchanges rate changes and the remittance earning by Bangladesh with her workers host partners around the world. There are also no studies on skilled and unskilled specific remittance earnings too. This study is the first attempt to show exchange rate variability on remittance earning by Bangladesh from Saudi Arabia. The remittance earning of Bangladesh from the rest of the world in December 2016 was about 12 thousands crore taka and contribution in it by only Saudi Arabia is 20%. About 1.5 millions migrant workers are presently in Saudi Arabia from Bangladesh. So, the contribution of Saudi Arabia in wage earners remittance income of Bangladesh is enormous. That is why; the objective of this paper is to test whether any relationship between exchange rate fluctuations and remittance earning of Bangladesh from Saudi Arabia is there.

The rest of the paper is crafted by the following phases. The methodology is explained in Section 2. Sections 3 present empirical findings and Sections 4 presents concluding observation. Appendix A gives the detailed empirical results, Tables 1-6.

2.   The linear and non-linear ARDL methods

We consider the specification of Bahmani-Oskooee et al. (2016) to test the hypothesis that exchange rate movements have asymmetrical or symmetrical effects using Saudi Arabia-Bangladesh remittance flow. According to this model it is customary to include three variables, real GDP in both countries and real exchange rates in the long–run specification. However, we believe in remittance earning the earning country's real GDP cannot have any or very little impact. So, this variable is replaced by the earning country's number of expatriate workers left for foreign job.

Eq (1) gives the specification:

$$In(R)_t = a + b \ln Y_t^{SA} + c \ln M_t^{BD} + d \ln REX_t + \epsilon_t \tag{1}$$

The model is specified from Bangladesh perspective, meaning that REM_t is defined as Bangladesh remittance earning from Saudi Arabia., real income in Saudi Arabia denoted by , Migrant workers left from Bangladesh is denoted by and the real bilateral exchange rate denoted by *REX*. The best replacement of real GDP of Bangladesh of Bahmani-Oskooee (2016) trade model would be the figure of the number of migrant workers left for Saudi Arabia from Bangladesh. But, unfortunately, due to unavailability of such data we have used the total figure of Bangladesh workers left for abroad from Bangladesh as foreign job seekers. Again, Saudi Arabia does calculate her quarterly GDP. To overcome this hindrance of unavailability quarterly GDP data we have used Chow and Lin (1976) method to extrapolate quarterly GDP. To generate the quarterly figure of Saudi Arabian GDP from annual GDP we have used a linear import function M = e+ gY where M= Imports and Y= GDP. However, our purpose the quarterly series to be estimated (Y) was regressed on Import. Therefore, using annual observations we estimated the following relation: $Y_t = e + gM_t + \epsilon_t$ by then, using quarterly data for M we obtained a quarterly series for Y, say $\hat{Y}$, were adjusted such that Y= $\hat{Y}_I + \hat{Y}_{II} + \hat{Y}_{III} + \hat{Y}_{IV}$, where Y is the actual yearly observed data of Saudi Arabian GDP. Now, we expect the estimate of both *b* and c in equation (1) to be positive. *REX* is defined such that a decrease signifies depreciation of the Bangladeshi Taka against Saudi Arabian Riyal; hence we expect the estimate of *d* to be positive. The real bilateral exchange rate between the Taka and the Riyal is given by $[(P^{SA} \times NEX) / P^{bd}]$ where P^{SA} and P^{bd} are the price levels in Saudi Arabia and Bangladesh respectively, measured by the consumer price index. *NEX* is the nominal exchange rate defined as the number of Taka per Riyal.

Table 01, Unit Root Test

Unit Root Test

ADF Test				PP Test			
With Trend and Intercept				With Trend and Intercept			
Remit =R	QGDP=Y	MIG=M	REX	Remit =R	QGDP=Y	MIG=M	REX
I(1)	I(1)	I(1)	I(0)	I(1)	I(1)	I(1)	I(0)

Eq. (1) is a long-run model with the estimated coefficients reflecting the long-run effects of the exogenous variables on remittance earning level. The short-run effect in particular with regard to the real exchange rate, Eq. (1) is rewritten in an error-correction format as follows:

$$\Delta \ln Rt = \alpha + \sum_{k=1}^{n} \beta_{t-k} \Delta \ln (R)_{t-k} + \sum_{k=0}^{n} \partial_{t-k} \Delta \ln Y_{t-k}^{SA} + \sum_{k=0}^{n} M_{t-k} \Delta \ln M_{t-k}^{BD} + \sum_{k=0}^{n} \pi_{t-k} \Delta \ln REX_{t-k} + \lambda_1 \ln (R)_{t-1} + \lambda_2 \ln Y_{t-1}^{SA} + \lambda_3 \ln M_{t-1}^{BD} + \lambda_4 \ln REX_{t-1} + \mu_t \quad ..(2)$$

This specification by Pesaran et. el (2001) recommend applying the standard F test to test the null hypothesis $H_0: \lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = 0$ against the alternative of $H_1: \lambda_1 \neq 0, \lambda_2 \neq 0, \lambda_3 \neq 0, \lambda_4 \neq 0$. When the calculated F statistic is significant, the null is rejected in favour of the alternative hypothesis and the variables are said to be cointegrated. They demonstrate that the F test in this context has new critical values, which they have tabulated. These critical values indicate the integrating properties of the variables ruling out pre-unit root testing. However, besides of such remissions we have performed unit root tests by using Augmented Dicky-Fuller (ADF) and Phillip-Perron (PP) methods which is presented in Table 1. As unit root test confirms that the variables are mixer of I(1) and I(0) we can proceed to use ARDL version model for our purpose. Now, once cointegration is established, the error correction component of Eq. (2) is set equal to zero and the long-run effects are derived by normalizing estimates of $\lambda_2 - \lambda_4$ on λ_1 Bahmani and Fariditavana (2015).

The short-run effects are judged by the estimates of coefficients attached to first-differenced variables. A major assumption behind Eq (2) is that a change in any of the exogenous variables has symmetric effects on the remittance flow. This assumption implies that if depreciation improves the remittance flow, the appreciation must worsen it. Nevertheless, exchange rate effects could have symmetric or asymmetric effects when economic condition in Saudi Arabia changes, flow of migrant workers changes, migrant workers and their employers

in Saudi Arabia react differently and thus exchange rate changes could have symmetric or asymmetric effects on the remittance earning.

A new variable comprising changes in the lnRex variable is calculated following the methodology used by Delatte and Lopez-Villavicento (2012), Verheyen (2013) and Bahamni and Friditavana (2015, 2016) where negative values reflect depreciation and positive values appreciation. Two new series; one denoted by *NEG* and the other denoted by *POS* representing depreciation and appreciation are given below. The variables are constructed by disentangling the variable comprising the changes in the lnRex variable.

$$POS_t = \sum_{j=1}^{t} \Delta lnREX_j^+ = \sum_{j=1}^{t} max\,(\Delta lnREX_J, 0) \tag{3}$$

$$NEG_t = \sum_{j=1}^{t} \Delta LnREX_j^- = \sum_{j}^{t} min\,(\Delta lnREX_j, 0) \tag{4}$$

The replacement of the lnRex variable in the error correction model of Eq. (2) by the two newly created variables, *POS* and *NEG* following the formulation of Shin, Yu and Greenwood-Nimmo (2014) gives the Auto- regressive distributed lag model.

$$\Delta Ln(R)_t = \alpha + \sum_{k=1}^{n} \beta_{t-k} \Delta Ln(R)_{t-k} + \sum_{k=0}^{n} \sigma_{t-k} \Delta LnY_{t-k}^{SA} + \sum_{k=0}^{n} M_{t-k} \Delta LnM_{t-k}^{BD} + \\ \sum_{k=0}^{n} \pi_{t-k} \Delta POS_{t-k} + \sum_{k=0}^{n} v_{t-k} \Delta NEG_{t-k} + \rho_1 ln(R)_{t-1} + \rho_2 lnY_{t-1}^{SA} + \rho_3 lnM_{t-1}^{BD} + \\ \rho_4 POS_{t-1} + \rho_5 NEG_{t-1} + \psi_t \tag{5}$$

The above formulation Eq. (5) represents a non-linear ARDL in the presence of the variable *POS* and *NEG* variables, whereas Eq. (2) represents a linear ARDL model. Shin et al. (2014) show that the same method of estimating (2) and the related *F* test are equally applicable to (5). Given Eq. (5) is estimated, if *POS* and *NEG* variables carry the same coefficients in sign and size, exchange rate changes are shown to have symmetric effects. Otherwise, the effects are asymmetric.

2. **Empirical findings**

The study used quarterly data over the period 1990Q3-2016Q3 for which data are available. The data on remittance of earning of Bangladesh from Saudi Arabia is drawn from the monthly Economic Trend of Bangladesh Bank, those on Saudi Arabian real income from International Financial Statistics of IMF. Quarterly data on number of migrant workers is drawn from monthly Economic Trend of the Bangladesh Bank, the Central Bank in Bangladesh. Quarterly data on exchange rate is drawn from the various issues of Monthly Economic Trend published by the Bangladesh Bank and the CPI data is drawn from the various publication of the Bangladesh Bureau of Statistics.

We estimate both the linear ARDL model (2) and the non-linear ARDL model (5) for the remittance earning of Bangladesh from Saudi Arabia. The results are presented in Table 2 to 6. Coefficients estimated for the linear model (2) is reported in table 2.

Table 1

Dependent Variable	Short run coefficient estimates					Long run coefficient estimates			
	$\Delta lnREX_t$	$\Delta lnREX_{t-1}$	$\Delta lnREX_t$	$\Delta lnREX_t$	Constant	lnY^{SA}	lnY^{BD}	$lnREX$
Δlog (Remittance of BD from Saudi Arabia)	0.81	1.33	1.21		-4.361	0.832	0.380	0.166
	[1.98]**	[2.26]**	[1.80]*		[8.35]***	[8.75]***	[3.40]***	[4.81]***

Notes: Numbers in parentheses are the absolute values of the t-ratio. *, ** & *** indicate significance at 10%, 5% & 1%level respectively.

We report short –run coefficients for the exchange rate only and long-run estimates for all variables. For the short-run, 0.81 percent exhibit significant positive real exchange rate coefficients at 5 % level of significance. This result confirm that as the Saudi Arabian economy grows, the Saudi Arabian reliance on foreign labour does not diminish and for Bangladesh increased earning of remittance from Saudi Arabian.

The long- run coefficient estimates are valid only when if we can establish cointegration. The results of the *F* test applied to joint significance of lagged level variables in Eq (2) and the presence of at least one long- run significant estimated coefficient confirm cointegration. A set of diagnostic tests is also reported in Table 3.

Table 3

Industry (trade, share in %)	Diagnostic Statistics						
	F	CM_{t-1}	M	ESET	CUSUM	CUSUMSQ	Adj. R^2
Δlog (Remittance of BD from Saudi Arabia)	12.69***	-0.59**	0.57	2.59	S	S	0.62

Notes: *, ** & *** indicate significance at 10%, 5% & 1%level respectively.

Given critical value of 3.84, the Lagrange Multiplier Test (LM) statistic which is distributed as χ^2 with one degrees freedom confirms that the residuals except in

two cases are free of autocorrelation. The RESET statistic which is distributed as χ^2 with one degrees freedom and is used to judge misspecification tells insignificant for the model we have fitted. The stability of all short–run and long-run estimates is tested by the CUSUM and CUSUMSQ test to the residuals of each model. The results show that our fitted model is stable. Finally, the adjusted R^2 square statistic is pretty good to rely on the model where variability of the dependent variable is highly explained the variability of the considered explanatory variables.

The estimates of the non-linear ARDL (5) help us to judge whether exchange rate changes have symmetric or asymmetric effects. Short-run estimates are given in Table 4, long-run estimates are in Table 5.

Table 4

Industry	Short run coefficient estimates							
	ΔPOS_t	ΔPOS_{t-1}	ΔPOS_{t-2}	ΔPOS_{t-3}	ΔNEG_t	ΔNEG_{t-1}	ΔNEG_{t-2}	ΔNEG_t
Δlog (Remittance of BD from Saudi Arabia)	0.30** [3.02]	-	-	-	0.49* [1.97]	-	-	-

Notes: Numbers in parentheses are the absolute values of the t-ratio. *, ** & *** indicate significance at 10%, 5% & 1%level respectively.

Table 5

Industry	Long run coefficient estimates				
	Constant	$\ln Y^{SA}$	$\ln Y^{BD}$	POS	NEG
Δlog (Remittance of BD from Saudi Arabia)	-55.67** [2.32]	8.79*** [2.88]	-3.51*** [2.95]	0.19* [1.77]	0.35** [2.03]

Notes: Numbers in parentheses are the absolute values of the t-ratio. *, ** & *** indicate significance at 10%, 5% & 1%level respectively.

Table 4 shows that the variable representing appreciation *(Δ POS)* and the variable representing depreciation *(Δ NEG)* are with coefficients that differ in sign, size, and duration. With respect to duration, following Shin et al (2014), adjustment symmetry is indicated in the remittance earning level of Bangladesh from Saudi Arabia. The coefficients of both *Δ POS* and *Δ NEG* are significant. Thus the non-linear ARDL model supports more significant short-run effects compared to the results from the linear model.

As for the long-run asymmetry effects, Table 5 shows significant coefficients estimates for either *POS* or *NEG* variables in inward remittance flow of Bangladesh from Saudi Arabia for the linear model of Table 2. This manifests greater sensitivity of the non-linear model in capturing a relationship between exchange rate changes and remittance influx effects.

Table 6

Industry (trade share in %)	Diagnostic Statistics								
	F	ECM(t-1)	LM	RESE T	Wald-S	Wald-L	CUSU M	CUSUMS Q	Adj R^2
Δlog (Remittance of BD from Saudi Arabia)	11.20***	-0.29*	0.08	0.76	2.25**	1.98**	S	S	0.60

Notes: *, ** & *** indicate significance at 10%, 5% & 1%level respectively.

The effects of the income variable in non-linear model carry expected sign with significant coefficient which indicates the importance of economic growth in Saudi Arabia for remittance earning of Bangladesh. The second one indicates the importance of increasing in migrant workers number and skilled level. The long-run non-linear estimates are valid conditional on cointegration which we can check through the diagnostic statistics of Table 6. Cointegration is established either by the significant *F* test or the ECM_{t-1} test and the presence of at least one significant long-run coefficient in Eq.5. We find cointegration in between remittance earning of Bangladesh from Saudi Arabia and their bilateral real exchange rate. F statistic is significant for the error component term. Table 6 reports two additional statistics; *Wald-s and Wald-L. Wald-s* supports short-run impact symmetry and *Wald-L* supports long-term impact symmetry.

3.   **Summary and conclusions**

We estimate two remittance earning models modified from the Bahmani-Oskooee (2016) trade model, for Bangladesh remittance earning time series data from Saudi Arabia which constitutes about 20 percents of its total remittance earnings, namely one is linear ARDL and the other is non-linear ARDL model. The linear ARDL incorporates the real bilateral taka-riyal rate as a determinant of remittance in Bangladesh from Saudi Arabia along with the real income of Saudi Arabia and number of Bangladesh labourers left for job seeking in Saudi Arabia [substituted by aggregate income of Bangladesh in the Bahmani-Oskooee (2016) trade model]. The non-linear ARDL differentiates between one variable for currency

appreciation and another for depreciation through which non-linearity is introduced into the model. We use quarterly data for the period 1990 Q3-2016 Q3.

According to Bahamani-Oskooee and Fariditavana (2015, 2016) trade model fitted in the bilateral remittance earning of Bangladesh from Saudi Arabia, the symmetry assumption that depreciation improves the earning country remittance inflow or appreciation worsens it, is a very logical and tenable. Exchange rate changes could have in principle symmetric effects on the bilateral remittance flow for this couple of countries because migrant workers reaction to home country currency depreciation might conceivably analogous to their reaction to appreciation. Remitters are directly and immediately affected due to slow adjustment lags such as decision lags, earning level lags and wage lags etc. Thus, migrant labourers may be affected by appreciation of their home country currency for some time but the family members left behind show an urgent necessities for their daily livelihood.

We find evidence in a variety of ways to support symmetry in responses in remittance inflow to exchanges rate changes for Bangladesh remittance earning from Saudi Arabia. First, adjustment symmetry in the form of different response times of the remittance earning to depreciation and to appreciation was observed. Second, in the short-run, symmetry in the size or sign coefficient estimates on the exchange rate also did not differed between appreciation and depreciation. Finally, long-run symmetric effect was also found. Overall, both the linear and non-linear models which allows to show for symmetry or asymmetry effect of exchange rate on remittance earning revealed very clearly a more significant role for the exchange rate in remittance earning for Bangladesh from Saudi Arabia can play if the authorities from Bangladesh side take proper action to pay incentive to the remitters. In Bangladesh, government gives cash subsidies to the exporters of all conventional and unconventional items exporting. However, government did not gives any such incentives who earns foreign currency by managing jobs abroad which is almost free from any foreign currency spending like back-to-back LCs payment for input and capital machinery importing in case of exports proceeds earning. According to our findings in this study government should pay either a depreciated separate exchange rate or (like exporters) direct cash subsidies to the expatriate wage earning communities to improve remittance earning by the migrant wage earners.

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Defense Expenditure and Economic Growth in Sub-Saharan African Countries

MOHAMMAD ABDUL MANNAN CHOWDHURY*

1. Introduction

The relationship between defense expenditure and economic growth is a debatable issue. Benoit (1973, 1978) was the first to initiate the debate who found that military spending and development are positively related. Subsequently, considerable research works have been made using improved econometric methods and analysis to test the validity of Benoit (1973/ 1978)'s findings. Studies miserably failed to reach any consensus on the issue. Similar is the case with economic growth. Numerous studies have been undertaken to find the determinants of economic growth. But no final word can yet be said about the exact number of determinants of economic growth. Both the number and nature of determinants of economic growth vary from country to country. Solow (1956) conducted empirical survey on the determinants of economic growth based on the Neoclassical theory. According to Solow (1956) model, in steady-state equilibrium the level of GDP per capita will be determined by the prevailing technology, the exogenous rates of saving, population growth and technical progress. Similar conclusion was also reached by Swan (1956). In other words, other things being equal, countries that have higher saving rates tend to have higher levels of per capita income, and vice versa. This conclusion was supported by the economists for the past four decades since 1956. However, recent growth theories no longer support the Solow-Swan model and are very much critical of the same.

The critics are of the opinion that the observed difference in per capita income across countries cannot be explained by the standard neoclassical model. The

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* Professor, Department of Economics, University of Chittagong

recent growth theories opine that the endogenous growth model which assumes both constant and increasing returns to capital may be more relevant to adequately explain the factors or determinants responsible for economic growth of countries. More recently renewed empirical works have been undertaken to resolve the crises arising out of the different implications of both the exogenous and endogenous growth models (Khan and Yim, 2000; Mehanna, 2001).

The issue of convergence has now become one of the major concerns of the researchers. That is, a poor economy should grow at a higher rate per capita than a rich economy so as to reduce the gap between the two economies. The recent studies emphasize the fact that a microeconomic policy framework conducive to growth is a must. A broad consensus is found to exist among the economists regarding the fact that there is an inverse relationship between long-term growth and inflation while the relationship between long-term growth and good fiscal performance as well as undistorted foreign exchange markets is positive (Fischer, 1993. The empirical works have also established the fact, that the quantitative implications of different saving and population growth rates are biased upward if human capital is not accounted for in the model (Knight, Loayza, and Villanueva, 1993). Needless to say, human capital development is positively related with both savings and population growth.

In fact, macroeconomic policies may affect growth in many different ways. Some of the policies may promote growth while others may be totally detrimental for the same. Again, there may be some policies or determinants whose effects on growth may be quite ambiguous. One of such policies is the policy relating to defense expenditure. Though the growth pattern of a country is linked to characteristics of countries like economic base, population growth, unemployment rate, investment in physical and human capital, flow of foreign investment, industrial growth, inflation, development of financial institutions, and the level of integration with the global economy, the recent literature includes military expenditure as well as foreign aid in the context of developing countries as the important determinants of economic growth (Benoit, 1973,1978; Ball, 1983; Joerding, 1986; Chowdhury, 1991; Looney,1991; Madden and Haslehurst, 1995; Kollias and Makrydakis, 1997). Sufficient theoretical framework and empirical evidence that crystallize the relationship between military spending and economic growth are not available.

Some of the commonly agreed upon theoretical explanations regarding military expenditure and economic growth have been synthesized by recognized literature on the subject which may be summarized as follows;

(a) Defense spending may exert positive or favorable influence upon economic development either through an expansion of aggregate demand or through increased security of a country. There are four arguments in favor of this positive relationship. These are;

1. The defense expenditure can have an expansionary impact on the economy through the operation of Keynesian multiplier effect. This simulative impact is likely to be stronger in developing countries.

2. The adoption of the state-of-the art technologies to produce civilian goods may be encouraged by military spending which is likely to generate externalities congenial for development.

3. Since a major portion of the total defense budget is usually spent for building or developing infrastructure like roads and highways, airports, information technology, etc., the military expenditure is likely to promote growth.

4. Last but not the least, since military expenditure strengthens internal and external, security, a congenial atmosphere for trade and investment is created for the local and foreign investors and as a result, economic growth takes place.

(b) Defense spending through a crowding out of investment can exert negative influence upon economic development of a country. There are also arguments in support of this negative relationship between defense spending and economic growth which may be summed up in the following ways:

1. More growth-oriented and need-based public and private investment may be crowded out by higher expenditure on defense. As a result, long-run economic growth may be adversely affected. Since military spending may crowd out private sector R & D activities, it may seriously affect technological innovations due to R & D activities of this sector which are likely to spill over faster to civilian sector than those of defense sector. As the evidence shows, a number of innovations in the defense sector may not be useful for the civilian sector.

2. Defense expenditure can cause balance of payment problems if hard-earned foreign exchanges are used to purchase arms and defense hardware.

3. Export is regarded as an engine of growth and this export sector is likely to be adversely affected due to the diversion of resources from the export sector to the defense sector

4. Above all, military expenditure inhibits growth through bureaucratic inefficiency and excess burdens created by taxes required to finance military spending.

The foregoing discussion points out to the fact that military spending may affect growth both positively and negatively. The net effect, however, will depend upon the strength of the two opposing forces; A group of economists are of the opinion that like military spending, foreign direct investment (FDI) has also considerable influence upon economic growth of a country. Since the 1980s country barriers to foreign investment have given way to countries actively seeking FDI in stead of discouraging it. Governments now compete with each other to win more investment from foreign companies. FDI is necessary to develop a country's production capacity in all sectors of the economy, and it links a country with the global economy and ensures competitiveness. A group of economists regard FDI as an engine of growth since it facilitates the use and exploitation of local raw materials, introduces modern techniques of management that allows financing current account deficits, increases the stock of human capital via on the job training, and stimulates the investment in R&D. In the perspective of the new theory of economic growth, FDI may affect not only the level of output per capita but also its rate of growth. It is commonly believed that military spending exerts considerable influence upon FDI, a vital factor for economic growth.

1.1. Objectives of the Study

In this paper we have made an attempt to examine the relation between military spending and economic growth in the context of multivariate economic growth framework in the seventeen countries of sub-Saharan African region over the period from 1980 to 1999. The main focus of the paper is to determine if military expenditure has any impact on economic growth and FDI. Researchers have tried to ascertain the relation between military spending and economic growth through the estimation of single-equation and simultaneous equation models and more recently, through the applications of time-series techniques that investigate causal links;

1.2 Rationale for the Study

The researchers have made both extensive cross-country analysis and detailed case studies of individual countries to ascertain the causal relation between the two; but none of the former could arrive at any consensus regarding the matter. In this context, Dunne (1996) has made an extensive survey which may be cited here

as a reference. Our present study is expected to make additional contribution to the issue in the following ways;

(a) It provides a further case study of seventeen countries of Sub-Saharan Africa region.

(b) The present study goes beyond the standard "Granger Gausality" econometric techniques used iii previous econometric works, and uses a panel data approach within the framework of economic growth model. So, our approach is more comprehensive than the earlier ones.

1.3   Organisation of the Study

The remaining sections of the paper are organized as follows: Section 2 gives a brief review of literature on military expenditure and economic growth. Section 3 describes the hypothesis, the conceptual framework of the model or the research methodology, and the nature and source of data used in the study. Section 4 gives an analysis of empirical results. Section 5 narrates the political economy of military expenditure in the countries of Sub-Saharan Africa. Section 6 gives the conclusion and analyses the policy implications of the findings of the study.

2. A Brief Review of Literature

There is a good deal of research on the issue of economic growth and military spending. Most of the studies used cross-country or panel data approach to investigate the issue. While most of these studies utilized the standard Neo-classical growth model or its extended version which includes human capital, more recent studies focus on endogenous growth models. The key assumption of the neoclassical growth theory is that technical change is exogenous and the same technological opportunities are available across countries. The implication of the study is that steady state growth entirely depends upon exogenous population growth and exogenous technical progress. In other words, the model predicts that poor countries should gradually converge towards richer countries. However, studies undertaken by Romer (1986) and Lucas (1988) have totally discarded this central assumption. Recent literature based on endogenous growth models (Romer, 1986; Lucas; 1988) are of the view that the convergence hypothesis is "conditional" because it depends upon various factors like the rate of savings, the growth rate of population, the marginal productivity of labor, etc. The lower the level of income, the greater is the opportunity of catching up through higher rates of capital accumulation and diffusion of technology.

There are some studies which have attempted to explain cross-country differences in total factors of production. Most of these studies with the exception of Hall and Jiahes (1998) have focused on cross-country differences in growth rates. The growth rates are important since they have considerable influence upon growth levels. The cross-country differences in growth rates may be temporary since technological transfers across countries imply convergence in growth rates as technological transfers bring countries closer to each other within a definite period of time. The main conclusion of these studies taken together may be summed up as follows: A country's growth over a long period is basically determined by three factors. These are: 1. the efficient utilization of the existing stock of resources, 2. the accumulation of productive resources such as human capital, and 3; technological progress. Of course, these factors can be further broken down into various determinants of economic growth (Dewan and Hussain, 2001).

A survey of the large body of empirical evidence reveals little consensus on either the existence of a relationship between military spending and economic growth or when it exists, the nature and direction of such a relationship. So far our knowledge goes, Benoit (1973,1978) was the first to initiate the debate on the relationship between military spending and economic growth who suggested that there was a positive correlation between defense expenditure arid economic growth. Subsequently, after comprehensive critique provided by Ball (1983), considerable research works with improved approach using rigorous econometric analysis have been undertaken to test the validity of Benoit (1973,1978)'s finding and to overcome the analytical deficiencies in his study. There have been studies using single-equation analysis, simultaneous equation systems, and large macroeconomic models all developed from a. variety of theoretical perspectives. Studies have been applied to different cross-sectional samples of countries, time series for individual countries, and pooled time series and cross-sectional data. None of these studies, however, can arrive at any consensus on the issue. Of course, most of the studies have one common finding that defense expenditure has no significant impact or a negative impact on economic growth (Dunne, 1996).

The recent application of causality tests to the data to examine whether there is any effect of military expenditure on growth and vice versa may be regarded as an important piece of single-equation work. This causality test is better known as Granger causality test since the technique was first developed by Granger (1969). However, several methods are available for testing Granger causality. Joerding (1986), Manage and Marlow (1986), Kinsella (1990), Ghowdhury (1991), Lopney (1991), Chen (1993), Kusi (1994), Hasan (1994), Madden and, Haslehurst (1995),

Kollias. and Makrydakis (1997) used Granger-causality tests in their studies to ascertain the impact of military spending on economic growth. Joerding Ci986); Used two measures of military spending and growth for 57 less-developed countries (LDCs) for the period from 1962 to 1977 found no evidence that military spending causes growth. Kinsella (1990) studied the causal relationship between military spending and various economic variables including output of the United States and concluded that there was no significant relationship between defense spending and output. Chowdhury (1991) used a Granger-causality test to analyze the presence and; direction of causality between defense spending and economic growth in less developed countries (LDCs) and his test results showed a lack of consistency across different countries. Looney (1991) analyzed the case of Pakistan and India and found a positive effect of military spending on growth for Pakistan but a negative one for India.

Chen (1993) analyzed the case of China and found no significant relationship between military spending and economic growth. However, Hasan (1994) found a positive effect of military spending on growth when he reworked Chen's data with VAR methods. Maddan and Haselhurst (1995) found no causal link between militaiy spending and economic growth. Kollias and Makrydakis (1997) analyzed Greek data and found no causal link between defense expenditure and economic growth. Hassan et al. (2002) examines the relation between military spending arid economic growth in the context of a multivariate economic growth framework in the seven SAARC countries over the period from 1980 through 1999 using a panel data approach and finds that the SAARG region, mostly composed of developing countries, gain more from defense spending vis-a-vis the developed countries as benefits are more widespread across the economy in these countries. The study also finds that the ultimate impact of defense on growth is positive as it brings overall stability in the economy by providing security against all external threats and aggression, though the immediate objective of military spending may not be directly related to growth. Hassan (2003) examines the impact of military spending upon economic growth using a panel data of 95 countries and 8 MENA (Middle-East and North African) countries. The central focus of the study is to examine the important factors that contribute to FDI and economic growth in the world and to compare them with those of MENA countries. The study finds significant negative impact of military spending upon economic growth while its impact upon FDI is positive which implies that military spending encourages FDI since it may bring desired stability in the country by providing security against all external threats and aggression. However, the ultimate impact of military spending on GDP growth turns out to be negative; Of course, no clear-cut conclusion can be drawn from this analysis.

We must carefully assess various supply-side (spin-offs from technology or infrastructure) and demand-side (resource diversion) factors before we make any generalization. In fact, economic growth is influenced by a host of macroeconomic variables like globalization index, IGT (Information and Communication Technology) configuration, human capital, population growth, gross domestic investment, government expenditure, foreign direct investment (FDI), inflation rate, exchange rate, military expenditure and per capita income. Globalization or the degree of openness to the global economy (Gallup et al., 1998), ICT, human capital (Barro, 1991; Benhabib and Spiegel, 1994; Becker etal., 1990; Sach and Warner, 1997; Barro, 1997), ICT, population (Hassan, 2003), and military spending (Hassan et al., 2002) are found to have positive influence upon economic growth while the impacts of government expenditure (Levine and Zervos, 1993; Barro, 1991; Hassan et al., 2002), inflation (Grimes, 1990; Barro, 1995; Mankiw, Romer and Weil, 1992; Barro, 1997; Fischer and Modigliani, 1978) on economic growth are found to be negative. However, this result contradicts the findings by Clark (1993) and Hassan et al. (2002). Of course, the result obtained by Hassan et al. (2002) is not statistically significant. Domestic and foreign investment, FDI are found to have positive influence upon growth while per capita income affects growth negatively (though not significantly) (Hassan et al. 2002). The pattern of relationship between FDI and economic growth is not clear-cut. Schneider and Frey (1995), Tsai (1994), Lipsey (1999), Hassan (2003) found positive relationship while Edwards (1990) found that the relationship between economic growth and FDI is quite inverse. Asiedu (2002) finds the unambiguous positive effect of both the quality of infrastructure (Wheeler and Mody, 1992; Kumar, 1994; Loree and Guisingar, 1995) and openness to international trade (Edward, 1990; Gastanga et al, 1998) on FDI. However, Asiedu (2002) finds that the impact of infrastructure development (measured by telephone per 1000 people) on FDI in Africa is not significant, but the impact of the same on FDI in other countries is quite significant. Hassan (2003) finds none of the economic factors significant in explaining FDI in MENA countries. But in another study Hassan et. al (2002) finds positive influence of globalization and information technology and negative influence of human capital, population growth, exchange rate, per capita income and military expenditure on FDI in the SAARC countries.

Masanjala and Papageorgiou (2003) analyzed the three current debates on economic growth, namely, geography/endowment hypothesis, institutions hypothesis and policy /integration hypothesis. The essence of the geography/ endowment hypothesis is that geographical and ecological variables foster

economic development by influencing directly the quality of land, labor productivity and production technologies. The institutions hypothesis holds that the role of geography in explaining cross-country growth variations operates predominantly through the choice of institutions, with little direct effect from geography. The policy/integration hypothesis emphasizes the role of macro-economic policy and the degree of integration in international trade and de-emphasizes the role of initial conditions in economic growth. (Diamond, 1997; Easterly and Levine, 2003; Sachs and Warner, 1997; Bloom and Sachs, 1998; Gallup, Sachs and Mellinger, 1998, Landes; 1998, Sachs, 2001,2003; Engerman and Sokoloff, 1997; Acemoglu, Johnson and Robinson, 2001,2002; Rodrik, Subramanian and Trebbis, 2002; Acemoglu and Johnson, 2003; Frankel and Romer, 1999; Alcala and Giccone, 2002). Using Bayesian Model Averaging Methodology, Masanjala and Papageorgiou (2003) finds institutional variables are important in explaining economic growth in Africa. In fact, there are different channels through which positive externalities associated with FDI can occur. In a competition channel, increased competition leads to increased productivity, efficiency and investment in human and/or physical capital. It may also lead to changes in the industrial structure towards more competitiveness and more export-oriented activities. Second, in a training channel, increased training of labor and management can enhance growth. Third, in linkage channel, foreign investment is often accompanied by technology transfer, and such transfers may take place through transactions with foreign firms. Finally, in demonstration channel, domestic firms replicate the more advanced technologies used by foreign firms.

3.   Formulation of Hypotheses, Data and Research Methodology

3.1.   Formulation of Hypotheses

Based on the above review of literature on economic growth, military spending and FDI, we have developed and tested the following hypotheses:

HI;   The impact of military spending on both economic growth and FDI is ambiguous.

H2:   Globalization has positive impact on both economic growth and FDI.

H3:   IGT infrastructure has positive impact on both economic growth and FDI.

H4:   Human capital has positive impact on both economic growth and FDI.

H5:   The impact of population growth on economic growth and FDI is ambiguous.

H6:   Gross domestic investment has positive impact on both economic growth and FDI.

H7:   Government expenditure has negative impact on economic growth, but its impact on FDI is ambiguous.

H8:   FDI has positive impact on economic growth,

H9:   GDP growth has positive impact on FDI.

H10:   The impact of inflation on both economic growth and FDI is ambiguous.

Hll: The impact of exchange rate fluctuation on both economic growth and FDl is negative.

H12;   The impact of per capita income on economic growth and FDI is positive.

3.2.   Sources and Nature of Data Used in this Study

Data for this analysis are derived from World Development Indicators, International Financial Statistics, the World Telecommunication Development Report, and the UNESCO database. The analysis is based on data from a cross section of seventeen sub-Saharan African Gpuntries (Angola, Botswana, Cameron, Cote D'lvoire, Gabon, Ghana, Kenya, Malawi, Mauritius, Namibia, Nigeria, Senegal, South Africa, Tanzania, Uganda, Zambia and Zimbabwe) overtime from 1980 to 1999. Data description and their nominal statistics are provided in table 1.

3.3.   Methodology of the Study: Specification of the Model.

Our hypothesis stated above explaining economic growth and military expenditure, based on a review of the theoretical and empirical literature and on the ideas presented above in section 2 are represented by the following equations:

$$(BDPGRWH)_{it} = \beta_0 + \beta_1(YO)_{it} + \beta_2(GI)_{it} + \beta_3(ICT)_{it} + \beta_4(HC)_{it} + \beta_5(PG)_{it} + \beta_6 + (GDI)_{it} + \beta_7(GE)_{it} + \beta_8(FDI)_{it} + \beta_9(ER)_{it} + \beta_{10}(IR)_{it} + \beta_{11}(ME)_{it} + \varepsilon_1$$

$$(FDI)_{it} = \beta_0 + \beta_1(YO)_{it} + \beta_2(GI)_{it} + \beta_3(ICT)_{it} + \beta_4(HC)_{it} + \beta_5(PG)_{it} + \beta_6(GDI)_{it} + \beta_7(GE)_{it} + \beta_8(GDPGROWTH)_{it} + \beta_9(ER)_{it} + \beta_{10}(IR)_{it} + \beta_{11}(ME)_{it} + \varepsilon_1$$

Where:

Y0   = initial GDP per capita (denoted by GC in the tables);
GI   = globalization index (an indicator of market opeririess);
ICT = information and communication technology infrastructure;
HC   = human capital;

PG = population growth;
GDI = gross domestic investment;
GE = government expenditure;
FDI = net foreign direct investment inflows;
ER = exchange rate;
IR   = inflation rale;
ME = military spending;
E   = error term;
i   = represents each sampled country;
t   = represents each year.

3.4.   Definition and Measurement of the Variables used in the Study

GDP growth (GG): is annual percentage change in GDP, as it is defined and measured in conventional macroeconomics.

Foreign direct investment (FDI): FDI inflows are net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than the home country of the investor. The measure is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments.

Globalization index (GI): It provides a measure of the degree of economic Openness. It is calculated as the sum of exports and imports divided by GDP.

Information and communication technology infrastructure (ICT): It is a composite variable composed of indicators such as the density of Internet hosts and the number of computers, telephone main lines, fax machines, TV sets, radios, users of mobile phones, and subscribers to newspapers. All the sub-factors are standardized and then combined to make the ICT-infrastructure variable.

Human capital (HC): It means percentage of relevant group participating in secondary education. Secondary education completes the provision of basic education that begins at the primary level, and aims at laying the foundation for lifelong learning and human development, by offering more subject or skill-oriented instruction using more specialized teacher.

Population growth (PG): It refers to the rate of population growth which is the exponential change of population each year.

Gross domestic investment (GDI): It consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. It is coded as

percentage of GDP. **Government expenditure (GE):** It denotes central government's total expenditure including non-repayable current and capital expenditure and it is indicated by percentage of GDP.

Inflation rate (IR): It indicates GDP implicit deflator measuring the average annual rate of price change in the economy.

Exchange rate (ER): It is a measure of each country's currency stability. Larger number indicates a weaker currency.

Military expenditure (ME): It refers to the expenditure made by the government in the defense sector. The expenditure includes both current and capital expenditure and it is indicated by percentage of GDP.

3.5. Econometric Technique

Generalized least squares (GLS) regression analysis has been used for estimation of the model. We have used both the pooled cross-section regression and fixed-effect panel regression to estimate the parameters of the two equations stated above: one for GDP growth and other for FDI. The generalized least square (GLS) regression analysis has been used to avoid possible cross-sectional Heteroskcedasticity and contemporaneous correlations since the method uses cross-sectional weights of residuals to calculate the variance of the residuals. In this pool regression model, the intercept terms are restricted to be identical, that is, there is no country-specific variations so that $\alpha_{it} = \alpha$

In this study fixed-effects panel regression has also been used since this is an efficient technique when there is a large number of cross-sectional units with diverse qualitative variations. In our study we have 17 countries, some of which are less developed or less underdeveloped relative to others. In such situation, an unrestricted intercept term is more plausible. The fixed-effects estimator allows a_{it} to vary across-section units so that we get different constants for different countries. In other words, $\alpha_{it} = \alpha$ and $E(\alpha_1 E_1) \neq 0$. In this case also we have used the GLS method to estimate the parameters. All estimates are adjusted for White Heteroskcedasticity -consistent standard errors and covariance.

4.   Analysis of Empirical Results

In the pooled cross-section regression of GDP growth we find the effects of military spending (ME), globalization (GI), gross domestic investment (GDI), inflation rate (IR), exchange rate (ER), foreign direct investment (FDI) and population growth (PG) on economic growth statistically significant in Sub-

Saharan African countries. Military spending, exchange rate, gross domestic investment and inflation rate and FDI inflows negatively affect the.GDP growth. Therefore, gross domestic investment, globalization are found as expected while the impact of FDI on GDP growth is found negative and the impact of exchange rate is found positive contrary to our belief. The effects of ICT infrastructure, government expenditure and per capita income on GDP growth are negative and the impact of human capital on GDP growth is positive, but none of them are statistically significant. However, when country-specific variations are allowed in fixed-effect model, the significant positive effects of globalization, exchange rate and military expenditure becomes insignificant. The significant negative effect of ICT infrastructure becomes positive, but still remains insignificant. The impact of per capita income on the GDP growth remains negative and marginally significant in both the cases. In the pooled cross-section regression, the significant positive impact of military spending on GDP growth in the Sub-Saharan African countries is consistent with the findings of Hassan et al. (2002) in the SAARC countries, but contradicts with the study of Hassan (2003) in the 95 countries as a group. The significant positive impact of gross domestic investment (GDI) conforms to the study by Hassan et al. (2002) in the SAARC countries while the significant negative impact of FDI on economic growth contradicts the findings by Hassan et al. (2002) in the SAAR.C countries and Hassan (2003) in 95 countries as a group. The impact of globalization on economic growth is positive and significant in the Sub-Saharan African countries while the same is insignificant though positive in the SAARC countries (Hassan et al., 2003).

However, the effect of globalization in the 95 countries as a group is significantly negative (Hassan, 2003). The impact of ICT infrastructure is negative but insignificant in both SAARC (Hassan et al., 2002) and Sub-Saharan African regions, but significant in 95 countries as a group (Hassan, 2003). The significant negative impact of inflation rate is found both in Sub-Saharan African and 95 countries as a group, while the impact of population growth is negative in Sub-Saharan Africa and positive in the group of 95 countries (Hassan, 2003). It should be pointed out here that the GDP growth rate in MENA countries is poorly explained with the above explanatory variables. Only exchange rate is found significant in pooled regression. While the impact of this variable is still negative, the same is not statistically significant in the fixed-effect model (Hassan, 2003). Overall, when the country specific variations are allowed, the fixed-effect model cannot explain the variations better than the pooled cross-section model as reflected in the adjusted R2value,which is 55 percent in the former, a jump from 77 percent in pooled model. The F-value is also very low in the fixed-effect model.

When we regress foreign direct investment against a set of explanatory variables, in pooled cross-section model we find the effects of globalization, population growth and military expenditure significantly positive while the effects of gross domestic investment, government expenditure, GDP growth, inflation rate and per capita income are significantly negative. In the fixed-effect model, positive effects of globalization and military spending, negative effects of GDP grovi1:h and inflation rate still remain significant while significant positive effect of population growth becomes negative but insignificant, significant negative effect of government expenditure remains negative but insignificant; insignificant positive effect of IGT infrastructure becomes negative but significant; and finally, significant negative impact of per capita income becomes positive but still significant. However, these results both in pooled cross-section and fixed effect regression model do not conform to the results in case of all explanatory variables found by Hassan (2003) in all the 95 countries as a group, the MENA countries and by Hassan et al. (2002) in the SAARC countries. Of course, the military spending positively influences the FDI both in Sub-Saharan African and in all the 95 countries as a group, though its effect on FDI in the latter countries is insignificant (Hassan, 2003). Overall, the fixed-effect model explains the variations better than the pooled cross-section model as reflected in the adjusted R2 value, which is 98 percent in the former, a jump from 69 percent in pooled model.

5.   Political Economy of the Military Expenditure in the Sub-Saharan African Countries

Statistically we have been able to show some positive relationship between economic growth and military spending in the above analysis. But this may not always hold true. Sometimes the comparisons between military spending and GDP growth may be misleading. Usually the growth concepts are not kept in mind while making expenses for military purposes particularly in the poor countries like the countries of Sub-Saharan Africa.

In most cases, the military expenditure is incurred for security considerations with little or no consideration for economic growth and human welfare. The military expenditure imposes burden on a country's economy since it crowds out resources for other sectors of the economy, especially health and education. The economic burden imposed by the military expenditure may be measured in terms of the GDP it takes. The greater the share, the higher is the burden. A higher burden implies less resources for other sectors of the economy since the economy's resources are limited. In a resource poor country the crowding out of the social sector is not

beneficial for its people since the people are deprived of certain basic needs, which may motivate negative reactions against the government. In fact, it is very difficult to make any judgment, prediction or interpretation about the relationship we have found between military expenditure and economic growth in Sub-Saharan African countries on the basis of available data, since only limited and incomprehensive data are available on military expenditure which are also not reliable in most cases due to deficient accounting system in many countries, deliberate manipulation of military expenditure reporting organizations without adequate resources of their own to check the accuracy of the states' reports. Besides, the absences of the concept of military expenditure and the problem of conversion of a national data into a common currency in many African countries have made the task still difficult. Military expenditure in Africa declined over the period 1990-96 due to poor economic condition, budget constraints and the demilitarization process in southern Africa in general and South Africa in particular, the continent's major military spender. Military expenditure in Africa, however, began to increase since 1997. The change in trend in military spending in South African countries since 1997 was due to (a) the persistence of many of the continent's conflicts and the involvement of several states in them and (b) the steady increase over the years in the military spending of some of Africa's major spenders, notably Nigeria, Algeria and Ethiopia. The involvement of Zimbabwe, Namibia, Rwanda and Uganda in the war with the Democratic Republic of Congo (DRC) also led to significant increase in their officially reported military expenditure. Of course, the officially reported data do not fully represent the total resources committed to military expenditure in Africa because of the concealed cost of armed conflict that is pervasive in the region. Three categories of countries have to bear the costs in armed conflict guided by both regional security and economic reasons on the African continent. These are: (a) countries on whose territories conflict is taking place (the DRC, Sudan, Angola, Algeria, Ethiopia, Eritrea); (b) countries siding with fractions in a conflict (Zimbabwe, Namibia, Rwanda, Uganda, Senegal); (c) countries involved in regional peace-keeping missions (Guinea, Nigeria, South Africa and Botswana's involvement in Liberia, Sierra Leone, and Lesotho). The diversion of vital resources to militarily purposes took place in far more countries in different parts of Africa in 1999. However, it is very difficult to estimate the magnitude of expenditure and costs related to armed conflict partly because they are not reflected in official budget, and partly because of the emerging pattern or different extraordinary forms of financing many of the wars on the continent. In conditions of war and armed conflict, the valuable natural resources like diamonds, emeralds, oil, and coppery etc. of the developing countries involved in war are exploited by groups like different

fighting unites, public and private, state and non-state, including regular armed forces, remnants of paramilitary groups, self-defense units, foreign mercenaries and regular foreign troops, who can provide protection to them. Kaldor (1999) has categorized the sources of funding these new types of war into four kinds: (a) asset transfer to the fighting units in the form of looting, robbery, hostage-taking and deriving profits from control over market price; (b) war tax from the production of primary commodities and various forms of illegal trading, (c) external assistance in the form of remittances from abroad or assistance from foreign government; and (d) diversion of humanitarian assistance for government or warring factions. The current scenarios of armed conflict in Africa may be an example in point. Even more important is the set of social relationships for these systems for financing war - a factor that works strongly against ending war. The DRC has to spend a lot for hiring mercenaries from Russia and Ukraine, for importing arms from Zimbabwe, and to give up the control of her mineral mining centers to both the Rwandan-backed faction and the Ugandan-backed faction of the RDC (Congolese Rally for Democracy). Angola has to bear an external debt burden of about $ 1 I billion and to take recourse to mortgaging her oil sales to pay for military equipment. Zimbabwe has to increase military spending at the cost of more pressing social issues such as health, especially the AIDS epidemic in the country. The government budgets of Uganda and Rwanda are seriously affected as a result of diamond export through illegal mining in the DRC. Senegal has to privatize her national telecommunication company to collect fund for suppressing internal rebellion and to intervene in Guinea-Bissau crisis. The military expenditure of Guinea, Nigeria, South Africa and Botswana has increased rapidly due to their involvement in peace-keeping missions in Liberia, Sierra Leone and Lesotho. Both Guinea and Nigeria have to bear the brunt of heavy influx of the refugees from Liberia and Sierra Leone. South Africa and Botswana have to spend about $140 million within nine months. Therefore, data on military expenditure are irrelevant for measuring military expenditure involved in this type of war.

From the above discussion it is clear that a high level of military expenditure in any state, especially in African countries can be a valid reason to establish a direct causal linkage between military expenditure and economic growth. Since military expenditure is an input measure, it can by itself promote economic growth because economic growth not only depends on the input of resources, but also on cost effectiveness-what we buy with our money. Cost effectiveness in turn depends on factors such as the various components of defense budget and the percentages they take, the pattern of recruitment, the technological level, and the

methods of procurement (import or domestic production) as well as infrastructure is most useful and meaningful when it is disaggregated into its various component parts. Unfortunately this is not the case in developing countries like those of Africa. In many African countries salaries of army staff takes a disproportionate - share of military expenditure. In some countries this could be as high as 80% of the total defense budget. Thus it is difficult to generalize about the positive relationship between military expenditure and economic growth on the basis of available data. In fact, military expenditure constitutes a great economic burden in a number of African states;(Omitoogun, 2001); The result is huge public debt and wastage of funds which could have a higher value added if the same was invested in the social sector. Therefore, national priorities should be reassessed in the backdrop of social development and opportunity so as to gear up human resource development and alleviate mass poverty. Of course, military expenditure may have some positive impacts as trickling down effect in terms of employment arid infrastructure development, if any; but their magnitude becomes less significant if compared with the potentials in the alternative uses.

6.   Summary, Conclusion and Policy Implications

Our results indicate that the set of variables that affect GDP growth and FDI are not always same: We find significant positive impact of gross domestic investment on GDP growth, but we do not find its any significant impact on FDI, Population growth affects GDP growth negatively while it affects FDI positively. We find significant negative impact of FDI on GDP growth and GDP growth on FDI. Inflation rate is found to affect both GDP growth and FDI negatively. Government expenditure affects both GDP and FDI negatively, but its negative impact on GDP is not significant. The exchange rate is found to have positive impact on GDP growth while it has no significant impact on FDI. Per capita income is found to affect FDI significantly, but its effect on GDP growth though negative is not at all significant. Human capital is found to have significant negative impact on FDI and no significant impact on GDP growth, Similar is the case with IGT-infrastructure. It has significant impact on FDI, but no significant impact on GDP growth. However, globalization has significant positive impact on both GDP growth and FDI.

Military spending is found to have significant positive influence upon both economic growth and FDI. It implies that military spending brings overall stability in the economy by providing security against all external threats and aggression and thus creates congenial atmosphere both for economic growth and FDI. It is usually believed that developing countries gain more from defense

spending vis-a-vis the developed countries, as benefits are more widespread across the economy in the these countries. However, the growth concepts are not usually kept in mind while making expenses for military purposes, more particularly in the Third World countries. The comparisons between military spending and GDP may be misleading sometimes. The proportion of national resources allocated to defense reflects the perceptions of national elite and decision making circle, which is largely founded on the security milieu in which a country finds itself. This is not expected to represent any comprehensive plan of sound investment where large-scale social and human welfare exist (Hassan et al., 2002). All the Sub-Saharan African countries in our study are not rich and developed and in these countries resources are transferred to defense at the cost of their socio-economic development and growth. In these countries the national security should be intrinsically linked up with human resource development. It would not be out of place to mention here that South Africa spent billions of dollars for defense to; fight communism and protect apartheid which could be fruitfully utilized for human resource development and GDP growth. Unless mass poverty is eradicated, no security plan would be sustainable one even if the size of military build-up is very big. Therefore, for sustainable development and everlasting security, priority should be given upon the development of human resource and not upon military build-up. To develop human resource like access to education and training, better sanitation and health care facilities should be ensured

Only military security is not enough to attain the long cherished goal of growth and development. So, it is imperative that we should carefully assess various supply-side (spin-offs from technology or infrastructure) and demand-side (resource diversion) factors to analyze the impact of military spending on growth (Hassan, 2003; Hassan et al., 2002). The reassessment of national priorities in the backdrop of social development and opportunity cost is necessary for human resource development and alleviation of mass poverty. Though military expenditure has some positive impacts as trickling down effect in terms of employment and infrastructure development, their magnitude becomes less attractive compared to the loss of benefits to be derived from the alternative use of resources spent for defense.

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Appendices

Table -1: Summary Statistics of Variables: Sub-Saharan Countries

	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis
GG	3.88	4.40	19.80	-6.20	3.52	0.73	7.92
IT	-1.45	-1.45	-1.03	-1.69	0.14	0.57	3.70
GE	27.72	28.00	39.40	12.70	6.49	-0.30	3.16
IV	19.53	19.00	32.00	11.00	4.58	0.33	2.65
IR	80.40	10.30	1103.20	4.60	235.14	3.57	14.20
HC	38.15	33.00	65.00	12.00	19.12	0.20	1.50
PG	2.75	2.90	3.60	1.00	0.54	-2.20	7.78
FI	220.01	72.00	2471.00	-100.00	396.29	3.55	17.54
GB	0.21	0.17	0.36	0.16	0.06	1.11	2.71
ER	10348.15	499.00	392824.00	1.00	52744.90	6.17	41.94

Table 2: Regression Estimates of Pooled Cross - Section and Panel Fixed - Effect Model (GLS), Africa. (Dependent Variable: GDP growth)

Explanatoiy Variables	Pooled Cross-Section GLS (N=17)	Fixed Effcct GLS (N=17)
Globalization		
GI (Globalization Index)	0.064*** (3.879)	0.029 (1.306)
Infrastructure		
ICT (ICT Configuration)	-0.007 (-1.076)	0.006 (0.287)
HC (Human Capital)	0.050 (1.139)	0.146 ; (1.383) .
PG (Population Growth)	-0.733** ; (.2.135)	-1.349 (-1.309)
National Investment		
GDI (Gross Domestic Investment)	0.164*** (4.017)	0.271*** (3,438)
GE (Government Expenditure)	-0.053 (-0.868)	-0.469*** (-3.708)
FDI(FDI Inflows)	-1.03E-10** (2.395)	-2.17E-10*** (-11.778)
Economic Factors		
IR (Inflation Rate)	-0.029*** (-4.551)	-0.047** (-2.097)
ER (Exchange Rate)	0.008*** (5.279)	0.002 (0.876)
ME (Military Expenditure)	0.698*** (4.360)	0.073 (0.106)
GC (Per Capita Income)	-0.001* (-1.731)	-0.004* (-1.818)
Constant	-5.187*** (-2.993)	
R^2	0.89	0.68
Adjusted R^2	0.77	035
F-Value	27.55	2.33E+10

t-statistics in parentheses, *p<0.05, **p<0.01, ***p<0.0001

Table 3: Regression of Estimates of Pooled Cross-Section and Panel Fixed Effect Models (GLS), Africa

—(Dependent Variable; Foreign Direct Investment)

Explanatory Variables	Pooled Cross-Section GLS (N=17)	Fixed Effect ca5 (N=17)
Globalization		
GI (Globalization Index)	43751643***	13925075***
	(4.038)	(4.515)
Infrastructure		
ICT (ICT Configuration)	2762%3	-15825457***
	(0.829)	(-4.599)
HC (Human Capital)	21693925	-33469001***
	(0.921)	(-4.141)
PG (Population Growth)	8.34E+08***	-334155
	(6.648)	(-0.003)
National Investment		
GDI (Gross Domestic Investment)	-750438 '	899279
	(-0.026)	(0.053)
GE (Government Expenditure)	-1.26E+08***	-25520400
	(-3.854)	(-1.589)
FDI(FDI Inflows)	-90745455**	-43387948***
	(-2.396)	(-3.102)
Economic Factors		
IR (Inflation Rate)	-12699795**	-5513431***
	(-2.481)	(-3.492)
	109920 -	472387
ER (Exchange Rate)	(0.194)	(0.734)
	4.66E+08***	1:49E-K)8***
ME (Military Expenditure)	(2.729)	(2.929)
	-511063***	1861688***
GC (Per Capita Income)	(-3.217)	(4.681)
Constant	-4.10E+09***	
	(-7.924)	
R^2	0.73 V	0.99
Adjusted R^2	0.69	0.98
F-Value	18.39	3.96E+30
t-statistics. in parentheses		

*p<.05, **p<.01, ***p<.001

How Can We Analyze the Complexities of U.S. Foreign Policy and Asia?

Haider A. Khan[*]

Abstract: *Should the U.S. reassess its grand strategy and as part of this reassessment change its policy perspective strategically in Asia? These are difficult and contentious questions. However, given the current turbulence in global politics and political economy, their importance is undeniable. I argue that the US should change its grand strategy from the 1990s, giving up hegemonic practices and working multilaterally in good faith with other nations—-particularly the BRICS in order to achieve the twin related goals of global peace and economic prosperity. U.S. policy towards Asia is much more than mere regional policy. As the largest Continent on our planet, to a large extent US-Asia relationship holds the key towards the global future for better or worse. U.S. relations with various parts of Asia as well as the overall US-Asia relationship are, therefore, crucial for any reasonable assessment of various pathways to the global future. It is my hope that wise reciprocal (or even wise unilateral U.S.) policies will open the door towards a better planetary future. Part of this changed strategy will be to build the institutions for a hybrid global financial architecture where regional financial architectures play a crucial role for averting financial and economic crises. To this end cooperating with East Asia in particular is of great strategic significance.*

Key Words: *Grand Strategy, East Asia, Turbulence, hybrid global financial architecture, regional financial architecture*

JEL Classifications: *F3, F6*

* John Evans University Professor, Joseph Korbel School of International Studies, University of Denver, Denver, CO 80208, hkhan@du.edu

U.S. Foreign Policy and Asia

Peace and Prosperity or Instability and Crisis?

Should the U.S. reassess its grand strategy and as part of this reassessment change its policy perspective strategically in Asia? These are difficult and contentious questions. However, given the current turbulence in global politics and political economy, their importance is undeniable. What I have to offer here are the beginnings of some serious analytical arguments — nothing more. But it is my hope that this will lead to further reflections and launch us on the way to achieve the twin related goals of global peace and economic prosperity. Thus, to use a musical metaphor, the underlying *basso continuo* in my argument is that U.S. policy towards Asia is much more than mere regional policy. As the largest Continent on our planet, to a large extent Asia holds the key towards the global future for better or worse. U.S. relations with Asia are, therefore, crucial for any reasonable assessment of various pathways to the global future. It is my hope that wise reciprocal (or even wise unilateral U.S.) policies will open the door towards a better planetary future.

Thoughtful US analysts always had a nuanced concept of "the American Century." Alan Brinkley's(2001) masterful analysis of "The Concept of an American Century", is a particularly good example of such nuanced and in-depth thinking informed by a superb grasp of both American and World History. However, during the decade of the 1990s and after 9/11 for another decade at least, such analysis was blithely ignored. While US diplomats who were good professionals labored mightily,[1] the grand strategy of the US founded on the assumption of "unipolarity" was naïve at best and was interpreted by many outside of the self-contained and hermetically sealed beltway world as arrogant, unrealistic and dangerous in the medium to long run.

The end of cold war led to what some have called the "unipolar moment". U.S. interventions in Asia and elsewhere since the end of cold war have led some prominent scholars in International Relations and Security Studies to question the

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[1] A good example of such sincere and serious professional diplomatic work is contained in Hill(2014). His work with Richard Holbrooke—- the beginnings of which are described with the flourishes of a Mark Twain like humorous sketch in chapter 4 (A Force of Nature)—- and other diplomats described throughout this engaging book, show how difficult, unglamorous and time consuming the actual work could be. Such hardworking diplomats work professionally but the main lines of policy and the Grand Strategy are set elsewhere. From my experience with many accomplished diplomats like Hill in many countries including the US, I am entirely sympathetic to his and Holbrooke's work. At the same time, like many objective scholars I, too, look at strategies in their historic geopolitical and geoeconomic context. However, it is always easy to theorize after the facts. Like individuals, the diplomatic historical life of nations has to be lived forward but can only be understood backwards, and then, too, with great difficulty.

unipolar US grand strategy. For example, referring to U.S. interventions in this period, Prof. Christopher Layne remarks thoughtfully:

Few raised their eyebrows about Panama (1989) of Haiti (1994, 2004). After all, the United States has a track record of wielding a big stick to maintain stability in its own backyard. But the two wars with Iraq (1991, 2003), the U.S. military interventions in the Balkans (Bosnia in 1995, Kosovo in 1999), and the invasion of Afghanistan (2001) do stand out. The first war with Iraq was fought to exert U.S. geopolitical primacy in the Gulf. The Balkan interventions aimed to "strengthen Washington's control of NATO, the major institution for maintaining U.S. influence in European affairs" and to "project American power into the East Mediterranean region where it could link up with a growing U.S. military presence in the Middle East."Afghanistan allowed the United States to do more than go after al Qaeda and the Taliban. The United States shored up its strategic position in the Middle East while simultaneously extending its reach into Central Asia and, in the process, challenging Russia's influence in Moscow's own backyard.

Had the cold war not ended it is doubtful that the United States would have fought these wars. Why did the cold war's end lead to a new wave of U.S. expansion? That's easy. After the Soviet collapse, the United States stood head and shoulders above the rest of the world, militarily and economically. The United States, moreover, was imbued with an expansive conception of its world role and its interests. By removing the only real check on U.S. power, the Soviet Union's demise presented the United States with the opportunity to use its capabilities to exert more control over — to "shape" — the international political system and simultaneously to increase its power. When the risks of doing so appear low — and the potential rewards appear high — states with lots of power usually succumb to the temptation to use it. In the years since the cold war the United States has extended its strategic reach because it had the motive, means, and opportunity to do so.

(Christopher Layne, *The Peace of Illusions*, Ithaca: Cornell Univ. Press, 2006: 2)

To the historically informed and sensitive observers, these events involving post-coldwar US interventions require deep reflection. Like Great Britain at the end of WWI, U.S. today is no longer a creditor nation. In fact, it is the biggest debtor nation in recorded history. Since the financial crisis and the great recession, the developed parts of the world economy have been in deep economic and social crisis. Although the BRICS and some other developing economies show healthy signs of growth, the worsening of wealth and income distribution in developing

and developed countries alike are deeply destabilizing trends. Indeed signs of looming crisis are everywhere. Under these circumstances, the order of the day should be to seek multilateral solutions to economic and political security problems. Although the US vastly outspends other powers and has great military capabilities, it can not win the peace—- even when it can militarily defeat fourth rate powers like Sadam's Iraq or the Taliban in Afghanistan. As the events in Syria show, US intervention there would have been fraught even militarily. President Obama decided wisely not to up the ante by direct US military intervention. Russia under Putin has demonstrated both the resolve to resist NATO expansion and increasing its own military capability including a nuclear MAD scenario. A *modus vivendi* without blowing the planet up in a nuclear conflagration is thus the order of the increasingly post-unipolar moment. We may not like the Russian leaders much; but we must deal with them realistically and negotiate as did the Western leaders during WWII and Eisenhower, Kennedy, Nixon and Kissinger all the way to Reagan in the 1980s.

But Asia does present special problems for the U.S. It is not only geographically vast, it is also enormously complex with a rich and complicated history. We can simplify by dividing Asia into four regions—Middle East and Central Asia, East Asia, Southeast Asia and South Asia. Even in this simplified geopolitical and geo-economic scheme, I cannot hope to do justice to all the problems in all the sub regions. I will quickly mention the most salient problems in the three other regions before focusing a bit more on East Asia. But before turning to this let me point out some recent trends in rethinking US diplomatic history in the region.

Beginning at least with the distinguished historian, Charles S. Maier's "Marking Time: The Historiography of International Relations, other scholars such as Sally Marks and Christopher Thorne attracted the attention of responsible historians to the parochialism, lack of linguistic and area training and thus the inability of the US IR and History scholars to "enter the texture of a foreign society"(Thorne 1988). Partly as a response to these challenges, a group of scholars such as Odd Arne Westad, Chen Jian, Qiang Zhai, Shu Guang Zhang, Michael Sheng, Fredrik Logevall, Mark Bradley and Yukiko Koshiro have joined earlier distinguished group that includes the likes of Akira Iriye, Bruce Cummings and Robert J. McMahon.

Our own distinguished colleague Prof. Suisheng Zhao has made many important contributions in the areas of Chinese Nationalism and Chinese Foreign Policy. Thus the practical policy makers today in the US, if they so desire, does have a lot of reliable scholarly sources to go particularly with respect to East Asia.

With this background for East Asian policy challenges in mind I will now turn to the sub-regions in Asia.

The main problems in Middle East are－without exaggeration or dramatization－maintaining peace, distributing the gains from resource development to the people in the region and elsewhere in developing countries. Here, the major initiatives will have to come from the people in the region themselves. But the U.S. can play the role of a facilitator and honest broker while protecting its own legitimate national interest. The problem with the current situation is that after a stirring declaration in Cairo, Obama administration failed to follow through. In spite of genuinely wise steps such stepping back from large scale military interventions and the nuclear deal with Iran, the level of trust in US diplomacy as being evenhanded is very low. Trump's selection of a hard-line Zionist US ambassador to Israel has not helped. Furthermore, Trump's policy statements may be inconsistent but his liking for tyrants and doing business as usual with rogue rulers like the Saudis stand in the way of a more evenhanded approach. New sanctions against Iran will most likely not improve this scenario of distrust towards the US in the Middle East.

In South and Southeast Asia the problem is not so much to establish democracy as to deepen it. In the process, regional cooperation will need to be enhanced a great deal. Here, the ASEAN is a good example. But the SAARC falls short by a great deal. Perhaps from the U.S. perspective, engaging multilaterally through APEC and bilaterally with South Asian countries on economic and cultural－educational－scientific cooperation fronts holds the greatest constructive possibility and hope for the future. Here one stumbling block is the perception by officials in the smaller countries that US diplomats and Aid officials are often ignorant of local history and economic conditions and arrogant in their dealings with these countries in equal measures.

I now turn to East Asia. This is the area that since the late 19th century beginnings of the U.S. open door policy towards Asia has engaged the attention of U.S. policy matters the most. And rightly so. After the dramatically tragic first half of the twentieth century, the key foreign policy strategy of containment was applied to East Asia in the post – Korean war environment in an atmosphere of deep international tension. Unfortunately, this tension still exists today. The engagement with PRC since 1971, has been a major success for U.S. policy. But for too many U.S. policy makers it is still set within the previous cold war like framework. To many observers it seems that the fear from rising Japan in the late 1980s appears to have been transferred to China in the 21st century.

Without ignoring the serious and potentially destabilizing threat from North Korea, it is clear that only a flexible diplomatic strategy that is based on mutual cooperation between U.S., China, Japan and the smaller powers in the region can ensure peace. The further long run strategic goal should be to promote gradual confidence building measures, cooperation in specific economic and political disputes in providing energy, environmental, trade, and financial security. Ultimately, this should be tied to the new grand strategy of collective security in the region. This will preserve, indeed deepen the economic benefits to the U.S. Equally important, over time, it will extricate the U.S. from politically and militarily costly entanglement in East Asia.

For all these reasons strategically focusing on and ongoing improvement of relationship with East Asia should be the cornerstone of the shift in U.S. grand strategy over the next decade. If the US negotiates on the basis of a respect for the sovereignty of nations in this region and abandons its tradition of moralizing rhetoric, step-by-step a new regional collective security apparatus can be built to replace US hegemony which is too costly for the US to maintain anyway.

I now wish to focus on one specific area crucial for ensuring economic prosperity once peace prevails. This is technically called the problem of establishing a new global financial architecture. But I will deal with it as non – technically as possible.

It has been shown that IMF must and can change in a direction which allows for greater national policy autonomy (Khan 2013, 2011, 2008a, b, 2006, 2004). It has also been shown that the IMF needs complementary regional institutions of cooperation in order to create a stabilizing hybrid global financial architecture that will be more democratic and pro-development in terms of its governance structure and behavior. Thus regional financial architectures will need to be integral parts of any new global financial architecture (GFA).The tentative steps taken towards regional cooperation in Asia since Asian financial crisis are discussed to illustrate the opportunities and challenges posed by the need to evolve towards a *hybrid* GFA. The opportunities and challenges arising from the current global crisis should be analyzed in this context. Such an analysis pinpoints the need for the US to play a significant constructive role in both reforming the IMF and supporting East Asian regional financial architecture.

Conclusion

By 2007 most foreign policy commentators had concluded that the unipolar moment had passed. As Samantha Power observed (quoted in Cohen, NYT, Nov.

12, 2007) the "core fact of recent years" had been the erosion of U.S. power. In today's world the vast U.S. military power seems less important than its still considerable economic capabilities and soft power. However, the global economic position of the U.S. is much weaker than ever before since WWII. Bush's tax cuts, enormous war expenditures in Iraq and Afghanistan and increases in military budget generally have produced stratospheric deficits. After the first world war the U.S. had switched from being a big debtor to Europe, particularly U.K., to being the largest creditor with dollar edging out the pound sterling by 1929 (Eichengreen 2012). Today the U.S. is the world's largest debtor country. Every year it is compelled to borrow more than 800 billion dollars from China, Japan, South Korea and other nations. In the recent crisis, U.S. economy is at best partially buoyed up by attracting funds from other nations that pour their surpluses into U.S. corporations and financial institutions. Add to this the trends towards automation and even without automation, the flight of jobs through economic liberalization to low wage plants, call centers etc. in underdeveloped countries.

This is a highly unstable situation financially and politically. A soft economic and political landing requires wise planning, partial withdrawal with off – shore hegemony or less by U.S. and strategic peaceful engagement with East Asia as a major partner. US also needs to engage actively with these partners, PRC in particular to fight global warming. The enormity of this problem is being denied by the Trump administration. Such denial is highly dangerous for the future of our planet.

Can this be done? Can the U.S. really manage it? While the challenges may seem overwhelming, the U.S. of all the nations in our planet has indeed an immensely rich foreign policy tradition from which to draw valuable lessons and apply them. These include: the imaginative defensive pragmatism of the peacemakers of 1780s and 1790s as manifested by the basic realism of Washington, Hamilton and Adams; the shrewd mixture of idealism and practicality of Jefferson, Monroe, John Quincy Adams and Lincoln; the cultural and diplomatic flexibilities displayed by the likes of Townsend Harris and Dwight Morrow; the exemplary commitment to public service shown by Elihu Root, Eugene Meyer, Henry Stimson and Many others; the brave and noble if partly misguided fourteen points of Wilson; the amazing intuitive grasp of complex foreign policy issues by FDR — to mention only a few. The tradition continues till today.

However to use the famous expression of Abraham Lincoln, the North Americans must "disenthrall" themselves from chauvinistic and simplistic ideas about the

U.S., its history and role in the world. No nation has ever been nor will ever be God's chosen people. Prudence in engaging with the world and especially prudence in the use of still considerable U.S. power will be increasingly necessary to avoid disaster. As the New York Times columnist Roger Cohen wrote in 2007 (Oct.1):

"The American idea can still resonate…[but]…our leaders must embody it rather than impose it." This wisdom applies with particular force with respect to Asia, especially East Asia. It is time for the US to decide. A wrong turn by the US could indeed spell planetary disaster.

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Contribution of Trust Bank Ltd.
For socio-economic development of
Bangladesh: An analysis

Nawazeesh Muhammad Ali[*]

Abstract: *Commercial bank can play crucial role in Bangladesh economy.Trust Bank Limited is one of the leading private commercial banks having a spread network at the country.This paper mainly focused on the extensive work of Trust Bank Ltd. to alleviate poverty from the country such as- SMEs, agriculture, women entrepreneurs, CSR campaigns, green projects like Bio-gas, Solar Panel, ETP etc.To examine the average relationship between total net profit and internal indicators, multiple regression analysis will be done. Time period of the study is 2006 to2015.Credit business is going to be a popular business among the customer of Trust bank Ltd. based on findings of regression analysis. As suggested by the author TBL must work more efficiently for socio –economic development of the country.)*

Keywords: *Commercial Bank, Trust Bank limited, Socio-economic Development, CSR, Goodwill*

JEL classifications: G21,G32

1. **Introduction**

Commercial bank can play crucial role in Bangladesh economy either it's directly or indirectly. Bangladesh averaged a GDP growth rate of 6% in year 2004 to 2015 and presently it hits 7.05% in 2016 for the first time (BBS, 2016). Trust Bank Limited is one of the leading private commercial banks having a spread network of 108 branches & SME centers, 175 ATM Booths, over 20,000 Paypoints and 65

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* Research Associate, Center for Breakthrough Thinking in Bangladesh
E-mail: nawazeeshmuhammadali111@gmail.com

POS in 55 Branches across Bangladesh and plans to open more branches to cover the important commercial areas in Dhaka, Chittagong, Sylhet and other areas in 2016. The bank, sponsored by the Army Welfare Trust (AWT), is first of its kind in the country. With a wide range of modern corporate and consumer financial products Trust Bank has been operating in Bangladesh since 1999 and has achieved public confidence as a sound and stable bank. Though

World Economic recession play vital effect to achieve its targeted GDP growth in upcoming year but generating investment through investment banking might help to overcome such obstacle (Rahman, 2015).

Since TBL's business volume increased over the years and the demands of the customers enlarged in manifold, its technology has been upgraded to manage the growth of the bank and meet the demands of their customers.

Role of Trust Bank Limited in Socio-economic Development

Trust Bank Limited has concentrated to explore new and diversified avenues for financing with the aim of developing and maintaining a sound and sustainable portfolio with mitigated risk for the country. Apart from, the extensive work was also continued in Agriculture, Green Banking, Islamic Banking, Retail, SME sectors and intensive efforts incorporate Credit. The financials of Trust Bank Limited for the year 2010-15 portray that it has performed quite satisfactorily in many of the key performance parameters such as profit, capital adequacy and asset quality for its business despite many hindrance especially from down trodden business environment and sluggish world economy. For stability and sustainable development, the Bank maintained a very careful and continuous effort in credit operation. Like previous year, growth of loans and advances through business diversification, product development was continued in the year 2016.

Agriculture Financing

Agriculture is the main driving force of the economy of Bangladesh. It has a great contribution 15.33 % to the Gross Domestic Product (GDP) of Bangladesh (BBS, 2016). Food security of the massive population of Bangladeshis directly related to the agriculture and the development of agriculture sector. Around 60 percent of the total population is directly or indirectly engaged in a wide range of agricultural activities. Agriculture sector is the single largest contributor to income and employment generation and a vital element in the country's challenge to achieve self-sufficiency in food production reduce rural poverty and foster sustainable economic development.

In line with Government efforts, Bangladesh Bank also continued its proactive policy and program support to boost up agricultural production. Bangladesh Bank declared its annual agricultural/ rural credit policy and program for FY2015-16 with mandatory disbursement target. It has continued its earlier decision relating to 2.5percent mandatory farm-credit disbursement by Banks and NBFIs. Bangladesh Bank's intensive monitoring system as a whole is making the program more effective (Rahman, 2015).

In order to achieve desired growth in agriculture sector of the country, Trust Bank is committed to increase loan portfolio in agricultural sector. TBL is offering Agriculture Loan products popularly known as **Trust-Sufola Bangladesh** for irrigation equipment, Live Stock & Fish Culture, Fruit Orchard for individuals & group at micro level. Agricultural credit has been provided to the small, marginal farmers and share-croppers individually or in a group following easy process. A product named **"Trust-Prantik"** has been introduced targeting the Taka-10/- account holders. Trust Bank is providing finance to the core agriculture sectors-Crops, Fisheries, Live Stock under the Bangladesh Bank Agriculture & Rural Credit Policy and Program through own network and MFI/NGO linkage.

TBL has disbursed agriculture loan Tk.1530.00million for the FY 2014-15 which is 120% higher than that of preceding FY 2013-14.

Figure 1: Agriculture Loan Target & Achievement
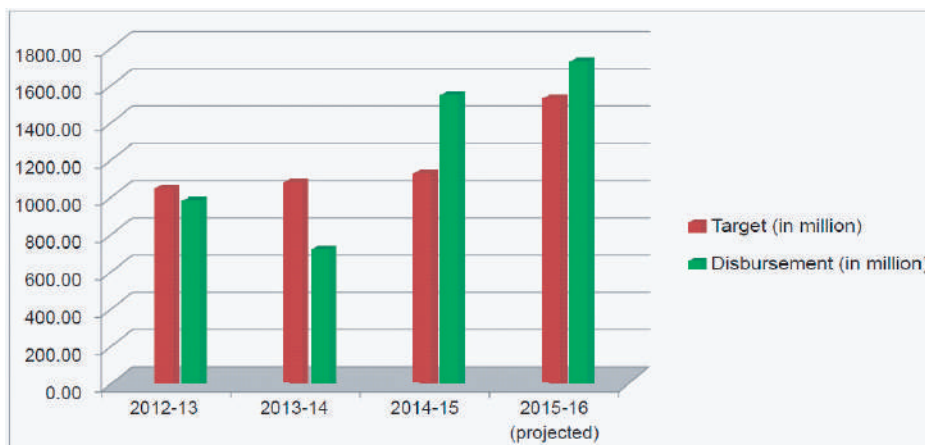
SME Banking

TBL introduced SME help Desk and Women Entrepreneur Dedicated Desk. Currently, TBL's SME business expansion and monitoring is being carried out

through its 100 country wide branches and 07 SME/ Krishi Branch / service centers with the full support of dedicated SME business division.

Trust Bank, SME Division is working with an aim to expand the SME portfolio up to 25% of its total loans and advances within next 05 years.

- ***Trust –Muldhon*:** Loan for Shopkeepers and Traders

- ***Trust –Projukti*:** Loan for Light Engineering

- ***Trust –Bunon:*** Loan for Power Loom and Handloom and other Allied Industries

- ***Trust –Shufola:*** Loan for Bio-Gas, Solar Panel, Solar Mini-Grid, Solar Irrigation Pumping System, Livestock, Fisheries, Vermin Compost & Agro-Processing

- ***Trust –Ekota:*** Group Loan with Cluster approach.

- ***Trust – Nondini:*** Loan for Women Entrepreneurs

- ***Trust – Sukonnaya:*** Loan for Women Entrepreneurs under group/individual with cluster approach in Jessore& Hill-tracts areas

- ***Trust - Easy pay:*** Loan for Contractors

- ***JICA Loan Fund:*** Loan for SMEs engaged in Manufacturing and Service sector but preferably Manufacturing/Industrial Sector

   Trust – Nobeen: Loan for new entrepreneur having adequate technical education and/or skills, has not been involved with any business activity except the present one and who has not availed any loan facility from any Financial institutions for business purpose

- ***Trust - Prantik:*** Any Bangladeshi Marginal Farmers, Ward/Moholla/Village based Micro/Small entrepreneur and Professionals of Tk.10/- account holders

Different initiatives, appropriate SME loan products and borrowers friendly SME policy of TBL contributed to apositive business growth in SME portfolio. TBL's SME loan disbursement in the year end of 2015 was Tk.6365.50million which is 17% higher than that of the preceding year.

Trust Bank's strategy is to focus on Cluster-base financing under SMEs for diversification of investment in different sectors viz. power loom, Handloom, light engineering, handicrafts, Nakshikantha ,garments accessories, etc. TBL SME cluster financing as of 31st December, 2015 was Tk.1377.87 million.

Trust Bank is offering two loan products specifically designed for the women entrepreneurs' at low rate of interest. TBL also introduced a women entrepreneur development unit at Head Office and Women Entrepreneur Dedicated Desk at Branch level. TBL SME Women Entrepreneurs' Loan disbursement as of 31st December, 2015 was Tk.308.70 million which is 57% higher thanthat of the corresponding year.

Green Banking

To minimize the environmental degradation, pollutions, Green Banking can contribute significantly with other environment-concerned organizations since it can protect the environment and conserve the resources. Trust Bank Limited (TBL) has developed two innovative green finance products named **'Trust Shufola'** and**' Trust Prantik'** which directly or indirectly contribute to the reduction of carbon emissions and also increase financial inclusion. TBL's major green finance include ETP, Hybrid Hoffman Kiln (HHK), Zigzag or equivalent Technology in Brick Field, Renewable Energy like as Bio-Gas Plant, Solar Home System, Solar Irrigation Pump, Green Industries, Green Building, Safety and Securities Factories etc. We have also allocation of budget for **"Green Finance"** and **"Climate Risk Fund** "every year.

Foreign Remittance

From the very beginning, Trust Bank is very much focused on NRB related issues & channeling Inward Foreign Remittance. Trust Bank is striving to render utmost services to the NRBs and their families in Bangladesh complying with the local and international laws like AML & very recently introduced Foreign Account Tax Compliant Act-FATCA. Since inception in 2006, the growth rate of Inward Foreign Remittance is sustainable. Last year the bank has received USD 283.1 Million equivalents to TK. 24148 Million which is higher by 49.29%with compared to previous year 2014 of remittance USD 186.5 Million equivalents to TK.16328 Million. Inflow of inward foreign remittance was tremendous in 2015.

Export

TBL Export earnings shows upward trend through the four quarters in 2015 which starts with USD 119.3933million in the first quarter and then USD 134.2166 million, USD 166.6935 million and USD 195.2903 million in the second third and fourth quarter respectively. The highest achieved Export earnings of 2015 were in November which was USD 70.7450 million. The cumulative achievement of the

export earning is USD 615.5938 million at the end of 2015 which is higher than that of 2014, i.e. USD 451.7927 million registering a growth of 36.25% as compared to 2014. It shows that the Bank has contributed more in reducing trade gap in 2015.The export items were etc.

Import

The highest monthly import expenditure as well as highest quarterly expenditure of TBL was in the second quarter. It touched its pick in the month of April 2015 which was USD 112.2221 million and the expenditure for the second quarter was USD 263.7032 million. Total import expenditure during the other three quarters namely first, third102and fourth quarter were USD 208.2577 million, USD 236.0387 million, USD 231.8338 million respectively. The first quarter showed upward trend in increase of import volume which started with USD 62.1198 million in January and ends up with USD 77.1067 million in March. But the second quarter showed downward trend in import expenditure which started with USD 112.2221 million and end up with USD 71.2649 million. After completion of the successful year, total cumulative import expenditure of 2015 becomes USD 939.8334 million.

The noticeable feature of import expenditure is, it was more in 2014 which is USD 992.9661 million cumulatively and less in 2015 which also shows the trend of diminishing trade gap. The main imported items were capital machineries, industrial machineries, industrial raw materials, foods, commodities and other consumer products. During the year 2015 total LCs were opened to the tune of USD 743.044 million and settled amounting to USD691.471 million. The LC outstanding at the end of the year 2015 is USD 414.605 million.

Corporate Social Responsibility (CSR)

Trust Bank Ltd. wish to create a positive impact through all of our roles in society and also generating value for all of its stakeholders. Over the past years, TBL has taken its commitment to a structured and integrated approach to sustainability forward by developing CSR focus areas at the core of its business. This work will continue in the years ahead, leading to Trust having more measurable CSR goals.

The CSR mainstreaming campaign in Bangladesh's financial sector has enthused all banks and financial institutions into a broad range of direct and indirect CSR engagements including humanitarian relief and disaster response to widen of advancement opportunities for disadvantaged population segments with support in areas of healthcare, education and training.

Corporate Social Responsibility holds the bank accountable for the social, environmental and economic impact of its operations. TBL designs its policies and business practices to reflect the highest standards of corporate governance. Trust Bank created a Special Reserve Fund by transferring a certain percentage of profit to carry out its CSR activities. Education, Disaster relief, sports, environment and minimizing socioeconomic inequalities have been the major focus of Trust Bank's CSR agenda.

Disaster relief: The employees contributed a certain percentage from their salaries to the pool of fund for conducting relief operations in the areas by natural calamities/catastrophes like ''Sidr'' and 'Aila'.

Education: A technical training institute affiliated to Bangladesh Technical Education Board has been established to prepare technically skilled human resources to meet both domestic and overseas demands. The training institute imparts different vocational trainings to both serving/retired army personnel and unemployed youths of the country;   Trust Bank assists 'ShenaShohayok School', established for disabled and autistic children and it also grants stipend to poor but meritorious students of different educational institutions.

Environment: In the process of appraisal of any project and working capital of funding, Trust Bank takes into cognizance whether the concerned project/undertaking will create any environmental hazard or not. To make the project environmentally viable it prioritizes the leveraging of compliant factors in the project. The bank also focuses on other factors of compliance such as to whether there is the existence of child labor on the payroll of the concerned project undertaking.

Sports: The bank sponsors different events at national level. Recently, it has sponsored Taekwondo competition (marshal art) held at the national level; starting from 2008, Trust Bank is providing an annual donation worth of Tk. 100,000 to Taekwondo Federation to meet their various expenses.

Financial Inclusion: Micro Finance Scheme had been launched in the bank at its very inception at soft terms and conditions for the least privileged and lower income bracket segment in the defense service.   The bank also has SME lending activities and designed specific products befitting the requirement of women entrepreneurs.

Social welfare: The Bank is paying Tk. 3,000 per month to one of ten top artist of 'KhudeGunraj' for financial assistance. The payment has been started from March 2009 and will continue up to ten years.

- Establishing healthcare centers for the underprivileged section of the society; This paper mainly focused on the extensive work of Trust Bank Ltd. to alleviate poverty from the country such as- SMEs, agriculture, women entrepreneurs, CSR campaigns, green projects like Bio-gas, Solar Panel, ETP etc.This paper also discusses about GDP, Capital market, Risk Management and other crucial term which in relevance to economic growth and how this bank play positive affect toward these and help a country to its economic and social development.

Literature Review

The process of development as well as the problems regarding those development efforts is a continuing one. No country, whether it's developed or developing, can regard itself as having reached the ultimate goals of its development efforts (Gupta, 1984).

The process of social and economic development needs capital formation besides other structural changes like improvement in skill and efficiency of manpower, better orientation and organization, health and education system, etc. (Quibria, 1997).Capital formation is deemed as the most significant variable of economic development. An efficient and well-organized financial system contributes to the much-desired economic development through capital formation which can be divided into three stages viz., savings, financing and investment (Hassan, 1993).

Commercial investment banks constitute the most important functionary in the whole network of the financial system for mobilization of savings, intermediation between savers and investors and allocation of credit to productive sectors and thus play a dynamic role in the economic development of a nation. Schumpeter regarded the banking system as one of the two key agents (the other being entrepreneurship) in the whole process of development (Robert & Ross1993). Commercial Banks are catalytic agents which can create opportunities for the development of national resources and provide employment on a large scale. Banks offer necessary finance to set up and run the industries, and provide finance to agriculture and other sectors of the economy also. In recent years, banks have assumed the role of developing entrepreneurship, especially for socio-economic development of developing countries (Barro,1991).

Bangladesh is a developing country that is categorized as a Next Eleven emerging market and one of the Frontier Five. Bangladesh has the second supreme pro-capitalist population in the emerging world (Lawson et.al. 2007).

Developing countries of Asia managed to accelerate their growth rates, with India and the ASEAN countries being in the lead (ADB, 2015).

One of the reasons for the high growth of foreign reserve appears to be that the increase in imports did not match the strong flows of foreign from export earnings and remittances. Lack of import demand because of worldwide recession could be one of the major reason for this (Bangladesh Bank. 2016).

Objective of the study

The overarching goal of the study is to investigate the role of Trust Bank Limited as a private investment bank in socio-economic development of the country. Towards meeting the goal, the following appears to be the specific objectives of the study:

- To evaluate the role and contributions of TBL to the economy of the country with a particular focus on social development and sustainable portfolio.
- To evaluate the activities and effectiveness of CSR campaign of private banks as well as TBL to broaden advancement opportunities for disadvantaged population segments.
- To provide some recommendations.

Research Methodology

The present study has been carried out to internal parameteranalysis on Trust Bank (TBL). Thepresent study is diagnostic and exploratory in nature andmakes use of secondary data. The relevant data andinformation were collected from annual reports of these banks, Bangladesh Bank. Thestudy is confined only to the specific areas like number ofbranches, district coverage, deposits mobilized, credits andinvestments made by the agricultural bank for the tenyears period starting from 2006 to the year 2015.

To examine the average relationship between total net profitand internal indicators, multiple regression analysis was utilized. The underlying multiple linear regression modelscorresponding to each variable are:

$$TNP = \beta_0 + \beta_1 NB + \beta_2 NE + \beta_3 TD + \beta_4 TLA + \beta_5 TI + \beta_6 TE + \beta_7 FR + \beta_8 TOI + \beta_9 TOE + \mathcal{E}\ldots\ldots\ldots\ldots\mathbf{1}$$

Where TBL = Trust Bank Limited, NB = number of branch, NE = number of employee, TD = total deposit, TLA = totalloans and advances, TI = total import,

TE= total export, FR= foreign remittance, TOI = total operating income, TOE =total operating expenses, TNP = total net profit.

Where TNP is the dependent variable and TBL , NB , NE, TD , TLA , TI , TE FR, TOE are the independent variables (inter parameter measurements), β1 is the intercept term, β1, β2,…, β9 are the unknown regression coefficients, and is the error term with an N(0, σ2) distribution.

In multiple regression analysis, an important assumption is that the explanatory variables are independent of each otherwise. There is no relationship between the explanatory variables to estimate the ordinary least squares (OLS). However, in some applications of regression, the explanatory variables are related each other. This problem is called the multicolinearity problem (Chatterjee and Hadi, 2006). In this study, a variance inflation factor (VIF) was used to check for the multicollinearity problem among the predictorvariables.

$$\text{VIFj} = \frac{1}{1 - R_j^2} \; ; \quad j = 1, 2,…, p \; …………..(2)$$

Where, p is the number of predictor variables and is the square of the multiple correlation coefficient of the R_j^2 th variable with the remaining (p − 1) variables where:

> if 0 < VIF < 5, there is no evidence of multicollinearity problem;
> if 5 ≤ VIF ≤ 10, there is a moderate multicollinearity problem; and
> if VIF > 10, there is seriously multicollinearity problem of variables.

Finally, stepwise regression was used to choose the most influential internal parameter measures for total net profit. Stepwise regression is a technique for selecting influential variables in multiple regression models (Chatterjee and Hadi, 2006). Statistical analyses were carried out using SPSS software version 20.

Estimated Results

It was necessary first to test the TNPs for normality. To check the normality of TNPs, the Kolmorov–Smirnov normality test was utilized. The Kolmogorov–Smirnov and Shapiro-Wilk normality test showed that there was some problem concerning the normality of CI, because the P-value was less than 0.05 (Table 1). To examine the linear relationship between the TNP (total net profit) and internal indicators of TBL, regression coefficients were computed. Table 2 shows the coefficients of linear regression showed that the trend of all internal indicators of measurements were significantly positive with the change of duration period (Fig-3 to Fig- 12).

Table-1: Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Total Net Profit (Taka in million)	.276	10	.030	.831	10	.034

a. Lilliefors Significance Correction

(Source: Author Obtained)

Table 2: Coefficients of trend line of the investigated year on different internal indicators

Serial No.	Internal Indicators	TBL	
		Coefficients	P - value
01.	NB	8.61**	.000
02.	NE	129.16**	.000
03.	TD	14177**	.000
04.	TLA	12173**	.000
05.	TI	7333.8**	.000
06.	TE	5061**	.000
07.	FR	2133.4**	.000
08.	TOI	614.71**	.000
09.	TOE	334.24**	.000
10.	TNP	102.42*	.031

**Correlation is significant at the 0.01 level (2-tailed).
*Correlation is significant at the 0.05 level (2-tailed).

(Source: Author Obtained)

Inter parameters of correlation matrix analysis

Table 3: shows inter parameter correlation matrix among different parameters of Trust Bank Limited in Bangladesh. The selection parameters are: total net profit(TNP), number of branch (NB), number of employee (NE), total deposit (TD), total loan and advance (TLA), total import (TI), total export (TE), foreign remittance (FR), total operating income (TOI), total operating expenses (TOE) of TBL. From the correlation matrix the researchers have observed the followings:

- Total net profit have positive strongly related with manpower, total deposit, total loan and advance, total import, foreign remittance and total operating income.

- Number of branch have positive strongly related with number of employee,

total deposit, total loan and advance, total import, total export, foreign remittance, total operating income and total operating income.

- Total number of employee have positive strongly related with total deposit, total loan and advance, total import, total export, foreign remittance, total operating income and total operating income.

- Total deposit have positive strongly related with total loan and advance, total import, total export, foreign remittance, total operating income and total operating income.

- Total loan and advance have positive strongly related with total import, total export, foreign remittance, total operating income and total operating income.

- Total import have positive strongly related with total export, foreign remittance, total operating income and total operating income.

- Total export have positive strongly related with foreign remittance, total operating income and total operating income.

- Foreign remittance have positive strongly related with foreign remittance, total operating income and total operating income.

- Total operating income have positive strongly related with foreign remittance, total operating income and total operating income.

Table 3: Correlation coefficients matrix among the inter of TBL in Bangladesh

Variables	TNP	NB	NE	TD	TLA	TI	TE	FR	TOI	TOE
TNP	1.000									
NB	.683	1.000								
NE	.738	.971	1.000							
TD	.753	.987	.974	1.000						
TLA	.817	.967	.964	.991	1.000					
TI	.813	.961	.941	.965	.967	1.000				
TE	.710	.963	.923	.947	.923	.952	1.000			
FR	.813	.949	.965	.966	.965	.930	.941	1.000		
TOI	.902	.915	.936	.944	.965	.954	.908	.973	1.000	
TOE	.788	.979	.973	.992	.987	.962	.957	.988	.969	1.000

(Source: Author Obtained)

The stepwise regression analysis showed that among the nine variables Total Operating Income (TOE) was included in the first step (Table 4). The R^2 value indicated that there was an 81.3 % contribution in the overall increasing variation of total net profit due to the predictor indicator of total operating income. The

second step included both the total operating income and total operating expense. The R^2 value now indicated a 93.8 % contribution of overall increasing variation of total net profit due to these two independent indicators. These results demonstrated that the most important internal indicator that influenced the total net profit were total operating income and total operating expense of Trust Bank Limited in Bangladesh.

Table 4: Summary of the stepwise regression analysis for the selection of best indicators of TBL when total net profit is a response variable

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-68.233	133.805		-.510	.624		
	Total Operating Income (Taka in million)	.203	.034	.902	5.906	.000	1.000	1.000
2	(Constant)	-126.007	84.209		-1.496	.178		
	Total Operating Income (Taka in million)	.515	.086	2.291	5.962	.001	.060	16.542
	Total Operating Expense (Taka in million)	-.630	.169	-1.433	-3.729	.007	.060	16.542

a. Dependent Variable: Total Net Profit (Taka in million)
(Source: Author Obtained)

Conclusionand Recommendations

The Trust Bank Limited is a 3rd generation bank in Bangladesh and has a strong position in the today's competitive market. It has some features which makes the bank quite different in the private sector. The bank has a tremendous management side that is still trying to make the bank more successful. The Trust Bank Ltd. has incorporated in 1999. But within this short period of time it becomes in a good position and is continuously upgrading itself with a view to be competitive and to remain the leader of the banking industry. The bank renders service accuracy, friendliness, new ways of meeting customer needs and good quality of services. Success in the banking business largely depends on effective lending. Less the

amount of loan losses, the more the income will be from lending operations. And the more will be the profit of the bank and there lies the success of lending risk. Trust Bank Ltd is one of the most potential banks in the banking sector. It has a large portfolio with huge assets to meet up its liabilities and the management of this bank is equipped with the expert bankers and managers in all level of management. The service provided by the young energetic officials of the Trust Bank Limited is very satisfactory. As a commercial bank TBL has to follow the rules of Bangladesh bank. Though its main customer is Bangladesh army but it is committed to provide the best service to general customers also. As a disciplined and strong structured Bank, trust bank ltd provide the quick & well organized service to the customer. As result, day by day Credit business is going to be a popular business among the customer of Trust bank Ltd. based on findings of regression analysis.TBL has created goodwill in the market as a good commercial bank.

Recommendations

- TBL must work more efficiently for socio –economic development of the country.

- CSR activities of Trust Bank should increase for social welfare. In rural area TBL Branch establishment in necessary for inclusion of downtrodden people at rural area. Compliance of Trust Bank should be more employee and customer friendly.

- Green financing should get priority.

- Upward trend of credit business should be kept.

- For long run sustainability the bank should take proper strategic planning with execution so that more customers'income level can be raised and ultimately impact on betterment of national economy

- TBL should more cautious about bad debt so that banks income level can rise.

Future Direction for research

In future a study can be done on TBL to compare with other banks of the country to examine which bank plays greater role on socio –economic development of the country. Furthermore to do in-depth study on TBL data may be collected from the primary sources which needs huge time and money.

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World Energy Scenario–Current and Future Status: An Overview

MD. JAWAD RAHIM CHOUDHURY[*]
M. A. RASHID SARKAR[**]

Abstract: *In this paper, the current global energy consumption is presented and the issue of security of electrical energy supply is discussed. The power sector has been looked from variety of aspects such as, demand and supply gap, diminishing energy sources, energy security, and increasing energy costs. Furthermore, the status of energy and potential of renewable sources of energy has been discussed as sustainable alternative. Energy demand is increasing globally and in consequence greenhouse gas (GHG) emissions from this sector are on the rise as well. Nonrenewable energy generation and consumption is one of the most important sources of CO_2 emissions, which cause climate changes. Solutions in this area go hand in hand with the worldwide deployment of policies that look forward a better management and usage of energy in both domestic and industrial scopes. Energy source like natural gas, oil, coal, nuclear, hydro and other renewable sources consumption growths till 2040 are also discussed to investigate the alternative energy system for integrating renewable energies. This vast potential of renewable sources of energy could be utilized to overcome the energy shortage which has not been utilized properly due to lack of policies and infrastructure. The diversification of existing energy resources and exploration of new sources is an important aspect to be considered in order to have a sustainable power development and its implementation in the countries.*

[*]   Engineer, Chittagong Steel Mills, Chittagong
[**] Professor, Department of Mechanical Engineering, Bangladesh University of Engineering and Technology, Dhaka

Introduction

Defined as the ability to do work, Energy is one of the major inputs for the economic development of any country. The consumption of energy is increasing at fast pace while available resources limited. Global need for energy is increasing on an average by about 1.5% every year. Out of total amount of primary energy, around 80% comes from fossil fuels. The current consumption of fossils fuels, particularly oil, is not sustainable in long term. Energy consumption has a significant impact on our natural environment. This is clear evidence that climate change is caused by human activity, mostly related to the use of energy developing renewable energy is its inevitable choice for sustainable economic growth. Renewable energy has been categorized as traditional and new. The former includes large hydropower, biomass burnt directly etc; the latter includes small hydropower, solar energy, wind energy, biomass energy, and geothermal energy etc.

Classification of Energy

Primary Energy & Secondary Energy.
Commercial & Non Commercial Energy

1.　Primary Energy & Secondary Energy

Primary energy refers to all type of energy extracted or captured directly from natural resources.

It is further sub divided into two groups.

Renewable (Solar, Wind, Geothermal, Tidal, Biomass)

Obtained from natural sources, which are inexhaustible, e.g: Solar, wind power, geothermal, tidal power & hydro electric power – No pollutant in this case.

Non- Renewable (Fossil Fuels, Crude oil, Coal, Natural Gas, Nuclear Etc.)

Natural resources such as coal, oil & natural gas are example of non –renewable energy.

b.　Secondary Energy

Primary Energy sources are mostly converted in industrial utilities into secondary energy sources e.g. Coal, oil or gas converts to steam & electricity.

2.   Commercial & Non Commercial Energy

a.   Commercial: Energy available in market e.g., electricity, lignite, coal, oil, natural gas etc.

b.   Non Commercial

Fuels such as firewood, cattle dung, and agricultural waste;

Primary Energy Resources and Current Scenario

Coal

World wide-826 billion tones of proven coal reserves. The coal reserves will lost in 122 years the current rate of production.

Coal reserve

1. USA-29%
2. Russia -19%
3. China – 14%
4. Australia -9%
5. India-7%
6. Rest part of world-22%
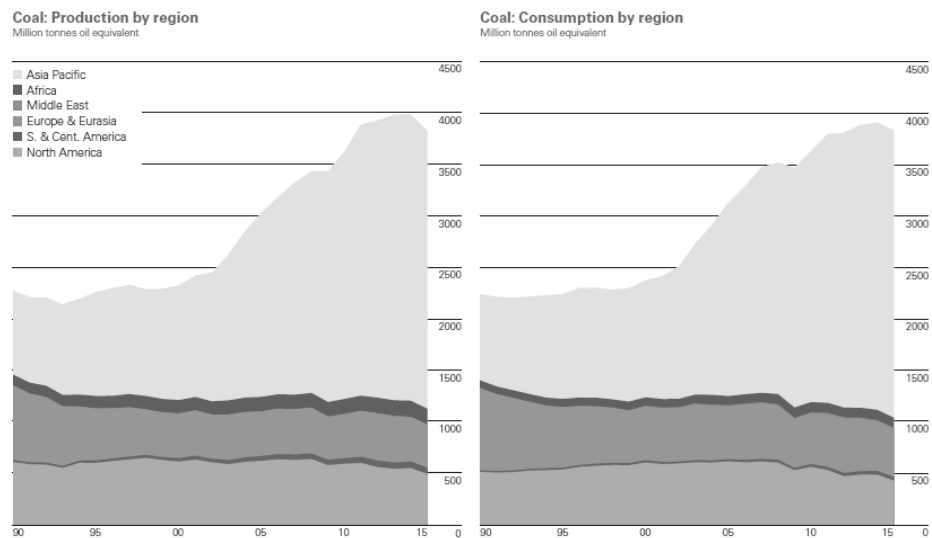
Figure: Coal Production and Consumption by Region (2015)

Oil

Oil worldwide (Conventional Crude oil reserve-1258 Billion barrels.)

60% of the oil reserves are in Middle East, 21% in Saudi Arabia. At current R/P ratio, world oil reserve is estimated at just 42 years. India oil reserve 5.8 billion barrels (800 million tons).
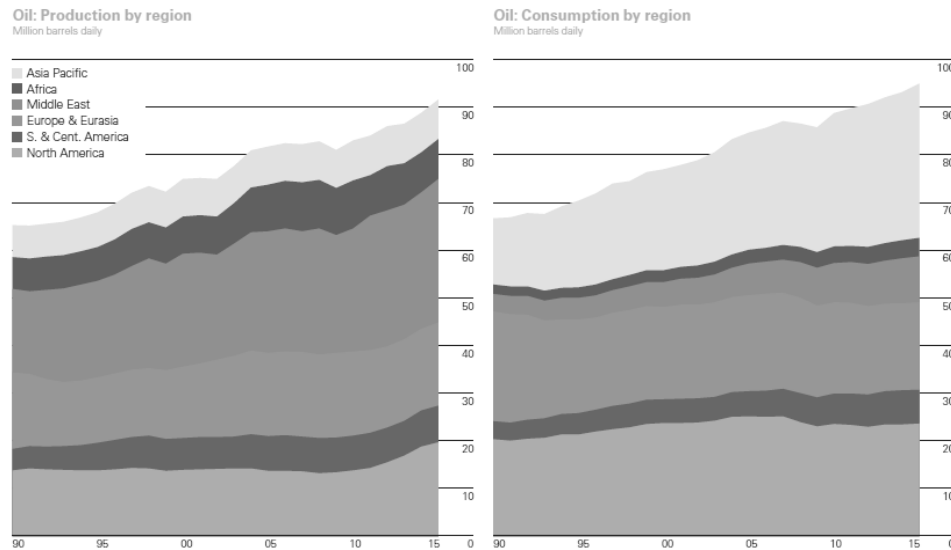
Figure: Oil Production and Consumption by Region (2015)

Natural Gas

Natural gas is a gaseous fossil fuel consisting primarily of methane. Global proven gas reserve is estimated to be 185 trillion cubic meters. The reserves are estimated for 60 years worldwide.

Russia – 23%   Saudi Arabia%—4%
Iran – 16%   UAE-4%
Qatar-14%   Rest of World-35%

Nuclear Energy: Nuclear technology uses the energy released by splitting the atoms of certain elements. Today, the world produces as much electricity from nuclear energy as it did from all sources combined in the early years of nuclear power. Civil nuclear power can now boast 17,000 reactor years of experience and supplies almost 11.5% of global electricity needs, from reactors in 31 countries.
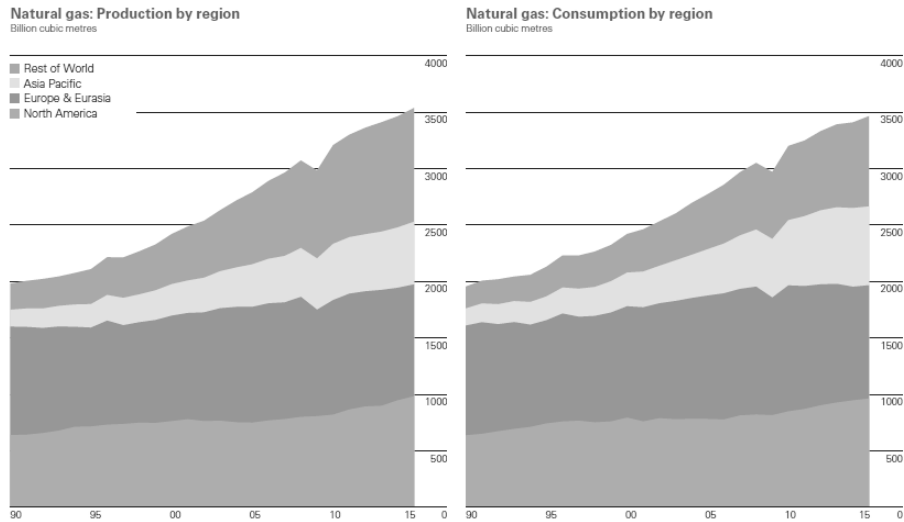
Figure: Natural Gas Production and Consumption by Region (2015)

In fact, through regional transmission grids, many more than those countries depend on nuclear-generated power. Now 31 countries host some 447 commercial nuclear power reactors with a total installed capacity of over 390,000 MWe. The power from nuclear plants is dispatch able on demand, it can be fairly quickly ramped-up, it contributes to clean air and low-CO_2 objectives, it gives good voltage support for grid stability. Reactors can be made to load-follow.
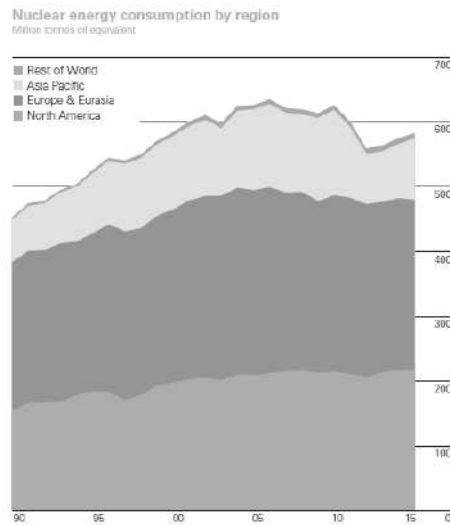
Figure: Nuclear Energy Consumption by Region(2015)

These attributes are mostly not monetized in merchant markets, but have great value which is increasingly recognized where dependence on relatively unpredictable intermittent sources has grown.

Hydroelectricity: Flowing water creates energy that can be captured and turned into electricity. This is called hydroelectric power or hydropower. The most common type of hydroelectric power plant uses a dam on a river to store water in a reservoir. Water released from the reservoir flows through a turbine, spinning it, which in turn activates a generator to produce electricity. But hydroelectric power doesn't necessarily require a large dam. Some hydroelectric power plants just use a small canal to channel the river water through a turbine. Another type of hydroelectric power plant - called a pumped storage plant - can even store power. The power is sent from a power grid into the electric generators. The generators then spin the turbines backward, which causes the turbines to pump water from a river or lower reservoir to an upper reservoir, where the power is stored. Hydropower is the leading renewable source for electricity generation globally, supplying 71% of all renewable electricity. Reaching 1,064 GW of installed
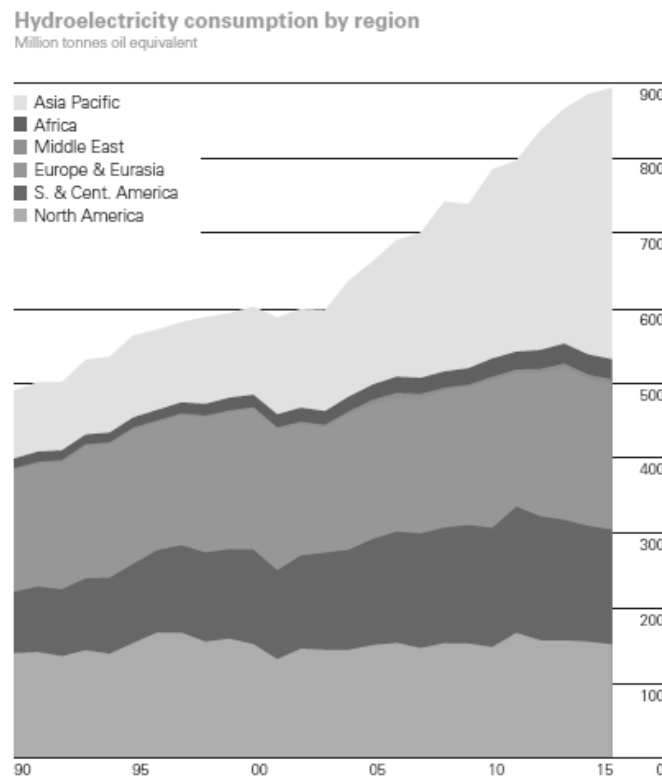
Figure: Hydroelectricity Consumption by Region(2015)

capacity in 2016, it generated 16.4% of the world's electricity from all sources. At the end of 2015, the leading hydropower generating countries were China, the US, Brazil, Canada, India and Russia.
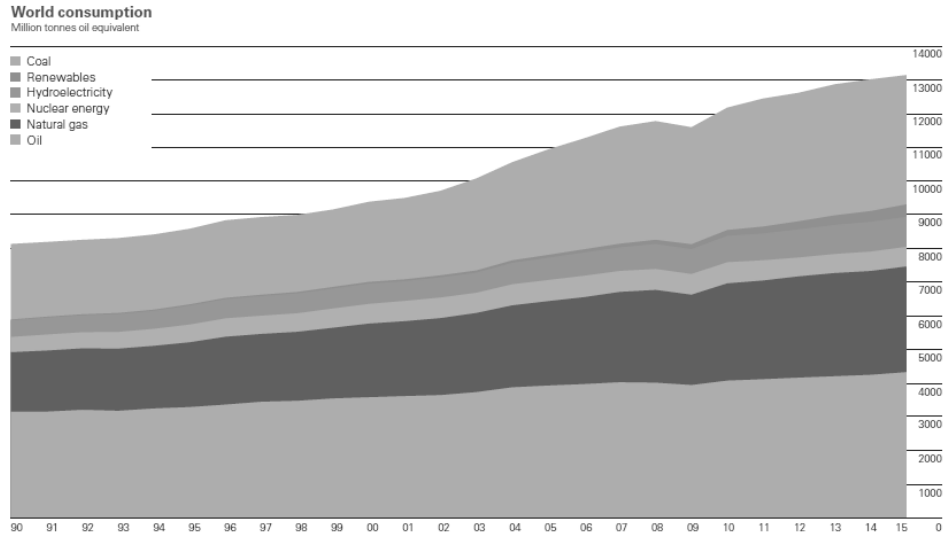
Figure: World Energy Consumption by Fuel Type

Total global energy consumption is given in the following figure.

Current Scenario of Bangladesh: Total installed capacity of the power system of Bangladesh is as on 1st October, 2016 is 12160 MW. 7322 MW(60.2%) belongs to public sector and 4838 MW (39.8%) belongs to private sector. The maximum demand served on a single day is 9036 MW on 30th june, 2016. The sources of energy for the electricity generation are natural gas, coal, fuel oil, high speed diesel (HSD) and hydro power.

Energy scenario of Bangladesh in 2015 is shown in following table.

Type	Production	Consumption
Oil		5.5 million tonnes
Natural Gas	24.1 Mtoe	24.1 Mtoe
Coal		0.8 Mtoe
Hydroelectricity		0.2 Mtoe
Renewable Energy		0.1 Mtoe

Table: Energy Scenario of Bangladesh (2015)

The scenario of electricity generation by fuel type is shown in following figure.
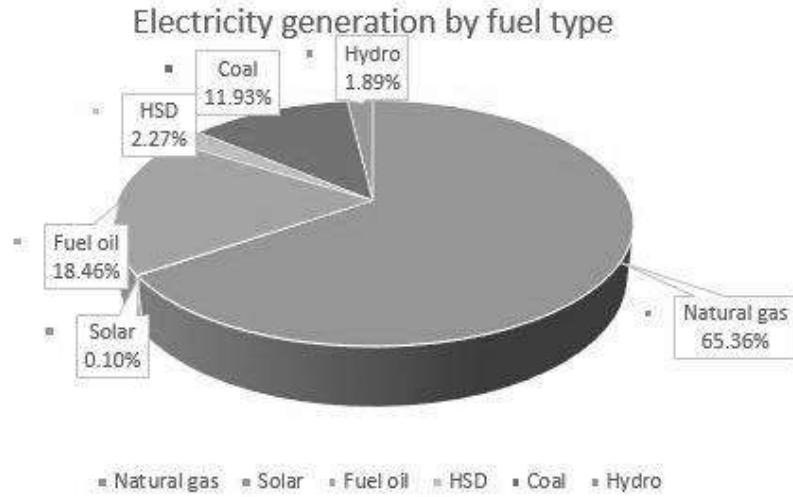
Figure: Electricity Generation by Fuel Type in Bangladesh (2016)
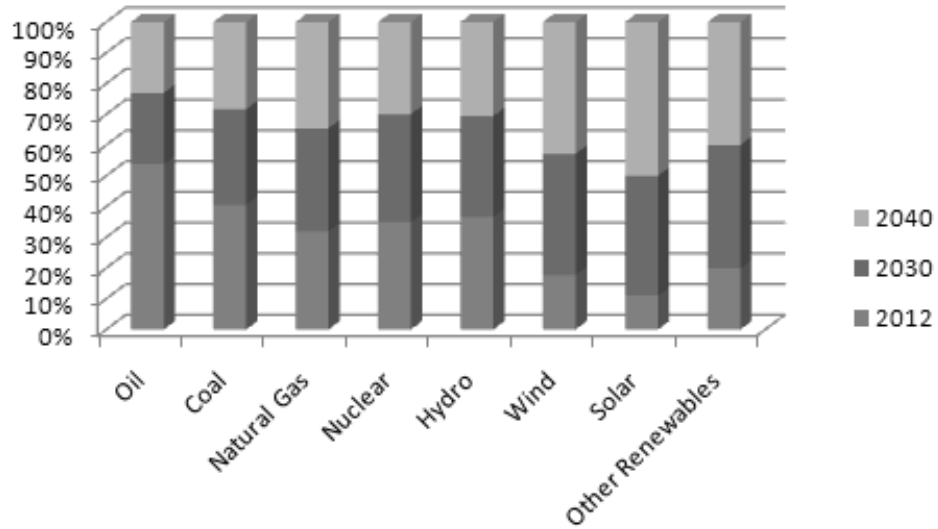
Figure: Global Power Generation Capacity Mix

Future Alternatives

Among renewable energy sources, hydro will be developed mainly in China, India and Brazil. However, due to a moderate growth in hydro power generation that will fail to increase as fast as total generation, its share of the power generation mix will decrease by 3 points. Wind and solar power generation will post a rapid increase of 3.6-fold from 1005 TWh in 2014 to 3573 TWh in 2040 accounting for 9% of total power generation. Power generation capacity will expand 3.2-fold from the present level to 1170 GW for wind and 4.9-fold to 857 GW for solar PV. Wind and solar PV will thus capture 21% of total power generation.
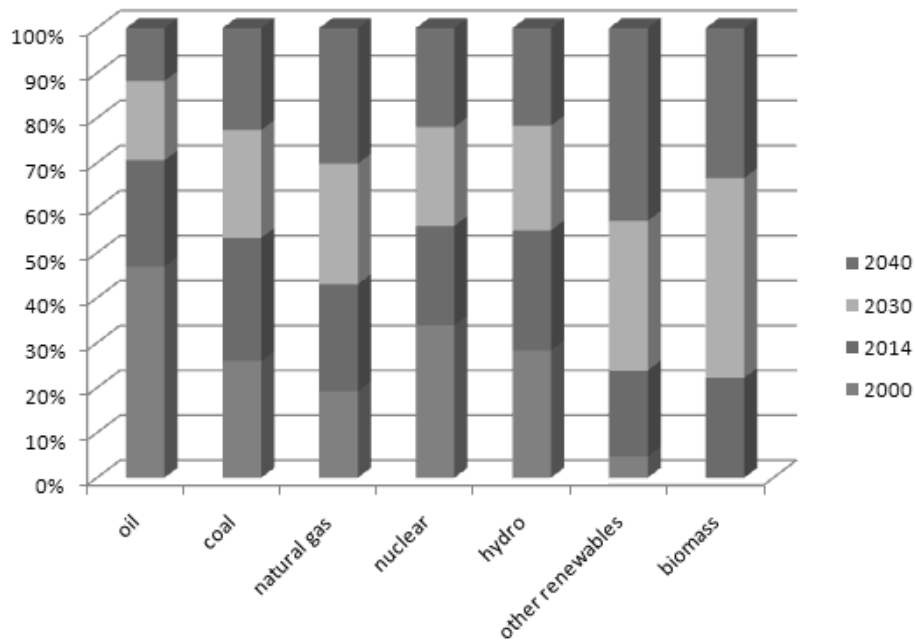
Figure: Global Power Generation Mix

Oil consumption in 2040 will expand huge from 2016. Oil production in different regions will also increase specially in middle east which is considered to be the greatest supplier of oil throughout the world. Oil will remain the most important energy source for the world. Crude oil production is shown in following figure.

Natural gas consumption will double by 2040 of which majority will be used for power generation. Natural gas production is shown in following figure.
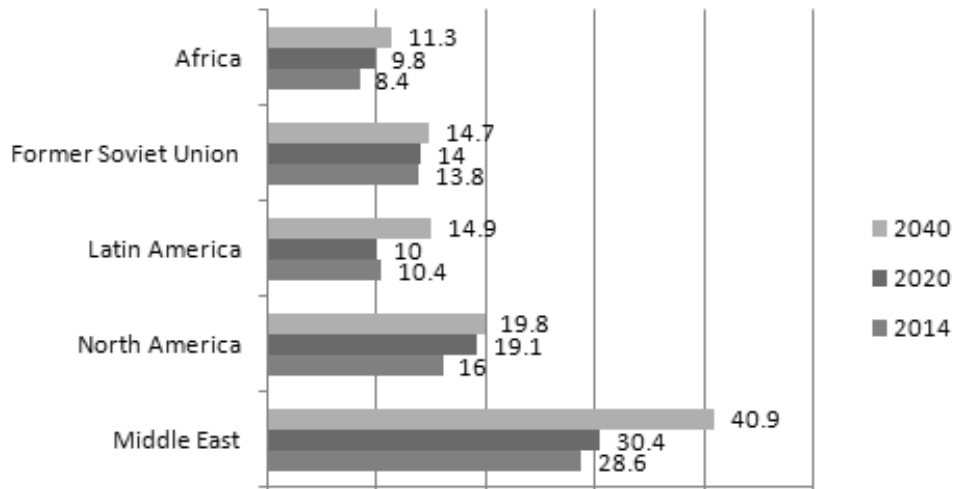
Figure: Crude Oil Production by Regions(Mb/d)
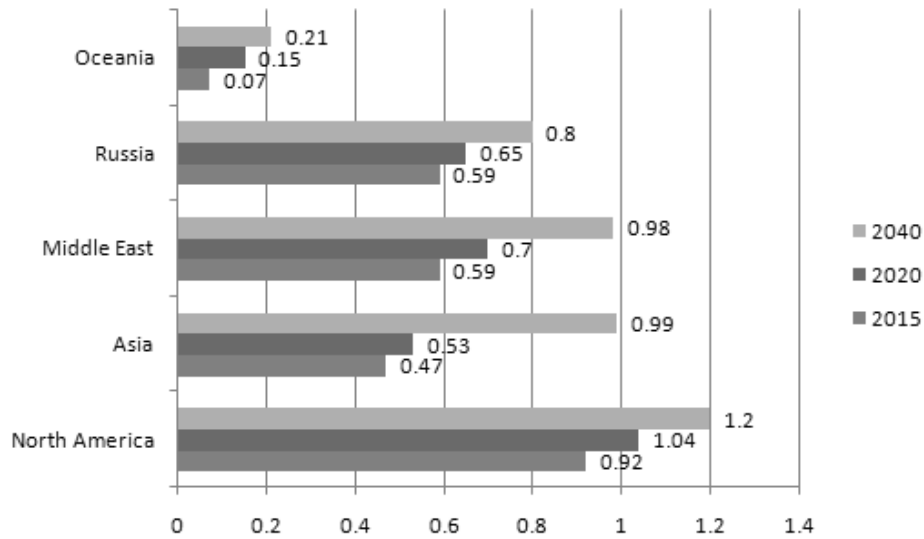
Figure: Natural Gas Production by Regions(Tcm)

Bangladesh is a highly polluted country with air quality index of 151 which is considered unhealthy. Fossil fuel power plants are one of the major contributors of pollution. In addition to low greenhouse gas emissions, nuclear power does not

emit any noxious gases that create air pollutants like nitrogen oxides(NOx), sulphur dioxide(SO2) that cause harm to human health and are responsible for poor urban air quality and regional acidification. A comparison among different energy sources indicates that introduction of nuclear power will facilitate to optimize energy mix and establish a power system portfolio by fuel diversification. Nuclear power is competitive due to its low generation cost but the capital cost is very high. Cost of electricity generation involves both internal cost such as cost of building a plant, fuel cost, operating and maintenance cost and external cost such as cost related to health, environment and security. From fig-8 it is acknowledged that nuclear based power generation has the lowest cost. Moreover nuclear is less sensitive in fluctuation to fuel price than gas, coal and any other fuels. Though there are some concern over the safety of the plants in Bangladesh like as the unsuitability of the site, nuclear waste disposal, high population density, natural calamity like earthquake etc. it is preferable than any kind of renewable energy source in Bangladesh as it will not be effective for this region.

Conclusion

Energy is the prime mover of one country's economy. The world's energy sector heavily depends on fossil fuels in terms of primary as well as secondary energy sources. The world's power infrastructure needs to be modified and reorganized. This situation indicates that current indigenous energy sources cannot meet the increasing energy demands and the solution of this problem lies in the energy conservation, energy efficiency and utilization of renewable energy sources. Various forms of renewable energy sources are being utilized in the developed countries to reduce their dependence on fossil fuels and cease greenhouse gas emissions. As greenhouse gas emission from fossil fuels are high, renewable energy sources are needed not only to reduce pollution but also to meet the expanding demand in near future. To make renewable energy sources efficient necessary steps should be taken otherwise it will not be cost effective and cannot be considered as future alternative.

Bangladesh is a highly populated country so space available for power generation by renewable energy source is very much less than required. So under the consideration of economic, space and pollution, nuclear power generation can solve the problem of the shortage of electricity and thus will provide the key to the ultimate development.

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The World Trade Organization and Ethical Dimensions

MD. MORSHED HOSSAIN[*]

Abstract: *The World Trade Organization (WTO) is the largest, most powerful international organization dealing with global rules of trade among nations. It was formed 1995 following the Uruguay Round of negotiations under the General Agreement on Tariffs and Trade (GATT), the previous multilateral trading system established in 1948. Members of the WTO must abide by negotiated trade rules that are guided by four basic principles (1) most favoured nations (this ensures non-discrimination at the border: favour one, favour all), (2) national treatment (treating both domestic and foreign goods equally), (3) tariffication (reduction in trade barriers through reducing tariff and non- tariff barriers in a gradual manner and (4) transparency (predictability through binding obligations and transparency). The purpose of WTO is to administer multilateral trade treaties, especially Agreement of Agriculture (AoA), Non-Agriculture Market Access (NAMA), General Agreement on Trade in Services (GATS), Dispute Settlement Mechanism in the WTO, Trade Related Intellectual Property Rights (TRIPS). The objective of the study is the trade relations maintained by WTO rules may properly be assessed in the light of the broad requirements of ethics. Trade liberalization clearly brings many economic and political benefits, but many argue that the WTO has had limited success in certain areas. Many argue that the WTO has failed to confront ethical issues. The basic commitment of the WTO is to a globally uniform system of liberalized trade. But the WTO's policy of tolerating developed-world protectionism against developing countries is seriously unjust. There are serious concerns that poorer countries are marginalized in WTO decision- making procedures. This is in part due to inequalities in resources. The WTO procedural requirement of consensus has*

[*] Professor, Department of Economics, Begum Rokeya University, Rangpur
E-mail: morshed122009@yahoo.com

also been criticized as a means of ensuring that the interests of underdeveloped countries cannot be pursued if this involves burdening the developed world. Agreement on Trade- Related Aspects of Intellectual Property Rights (TRIPS) has been met with considerable criticism. TRIPS governs various kinds of intellectual Property. Prior to its ratification there was significant disagreement about TRIPS among developed countries- major exporters of intellectual property- and developing countries- who are primarily importers of intellectual property. The WTO's failure to eliminate developed-world protectionism against developing countries is a clear case of injustice. It's also critics have argued that the WTO is unethical for several reasons that the WTO places economic considerations ahead to concerns for the environment or human rights; that the WTO takes power away from individual nations; that the WTO is undemocratic; and that the WTO generally increases inequality- its makes the rich richer and leaves the world's poorest people worse off than they would otherwise have been. Developing countries have had difficulties using the dispute settlement process to assert their formal rights and ensuring that they are treated fairly within the WTO. This study recommended, one step that has been taken to assist poor countries in asserting their rights in WTO is the creation of the Advisory Centre on WTO Law, WTO could be reformed to help protect the rights of developing states would be to alter the remedies that are available after a successful claim is brought through the dispute-settlement process and the virtue of proposals that would allow states whose rights have been violated to auction their right to take countermeasures. There is a need for an ethics code approved and adopted by all WTO members.

Key Words: *World Trade Organization, Ethics, GATS, Dispute Settlement, TRIPS.*

1.   Introduction

The World Trade Organization (WTO) attempts to promote free and fair trade – an increasingly difficult task, which it undertakes with varying success. The WTO was established in 1995 when it replaced the General Agreement on Tariffs and Trade (GATT). It has its headquarters in Geneva, Switzerland and, by 2012, had 153 member countries, including China, which was the last major nation to join. The purpose of the WTO is to promote free and fair trade through multilateral talks and negotiations, and to arbitrate between countries that are in dispute. Ethics is more applied to practice, to the rules of day to day practice. The domain of ethics is feeling, acting and interaction with the others. Members of the WTO must abide by negotiated trade rules that are guided by four basic principles (1)

most favoured nations (this ensures non-discrimination at the border: favour one, favour all), (2) national treatment (treating both domestic and foreign goods equally), (3) tariffication (reduction in trade barriers through reducing tariff and non- tariff barriers in a gradual manner and (4) transparency (predictability through binding obligations and transparency).

The basic commitment of the WTO is to a globally uniform system of liberalized trade. According to neoclassical economic theory, trade liberalization should increase global economic efficiency and lead to increases in aggregate production and consumption. The basic idea is that international competition provides incentives for efficient production. Sometimes the efficiency argument in favor of liberalized trade is dismissed as merely an appeal to an economic good. But it cannot be so easily dismissed if what is at stake is the rate at which a country develops economically. Hence, there are reasons to believe that the basic commitment of the WTO to trade liberalization might be fundamentally unjust. This is the case if tariff reduction in the developing world will impoverish the already poor for the foreseeable future, and if protecting infant industries is historically the most assured path to development. In any case, the WTO's policy of tolerating developed-world protectionism against underdeveloped countries is seriously unjust.

Even if there are significant injustices in WTO rules, underdeveloped countries that join the WTO are not necessarily implicated in those injustices. The WTO's toleration of trade tariffs in the developed world takes us away from a discussion of basic principle and into a discussion of practice. In this section consider three criticisms of WTO practice.

First, there are serious concerns that poorer countries are marginalized in WTO decision-making procedures. This is in part due to inequalities in resources. Poor countries participate little in the formulation and implementation of the new rules that govern global markets. The 1994 Uruguay Round of GATT shows the difficulties facing small and poor countries. Of the 29 least developed countries in the WTO, only 12 had missions in Geneva, most staffed with a handful of people to cover the gamut of UN work. . . . Many small and poor countries had difficulty even ensuring representation at meetings. (UNDP 1999, 34–35) A straightforward solution to this problem would be for the WTO to subsidize the participation of the least-developed countries (Shukla 2002, 281). The demand that participation of the least-developed countries be subsidized is fully consistent with the Marrakesh Agreement Establishing the WTO, which recognized "that there is need for positive efforts designed to ensure that developing countries, and

especially the least developed amongst them, secure a share in the growth in international trade commensurate with the needs of their economic development.''

The WTO procedural requirement of consensus has also been criticized as a means of ensuring that the interests of underdeveloped countries cannot be pursued if this involves burdening the developed world (Bello 2001, 28–29). This idea is drawn from Thompson's discussion of class interests in the law in Thompson 1975, 263. Brazil's victorious case against U.S. protectionism of cotton evinces movement in this direction.

Since determinations of whether products are discriminated against effects employment opportunities, the principle of non-discrimination would seem to serve the purpose of reducing discrimination against persons on the basis of their national origin.

Finally, the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) has been met with considerable criticism. Consisting of seven major parts, TRIPS governs various kinds of intellectual property. Prior to its ratification there was significant disagreement about TRIPS among developed countries. Major exporters of intellectual property and underdeveloped countries who are primarily importers of intellectual property (Hoekman and Kostecki 1995, 152). U.S. pharmaceutical, entertainment, and information industries were largely responsible for getting TRIPS on the negotiating agenda, and developing countries many of which had little or no legal protection for intellectual property were concerned that an intellectual-property-rights regime would make important goods, such as medicine, prohibitively expensive to their citizens in need (Hoekman and Kostecki 1995, 156).

2.   World Trade Organization and Ethics

The WTO's failure to eliminate developed-world protectionism against underdeveloped countries is a clear case of injustice. Multilateral reduction of protectionist policies that do not allow provision for less-developed countries to protect vulnerable producers and infant industries are also unjust, if the harms that result are not compensated. At the level of policy, the failure of the WTO to subsidize the participation of underdeveloped countries casts serious doubts on its procedural fairness; and if the WTO does not allow for policies to protect the environment, workers, and public health, its practices will be further at fault. These criticisms do not, however, entail that an alternative without multilateral rules would it is by no means clear that patents are required for there to be

sufficient production incentives. Chang (2002, 2) reminds us that "Switzerland became one of the world's technological leaders in the nineteenth century without a patent law." There is good reason to believe that the elimination of the multilateral trading system would be even worse for egalitarian justice, since it would leave weak countries even more vulnerable to the predatory trading practices of the rich and strong countries whose representatives invariably fail to take seriously the view that justice requires attention to the interests of the disadvantaged.

The WTO is the institution that regulates international trade and with aims related to increasing conditions and standards of living, full employment and increasing real income and effective demand levels. This organization has been at the centre of the controversy between critics and defenders of globalization and some consider that its role should be more active in protecting the interests of developing countries and environmental and social issues. The Seattle conference in December 1999 provoked heated reactions and demonstrations. The WTO's core purpose was called into question. The debate extended to criticism of globalization and neoliberalism. The criticism was basically all about the lack of ethics in business and international relations. Two years later, the Doha conference opened up a precedent, a new round of negotiations with especial attention paid to LDC interests. Particular regard was paid to issues related to trade in primary sector products, more affordable pharmaceutical pricing in the poorest countries and also supporting the implementation of LDC trade policies, among other issues. However, there are other priority issues that were postponed for discussion at the next round which include competition policy, labour and the environment, among others. Regarding competition policy, its implementation in the WTO receives reservations by some countries, particularly certain Asian countries, which fear that large developed country multinationals would enter their domestic markets and create rising difficulties for its small and medium enterprises. Concerning employment and environmental issues, there is some reluctance among LDCs to accept any imposition of working patterns and environmental standards.

According to Elliot (2003), the establishment of trade unions can result in disinvestment by international companies that sought out those countries due to the supply of cheap labour, where not child labour. Moreover, environmental standards can serve as mere protectionist pretexts given the weaker bargaining power of the poorest countries. There is a risk of the environmental exploitation of the least developed countries by the most powerful once inhibited on their own territory by environmental laws. Therefore, there is a clear need for greater

integration and coherence between the international institutions and for the improvement of coordination between national institutions within the process of world development and in responding to the challenges of globalization. In short, and once again, there is a need for an ethics code approved and adopted by all WTO members.

The WTO has been the target of criticism regarding its lack of democracy, partiality, and lack of concern over matters other than trade: environment, human rights and animal welfare. On environmental issues, the WTO demands that countries do not use the pretext of environmental protectionism to promote their own industries. Hence, it runs the product / process rule, which consists of considering bans on entries of similar foreign products as national protectionism, regardless of the production process. For example, the WTO surveyed EU policies prohibiting the entry of animal skins acquired by trapping, cosmetics resulting from animal tests and the entry of beef produced with hormones.

Singer (2004) presents an example of what happened in South Africa to justify the WTO's disinterest in human rights. Faced with a "health emergency" characterized by 20% of the population, equivalent to 4 million people, infected by the AIDS virus, the government decided to permit the manufacture of medicines in South Africa, with the aim of offering lower prices to its population. Given this, the U.S. reacted immediately, threatening trade sanctions to protect the intellectual property rights of North American manufacturers, only dropping the threats in the face of public opinion pressure. Regarding democracy, at the WTO, and despite organizational decisions being taken unanimously, the bargaining power of LDCs is lower than that of other wealthier countries, which weakens the decision-making.

Singer (2004) also argues that the WTO should be more active regarding targets beyond the most basic commitment towards establishing free trade and may even help the least developed countries in defense of a global ethic. The existence of acts of such magnitude harming human dignity requires a universal law against genocide and crimes against humanity (enslavement, torture, etc.) The perpetrators of these crimes must be punished regardless of the nationality of offenders and victims, irrespective of national laws in effect where the crimes were committed. (Marrakesh Agreement 1994). The WTO procedural requirement of consensus has also been criticized as a means of ensuring that the interests of underdeveloped countries cannot be pursued if this involves burdening the developed world (Bello 2001, 28–29). Although the criticism has some-

The purpose of WTO is to administer multilateral trade treaties, especially Agreement of Agriculture (AoA), Non-Agriculture Market Access (NAMA), General Agreement on Trade in Services (GATS), Dispute Settlement Mechanism in the WTO.

The WTO itself claims that, unlike GATT that preceded it, its rules of trade have been worked out by the direct involvement of all countries, and not just a few powerful ones. Trade liberalisation clearly brings many economic and political benefits, but many argue that the WTO has had limited success in certain areas. The main criticisms are:

Critics argue that the number of trade disputes settled through the WTO's DSU (Dispute Settlement Understanding) is inadequate given the number of disputes. However, the number of settlements did rise from 20 in 1990 to 157 in 2007. But still, by January 2008, only 136 of the 370 cases had reached the full panel process.

Many argue that the WTO has failed to confront ethical issues, such as the use of child labour and poor working conditions in developing economies.

Similarly, many argue that it has failed to tackle environmental issues, such as the depletion of global fish stocks, deforestation, and Climate change.

Critics also complain that the WTO takes too long to arbitrate and settle disputes. For example, it can take over five years from the initial receipt of a complaint from one member to the final panel ruling.

Critics also argue that the WTO has an inbuilt bias favouring developed and powerful nations and trading blocs such as the USA and the EU, and operating against weaker, developing ones.

Despite the WTO operating as a multilateral organisation, many member countries and trading blocs favour bilateral discussions with partners or competitors. This is because bilateral negotiations can be fully focussed and relatively quick to complete. The result is that many countries prefer to bypass the WTO process, and deal directly with other countries. The failure of the most recent round of WTO negotiations, the Doha round, is widely regarded as evidence of the inherent problems of multilateral discussions. While the WTO is likely to argue that it encourages such agreements when they do not have a negative impact on third parties, it is very difficult to find cases where third-party countries are not, at least indirectly, negatively affected by a specific bilateral agreement.

The creation of the World Trade Organization (WTO) was a major innovation, because it intended to implement a legal framework of international trade law in which there would be no room for unfair unilateral commercial actions.

It is particularly poorer countries and their peoples who are in need of an equitable, rules-based system in which they can participate in global trade on the basis of the highest achievable equality of opportunity.

The mandate of the Fourth WTO Ministerial Meeting in Doha is precisely that of giving special attention to the development needs of the poor and the WTO is to serve this mandate. Thus, on the occasion of this Fifth WTO Ministerial Conference, which is to be a mid-term review, the Holy See, as an Observer member, wants to advance some reflections on the institutional links between trade rules and human development.

Trade rules, notwithstanding their technical appearance, have a political and social nature, with deep and lasting consequences in the life of humanity. The Holy See, without entering into technical and specialized matters, wishes to provide some ethical guidelines inspired by the fundamental and permanent values of the international community and which ought to guide all its activities, including trade.

An ethical discernment in the context of international trade must be based upon the principle of the inalienable value of the human person, source of all human rights and every social order. The human being must always be an end and not a means, a subject and not an object, not a commodity of trade.

When placed at the service of human development, the international trade system works for people - persons and communities.

Trade should benefit people, not just markets and economies. Economic freedom is only one element of human freedom and the economy is only one dimension of the whole of human activity.

 Economic life cannot be absolutized. Economic activities must be pursued within a broader context of human development, the promotion of human rights and especially overarching policies and targets aimed at eliminating poverty.

The multilateral trade system will have been truly accomplished when poor countries are able to integrate fully into the international community. This necessitates policies that foster an authentic human development and assist poor countries in capacity building. This development cannot be restricted to economic growth alone since to be authentic human development, every man and woman,

and the whole person, must be developed. Any efficient international trading system cannot overlook these human realities and must place authentic human development at its very core.

The world trade regime should support the development agenda of poor countries. Nations will have to identify their own priorities while recognizing needs according to the particular conditions of their people, their geographical setting and cultural traditions. When multilateral trade rules intrude into the domestic domain, the autonomy of a government is reduced. Prerequisites of an institutional and economic type are essential to convert any better market accessibility into improved progress in human development.

The integration of the poorer countries into an equitable world trade system is in the interest of all, inclusiveness is both a moral and an economic value since it promotes justice as well as a long-term economic efficiency and authentic human development. No model of economic growth or international trade that neglects social justice or marginalizes human groups and human development is sustainable in the long-term, even from the purely economic point of view.

Along with the economic issues involved in international trade, there are sometimes ethical questions which arise. When people look to the effect of international trade, they usually consider a particular policy or how a particular trade policy affects the growth or productivity of an economy or industry, or of a country or region. It is, however, important to realise that trade is a fundamental part of people's everyday economic wellbeing and, as such, the operation of international trade can have a serious effect on people's lives.

Some people would assert that if a trade policy results in the greatest good for the greatest number (that is, if everyone benefits) it is a good policy. Others feel, however, that people in developing countries in particular are vulnerable to being exploited, as they need to work and may well be willing to work for TNCs for less than adequate wages and under less than fair conditions.

Developing regions, like South-East Asia and Africa, look to international trade as a potential solution to their economic problems. Although development assistance and foreign aid are important to these regions, governments do not want to rely on foreign aid for the provision of basic needs. Developing countries generally want a 'fairer' system which lets them trade with wealthier nations and earn more money, so that their own economies can grow. This would then assist developing countries in funding their own infrastructure, education and healthcare.

As simple as this might sound, it does not seem to be happening. In fact, regions like Africa are earning less and less. In 1980 Africa had a 6 percent share of world trade, but by 2002 this had dropped to just 2 percent, despite the fact that Africa has 12 percent of the world's population.

Advocacy groups have argued that if Africa were able to regain an additional 1 percent share of global trade, it could earn $70 billion more in exports each year. This would be several times more than the African region generally receives in foreign aid.

In general, wealthier countries generally seek to protect their own markets and agricultural sectors against cheap exports from poorer countries. This can be seen as being overly restrictive on poorer countries. Ghana, for example, can export raw cocoa to Europe without incurring any tariffs. If they process the cocoa a 25 percent tariff is imposed on the processed cocoa, making it considerably less attractive to foreign buyers. It is argued that the processing of the cocoa (tinning, roasting, labelling) would help a country like Ghana earn more money and develop its manufacturing base, which would in turn help its economy to grow.

Whether this is an unfair or unethical situation is for each individual to decide. Organisations like the World Trade Organisation (WTO), however, are often criticised for implementing and enforcing trade policies like these. The WTO is responsible for the rules of international trade. Its critics have argued that the WTO is unethical for several reasons. Some of the stronger criticisms include:

That the WTO places economic considerations ahead of concerns for the environment or human rights.

That the WTO takes power away from individual nations.

That the WTO is undemocratic.

That the WTO generally increases inequality - it makes the rich richer and leaves the world's poorest people worse off than they would otherwise have been.

It should be noted that many people and governments support the operation of the WTO and do not believe that it presents an ethical problem in any way.

Protectionism in trade policy is generally seen to have an ethical dimension, even when it does not involve poverty-stricken regions like Africa. Protectionism is the policy of restricting trade between nations through methods such as high tariffs (taxes) on imported goods, putting quotas on imports, or any number of other restrictive policies a government might put in place to discourage people from buying imports.

If restrictions on trade, especially imports, are relaxed (through a free trade agreement or some similar policy), then there is the issue of whether domestic jobs will be lost. This might occur as the domestic manufacturers cannot compete with the cheaper labour and material costs in foreign nations and will be driven out of business or forced to outsource their own production to foreign countries. This can result in a loss of income for domestic workers, which is itself bad for the domestic economy, as it means people do not spend money on goods and services they otherwise would. Social and political problems can also result if unemployment and even poverty become widespread.

The World Trade Organization (WTO) is the largest, most powerful international organization dealing with global rules of trade among nations. It was formed in 1995 following the so-called Uruguay Round of negotiations under the General Agreement on Tariffs and Trade (GATT), the previous multilateral trading system established in 1948. Whereas GATT was primarily concerned with trade in goods, the WTO covers trade in goods and services, banking and finance, intellectual property, dispute settlement, and trade policy reviews. The purpose of the WTO is to provide a negotiating forum for nations to form agreements to lower trade barriers to ensure that trade flows as freely, fairly, and predictably as possible. The WTO regulates trade by administering and negotiating trade agreements, resolving trade disputes, reviewing national trade policies, providing technical assistance and training programs in developing nations, and cooperating with other international organizations. All WTO trade agreements are the result of a consensus among representatives of member governments, ratified by the parliaments of the participating nations. These binding agreements guarantee nations their trade rights and responsibilities. For the 153 member nations, the WTO is the most influential institution of international commerce.

Under WTO agreements, countries should neither discriminate among their trading partners nor should they discriminate between foreign and domestic products and services. Every government should be given "most-favoured-nation" status whereby any favour granted to one nation must be granted to every other nation, thus ensuring that all trade partners be treated equally. The WTO aims to make trade more free and more fair by lowering trade barriers such as customs duties (tariffs), eliminating import bans or quotas, and limiting the nontariff trade barriers that nations may implement and enforce, such as domestic laws regulating product standards and liability, environmental protections, use of tax revenues for public services, and other domestic laws regulating investment and trade. The WTO limits the nature of tariffs a nation may impose, as well as what kind of nontariff barriers to trade nations may implement and enforce.

Through the WTO Dispute Settlement Process, nations can challenge each other's laws on behalf of their commercial interests if they believe barriers to trade exist. If member nations do not conform to WTO regulations they face possible economic sanctions.

Six main agreements comprise the WTO: the umbrella agreement establishing the WTO, the General Agreement on Tariffs and Trade, the General Agreement on Trade in Services (GATS), and the agreements on Trade-Related Aspects of Intellectual Property (TRIPS), Dispute Settlement, and Trade Policy Reviews. The highest authority is the Ministerial Conference, where delegates from member nations meet every two years to reach consensus on multilateral agreements. The second level of authority, responsible for decisions between Ministerial Conferences, has three branches: the Dispute Settlement Body, the Trade Policy Review Body, and the General Council. The General Council is divided into three more councils, each handling a different area of trade: the Goods Council, the Services Council, and the TRIPS Council. Numerous specialized committees and working groups work on the details of individual agreements, as well as issues relating to the environment, development, finance, and regional trade agreements. The WTO Secretariat is based in Geneva, Switzerland, headed by a director-general with limited authority. The Secretariat's main duties include providing legal and technical support to the various councils and ministerial conferences, conducting research, and performing public affairs activities.

Conclusion

The WTO is the institution that regulates international trade and with aims related to increasing conditions and standard of living, full employment and increasing real income and effective demand levels. The organization has been at the centre of the controversy between critics and defenders of globalization and some consider that its role should be mode active in protecting the interests of developing countries and environmental social issues. The WTO's core purpose was called into question. The debate extended to criticism of globalization and neoliberalism. The criticism was basically all about the lack of ethics in business and international relations. Therefore, there is a clear need for greater integration and coherence between the international institutes and for the improvement of coordination between national institutions within the process of world development   and in responding to the challenges of globalization. In short, and once again, there is a need for an ethics code approved and adopted by all WTO members.

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One Belt One Road Initiative: Chinese Cultural Diplomacy with South Asian Countries

Shapan Chandra Majumder*
Arun Upadhyaya**

Abstract: *Chinese President Xi Jinping has given the world a new name-community of common destiny. OBOR initiative has been chosen to operationalize the idea. When Chinese President Xi Jinping first announced OBOR in order to build a more interconnected world, the world since then is divided over how to comprehend the real intent of China behind this initiative. Scholars who interpret the development from the realist point of view are of the opinion that this is nothing but the Chinese attempt of expanding hegemony in Asia and beyond. Those who are acquainted with the 5000-year history of China differ to see the development with a zero-sum mindset and agree more to China's version of peace, development, cooperation and win-win approach. China has sought peaceful relations with other countries throughout the history. Over the years, China economy grew at an unprecedented pace making it as a second largest economy. China wants to share its development with rest of the world. OBOR calls for the comprehensive integration. OBOR not only envisages economic cooperation, but also cultural and people-to-people exchanges. In the world of globalization, we should not just integrate the markets of different regions, but also the cultures of different countries for a more strong foundation of mutual understanding and cooperation. Cultural diplomacy is an exercise in soft power. There is a positive correlation between OBOR and cultural diplomacy. Building soft power helps promote the implementation of the One Belt, One Road. This paper aims to look at the ways to improve cultural*

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* Associate Professor, Department of Economics, Comilla University, Comilla-3506, Bangladesh Email: scmajumder_71@yahoo.com,)

** PhD Fellow, School of Political Science & Public Administration, Shandong University, Shandong, P. R. China. Email: Arunsdu.nepal@yahoo.com

exchange with the South Asian countries along the One Belt, One Road, what are its challenges and opportunities.

Key Words: *OBOR, People to People Relations, Culture, Cultural Diplomacy, South Asia*

1.   Introduction

The economic development of China is remarkable. Over the last three decades, the Chinese economy grew at almost 10% annually and from 1978 to 2008, the annual growth of output per capita averaged 8.7% after adopting open door policy. Now China is the second largest economy in the world in 2010 just overtook Japan. The main driving factors of this rapid progress are the performances of exports and foreign direct investment. The Chinese economy has been regarded as the new success story of the export-led growth strategy, after Japan and the four Asian tigers: Hong Kong, South Korea, Singapore, and Taiwan. The country has experienced a tremendous growth of GDP which increased from 364.5 billion RMB in 1978 to 51,932.2 billion RMB in 2012. The effects of the opening were not a long time coming and China emerged as the most dynamic trading nation in the world for three decades since 1978. While China's exports and imports accounted for scarcely 10% of its GDP in 1978 they amount to 75% of its GDP today. China's share of world's exports in 1978 was only 0.6% with an absolute value of 7.6 billion US$ what made it only ranked as thirty-second largest exporting country worldwide. By 2013 however China had become the first largest exporting nation in the world with a nominal value of US$2.2 trillion (WDI, 2015 and Morrison, 2015). China plans to spearhead investment in transport corridors including new air, rail and road infrastructure projects (Fallon, 2015).

In order to continue of this economic development of the country, the idea of the One Belt One Road or the New Silk Road Economic Belt or OBOR was first proposed by Chinese President Xi Jinping on September 7, 2013, when he visited Kazakhstan. President Xi further raised this initiative of jointly building the 21st-Century Maritime Silk Road when he visited Indonesia on October 3 of the same year. It is also mention that this initiative has taken for the first time by Chinese leader in the history of country diplomacy which involves 65 countries and 4.4 billion people (Wang and Zhu, 2016).

These two concepts envision the creation of a highly integrated, cooperative, and mutually beneficial set of maritime and land-based economic corridors linking European and Asian markets. Specifically, one authoritative Chinese source (a

paper issued by the Ministry of Foreign Affairs and the Ministry of Commerce in March 2015 and titled "Vision and Actions on Jointly Building Silk Road Economic Belt and 21st Century Maritime Silk Road") states that:

> The Belt and Road run through the continents of Asia, Europe, and Africa, connecting the vibrant East Asia economic circle at one end and developed European economic circle at the other, and encompassing countries with huge potential for economic development. The Silk Road Economic Belt focuses on bringing together China, Central Asia, Russia and Europe (the Baltic); linking China with the Persian Gulf and the Mediterranean Sea through Central Asia and West Asia; and connecting China with Southeast Asia, South Asia and the Indian Ocean. The 21stCentury Maritime Silk Road is designed to go from China's coast to Europe through the South China Sea and the Indian Ocean in one route, and from China's coast through the South China Sea to the South Pacific in the other[1].

The main focus of the study is the Chinese cultural diplomacy with South Asian region specially three countries like Bangladesh, India and Pakistan. South Asia is a growing developing region in the world. It is the neighboring regions and big trading partner of China. As a whole it has important distinguish characteristics. The five economies of SAARC (Bangladesh, India, Pakistan, Sri Lanka and Maldives) covered almost 3.94 million square kilometers area, with a population of more than 1611 million. The aggregate amount of gross domestic product of Southern Asian economies (nine countries such as Afghanistan, Bangladesh, Bhutan, India, Iran, Pakistan, Maldives, Nepal, and Sri Lanka) reached US$ 3.24 trillion, and per capita GDP is US$ 1777 in 2015 (UNCTAD Stat, 2017). The volume of foreign trade of these five SAARC countries is nearly US$ 966.9 billion in 2013. The foreign direct investment inflows totaled US$ 32.3 billion and outflow US$ 2 billion respectively in 2013 (Wang and Zhu, 2016).

As a main target of the Chinese foreign policy, the country inevitably will focus to build cooperative partnerships to support its regional and global cultural diplomacy strategies with the aim to strengthen China economically, politically, and militarily. The success of Chinese leaders' efforts to establish productive bilateral and multilateral cooperation, along with its image-making strategies, will depend on effective policies, as well as on China's domestic situation, credibility and international standing.

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[1]. "Vision and Actions on Jointly Building Silk Road Economic Belt and 21st Century Maritime Silk Road" issued by the Ministry of Foreign Affairs and the Ministry of Commerce of the People's Republic of China, March 2015, http://en.ndrc.gov.cn/newsrelease/201503/t20150330_669367.html

Within the tradition of political diplomacy, culture has always been used as a means of displaying assets, building relationships and claiming power (Bound *et al*. 2007). Cultural diplomacy is defined as 'the exchange of ideas, information, art and other aspects of culture among nations and their peoples in order to foster mutual understanding' (Cummings, 2003, p. 1).

One of the five cooperation priorities of Belt and Road initiative is People-to-people bond. BRI is perhaps the smartest mix of what political scientist Joseph S. Nye, Jr. (2011) termed as smart power– hard power with soft power diplomacy. According to a senior official of PRC, "The success of the Belt and Road Initiative, an important part of China's opening up under the "new normal lies in integration of hard and soft power under the principle of win-win cooperation."[2] Cultural diplomacy along the BRI is the rejuvenation of glorious and historical linkages among various cultures. BRI is the noblest initiative in recent times where "fish" and "fishing skill" both is shared. This would enable the economy of countries grow and fight with the problems of poverty, terrorism etc. Yasemin Dobra-Manço has rightly put it, "As the inventor of the magnetic compass, China has a central role to play in helping the world find direction."[3]

This study will emphasis on how China will build the cultural integration that means people to people relations upon implementing this initiative, allowing for extensive cultural and academic exchanges.

2.   **Why China Takes OBOR Initiative**

The rise of China as a formidable global economic power is enabling it to expand its geopolitical influence. The implementation of OBOR initiatives will give China greater access to energy and other natural resources, from countries such as Turkmenistan, Kazakhstan and Russia, and enormous markets along the Silk Road route to power sustained economic growth at home and advance its national economic interests abroad. The infrastructure development, trade and economic initiatives of the Silk Road strategy will reinforce China's geopolitical position in the region and throughout the world (Yu, 2016).

China's 'Silk Road economic belt' also has a strong domestic angle. Arguably, the 'belt' starts not at China's western border with Central Asia, but within China's eastern coastal regions. For Chinese policymakers, it is a way to help the

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2. Soft power key to B&R construction, https://eng.yidaiyilu.gov.cn/ghsl/wksl/10733.htm

3. Cultural Diplomacy For Safeguarding Silk Road And Maritime Heritage
   http://silkroutes.net/OBORSafeguardingSilkRoadHeritage.htm

economic development of China's less advanced central and western provinces. These would be opened up to regional trade and domestic, State-owned enterprises would invest there. With the addition of a 'maritime silk road' in 2014, Xi also took into account the interests of China's more advanced coastal regions and created a hybrid package that included the major interests of all China's regions (Fallon, 2015).

In China's view, economic development should also help fight Islamic extremism and promote security both in Western China and in Central Asia. However, the effectiveness of this approach can be questioned. China has been trying to fight the "three evils" of separatism, extremism, and terrorism in its own Xinjiang and Tibet regions through economic and social development, but results have been limited because of a lack of cultural sensitivity[4].

Xinjiang Uyghur Autonomous Region is a crucial point in China's Westward policy. The province is the key link between China and Central Asia, the Middle East and Europe. At the same time, it is one of the major points of vulnerability for China because of the separatism among the dominant Uighur population. There are some fears that external powers could use the separatist tendencies among ethnic minorities in the country in order to destabilize China. In 2014 the Chinese president Xi said: "The long-term stability of Xinjiang is vital to the whole country's reform, development and stability; to the country's unity, ethnic harmony and national security as well as to the great revival of the Chinese nation"[5]. Hence, stability and economic development of the neighboring states in Central Asia are seen as an important prerequisite for guaranteeing stability and security in the western regions of China (Habova, 2015).

The Silk Road Economic Belt concept is an important element of China's strategy of westward extension of its strategic security space. It is a supplementary mechanism for guaranteeing energy supplies for the Chinese economy, decreasing country's vulnerability, primarily, vis-à-vis the United States and ultimately, safeguarding national sovereignty. M. Swaine from Carnegie Endowment for International Peace points out: "Beijing stress on periphery diplomacy is intended to strengthen China's relations with periphery countries in many areas while defending its core interests regarding sovereignty issues"[6].

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4. Didi Tang, "China Bans Ramadan Fast for Muslims in Northwest," http://bigstory.ap.org/article/china-bans-ramadan-fast-muslim-northwest, July 3, 2014.

5. Xinhua News Agency (2014) President Xi stresses Xinjiang's stability vital to whole nation, http://news.xinhuanet.com/english/china/2014- 04/30/c_133302106.htm

6. Swaine, M. (2014) Chinese Views and Commentary on Periphery Diplomacy. Washington, DC: Carnegie Endowment for International Peace. 28 July 2014, http://carnegieendowment.org/files/clm44ms.pdf

Present Economic Situation of China and South Asian Countries

In the last over three decades, the Chinese economy grew at around 10% annually. The Chinese economy is one of the most important in the world. It has a tremendous growth rate and is the scene of massive foreign investment. Factors important in attracting FDI to other countries have also been key to China's success. China's large domestic market, low wage costs, role of overseas Chinese, political stability and improved infrastructure, complemented with open FDI policies, especially the establishment of SEZs, seem to have been major factors in attracting FDI. Apart from the economic environment, political commitment is an important ingredient in attracting FDI. In China, the political leadership imposed a vision for the path of growth and development of the country. China's experience shows that FDI contributes to GDP growth. FDI will continue to contribute to China's economic development.

South Asia is a region where live to nearly one-quarter of the world population. The cultural diversity of this region, golden history, socio-economic developments have always fascinated thinkers, from Adam Smith to Karl Marx, to Nobel Laureate Gunnar Myrdal, who titled his famous magnum opus on the region, *Asian Drama* (1968). South Asia provided a rich testing ground for development practitioners, and leading paradigms in development economics can be traced back to the region (Chowdhury and Mahmud, 2008).

In the economic development of South Asian countries FDI plays a very important role as an external capital source. It has contributed to the economic progress of the recipient countries like Bangladesh, India, and Pakistan by bringing in modern updated or advanced technologies and providing access to foreign markets. FDI can serve as a major complement to domestic investment and capacity building for the growth of South Asian countries.

In *the Appendix Table 1* presents some important macroeconomic variables such as GDP growth rate, GDP per capita, participation and share of world trade, population, FDI inflows, gross domestic savings and total investment in the specific country. It is observed that most of the South Asian countries economic growth, total GDP, gross savings, and total investment position are improving day by day.

In *the Appendix Table 2* shows that in total 11 procedures are required to start a business in China whereas Malaysia, Singapore and Thailand the number is 3, Bangladesh (9), India (12), and Pakistan (10). In China it needs 31.4 days to start a business. But in Bangladesh, India and Pakistan it needs 19.5, 28.4 and 19 days

respectively. It is also observed in *the Appendix Table 2* that most of the indicators (especially global competition index, ease to access loan, labor efficiency, and domestic market size) of business climate are worse in South Asian countries than in China, Malaysia and Singapore in 2015-16.

According to the World Bank's Logistic Performance Index 2014, China's rank is 28 (whereas 2012, the rank was 26) compared with 108 for Bangladesh; 54 for India; 53 for Indonesia; 25 for Malaysia; 72 for Pakistan; 5 for Singapore; 89 for Sri Lanka, 21 for South Korea and 48 for Vietnam out of 160 countries. From *the Appendix Figure 1*, it is observed that the position of China is better than some South Asian countries such as India, Pakistan, Sri Lanka and Maldives but worse than Singapore, Malaysia and South Korea.

The Appendix Table 3 shows the quality of infrastructure in selected Asian countries in 2015-16 period on the basis of yearly report of world economic forum (WEF). It is observed that in terms of overall infrastructure quality of China ranks 51 out of 140 countries. China has a higher rank than some Asian countries such as Bangladesh (124); India (74); Indonesia (81); Pakistan (98); Philippines (106); Thailand (71) and Vietnam (99) but lower than Malaysia (16) and Sri Lanka (26). It is also observed that railroad infrastructure quality is better than the road, port and air transport infrastructure in China. Electricity supply position of China in the world was 53 out of 140 in 2015-16.

Estimates of infrastructure 'gaps' amount to trillions of US $. Particularly in Asia the need for infrastructure investments in energy, transport, water, communication is enormous. The Asian Development Bank estimates the need for USD 8 trillion in infrastructure spending in Asia between 2010 to 2020 (Wolff, 2016). According to Brunjes *et al*. (2013), China invests more in Asia. A big portion of that investment is aimed toward Southeast Asian countries (Shambaugh, 2005); however, since 2003 Chinese economic involvement in South Asia has risen noticeably. Between 2003 and 2012, China more than doubled its exports to Bangladesh, Bhutan, Maldives, Nepal, and Sri Lanka. Just over a quarter of Bangladesh's imports now come from China. Additionally, China has offered hundreds of millions of dollars in investment for large infrastructure projects, including port facilities in Bangladesh, Burma, Pakistan, and Sri Lanka (Curtis, 2011).

3.   Cultural Integration between China and South Asia

Cultural diplomacy is organized both by diplomats working for a government's foreign ministry and by those working for stand-alone entities with varying

degrees of governance and funding links to foreign ministries. Activities undertaken within cultural diplomacy's scope manifest an aspect of the culture of the state which the government represents, and involve a wide range of participants such as artists, singers and so on, the manifestations of their artistry, the promotion of aspects of the culture of a state (language, for instance), and the exchange of people, such as academics. The practice incorporates a wide range of activities and now more often includes cultural activity targeted at the wider population rather than elites, as well as sport (Mark, 2008). According to Mulcahy (1999), like trade, travel, and immigration, educational and cultural exchanges are part of the normal interactions among nations. Cultural exchanges stand on their own and should foster better relations within the family of nations, although not necessarily support for a nation's foreign policy. Cultural programs (faculty and student exchanges, performing arts productions, museum shows, book exhibits, and lectures) should be distinguished from those activities designed to explain and defend Chinese political objectives abroad.

'Cultural diplomacy' is often viewed negatively and understandably so, due to its connotations with colonialism, imperialism and propaganda, and the unethical and immoral practices associated with such activity. Dominant states have always used culture to transmit political, social, cultural and economic values. This has become a particular concern more recently due to globalization; with the rapid growth of the internet, the rise of western corporate power, the trans-nationalization of the cultural industries (Jin, 2007), shifts in the flow of cultural production (Chadha and Kavoori, 2000) and changing patterns of cultural consumption (Nisbett, 2012).

Perhaps no country in the world is embracing cultural diplomacy more actively as a tool of people-to-people exchange as China is doing today. Progressive culture is the most powerful force that binds together civilizations and the greatest agent of change on the universe. By 2013, China has already outpaced US to become world's leading exporter of cultural goods.[7]

The most official document on vision of BRI has mentioned the role of people-to-people diplomacy in the following way: "People-to-people bond provides the public support for implementing the Initiative. We should carry forward the spirit of friendly cooperation of the Silk Road by promoting extensive cultural and academic exchanges, personnel exchanges and cooperation, media cooperation,

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7. China becomes leading world exporter of cultural goods.
   http://news.xinhuanet.com/english/2016 03/11/c_135176451.htm

youth and women exchanges and volunteer services, so as to win public support for deepening bilateral and multilateral cooperation."[8]

4.1   Confucius Institutes

Confucius Institutes were established with the aim to promote Chinese language and culture in foreign countries in 2004[9]. It has contributed immensely to the development of multiculturalism and the building of a harmonious world since then. 6 million people have taken the Chinese proficiency tests at all levels[10]. Currently, 410 universities have incorporated courses offered by Confucius Institutes into their credit systems. Cultural activities organized around the globe has have seen an outstanding growth in the number of audience which reached 13 million in 2016.

PRC attaches huge importance to Confucius Institute as a medium of providing cultural ambassadorship around the world even today which is also evident from the 13th five-year plan (2016-2020) which mentions its plan to "continue to ensure Confucius Institutes are run successfully"[11]. Confucius Institutes has been considered as the key player in the implementation of BRI.

Confucius Institutes have made outstanding achievement as the demand for Chinese language; medicine and culture have been growing exponentially. According to the statistics, there are 511 Confucius Institutes and 1,073 Confucius Classrooms in 140 countries out of which 134 Confucius Institutes and 127 Confucius Classrooms have been established in 51 countries along the "Belt and Road". According to a special report of Confucius Institute, in 2016 alone, Confucius Institutes and Classrooms along the route enrolled a total of 460,000 students and held around 8,000 cultural events of various types, receiving 2.7 million participants. At present, 94% of the Confucius Institutes and Classrooms in countries along the route offer credit courses of Chinese language, 70% of the universities hosting Confucius Institutes have set up degree programs of Chinese language, and 10 universities have set up degree programs in Chinese teaching.

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8. Vision and Actions on Jointly Building Silk Road Economic Belt and 21st-Century Maritime Silk   Road, http://en.ndrc.gov.cn/newsrelease/201503/t20150330_669367.html

9. Confucius Institute Headquarters, http://english.hanban.org/node_7716.htm

10. Innovation, Cooperation, Inclusion and Sharing, Jointly Open a New Chapter for the Development of Confucius Institutes, http://www.cim.chinesecio.com/hbcms/f/article/info?id=399db840b8b9471f909fe81d42482099

11. THE 13TH FIVE-YEAR PLAN FOR ECONOMIC AND SOCIAL DEVELOPMENT OF THE PEOPLE'S REPUBLIC OF CHINA (2016–2020), http://120.221.32.87:6510/en.ndrc.gov.cn/newsrelease/201612/P020161207645765233498.pdf

Influenced by the Confucius Institutes, 20 countries along the route including Thailand, Armenia, Slovenia and Estonia have incorporated Chinese language teaching into their education systems[12].

4.2 Education

China has established a Belt and Road scholarship to 10,000 foreign students each year over the next five years to sponsor students from countries along the routes to study in China. PRC plans to sponsor 2,500 Chinese students to study in Belt and Road initiative nations each year for the next three years. Besides this, there are projects that would see the joint founding of schools and training for teachers and other professionals.[13]

China's ministry of education has inked 60 deals with the countries along the BRI. By 2015, nearly half of the 400,000 international students from 202 countries and region were from countries along the route.[14]

4.3 Media

Some agenda-setter[15] "fake news" [16] media which US President Donald Trump has labeled as the "enemy of the people" instill perpetual fear of China threat, dumping of overcapacity, "debt trap diplomacy[17]" leading to disinformation along the B&R route. Hence, the role of media has been given significant priority in the BRI to tell the true story. In order to "carry forward the spirit of friendly cooperation",[18] the Vision and Actions on Jointly Building Silk Road Economic Belt and 21st-Century Maritime Silk Road mentions about enhancing "international exchanges and cooperation on culture and media, and leverage the

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[12.] Confucius Institute: a key player in the implementation of the "Belt and Road" Initiative http://www.cim.chinesecio.com/hbcms/f/article/info?id=841e409571b746c1b9764 c475796e5a1

[13.] China's new scholarship to sponsor students from Belt & Road Initiative nations https://eng.yidaiyilu.gov.cn/qwyw/qwfb/1289.htm

[14.] China making headway on Belt and Road Initiative https://eng.yidaiyilu.gov.cn/qwyw/qwfb/1285.htm

[15.] What Makes Mainstream Media Mainstream, https://chomsky.info/199710__/

[16.] Trump on Twitter calls five US major media organizations "enemy of American people" http://www.globaltimes.cn/content/1033643.shtml

[17.] China's Debt-Trap Diplomacy, https://www.project-syndicate.org/commentary/china-one-belt-one-road-loans-debt-by-brahma-chellaney-2017-01?omhide=true

[18.] Vision and Actions on Jointly Building Silk Road Economic Belt and 21st-Century Maritime Silk Road, http://en.ndrc.gov.cn/newsrelease/201503/t20150330_669367.html

positive role of the Internet and new media tools to foster harmonious and friendly cultural environment and public opinion". People's Daily, the most authoritative, comprehensive and influential disseminator of information of the Communist Party of China has been hosting "The Media Cooperation Forum on Belt and Road" each year since 2014 in order operationalize the plan. Media's from more than 100 countries participated in 2016[19].

In order to ensure exchange, cooperation and coverage centering on the Belt and Road initiative, an "International Coalition for New Media Cooperation on One Belt and One Road" [20] has been established on July, 2016. A declaration on establishment of the coalition was issued[21]. The process is gaining momentum. China has launched its Belt and Road portal for the promotion of the initiative on March 20, 2017. The portal, which is currently in English and Chinese for multiple terminals, is planned to add multi-language versions including Russian, French, Arabic and Spanish later this year. The portal will serve as a platform for viewers to get news and views related to OBOR. Apart from these specific initiatives, China has several world class media. Xinhua and CGTN use six official languages of the UN to communicate with the linguistically and culturally diverse world to ensure greater effectiveness, better outcomes and more involvement. Global times, China daily, People's daily are among the media which provides a neutral and objective reporting.

4.4 Culture

China's Shenzhen City organized First Belt and Road Music Festival with the aim to strengthen the bond of people along the route[22]. Pakistan launched the first think tank dedicated to the research into CPEC development in Islamabad on March 27[23]. Similarly, Chengdu published a guide to investment in major countries along the route in order to facilitate investment[24]. China will build a cultural heritage corridor along the B&R routes to enhance cultural exchanges and cooperation[25]. The palace Museum will introduce the relics from Afghanistan to China in 2017. The Belt and Road Initiative opens up genuine opportunities for

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[19.] Liu Yunshan urges closer media cooperation on Belt andRoad Initiative
http://en.people.cn/n3/2016/0728/c98649-9092302.html

[20.] Int'l Coalition for New Media Cooperation on One Belt andOne Road established in Beijing
http://en.people.cn/n3/2016/0726/c98649-9091297.html

[21.] Int'l Coalition for New Media Cooperation on One Belt andOne Road established in Beijing
http://en.people.cn/n3/2016/0726/c98649-9091297.html

[22.] First Belt and Road music festival held in Shenzhen,
https://news.cgtn.com/news/3d59544e35457a4d/share_p.html

Traditional Chinese Medicine (TCM) to go global and thus benefits more people[26].China will publish the Analects of Confucius — a collection of ideas and sayings from the Chinese philosopher — in Arabic, Mongolian, Czech, Portuguese and Spanish languages for Belt and Road countries this year which is already in English, Japanese, Russian, Korean, French and German. [27] Likewise, The Third Maritime Silk Road International Brand Expo and the 20th Straits Textile and Clothing Fair will be held in 2017 in order to increase international cooperation and exchanges with the countries along the ancient Maritime Silk Road.

China can take the initiatives to strong the relationships with South Asian regions in the following ways:

i.   The exchange of individuals for educational and cultural purposes
ii   Sending exhibitions and performances abroad
iii.   Sponsoring seminars and conferences both in-country and abroad that include international participants
iv.   Support for language studies programs and institutions
v.   Support for infrastructure in the form of cultural institutes/centers/forum abroad
vi.   Resources in the form of staff and personnel (both at home and abroad)
vii.   Support for country studies programs (e.g., American studies, Austrian studies, etc.)
viii. International cooperation on cultural programs and projects
ix.   Activities that are related to trade in cultural products and services

Cinema, painting and calligraphy, literature (the Nobel Prize), traditional medicine, acupuncture, martial arts and Chinese cuisine have conquered the world without deliberate action by the Chinese government, but are powerful assets in creating a positive image abroad.

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23. CPEC Center of Excellence launched in Islamabad, https://eng.yidaiyilu.gov.cn/qwyw/rdxw/10527.htm
24. Chengdu publishes B&R Investment Guide, https://eng.yidaiyilu.gov.cn/qwyw/rdxw/4793.htm
25. China to build B&R cultural heritage corridor, https://eng.yidaiyilu.gov.cn/wtfz/mxxt/9455.htm
26. Interview: Belt and Road initiative opens up opportunity for TCM to go global, http://news.xinhuanet.com/english/2016-07/17/c_135518547.htm
27. China to publish Analects of Confucius for Belt and Road countries, http://news.xinhuanet.com/english/2017-03/12/c_136122593.htm

Conclusion

Cultural diplomacy is an instrument to improve the intercultural communication and exchange the cooperation. It opens the scope for exchanging of ideas, values, and information having for ultimate goal to promote mutual understanding. A better knowledge of the other's culture, beliefs and interests is the first step towards the improvement of international relations. As expressed by Villanueva Rivas "a lasting and stable world order cannot rely merely on governments and power politics, it also depends on the free exchange of cultures among peoples in pursuing common intellectual and cultural interests via open cosmopolitan public and cultural diplomacies". Thus, all the actors of the global stage should play a part in cultural diplomacy from non-state actors such as transnational advocacy networks, non-governmental organizations, academia and artists to international organizations.

The cultural diplomacy of the Belt and Road is well-coordinated by China with the countries to ensure directional exchange of the elements of cultural diplomacy in all the countries along the B&R. The cultural diplomacy of B&R is about win-win collaboration.

China's cultural diplomacy is related with the realization of Chinese Dream. The Chinese Dream is linked with the dream of building a community of common destiny for all mankind. Hence, the cultural diplomacy of China along the Belt and Road is all about enhancing understanding about China, strengthening people-to-people relationship between China and the countries along the B&R and move towards building a world where the "clash of civilization" will be discouraged by harmony among civilization.

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Ethical Aspects of Energy Policy Formulation
for the Developing Countries

SAKIB B. AMIN

Abstract. *The ethical aspect of welfare maximization through relative enhancement of social welfare over personal welfare has been an interesting area of research for long. Many researchers all over the world have endeavoured in questioning the ethical aspect of development incorporating both positive and normative concepts. In a fast growing country like Bangladesh, the concept of ethical energy policy structuring is of utmost importance following the fact that energy has been enlisted as one of the crucial factors of production complementing labor and capital. This paper highlights the issue of normative concepts defining ethical behavior and the contextual concepts addressing the conditions influencing ethical behavior, particularly in context of the energy sector. The paper concludes that energy economists and policy makers are often bombarded with ethical issues in developing energy policies whereby unequal access to energy is resulted amongst the population of developing countries in particular. Thus, incorporation of ethics while adopting country specific energy policies can be a solution to numerous energy issues resulting from policies that are implemented keeping the vested interests of a certain group of individual or political party into consideration.*

Introduction

The concept adhering energy sector development within an economy has progressively gained utmost importance following the enlistment of energy as one of the main inputs driving the production processes concerning all goods and services. In addition, development of the energy sector has also been referred to

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* School of Business and Economics, North South University, Dhaka, Bangladesh
sakib.amin@northsouth.edu

be in line with the global sustainable development drives as energy security is considered to be one of prerequisites to attainment of economic development as a sustained rate. The notion of energy development has broadened over time to incorporate economic, environmental, and social aspects, subject to the several constraints and realities perceived by society. Back in the 1970s, economic concerns following world potential oil supply shocks were in prime focus while later on in the 1980s environmental issues associated with combustion of fossil fuels gained prominence amongst economists and policy makers around the globe. Finally, in the 1990s the societal dimensions emerged into the priority agendas whereby the idea of achieving sustainable societies through ensuring sustainable energy availability across the world came under the spot light. Energy sustainability was acknowledged to be inextricably connected to social development as energy services were believed to be crucial inputs to primary development social welfare challenges of providing adequate food, shelter, access to safe drinking water, sanitation, medical care, schooling, and access to information.

Energy employment as a means to achieve sustainable development of the economy is an undisputed matter in context of both developing and developed countries. Thus, for an economy to embrace overall development energy can be achieved by providing universal access to a cost-effective and clean mix of energy resources that are appropriate and in line with different requirements of various countries and regions. This should include giving a greater share of the energy mix to renewable energies, improving energy efficiency and greater reliance on advanced energy technologies, including fossil fuel technologies.

In spite of a good energy policy having the potential to exert positive externalities within the economy, there are considerable pitfalls and hurdles affecting the policy making decisions. Divergence in political standpoints of various stakeholders often invite controversial ethical values and sectional interests influencing such policy making whereby social welfare is often axed amidst the unethical vested interests of a certain group of people. For example, switching from traditional use of fossil fuels to greater use of renewable energy resources is considered to be a potential tool to achieving energy security in developing countries in particular. Moreover, use of renewable energy resources as an alternative fuel can also be extremely effective in curbing carbon dioxide and other Green House Gas (GHG) emissions keeping the natural environment in balance. Thus, adoption of Renewable Energy Technologies (RET) is important for underdeveloped nations like Bangladesh. However, despite the immense benefits associated with using RET, Bangladesh is not welcoming the skills and

investment, necessary for RET adoption, from aboard due to personal interest of certain groups which can be an ethical issue holding back the development of the energy policies in the country. The objective of this paper is to shed light on such ethical issues surrounding economic modeling of energy policies in a developing nation like Bangladesh.

Research on ethical issue in formulating energy policy options is a relatively new topic and very few literatures have focused on this area. This paper fills this gap and highlights the issue of normative concepts defining ethical behavior and the contextual concepts addressing the conditions influencing ethical behavior. In addition, the paper attempts to identify the conditions under which conversations about ethics are likely to occur, the process by which ethical dilemmas and disagreements are resolved, the process by which ethical principles are adapted to changing conditions, and the ways that leaders influence ethical awareness, dialogue, and consensus.

Literature Review

Existing literature has highlighted few elements which typically affects the economic decisions based on ethical grounds. Therefore, this chapter discusses an autonomous system to help decision makers incorporate ethics in energy policy decisions. For example, it is necessary to make a system model of ethical business decision-making in the networked economy: what are the elements and environments involved in the decision making process, how the elements are connected or related to each other, how the elements, environments, and the interconnections can influence each other, etc. Moreover, this chapter provides a brief examination of the concept of simplification and various approaches to simplification utilised by model builders and simulationists. It will then attempt to provide an ethical analysis of the implications associated with how much and what kind of information should model and simulation builders be reasonably required to disclose to potential users of their products so that any decisions these users make on the basis of information obtained from a model or simulation output can be undertaken in the utmost good faith.

For example, Lessig (1999) identifies four elements such as laws, the market, code, and social norms, as the primitive elements of a system for ethical business decision-making. Walstrom (2006) identifies six elements such as social environment, legal (or government) environment, personal environment, private environment, professional environment, and work environment, as the primitive elements. In addition to all these elements, the literature also cites the following

primitive elements: interacting agents, leaders, shareholders, etc. Lessig (1999) incorporates ethics under the broad category of "social norms" where social norms have only cultural or community value. Spinello (2003) argues that ethics is given a directive role, that is, ethics should guide and direct the ways in which the constraints such as laws, the market, code, and social norms, exercise their regulatory power.

Boomer *et al.* (1987) consider four other factors which can influence on ethical decision making: i) Personal environment: individual attributes including personal goals, motivation, position, demography, ii) Private environment: peer group, family, and their influences, iii) Professional environment: code of conduct, professional meetings, licensing, and iv) Work environment: corporate goals, stated policy, corporate culture.

Under stakeholder analysis, three theories of ethics are applied in business environments. These are stockholder theory, stakeholder theory, and social contract theory. The social contract theory is the most restrictive one, demanding that the whole society should be taken care of by the agents when they conduct business exchanges. The stakeholder theory is lesser restrictive than the social contract theory, as instead it demands that all the stakeholders of the business (not the whole society) should be taken care of. Finally, the stockholder theory is the least restrictive one, as it demands that only the stockholders are to be taken care of by the agents. In summary, stakeholder analysis presented above suggests that first we draw a list of all the elements (stockholders, customers, etc.) potentially effected by an ethical decision; then, we evaluate net economic benefits that the ethical decision will cause on each elements on the list.

Cook & Skinner (2005) asserts that modeling and simulation are typically used for one of three purposes: descriptive, predictive and normative models. In brief descriptive models are used to explain how real-world activities function, predictive models are used to predict future events in addition to describing objectives and events, while normative models are designed to not only describe and predict, but also provide direction about a proper course of action.

Shannon (1998) states that while the development and use of model and simulations have undoubted advantages, such as testing new designs, the exploration of existing situations without disturbing current practice, hypothesis testing, the control of time in that a simulation can be run under manipulated time conditions, and of course experimentation, there are also some disadvantages. These include, the need for practitioners to receive specialized training, difficulties associated with obtaining quality input data, and the recognition that

simulations do not offer optimal solutions but rather should be seen as tools for 'analysis of the behavior of a system under conditions specified by the experimenter.' Shannon (1998) makes two further important statements. Firstly, the 'utility of a (simulation) study depends on the quality of the model and the skill of the modeler' and secondly, the 'essence of the art of modeling is abstraction and simplification'. The first is a particularly important observation in that it recognizes a fundamental limitation of the modeling and simulation process. That is, the development of a model and a working simulation is no automatic guarantee of a valid or successful outcome. The second observation highlights the basic nature of modeling and simulation practice. That is, identifying the critical characteristics of the system or event which can then be usefully used to develop a valid and reliable model and simulation. Fundamental to the model building process then, is the selection and use of various abstraction techniques used by model builders to simplify the system or event they are seeking to represent. They give a brief examination of the concept of simplification and the various approaches to simplification utilised by model builders and simulationists. They further attempt to provide an ethical analysis of the implications associated with how much and what kind of information should model and simulation builders be reasonably required to disclose to potential users of their products so that any decisions these users make on the basis of information obtained from a model or simulation output can be undertaken in the utmost good faith.

Balci et al (2002) suggest the evaluation and credibility or acceptability assessment of modeling and simulation products demands rigorous collaborations among those individuals and groups associated with their development. More broadly however, Sterman (1991) earlier argued that whether members of society like it or not they are all becoming consumers of computer models and observed. The ability to understand and evaluate computer based models is fast becoming a prerequisite for the policymaker, legislator, lobbyist, and citizen alike.

In a broader ethical context, Jones (1991) has argued decision-making must be 'issue-contingent'. That is, it must consider the characteristics of the issue itself. He uses the term 'moral intensity' which he suggests has six components: magnitude and consequence, social consensus, probability of effect, temporal immediacy, proximity, and concentration effect. Magnitude and consequence is defined as total harm/benefit resulting from the moral action in question, social consensus as the degree of agreement that an alternative is evil or good, probability of effect as the probability that the action will take place and will cause the harm/benefit expected, temporal immediacy as the time between the

present and the consequences of the moral action, proximity as the feeling of closeness that the moral agent has for the victims/beneficiaries of the action in question, and concentration effect as the 'inverse function' of the number of individuals affected by a given act. Many 'remote' users and consumers of simulation product outputs, such as members of the 'public', are very much dependent upon and vulnerable to the competence and professional expertise of simulation builders and users (Barlow, 2006). In essence decision-makers are increasingly vulnerable to the quality and appropriateness of the assumptions the model and simulation builders have made when developing a product, as well as its perceived credibility or believability. Taken further, they increasingly rely on the output of simulation products to provide the 'facts' on which they base their decisions.

Ethical Concepts in Development

Development ethics is a novel social science and philosophical approach that to my scholarly sense needs further investigation and gives the opportunity for even advanced knowledge contribution to the ethical study of development both for social scientists and philosophers. Astroulakis (2013) argues that development ethics, and its subject matter may be accurately interpreted within a political economy context in relation with the ethical theory's reflections to international development. Development ethics came at the stage in the middle of 20th century by Louis Joseph Lebret and became widely known by his student Denis Goulet. In contrary to economic positivism, for development ethicists the issue of international development is viewed not as growth in a narrow sense of material expansion of wellbeing, but as the qualitative enrichment of human beings in all relevant aspects of human life.

The discussion on ethics and development got an important position during 20th century and this interesting dialogue holds until now. Development ethics is the field of studying ethics and development issues. For development ethicists (Goulet, 1975 and 2006; Dower, 1988; Gasper, 2006; Crocker, 2008), development ethics perceived as both the ethical reflection on the means and on the ends of local, national and international development. This ethical reflection not only takes the form of a philosophical discourse, but also offers "a space of analysis, evaluation and action regarding the trajectory of societies, with special reference to suffering, injustice and exclusion within societies and between societies at a global scale" (Gasper and Truong, 2005). To this concern, development is accepted both as an end state and as an action. However, development ethics' foundation, as all other intellectual fields of study, appears

areas of consensus and controversies (Crocker, 1998 and 2008; Clark, 2002) as well as contradictions and constitutional gaps. Further, searching the literature on development ethics, one can easily understand that there appears a "black box" according to the development ethics methodological synthesis.

In 1941, Lebret established in Marseille an interdisciplinary research center known as Economy and Humanism. Essentially, Economy and Humanism constituted a philosophical movement. The main contribution of Lebret's ethical study of development is concentrated to the problem of the unequal distributions of goods within societies. Lebret systematically investigates the human and societal needs and the role of development if accessing theses needs in order to addressing the problem of the inequality and to what it incurs to the social and human development. In brief, for Lebret ethical development should subordinate the attainment of the aforesaid needs to all and for all, individuals and societies.

According to Goulet (1975), existence rationality is defined as "the process by which a society devises a conscious strategy for obtaining its goals, given its ability to process information and the constraints weighing upon it" (Goulet, 1975). Interpreting Goulet's words, based on a political economy view, existence rationality is considered to be the system of meanings (customs, norms, beliefs, social attributes etc.) within the economic, social and political structure that exists in any society and determines the course of action undertaken to serve societal aims. More specifically, the system of meanings refers to how societies evaluate, employ and apply particular strategies in order to assist to what Goulet (1975) sets as universal goals of development, those of life sustenance, esteem and freedom. In general, Goulet accepts the taxonomy of the societies to traditional, transitional and modern. Each of them has built an alternative system of meanings under a historical and social process. Development should not be perceives as an alien body to the existed system of meaning of any societal type. If development is to be addressed, three conditions ought to be followed: "(a) new capacities for handling information must be generated; (b) vital recourses hitherto not available must become exploitable; and (c) the alien rationality implicit in modernization must be re-interpreted in terms of traditional existence rationalities" Goulet calls this progress as "expanded existence" (Goulet, 1975). The core value of existence rationality is to be concerned of the provision of those ingredients that ensure what any society defines as the good life. Thus, any change should be integrated in the principle of "existence rationality" or differently the system of meanings determined by each society.

Economics in its very positive form has refused to investigate ethical issues within the concept of development. During 20th century, economics, in lines of

mainstream methodology, took a shape, to a large extent, of positive science. Just recalling mainstream Chicago School economists and Nobel laureates George Stigler, Milton Freedman and Cary Becker both founders and prominent representatives of economic positivism. Alvey (1999), among others, examines the decline of economics from its ethical dimension during 20th century. To more recent references, Milonakis and Fine (2009), and Fine and Milonakis (2009) explore the transformation of political economy to mainstream economics or better how political economy has transformed to a positive science under a historical and ideological process. They also discuss for an economics imperialism of economics science, in its positive shape, on the other social sciences perspectives. For positive economics, during 20th century, development has been supposed as a synonymous of growth, a material expansion in terms of a westernized development. Qualitative indicators and models have again and again measured the development problem but they do not seem to solve it. Development was perceived as an absolutely measurable matter, as a synonymous of economic growth- the variation of GDP for instance.

Importance of Energy in Economy

The role energy plays within an economy is multidimensional and diverse in nature and it is viewed as a cornerstone of socioeconomic development. It is also empirically acknowledged that energy consumption within an economy directly and indirectly contributes to its socio-economic development. As part of the development of the economy is concerned, energy acts as fuel that expedites the process of industrialization, transforming a traditional agrarian economy into a modern industrial economy. Traditionally, labor and capital were considered to be the main factors of production. However, with time, energy emerged as crucial input in production of almost all goods and services. Thus, energy augmented growth models made their way replacing the traditional capital-labor models of growth. It is estimated that the global industry sector accounts for almost 30% of the world energy consumption (Bergasse, 2013). This clearly points out the importance of energy in production of industrial outputs leading to economic development worldwide. Moreover, several empirical studies have found energy consumption per capita to be cointegrated with economic development with the direction of causality running from the former to the latter (Quolin, 2005 and Stern, 2011). On the other hand, energy also contributes to social welfare improvement, especially in the form of job creation, educational and healthcare betterment, etc. In addition, energy availability in the remote areas can also contribute to rural development creating employment opportunities in rural areas.

It is believed that rural energy use can significantly raise rural income levels whereby the grueling problem of poverty in the underdeveloped world can effectively be taken care of.

Energy sector development is one of the prioritized agendas of policymakers all across the globe. However, in the developing nations there are multiple problems acting as barriers to uphold the development of this sector. The energy sector of most developing countries is characterized by a mixed economy framework rather than an optimal perfectly competitive market structure and as a result cost reflective prices don't exist. This is the main problem with regard to energy markets in the developing economies whereby economic development is hampered adversely. Excessive government interventions within the energy sectors in the LDCs have primarily restricted their development drives. Unlike the developed world, the governments in developing countries provide subsidies to artificially keep energy prices low. Thus, energy prices in these nations are not cost-reflective in nature, leading to irregularities in the form of inefficient energy use. Although energy subsidy contributes to individual welfare keeping energy costs low for producers and end-consumers of energy, it actually depresses economic development through a number of channels. For instance, following artificial fixation of energy prices below the long run marginal cost levels can potentially discourage investment in the energy sector and as a result expansion of the energy sector cannot be attained. Such unnecessary provisions attribute to expansion of the fiscal deficits, ultimately putting the burden on the shoulders of the energy consumers. Moreover, energy subsidies can also crowd out relatively more productive public investments, further restricting economic development. In addition, the energy price distortions send incorrect price signals in the energy market and thereby trigger non-optimal energy resource employment, which can jeopardize the nation's energy security as well.

Ethical Issues and Energy Policies

Ethics has to do with determining whether decisions and acts based on decisions are right or wrong. Decisions can be right or wrong depending on whether the normative and positive information which goes into them is true or false. Decisions can also be right or wrong depending on the correctness of the decision rule used to process the positive and normative information into a prescription or decision as to what ought to be done.

The rightness of a decision also depends on the accuracy of the analysis which uses a given decision rule to produce a prescription. Decision rules also possess

deontological characteristics of goodness and badness in and of themselves. Distributions of power are essential characteristics of decision rules and the goodness or badness of a decision rule depends importantly on the goodness or badness of those power distributions. It is also clear that the ethical issues involving energy have to do with the accuracy of normative and positive information about energy and related matters, the appropriateness of the decision rules used in making policy decisions with special attention to the rightness of the power distributions involved and the correctness of the analyses leading to decisions.

The price and market system is another important part of the information system. It transmits normative information from consumers to producers who combine it with positive information and other normative information from input suppliers to make decisions on energy production. Cost and quantity information are then transmitted to consumers and resource owners who use them to allocate consumer expenditures and the use of resources. This iterative interactive process goes on and on to transmit information and produce prescriptive decisions on resource use, production levels, consumption and prices. This information system also suffers several current ailments including being burdened by both its friends and critics with responsibility for determining a "just" distribution of the ownership of income producing rights and privileges, a function it cannot do well and, generally, cannot do except haphazardly unless burdened with regulations which seriously interfere with its information transmitting and allocative functions.

One of the needs is to keep the price system honest. The relative values or exchange prices it should convey deal with values in exchange as determined by (1) relative scarcity or cost of production and (2) demand based on intrinsic value and purchasing power. It seems better to keep the tasks of pricing goods and services and of allocating resource and product use separate from the task of redistributing the ownership of income producing rights and privileges because (1) it is more honest to do so, (2) it helps preserve the allocative efficiency of the price mechanism, and because (3) direct redistributions of resource ownership without resorting to price regulations are likely to be more effective and more permanent in helping the disadvantaged.

Decision makers need objectively tested positive and normative information about energy and about decision rules for making energy decisions. Ethically, decisions on energy policy can be improved by recognizing power distributions with formal representation, advisory roles, and special voting procedures.

The connection between rising energy costs and inflation is long and tenuous, not direct to the consumer price or wholesale price index. Inflation results from an increase in the supply and velocity of money arising primarily from two sources: (1) the fiscal activities of government (deficit financing) and (2) the operation of the credit system (loose monetary policies). In order for increases in the prices of energy and energy related products to generate more money and/or higher velocity, there must be a political connection between the price increases and the control of monetary and fiscal policies as there is no economic one.

There are serious ethical questions involved in energy price decisions. Energy price is considered to be a crucial macroeconomic determinant since it attributes to widespread economic activities. Thus, sudden changes in energy prices may affect an economy adversely if adaptive measures are not taken in due time. The effects of changes in energy prices on real economic activities can be understood from both demand and supply side channels. As per the demand side is concerned, a rise in energy prices is synonymous to a fall in demand of other goods and services by a household. This happens because as price of energy increases and there is less scope for reduction in minimum energy consumption, the household is forced to reallocate its fixed disposable income from non-energy to energy expenditure. On the flip side of the coin, the supply side hinges on the argument that as energy prices goes up, the cost of production of goods and services go up as well. As a result, producers are compelled to cut down on their output levels and operate at below capacities which in turn have a negative impact on supply of goods and services in the economy.

Developing energy-importing countries like Bangladesh are vulnerable to world energy price shocks. For instance, Bangladesh imports oils from developed nations in order to generate electricity, the most important form of energy used in the nation. As a result, a surge in world oil prices is likely to raise input costs for industries in Bangladesh which eventually may lead to fall in outputs and a simultaneous rise in domestic price levels. It has been acknowledged worldwide that higher oil price may eventually lower income levels in underdeveloped nations. Thus, in order to protect the economies from such shocks the governments in the less developed countries resort to provision of energy subsidies, artificially keeping energy prices low. Although such measures to combat the atrocity of energy price shocks are required to some extent, provision of subsidies in the energy sector usually generate negative impacts on the economy which in the long run can even outweigh the nominal short run benefits.

Subsidizing energy prices is considered to be a crucial policy tool amongst

governments of developing countries and at times such policy moves are also stimulated by political motives. Energy subsidies in Bangladesh are both directly and indirectly extended to producers and consumers whereby the subsidies lower the cost of energy inputs and raises revenues for the producers while it also reduces the price paid by the end consumers as well. In Bangladesh, energy subsidies are specifically provided in the form of direct subsidies, equity injections, artificial fixation of retail energy prices, natural gas purchase, concessional power sector loan financing from national budget, preferential tax treatments, and distribution channel subsidization. Government intervention in the energy sector can depress macroeconomic indicators within an economy. Thus, the governments in the developed nations purposively abstain from intervening into the associated markets letting energy prices automatically adjust by responding to the market forces of energy demand and supply. Conversely, in developing countries like Bangladesh, the government intervenes into the market subsidizing energy prices and keeping it below the market price which in turn mitigates competition within the energy sector.

Conclusions

Ethics is the branch of philosophy which is concerned with the determination of right and wrong goals and actions. There is a close relationship between economics and ethics. Both are closely related to axiology - the answering of questions about goodness and badness - and to deontology which deals specifically with the goodness and badness of a particular decision rule, action or design regardless of its consequences. The decision disciplines are, in a sense, applied ethics. Perhaps economics is the "queen" of the decision disciplines. It has a highly developed theory of decision making and many of its classical writers are also classicists in the ethical and philosophic value theory literature.

Many ethical issues arise as a result of unequal access to energy and of the environmental repercussions of the various ways of meeting energy demands. They require that we consider the consequences for future generations of satisfying the energy needs of the present and that we carefully evaluate the implications for the functioning of the environment on which we and other species depend. We cannot resign ourselves to the fact that nearly one human being out of every four today does not have access to adequate energy resources. The actors in world energy policy (government, industry, research and development teams) must ultimately ensure the availability and upkeep of vital resources at a cost sufficiently low so that each country, whatever its geographical location and economic situation, has access to them.

In the long-term, there is no question that energy supplies will have to come from renewable sources since we know that the non-renewable fossil carbon fuels will eventually be exhausted. The only question is how rapidly we should move to such sources and what mix should be used in various parts of the world over time. This is an extremely complex question and the answer depends on careful analysis of the costs and benefits at local, national and global levels, and must take into account the implications for land, air, water, other organisms, food, human security and health, economics and trade, culture and other social and environmental considerations. In short, the ethics of energy must concern the whole energy cycle, from extraction and distribution to consumption and waste disposal.

That spirit of co-operation must also be the guiding light for the development of bonds between individuals in the same society or country, between rich and poor. We cannot, therefore, merely allow market forces alone to take care of balancing the relations involving the supply and consumption of energy, from national down to individual levels. Government inevitably has a vital role to play in ensuring equity and justice and in encouraging solidarity in these areas. There can be no pretext for unduly maintaining the countries of the South in a state of forced 'energy restraint' when they so urgently need adequate infrastructures, and the governments of the industrialized countries should step up efforts to help the developing world meet its energy requirements by 'leapfrogging' to clean technologies.

A sustainable energy future requires strategies that address the goals of efficiency and cost competitiveness, universal access, energy security, and environmental accountability of energy systems. These strategies should include continued market reform, greater role for decentralized energy systems based on renewable energy sources, technological diffusion, and financial flows into developing countries, generally improving energy efficiency with a focus on demand-side management and the establishment of efficient structures.

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Testing hypothesis on theory of social networking, community banking and empowerment of People: A Conceptual view

MUHAMMAD MAHBOOB ALI

Abstract*: Poor and underprivileged people should come under the banking system so that equitable distribution and social justice can be achieved. Informal sector is playing vital role than formal sector of the country. Micro savings should under the working purview of the micro investment for which social networking and community banking is needed. Research question of the sturdy is whether social networking and community banking can transform micro savings to micro investment? The theory was developed for considering financial inclusion, to attain equitable distribution and social justice. A theory was developed by Ali(2016) which need to be tested. The theory was also interlinked with some goals of Sustainable development goal. The theory which is in a process of development by Muhammad Mahboob Ali on Social networking, community banking and empowerment of people may be empirically tested in different countries of the world and also at Bangladesh by various researchers to give a structural formation, cost-benefit analysis, shadow pricing, validation and reliability of the theory in the real life scenario both global and domestic perspectives with a request to inform the result to the author.*

Keywords: *Micro savings, Micro investment, Community banking, Social networking, Social capital, empowerment of People, Gender equality, Informal market*

JEL Classifications: *E26, G20*

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*   Professor, Dhaka School of Economics, Bangladesh and Former Vice Chancellor, Presidency University Email: pipulbd@gmail.com, bdmahboob2016@hotmail.com

Introduction

Poor people of the country often did not getting any sort of banking services. Without banking involvement they have to depend on informal sector. As such informal sector have been playing vital role in the economy without accountability and transparency. Micro savings ought to come under the operational purview of the micro investment through social networking and community banking based system is required. Otherwise micro savings cannot give good results rather it will have some problems which was raised in Uganda, Rwanda etc. countries. In case of Pareto's optimality criteria of utility theory, Hicks, Kaldor and Scitovsky described that social welfare could be increased without making value judgments. As such Pareto optimality of the people can be attained in line of social welfare so that compensation package can be attained. In the free market economy govt. can intervene at least invisible manner. For poorer people, govt. needs to set up some procedure of redistribution, arranging equitable righteousness, removing income inequality and to attain social justice.

Social networking is the exercise of intensifying the quantity of one's business and/or social contacts by constructing acquaintances from side to side entities, often through social media along with social capital, social business and social investment. Social entrepreneurs are the people most able to deliver that innovation (Leadbeater, 1997). This are a social structure entailing of persons or collections that are associated to each other, for example through relationships. When these networks are characterized in a database and with a web interface, it is frequently mentioned to as a "social network service". However, in traditional system there is no web interface or social media but social capital, social business and social investment works simultaneously. A social network perspective on strategic alliances can have both descriptive and normative outcomes that provide valuable insights for theories of strategic management, organizational theory, and sociology. Incorporating social network factors into our account of thealliance behavior of firms not only provides us with a more accurate representation of the key influences on the strategic actions of firms, but has important implications for managerial practice as well, many of which have yet to be explored (Gulat,1998). Interest rate on lending in the informal sector is very much high in Bangladesh than the formal sector of the country (Ali, 2016).

Rahman (2013) described that financial inclusion promotes inclusive growth, productive capacity, youth employment and combats poverty by unblocking advancement opportunities for the disadvantaged poor. Lack of access to basic financial services leads to significant extent of social exclusion in education,

employment opportunities and social safety net. The finance minister of Govt. of Bangladesh AMA Muhith has proposed to increase the volume and coverage of the government's social safety net programmes in the 2017-18 fiscal year to improve the living standards of the poor in the national budget speech. He proposed to raise the number of recipients of old age allowance to 3.5 million from 3.15 million, widow and oppressed women allowance to 1.27 million, disability allowance to 825,000, education stipend for students with disability to 10,000 at both primary and secondary levels, and maternity allowance to 600,000.Tk11.35 crore has been allocated as a special allowance for transgender people, while the allowance for financially insolvent disabled people has been increased to Tk700 per month. In addition, the government will continue the existing social protection programmes, including the Vulnerable Group Development (VGD) programme. The government has already employed emergency schemes to provide 30kg rice every month to each of the 330,000 bona fide destitute and flood-affected families in Haor areas, the finance minister said in his budget speech. In addition, Tk57 crore has been allocated to provide cash assistance to the affected people on a monthly basis. Tk82.07 crore has been allocated for 91,447 beneficiaries under the Employment Generation Programme for the Poorest (EGPP).

Still in Bangladesh informal sector is much larger than formal sector where employment opportunity is very high in Bangladesh. In the country, 87 per cent of the labour force is employed in the informal economy according to the labor report on 2010. Those who working in the informal economy includes wage labourers, self-employed persons, unpaid family labour, piece-rate workers, and other hired labour.

Informal credit market in the absence of regulatory framework is working without any sort of hindrance in the country which needs to bring under supervisory framework. Siddique (2008) described that in the country credit is provided by informal lenders who may be friends and relatives, by mahjans who are intermediaries with trade and/or production relationships with enterprises, and by traditional money-lenders. The informal market is potentially large and expanding.

Below we have seen the informal credit market of the country in Figure 1.

Interest rate in the informal market is much higher than formal market and job security as well as obtaining direct taxation form the informal sector is not feasible. As such social networking and community banking may help to convert formal sector.
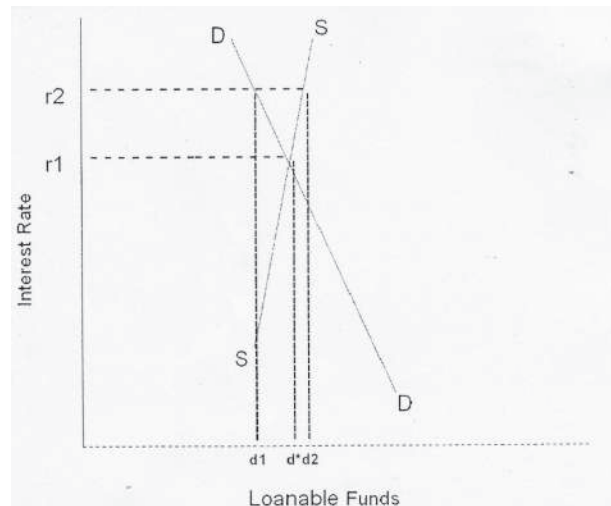
(Source: Siddique, 2008)

Figure 1: Bangladesh Informal credit Market

Rahman (2017) quoting labor force survey 2015-16, majority of employment is generated in the agriculture sector, but employment is gradually shifting to the services sector. Contribution of service sector employment has been growing, with 36.9% of employment generated in 2015-16, compared to 34.1% in 2013 is shown in following Figure2.
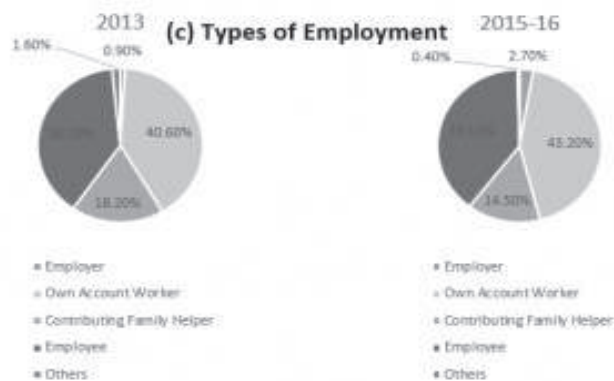
(Source:Rahman, 2017)

Figure 2: Types of Employment in Informal sector

In the informal sector 87.8 percent totally is working while 11.4 percent is working in the formal sector. As per the following data formally employed in multiple jobs is zero percent. Formally and informally employed in multiple jobs

is 0.1 percent in totality basis. Informally employed multiple jobs are totality basis is 0.6 percent. On the basis of Table1 we have shown Figure2 above.

Table1 : *Number of Employed Persons by Nature of Employmentand Urban/Rural*

Nature of Employment	% to Total Number of Employed		
	Urban	Rural	Total
Formally employed in one job only	23.9	7.7	11.4
Informally employed in one job only	75.5	91.5	87.8
Formally employed in multiple jobs	0	0	0
Formally and informally employed in multiple jobs	0.2	0.1	0.1
Informally employed in multiple jobs	0.4	0.7	0.6
Total employed	100	100	100

(Source:http://www.wiego.org/sites/default/files/publications/files/Asian-Devt-Bank-informal -sector-informal-employment- bangladesh.pdf,Viewed on 1st June, 2017)

Entrance to the formal monetary system leftovers to a contest for the underprivileged people of the country as existing financial system mostly ignoring them. Current banking system of the country has missing services for a larger portion of the people. As such the country need alternative banking framework at a least cost combination and helping the underprivileged people. Moreover, some NGOs are not working due roles as they are charging higher interest rate which is not feasible for borrowers to repay without cutting welfare and social ignorance. Micro savings need to be encouraged to bring the unprivileged people to the banking system. With the introduction of the electronic banking current commercial banking rate is much higher.

Figure 3: Gini Index of Bangladesh

(Source:https://tradingeconomics.com/bangladesh/gini-index-wb-data.html, Viewed on 1st June,2017)

We have shown Gini index of Bangladesh from 1986 to 2010 in Figure3 below:

Research question of the sturdy is whether social networking and community banking can transform from micro savings to micro investment?

Need of the Study

The study arises to develop a theoretical framework how social networking which is working for long historical background can help community based development purpose so that poor income strata of the people can have better livelihood. If only micro savings is accumulated but allocation and distribution cannot occur than it will be a burden for those who keep the money at their hand due to time value of money. Moreover, sometimes in the country multilevel marketing (MLM) companies are preying on regulatory and human weaknesses. They are managing funds and doing banking business illegally, but openly. Asset managers, merchant bankers, brokers or portfolio managers who manage others' wealth are subject to government license to operate (Daily Star, 2011). As such if community banking can be used under a regulatory basis then it may have a larger impact on transformation process of micro savings to micro investment and risk of theft-burglary will reduce.

Objectives of the Study

The study has been undertaken with following objectives:
  i. To assess whether any need for a new theory for doing economic development of poorer segment;
  ii. To examine how social networking and community banking can help for attaining empowerment of people;
  iii. To provide some suggestions for arranging distributional economic benefits and transformation from informal sector to formal sector.

Literature Review

Acemogluand andOzdaglar (2009) described that social and economic networks refer to a set of people or groups of people with some pattern of contacts or interactions between them. Face book, friendship networks, business relations between companies, intermarriages between families, labor markets. Recent years witnessed a substantial change in network research. From analysis of single small graphs (10-100 nodes) to statistical properties of large scale networks (million-billion nodes).Motivated by availability of computers and computer networks that allow us to gather and analyze large scale data. Gangopadhyay and Dhar (2014)

described that social networking and online privacy seriously turn out to be a serious concern when sensitive information is being shared and with the changing definition of 'social networking' in this internet age. Riggio (2014) described that Social intelligence (SI), is mostly learned. SI develops from experience with people and learning from success and failures in social settings. It is more commonly referred to as "tact," "common sense," or "street smarts". Lake and Huckfeldt (1998) argued that politically relevant social capital is generated in personal networks, that it is a by-product of the social interactions with a citizen's discussants, and that increasing levels of politically relevant social capital enhance the likelihood that a citizen will be engaged in politics. Further, the production of politically relevant social capital is a function of the political expertise within an individual's network of relations, the frequency of political interaction within the network, and the size or extensiveness of the network.   The consequences of social relations within networks are not readily explained away on the basis of either human capital effects or the effects of organizational engagement. Actually social relations are very important. As such social intelligence and social entrepreneurship works with social networking. Social mixing should form an integral part of social intelligence development in teenagers. It argues that parents may have an important role to play, as older generations own circles also remain relatively closed to different cultures, backgrounds and upbringing. The success of a new venture often depends on an entrepreneur's ability to establish a network of supportive relationships.

Leadbeater (1997) argues that social entrepreneurs need to lead the way with schemes for self-help, particularly by promoting local, national and international twinning arrangements between projects to share ideas, contacts and staff. For liberal feminists, the optimum level of gender arrangement is one that facilitates the individuals to adopt the life style that suits him or her and also accepted or respected (Ritzer, 2001) by the society at large. However, liberal feminists are not in favor of structural change to a great extent. Furthermore, some of liberal feminists think that individual woman cannot make change; therefore, state intervention is prerequisite. BarNirandSmith (2002) argued that the social networks of senior executives account for 11–22 % of the variance in the degree to which firms engage in alliances, depending on the type of alliance. Results also show that the number of inter firm alliances is positively related to several networking properties (propensity to network, strength of ties, and network prestige. Hunt and Kasynathan (2002) pointed out that only a few number of women receiving credit had the ability to control their loans. Many women received loan by their own name and passed on the full amount of their loans

directly to their husbands, sons or sons-in-law. Swain (2006) conducted a study following experimental research design in rural India and assessed the potential impacts of a microfinance institution named Self Help Group (SHG). The concept of women empowerment was defined as the process in which the women challenge the existing norms and culture to effectively improve their well-being. Karnani (2007) summarized following problems of microcredit from various studies: Microloans are more beneficial to borrowers living above the poverty line than to borrowers living below the poverty line microcredit; seems to do more harm than good to the poorest; microcredit is the businesses it is intended to fund. Williams &Durrance (2008) found that across a number of instances of community technology, technology use is directly influenced of social networks, and social networks are directly influenced by technology use. Perron (2011) examined case by case the various approaches from companies, public sector entities, philanthropy, etc., and also institutional and private investors in their availability as well as their specific legal capacities and limitations to deliver the funding required supporting the growth. Such initiatives are vital in the fight against poverty and income inequalities. Batool (2013) commented that implementation of emotions intelligently in any organization by a leader to be effective and efficient plays a vital role to leader effectively. Emotional intelligence is one of the useful tools which helps a leader to judge people more clearly and closely and build a connection between people.

Bhattacharya et al. (2014) described that social networking has affected the process of marketing and how present day marketing activities is highly dependent on this phenomenal process of social networking. Also focus has been laid on how social networking affects the process of market signaling and hence reduces the possibility of asymmetric information within a market and lowers the possibility of market failure for a particular product. Yang et al. (2014) observed that social intelligence and technology explore the roles of information, the Internet, and mobile technology in improving our understanding about human behaviors and social interaction in human society at the individual, interpersonal, and community levels—building a sustainable social environment, developing social intelligence, and having practical applications with major impacts in solving societal problems such as health, security, energy, and the environment. Ali (2016) suggested that establishment of integration fund to encourage creative entrepreneurship so that poor downtrodden people can come out with innovative business process through financial inclusion process, to remove poverty. Rattanawiboonsom and Ali (2016) more intensive and pragmatic policy should be developed for the development of the social enterprises particularly for self-

motivated entrepreneurs. Experiences from the research work, they observed that the rural poor are mobilized and working together in self-controlled community based organizations which ensures social welfare and Pareto optimality. Not only small and medium enterprises but also micro enterprises should get special priority and inclusion through financial organizations are being required for developing proper steps to poverty alleviation, public-private and foreign strategic alliances are required in the small and medium enterprise sector with special emphasis on micro enterprises of the country.

This alternative framework was an attempt to develop a theory on how social networking facilitates to empower people which were developed by Muhammad (2016)to test any country The study will extensively tries to display an integral part regarding different dimensions of empowerment before involving in social networking and after involving in social capital, social along with business and social investment along with social intelligence ,social enterprises along with micro savings transformed to micro investment. Social intelligence is also one of the key components to readdress to come out from poverty. In Current century a greater role is being played by social media for which interpersonal connectivity in vital. Environmental scanning for doing the business is vital especially to ease the business process and local economies. Empowerment of people rises from decision making process when people do have purchasing power capability. Community banking framework should be developed under a regulatory framework which will work starting in joint effort of Pali Sanchya bank, Karmasonsthan bank and postal savings deposit and creating postal investment sector.

Community banking idea is larger than agent banking or mobile banking. It will give the scope of financial inclusion and current 80% people who are working informal sector will gradually transformed to the formal sector. This will also help to raise direct taxation as well as employees' job satisfaction and job security.

Technological diffusion, innovation, creativity and suitable regulations by the local level planning with local level law of the province are the key to deepening financial inclusion analysis where nano saving must be transformed to nano investment. Community banking will help to expedite the process of social networking and ultimately empowerment of people.

In Figure 1, we have seen a model as concept developed by Ali (2016) based on aforesaid discussion in this section as Social Networking Model and empowerment of people through transformation of Micro savings to micro investment with the help of community banking .However social education in the form of formal or non-formal is very important to act as a complementary.

The Rabobank view (2005) described that Rabobank was founded in the Netherlands more than a hundred years ago as a co-operative bank providing access to financial services for small farmers and offering a secure option for savings to the local community. The driving force behind the Rabobank Group has always been to create opportunities for individuals and organisations to participate fully and independently in economic activities. Rabobank has developed an integrated concept of sustainable rural financing in developing countries. In addition, Rabobank participates through its different departments in international platforms and partnerships concerning the challenge of economic development in developing countries.

Mallick (2009) found that moneylender interest rates go up with the percentage of households borrowing from Micro Financial Institutes (MFIs). Productive investment of loan lowers moneylender interest rates. But MFI program expansion increases moneylender interest rates in the villages in which more loans are invested in productive economic activities. As loans are utilized in productive purposes, the likelihood of repayment increases so that moneylenders are able to charge lower interest rates.

Dupas *et al*. (2012) depicted that while simply expanding access to banking services   will benefit a minority, broader success may be unobtainable unless the quality of services is simultaneously improved. There are also challenges on the demand side, however. More work needs to be done to understand what savings and credit products are best suited for the majority of rural households.

Ngalemwa (2013) described that village Community Banks (VICOBA) have benefited people in reducing their income poverty by playing an important role in enabling the poor to save and access credits. VICOBA lending model is a unique and an effective tool for development of rural communities.

Halim et al. (2016) found that the series of income inequality and savings demonstrate a nonlinear relation in Bangladesh. Savings behave differently at different level of income inequality. Moreover, this nonlinear relationship is due to changes in economic policy. From our data set we can see that economic liberalization has improved the inequality situation of our country and caused savings GDP ratio to increase.

Valkenburg and Piotrowski (2017) argued that the negative spin that youth and media research often receives in the news can give most people the idea that media primarily have negative effects on children and adolescents. The Sustainable Development Goals (SDGs) possesses 17 Goals build on the successes of the Millennium Development Goals, while including new areas such

as climate change, economic inequality, innovation, sustainable consumption, peace and justice, among other priorities. The goals are interconnected – often the key to success on one will involve tackling issues more commonly associated with another. The SDGs work in the spirit of partnership and pragmatism to make the right choices now to improve life, in a sustainable way, for future generations. They provide clear guidelines and targets for all countries to adopt in accordance with their own priorities and the environmental challenges of the world at large. The SDGs are an inclusive agenda. They tackle the root causes of poverty and unite us together to make a positive change for both people and planet. "Supporting the 2030 Agenda is a top priority for UNDP," said UNDP Administrator Helen Clark. "The SDGs provide us with a common plan and agenda to tackle some of the pressing challenges facing our world such as poverty, climate change and conflict. UNDP has the experience and expertise to drive progress and help support countries on the path to sustainable development. Ali et al. (2017) commented that policy makers should come forward to think how community banking with the applicability of the social networking can be used in local level planning system of the country. They also argued that people must be cautious about misuse of social media as reported by different dailies.

Methodology of the study

Based on aforesaid literature review and also objectives of the study, we observed that there is no clear study on impact of social networking and community banking for transforming micro savings to micro investment. As such the study intends to develop the theoretical model. The study used secondary sources. Time period of the study is from March 2017 to June 2017.The study tried to consider objectives of the study through conceptually for formulating the model. Further, through reviewing different literatures this study tried to develop some theoretical framework which helped to develop a proposed model. This is just a qualitative analysis not quantitative analysis.

In future a separate study may be done considering social networking as a dependent variable while another study may be done considering community banking. Independent variables may be social capital, social medial, social business, social education, social entrepreneurship, purchasing capability, adding value, education level, and rise of income level among the people, Further another model can be done considering micro savings while independent variable will be social capital, social networking and community banking, competitive sustainability, efficiency, effectiveness, and micro investment. Through framing questionnaire, the future study may collect data and can do binary logistic

regression equation and factor analysis. Otherwise structural equation may be done. However, this study only develops a proposed model as it is a conceptual study.

Proposed Model

Social Networking Model, Community Banking and empowerment of people is shown in chart 1 below:

Note: Aforesaid model may be tested by other researchers of various countries and inform to the author so that it can be scrutinized and further improvement of the model can be done, if necessary. Aforesaid proposed model indicate how
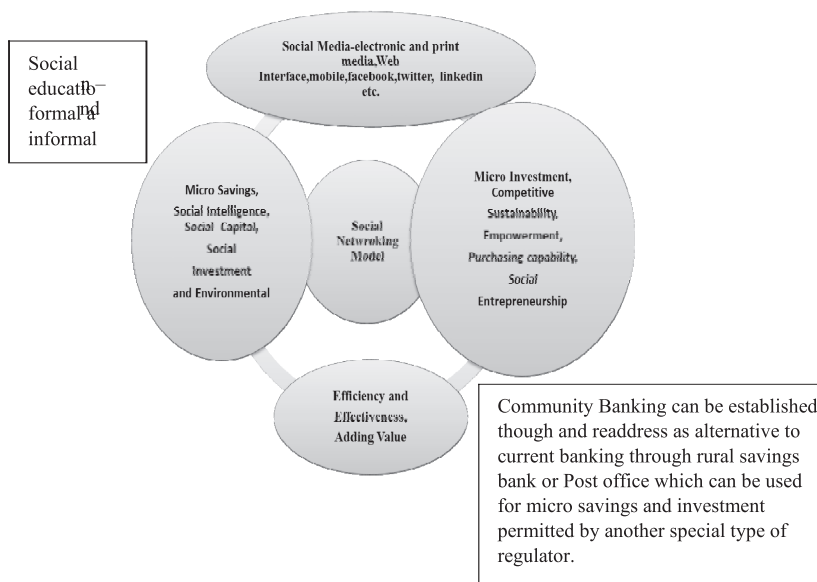

Social education formal and informal

Social Media-electronic and print media,Web Interface,mobile,facebook,twitter, linkedin etc.

Micro Savings, Social Intelligence, Social Capital, Social Investment and Environmental

Social Netwroking Model

Micro Investment, Competitive Sustainability, Empowerment, Purchasing capability, Social Entrepreneurship

Efficiency and Effectiveness, Adding Value

Community Banking can be established though and readdress as alternative to current banking through rural savings bank or Post office which can be used for micro savings and investment permitted by another special type of regulator.

Chart 1: Social Networking Model, Community Banking and empowerment of people through transformation of Micro savings to micro investment

(**Source:** Concept of a model built by Muhammad Mahboob Ali, 2016)

micro savings can be transformed into micro investments. Community banking must work in a separate regulator and it should not be aligned with agent banking.

Analysis of the Findings and Discussions

The result from the study tried to describe those people's empowerment which is closely related with Social Networking, Social intelligence and social entrepreneurship along with social capital and social investment all work as a

holistic approach. Community bank will help financial inclusion which in turns endorses wide-ranging development, creative ideas and ventures, increasing occupational opportunities and contests lacking by releasing progressive changes for the underprivileged and deprived people of the country with the help of digitalization process. This will also reduce the fraudulent activities of the cooperative banks and fraud syndicates due to lack of proper supervision and monitoring. As such Govt. should take initiatives to set up community banking for the unbanked people at a cheaper rate but effective manner. Acemogluand and Ozdaglar (2009) comment on social and economic networks for improving the livelihood of the people as well as creating employment opportunity is feasible through using social networking and community banking. Social welfare is needed for the betterment of the poorer group of the country. Multilevel marketing (MLM) companies are doing different sorts of fraud by taking greediness and oppression among poorer section of the country.

However, there have been report that by a section of the people that misuse occurs in case of social medial towards under 18 years and female group. Further some reports indicated that social media misuse by terrorists. Constant monitoring on social media is required to be arranged by the competent authority and cyber police of the respective country. Social integration should form an essential part of community aptitude expansion in adolescents. Guardians should have a significant role to play as adult age group hold loop so that staying comparatively closed to dissimilar societies, surroundings and rearing up in a meaningful manner when global world is opened.

Social relationship is very much important. People's environments are not virtuous before accomplishment tangled in social networking and after attainment convoluted in the income of the family had been increasing. After involving in social networking the women started to participate in different income generating activities. Then, they also started to control over income, expenditure, credit and savings. They could then participate in household decision making more than before. Rural savings will be turned to rural investment lead to social entrepreneurship for which we need implementation and help from local level planning. It will be found that in dimensions the people started to become more empowered than before involving in social networking. This may be supported by Technology, innovation and suitable regulations -the key to deepening financial inclusion analysis where nano saving must be transformed to nano investment. Leadbeater (1997) proposed social entrepreneurship can be systematically developed through community banking which can act for social welfare. Community banking will reduce the informal lending at the rural area.

Mallick's (2009) observation on Micro Financial Institutes (MFIs) needs to reduce interest rate and his observation for involving in the productive production process can reduce the interest rate.

Rabobank at Netherlands works as a co-operative bank providing access to financial services for small farmers and offering a secure option for savings to the local community which may create an example for our country. Ngalemwa(2013) suggestion can be followed as village Community Banks (VICOBA) have benefited people in reducing their income poverty by playing an important role in enabling the poor to save and access credits Employment opportunities with economic growth must be ensured at the formal sector for which informal sector should be replaced by formal sector. Sustainable development goals can be attained successful utilization of micro savings to saving-investment channelizing and adding value at global value chain.

Limitations of the Study

The study is developed theoretically. Though with some co-authors in another paper we tried to test only two villages of the country. But to formulate the theory it needs more empirical tests not only Bangladesh but outside the country. If it is found workable than implementation of the theory into real life scenario is to be needed for which policy makers may take proper steps to implement.

Concluding Remarks

Social networking and community banking may be applied for transforming micro savings to micro investment through creating social capital. This will also help to transfer to formal sector from informal sector. Employment opportunity accompanied with economic growth should be raised in the formal sector. This will help to attain equitable growth, social justice and removing income inequality. If we cannot take the benefits of demographic dividend then it may transform to demographic bomb. Actually financial inclusion is feasible thorough arranging community banking under regulatory measures otherwise it may create a disorder. As present government of the country is pro people so they need to take initiative to arrange community banking with a separate and strong regulator and reducing percentage of informal sector to formal sector. Emotional intelligence should be used to judge people and to empower themselves. This will also help to attain some goals of sustainable development goal. Social welfare and grand utility will be tangent when equitable distribution can be attained. As such micro savings must be transformed to micro investment both rural and slum dwellers of

the urban area. However, service charges and cost of transaction of the community banking must be kept very low so that the compensation criteria provided by the Hicks, Kaldor and Scitovsky. Macroeconomic stabilization depends on successful implementation of investment and positive return on investment. Situation of the Gini coefficient ought to improve so that social justice and equitable distribution can be arranged and removing income inequality can be attained in the country. Empowerment of people may arrange the aforesaid situation to attain. Virtually to have dynamic economic situation along with people's welfare may be attained through converting collecting savings and channeling it in the investment procedure for which shall deposit can also help and as such a spate regulator is needed before establishing community banking. Multilevel marketing (MLM) companies should not be permitted to work as they are working without any legal status and doing fraud. Systematic procedure and legal status for community banking should be developed which will replace current agent banking system also. To implement sustainable development goal there is no other alternative but to creative alternative banking system in the rural areas so that poor people can not only save but also interested to invest in the local level planning process for which employment can be generated. As such productive investment through social entrepreneurship in the rural areas and changing the structure of the rural economic dynamics is very much important to add value in the domestic and global value chain with efficiency and effectiveness. Social education is also work as an important component to come out from the vicious circle of poverty.

Future Research Direction

The theory which is in a process of development by Ali (2016) on Social networking, community banking and empowerment of people may be empirically tested in different countries of the world and also at Bangladesh by various researchers to give a structural formation considering cost-benefit analysis, shadow pricing, validation and reliability of the theory in the real life scenario both global and domestic perspectives with a request to inform the result to the author. Moreover, can adding in this model if researchers can check the relationship among the variables of this model by using regression technique or SEM or factor analysis, then this theory can add more contribution towards research. To test this theory in real life in a greater extent huge monetary and time factor is also being needed.

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বাংলাদেশের জন্য মুদ্রাস্ফীতির লক্ষ্যভিত্তিক মুদ্রানীতি প্রণয়ন শুরু করা যায় কিনা?

মোহাম্মদ মহিদুল ইসলাম*

সারকথা: *অর্থনৈতিক মন্দাসহ নানারূপ বৈশ্বিক অভিঘাতের মধ্যেও বাংলাদেশের অর্থনীতি বেশ কয়েক বছর ধরে আশানুরূপ সাফল্য দেখাচ্ছে। বাংলাদেশ সহস্রাব্দ উন্নয়ন লক্ষ্যসমূহ সাফল্যের সাথে অর্জনের মাধ্যমে টেকসই উন্নয়ন লক্ষ্যসমূহ অর্জনের পথে যাত্রা শুরু করেছে। সম্প্রতি দেশ স্বল্পোন্নত অর্থনীতি হতে উন্নয়নশীল অর্থনীতিতে প্রবেশ করেছে। এছাড়াও, বিভিন্ন অর্থনৈতিক নির্ণায়কের মধ্যে উল্লেখযোগ্য প্রবৃদ্ধি লক্ষ্য করা যাচ্ছে, শুধুমাত্র মুদ্রাস্ফীতির ক্ষেত্রে কিছুটা ব্যতিক্রম পরিলক্ষিত হচ্ছে যদিও মুদ্রাস্ফীতি সাম্প্রতিক কালে কম উঠা-নামাসহ ৬ শতাংশের নিচে অর্থাৎ সহনীয় পর্যায়ে রয়েছে। বর্তমানে, বাংলাদেশের কেন্দ্রীয় ব্যাংক তথা বাংলাদেশ ব্যাংক আর্থিক লক্ষ্যভিত্তিক মুদ্রানীতি প্রণয়ন করে থাকে। টেকসই উন্নয়ন এবং মূল্য স্থিতিশীলতা অর্জনের লক্ষ্য সঠিকভাবে পূরণের নিমিত্তে প্রয়োজনীয় প্রাতিষ্ঠানিক সক্ষমতা অর্জনপূর্বক কেন্দ্রীয় ব্যাংক মুদ্রাস্ফীতির লক্ষ্যভিত্তিক মুদ্রানীতি প্রণয়নের কার্যক্রম শুরুর বিষয়ে ইতিবাচক চিন্তা করতে পারে।*

শেষ দুই দশক জুড়ে বিশ্বের কিছু কিছু উদিয়মান অর্থনীতির দেশসহ অনেক উন্নত দেশ মুদ্রাস্ফীতির লক্ষ্যভিত্তিক মুদ্রানীতি প্রণয়ন শুরু করেছে। এটা সর্বজন স্বীকৃত যে, মুদ্রাস্ফীতি নিয়ন্ত্রণের মাধ্যমে মূল্য স্থিতিশীলতা রক্ষা করাই কেন্দ্রীয় ব্যাংকের মুদ্রানীতি প্রণয়নের প্রাথমিক লক্ষ্য। আর মুদ্রাস্ফীতির লক্ষ্যভিত্তিক মুদ্রানীতি প্রণয়ন এমন একটি পদ্ধতি যেখানে কেন্দ্রীয় ব্যাংক তার মেধাকে কাজে লাগিয়ে নীতি সুদের হার সমন্বয়ের মাধ্যমে পূর্বাভাসকৃত মুদ্রাস্ফীতিকে, মুদ্রাস্ফীতির লক্ষ্যমাত্রার কাছাকাছি রাখতে সক্ষম হয়। এই পদ্ধতির কিছু মৌলিকত্ব আছে, যা কেন্দ্রীয় ব্যাংকের লক্ষ্যের দায়িত্বশীলতা এবং বিশ্বাসযোগ্যতা প্রতিষ্ঠার দ্বারা আর্থিক লক্ষ্য যেমন দীর্ঘমেয়াদী মূল্য স্থিতিশীলতা এবং স্বল্পমেয়াদী কম মুদ্রাস্ফীতির সাথে আরো সম্পৃক্ততার মাধ্যমে মুদ্রানীতিকে অধিকতর ব্যবহারিক করে তুলতে পারে।

শুরুর দিকে শুধু উন্নত দেশগুলো মুদ্রাস্ফীতির লক্ষ্য ভিত্তিক মুদ্রানীতি প্রণয়ন শুরু করেছিল, কিন্তু মূল্য স্থিতিশীলতায় অধিক কার্যকারী হওয়ায় উদিয়মান অর্থনীতি এবং উন্নয়নশীল দেশ জুড়ে ব্যাপকভাবে এটির ব্যবহার শুরু হয়েছে। নিউজিল্যান্ড ১৯৯০ সলে প্রথম এই পদ্ধতিতে মুদ্রানীতি প্রণয়ন শুরু করে এবং

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* যুগ্ম-পরিচালক, বাংলাদেশ ব্যাংক, E-mail:mmistatcu@gmail.com

পরবর্তীতে ১৯৯১ সালে ব্যাংক অব কানাডা ও ইসরায়েল, তারপর ১৯৯২ সালে ব্যাংক অব ইংল্যান্ড মুদ্রাস্ফীতিকে লক্ষ্য করে মুদ্রানীতি প্রণয়ন শুরু করে। একই ভাবে ১৯৯৮ সালে চেক রিপাবলিক ও কোরিয়া এবং ১৯৯৯ সালে ব্রাজিল, পোল্যান্ড ও কলাম্বিয়া এর প্রচলন শুরু করে। এই ধারাবাহিকতায় ২০০০ সালে দক্ষিণ আফ্রিকা এবং থাইল্যান্ড এই পদ্ধতিতে মুদ্রানীতি প্রণয়ন করা আরম্ভ করে। প্রতিবেশী দেশগুলোর মধ্যে ভারত ২০১৫ সালের শুরুর দিকে এর প্রচলন শুরু করে।

আইনগত বাধ্যবাধকতার অধীনে, বাংলাদেশ ব্যাংক একটি বিস্তৃত বিনিয়োগ এবং সমন্বিত প্রবৃদ্ধি অর্জনের লক্ষ্যে আর্থিক কাঠামোতে অভ্যন্তরীণ ঋণ প্রবাহের পর্যাপ্ত স্থান রাখার মাধ্যমে মাঝামাঝি মুদ্রাস্ফীতির সাথে মূল্য স্থিতিশীলতা অর্জনে কাজ করে থাকে। এই ক্ষেত্রে কেন্দ্রীয় ব্যাংক মুদ্রাস্ফীতির উপরে প্রবৃদ্ধিকে বেশী গুরুত্ব দেয়, যতক্ষণ পর্যন্ত মুদ্রাস্ফীতি গ্রহণযোগ্য পর্যায়ে থাকে। তবে, বাংলাদেশের অর্থনীতি চাহিদা এবং সরবরাহ উভয় দিক হতে অনেক বাধার সম্মুখীন হচ্ছে। বিশ্ব বাজারে তেলের মূল্যের ক্রমাগত উঠানামা দেশীয় বাজারে সাধারণ মূল্য স্তরে অস্থিরতার প্রতিফলন ঘটাচ্ছে। এছাড়াও, শিল্প খাতে পর্যাপ্ত পরিমাণ কর্মসংস্থানের সুযোগ সৃষ্টি না হওয়ায় শ্রমশক্তির একটি উল্লেখযোগ্য অংশ প্রতিবছর বেকার থেকে যাচ্ছে।

বাংলাদেশ ব্যাংক আউটপুট বৃদ্ধি এবং মূল্য স্থিতিশীলতার লক্ষ্যে মুদ্রা সরবরাহ বা ব্রড মানির সামঞ্জস্যপূর্ণ বৃদ্ধির মাধ্যমে আর্থিক লক্ষ্যভিত্তিক পদ্ধতিতে মুদ্রানীতি প্রণয়ন করে থাকে। বাংলাদেশের মুদ্রানীতির মধ্যবর্তী লক্ষ্য হল রিজার্ভ মানির সামঞ্জস্যপূর্ণ বৃদ্ধির দ্বারা মুদ্রা গুণক প্রভাবের মাধ্যমে ব্রড মানির সংশ্লেষণ করা, যেখানে রিজার্ভ মানির বৃদ্ধিকে একটি কার্যকরি লক্ষ্য হিসেবে ধরা হয়। রাজস্ব ঘাটতিতে সহায়তা প্রদানের জন্য কেন্দ্রীয় ব্যাংকের উপর সরকারের চাপের কারণে রিজার্ভ মানির আয়তন প্রায়ই তার লক্ষ্যমাত্রাকে ছাড়িয়ে যায়। এর প্রেক্ষিতে কোন কোন ক্ষেত্রে বলা যায় দেশের মুদ্রানীতি এতটা কার্যকর নয়। দেশের সরকার এবং আর্থিক কর্তৃপক্ষকে অন্ততপক্ষে এই ক্ষেত্রে একমত হওয়া উচিত যা একই সময়ের মধ্যে মূল্য স্থিতিশীলতা, টেকসই প্রবৃদ্ধি বজায়, কর্মসংস্থান সৃষ্টি জোরদার এবং বিনিময় হার স্থিতিশীল করতে পারে।

সম্প্রতি দেশের অর্থনীতিতে মূল্য স্থিতিশীলতা সবচেয়ে বেশী আলোচিত বিষয় হয়ে দাঁড়িয়েছে, শুধু মূল্য স্তরের পরিবর্তন ছাড়া সমষ্টিক অর্থনীতির অন্যান্য নিয়ামকসমূহ অনেক বেশী আশাবাদী চিত্র দেখাচ্ছে। পয়েন্ট টু পয়েন্ট মুদ্রাস্ফীতি ৫ থেকে ৭ শতাংশ পরিসরে অস্থিরভাবে উঠানামা করছে, যেখানে মুদ্রাস্ফীতির অস্থির উঠানামার বিপরীতে অন্যান্য সামষ্টিক অর্থনীতির নিয়ামকসমূহের অনেকটাই ঝুঁকিমুক্ত প্রবণতা লক্ষ্য করা গেছে। প্রকৃত অর্থনীতির ক্রমবর্ধমান বিস্তার এবং বৈদেশিক মুদ্রা রিজার্ভের পরিমাণ বৃদ্ধি সামগ্রিকভাবে মুদ্রাস্ফীতির লক্ষ্যভিত্তিক মুদ্রানীতি প্রণয়নের সুযোগ তৈরী করেছে। মুদ্রাস্ফীতির লক্ষ্য, একটি নির্ভরযোগ্য পন্থা উদ্ভাবনের মাধ্যমে মুদ্রানীতির দ্বারা অভ্যন্তরীণ চাহিদার প্রতিফলন ঘটায় এবং যার মাধ্যমে অভ্যন্তরীণ অর্থনীতিতে যেকোন আঘাতকে প্রতিহত করা যায়। মুদ্রাস্ফীতির লক্ষ্য মূলত মুদ্রাস্ফীতির অভিঘাতগুলোর বিবেচনায় ঐক্যান্তিক মূল্য আন্দোলনকে প্রকাশ করে।

মুদ্রাস্ফীতির লক্ষ্যভিত্তিক পদ্ধতি সঠিকভাবে প্রতিষ্ঠা করা জন্য মুদ্রানীতির বিভিন্ন ইস্ট্রুমেন্টসমূহ ব্যবহারে যথেষ্ট বিশ্বাসযোগ্যতাসহ কেন্দ্রীয় ব্যাংকের পরিপূর্ণ স্বাধীনতা থাকতে হবে, যার ফলে কেন্দ্রীয় ব্যাংক সরকারের বাজেট ঘাটতি মেটানোর নূন্যতম ঝুকিতে থাকবে। রাজস্ব ঘাটতিতে আর্থায়ন এই অর্থে খুবই বিপদজনক যে উচ্চ ঘাটতি উচ্চ মুদ্রাস্ফীতি আনে, যা সুদের হার বাড়ায় এবং পরিশেষে অধিক ঋণ

পরিষেবা প্রদান করতে হয় বলে ঘাটতি আরো বেড়ে যায়। অধিকাংশ মন্তব্য থেকে এই প্রমাণ পাওয়া যায় যে, মুদ্রাস্ফীতির লক্ষ্যভিত্তিক মুদ্রানীতির সফল বাস্তবায়নের জন্য আর্থিক আধিপত্যের পরিহার প্রয়োজন।

বৃহৎ আকারের বাহ্যিক অভিঘাতসমূহের উপস্থিতি যাদেরকে বহিরাগত কর্তৃত্ব বলা হয়, যা অর্থনীতিকে আরো অস্থির করে তুলতে পারে এবং মুদ্রাস্ফীতির লক্ষ্য অর্জনকে বাধাগ্রস্থ করতে পারে। মুদ্রাস্ফীতির লক্ষ্যভিত্তিক দেশসমুহের ক্ষেত্রে সাধারণ বিবেচ্য বিষয় যে এদের আন্তর্জাতিক বাণিজ্য অনেকটাই খোলা থাকে এবং তুলনামূলক কম আর্থিক ঋণ থাকে। যদি রপ্তানির অর্জন আমদানির জন্য প্রদানের চেয়ে কম হয় তখন অর্থনীতি বহিরাগত অভিঘাত দ্বারা কম ঝুঁকিপূর্ণ। এইসব ক্ষেত্রে একটি নির্দিষ্ট বিনিময় হার পদ্ধতি পরিচালনা করা অনেক কষ্টকর। সে ক্ষেত্রে ভাসমান বিনিময় হার পদ্ধতিতে রূপান্তরিত হওয়াটাই সর্বোত্তম বিকল্প। যাই হোক, কিছু ক্ষেত্রে, এই পন্থা মুক্ত বাণিজ্য এবং মুদ্রাস্ফীতির লক্ষ্যমাত্রা একত্রীকরণের মধ্যে উল্লেখযোগ্য বন্ধন অনুধাবনে ব্যর্থ হয়।

আরেকটি প্রধান বিষয় হলো যে, মুদ্রাস্ফীতির লক্ষ্যভিত্তিক পদ্ধতিতে একটি সক্রিয় অংশগ্রহণকারী এবং সামঞ্জস্যপূর্ণ আর্থিক ব্যবস্থা থাকতে হবে, যা সার্বভৌম ও দক্ষ কর্মক্ষমতা নিয়ে কাজ করতে পারে। যদি আর্থিক খাত আর্থিক সংকট দ্বারা ঝুঁকির মধ্যে থাকে, তবে এটি স্বাধীন মুদ্রানীতি তৈরীর ক্ষেত্রে বৈষম্যের সৃষ্টি করতে পারে। উন্নয়নশীল অর্থনীতিগুলি প্রায়ই অপর্যাপ্ত স্থিতিশীল আর্থিক ব্যবস্থার মধ্যে থাকে এবং এই অবস্থায় মুদ্রাস্ফীতির লক্ষ্যভিত্তিক কাঠামো কার্যকর করা বেশ ঝুঁকিপূর্ণ। অপরিপক্ক আর্থিক বাজার ক্ষুদ্র বিনিয়োগকারীদের আস্থার অভাবকে প্রভাবিত করে। শেয়ার বাজারে মূল্য সূচকের ক্রমাগত উঠানামা অপেশাদার বিনিয়োগকারীদের মধ্যে ভীতির সঞ্চার করে। এ ধরণের অপ্রত্যাশিত ঘটনাগুলি উদিয়মান অর্থনীতিসহ উন্নয়নশীল দেশগুলোতে ঘন ঘন ঘটে থাকে।

যাই হোক, মুদ্রাস্ফীতির লক্ষ্যভিত্তিক কাঠামোতে, নীতি ইন্সট্রুমেন্ট হিসেবে স্বল্পমেয়াদী নামমাত্র সুদের হার ব্যবহার করা জরুরি। কেন্দ্রীয় ব্যাংককে এমন একটি সুদের হার ঠিক করতে হবে, যা মূল্য এবং উৎপাদনশীলতার ভারসাম্যের মাধ্যমে অর্থনৈতিক স্থায়িত্বকে প্রভাবিত করতে পারে। স্বল্প মেয়াদী নামমাত্র সুদের হারকে সংশোধন, মুদ্রাস্ফীতির লক্ষ্যভিত্তিক পদ্ধতিতে নোঙরকৃত ভূমিকা পালন করে থাকে। অধিক মুদ্রাস্ফীতির চাপে আর্থিক কর্তৃপক্ষ যদি নামমাত্র সুদের হার অধিক হারে বাড়ায়, যা প্রকৃত সুদের হারকে বৃদ্ধি করবে, এইভাবে চাহিদা কমবে এবং অতঃপর মুদ্রাস্ফীতি কমবে। মূলত, অর্থনীতি যখন তার নিজস্ব বলয়ে চলে, তখন নামমাত্র সুদের হার বৃদ্ধির মাধ্যমে চাহিদা আপনি আপনি কমে যায়।

যদিও মুদ্রাস্ফীতির লক্ষ্যভিত্তিক মুদ্রানীতি প্রণয়নে যে সকল প্রয়োজনীয় সামর্থসমূহ থাকা দরকার তার সবগুলি বাংলাদেশ অর্থনীতিতে বিদ্যমান নাই, কিন্তু দেশের অর্থনীতিতে এমন কিছু উল্লেখযোগ্য দিক রয়েছে যার ফলে অর্থনীতি এই পদ্ধতিতে মুদ্রানীতি প্রণয়নের দিকে এগুতে পারে। উন্নয়নশীল দেশের প্রেক্ষাপটে কেন্দ্রীয় ব্যাংক এর স্বাধীনতা নিশ্চিত করা অনেকটাই কঠিন, তবে অনেক ক্ষেত্রেই যেমন প্রশাসনিক এবং অভ্যন্তরীণ নীতিমালা প্রণয়নের বিষয়ে বাংলাদেশের কেন্দ্রীয় ব্যাংক সন্তোষজনক স্বাধীনতা ভোগ করে থাকে। মুদ্রানীতিকে অধিক যুক্তিযুক্ত করতে বাংলাদেশ ব্যাংক প্রয়োজনমত তার নীতি ইন্সট্রুমেন্টসমূহের স্বাধীন ব্যবহারের পর্যাপ্ত সুযোগ রয়েছে। কোন দেশের মুদ্রাস্ফীতি ধারাবাহিক ভাবে ৫ শতাংশের কাছাকাছি থাকলে, সেখানে মুদ্রাস্ফীতির লক্ষ্যভিত্তিক মুদ্রানীতি প্রণয়নের উপযুক্ততা আছে বলে বিভিন্ন গবেষণামূলক প্রবন্ধ থেকে প্রমাণ পাওয়া যায়। যদিও বাংলাদেশের মুদ্রাস্ফীতি পুরোপুরিভাবে ৫ শতাংশের কাছাকাছি নেই, তবে তা কম উঠানামাসহ বেশ কিছুদিন যাবত ৬ শতাংশের নিচে আছে।

বাস্তবতার নিরিখে এই অবস্থা এটা প্রকাশ করে যে বাংলাদেশের অর্থনীতি বিভিন্ন প্রকৃত আর্থিক নিয়ামকসমূহের আশাপ্রদ আচরণের মাধ্যমে একটি প্রতিশ্রুতিশীল অবস্থানে রয়েছে।

২০০৩ সালের মে মাসে বাংলাদেশ মুক্ত-ভাসমান বৈদেশিক বিনিময় হার চালুর পর, সাম্প্রতিক সময়ে বাংলাদেশ কম অপ্রত্যাশিত বিনিময় হার প্রদর্শন করছে; এখানে কেন্দ্রীয় ব্যাংক কর্তৃক বৈদেশিক মুদ্রার বাজারে উল্লেখযোগ্য হস্তক্ষেপের মাধ্যমে দেশ মূলত পরিচালিত ভাসমান বিনিময় হার পদ্ধতি অনুশীলন করছে। মুদ্রাস্ফীতির লক্ষ্যভিত্তিক মুদ্রানীতি সম্পর্কে প্রথাগত ভাবে এই ধারণা প্রচলিত আছে যে, এটি বিনিময় হারের উচ্চতর পরিবর্তনশীলতাকে উদ্দীপিত করে, কারণ এই পদ্ধতি গার্হস্থ্য মুদ্রার মান স্থিতিশীল রাখতে বেশী মনোনিবেশ করে। কিছু ক্ষেত্রে ব্যবহারিকভাবে এর ভিন্নরূপ পাওয়া যায়। ভাসমান বিনিময় হার পরিচালিত কোন দেশে মুদ্রাস্ফীতির লক্ষ্যভিত্তিক মুদ্রানীতি প্রবর্তন পূর্বের তুলনায় বিনিময় হারের পরিবর্তনশীলতাকে কমিয়ে দিতে পারে।

মূল্য স্থিতিশীলতা এবং টেকসই প্রবৃদ্ধির সামষ্টিক অর্থনৈতিক লক্ষ্য মুদ্রাস্ফীতির লক্ষ্যভিত্তিক মুদ্রানীতির সঠিক প্রয়োগের মাধ্যমে অর্জিত হতে পারে। বিশেষত, উন্নত বা শিল্পায়িত অর্থনীতিগুলো মুদ্রানীতির এই পদ্ধতির বেশ সুবিধা অর্জন করেছে, কিন্তু কিছু উন্নয়নশীল দেশ ছাড়া বাকীরা এই পদ্ধতির সঠিক ব্যবহার নিশ্চিত করতে পারে নাই। বাংলাদেশ ব্যাংক দেশের আর্থিক কর্তৃপক্ষ হিসেবে বিবেচ্য বিচক্ষণতার সঙ্গে মুদ্রানীতি প্রণয়নের চেষ্টা করে থাকে। পর্যাপ্ত স্বাধীনতার অভাব তথা মুদ্রানীতির উপর আর্থিক আধিপত্যের কারণে মুদ্রানীতি প্রণয়ন ও বাস্তবায়নে যদিও উল্লেখযোগ্য সফলতা অর্জন করা সম্ভবপর হয়ে উঠে নাই। এ সব কিছু বাদে, বাংলাদেশের অর্থনীতিতে মুদ্রাস্ফীতির লক্ষ্যভিত্তিক মুদ্রানীতির প্রণয়নের বিষয়ে অনেক অনুকূল বৈশিষ্ট্য রয়েছে যা অনেক মুদ্রাস্ফীতির লক্ষ্যভিত্তিক মুদ্রানীতি প্রণয়নকারী দেশেও উপস্থিত নাই।

মুদ্রাস্ফীতির লক্ষ্যভিত্তিক কাঠামোর কিছু অসুবিধা আছে। প্রকৃতপক্ষে, এই কাঠামোতে মুদ্রাস্ফীতি নিয়ন্ত্রণের কোন সঠিক পদ্ধতি নেই, কারণ মুদ্রাস্ফীতি এবং নীতি ইন্সট্রুমেন্টসমূহের মধ্যে সর্বদা সময়ের পার্থক্য থেকে যায়। যার ফলে, অনেক সময় মুদ্রাস্ফীতির লক্ষ্যভিত্তিক মুদ্রানীতি অংশিজনদের সঠিক বার্তা সরবরাহ করতে অক্ষম হয়। এই ক্ষেত্রে, কেন্দ্রীয় ব্যাংকের জবাবদিহিতা সম্পর্কে গুরুতর প্রশ্ন উত্থাপিত হতে পারে। যার কারণে, কেন্দ্রীয় ব্যাংক সরকারের রাজস্ব কর্তৃত্ব থেকে বের হতে পারে না, কেননা এটি সরকারের আর্থিক শৃঙ্খলা নিশ্চিত করতে ব্যর্থ হয়। রাজনৈতিক ভাবে প্রভাবিত রাজস্ব নীতি সরকারের রাজস্ব ঘাটতিকে অনেক বাড়িয়ে দেয়, যা মুদ্রাস্ফীতির লক্ষ্যভিত্তিক মুদ্রানীতি কাঠামোর মধ্যেও উচ্চ মুদ্রাস্ফীতিকে উদ্দীপিত করতে পারে। তাছাড়া, মুদ্রাস্ফীতির লক্ষ্যভিত্তিক পদ্ধতির কিছু সমালোচনা আছে যে, এটি নিম্নমুখী উৎপাদনশীলতার মাধ্যমে কম প্রবৃদ্ধিকে প্রভাবিত করে। সীমাবদ্ধতা থাকা সত্ত্বেও, বিশ্বজুড়ে মুদ্রাস্ফীতির লক্ষ্যভিত্তিক মুদ্রানীতি প্রণয়নের জনপ্রিয়তা আশ্চর্যজনকভাবে বাড়ছে।

সাম্প্রতিককালে, বাংলাদেশ সহস্রাব্দ উন্নয়ন লক্ষ্য অর্জনে সমন্বিতভাবে প্রবৃদ্ধির গতি বৃদ্ধি এবং দারিদ্র বিমোচনে উল্লেখযোগ্য সাফল্য দেখিয়ে টেকসই উন্নয়ন লক্ষ্য অর্জনের পথে যাত্রা শুরু করেছে। ২০১৮ সালে দেশ স্বল্পোন্নত অর্থনীতি হতে উন্নয়নশীল অর্থনীতিতে প্রবেশের প্রক্রিয়ায় উন্নিত হয়েছে। এই অবস্থায়, মূল্য স্থিতিশীলতা রক্ষা করতে না পারলে প্রবৃদ্ধির গতিশীলতার মাধ্যমে দারিদ্র বিমোচনের লক্ষ্যমাত্রায় পৌঁছানো সম্ভবপর হবে না। উপরোক্ত আলোচনার প্রেক্ষিতে এই কথা বলা যায় যে, বাংলাদেশের কেন্দ্রীয় ব্যাংকের মুদ্রাস্ফীতির লক্ষ্যভিত্তিক মুদ্রানীতি প্রণয়ন শুরু করার যথেষ্ট সুযোগ

রয়েছে, তবে তার আগে কেন্দ্রীয় ব্যাংককে প্রণীত নীতির বা সিদ্ধান্তের বিশ্বাসযোগ্যতা প্রতিষ্ঠা করতে হবে এবং এরপরই সিদ্ধান্ত নিতে হবে যে এই পদ্ধতিতে মুদ্রানীতি প্রণয়ন শুরু করবে কি করবে না। মোট কথায়, কেন্দ্রীয় ব্যাংককে একটি তথ্যভিত্তিক সাংগঠনিক পুণর্গঠনের মধ্য দিয়ে যেতে হবে যাতে করে কেন্দ্রীয় ব্যাংক একটি পরিষ্কার এবং বিশ্বাসযোগ্য কেন্দ্রীয় ব্যাংকের মর্যদা অর্জন করতে পারে। একই সাথে, কেন্দ্রীয় ব্যাংকের ভবিষ্যতের আউটপুট বৃদ্ধির সাথে সংগতি রেখে প্রত্যাশিত মুদ্রাস্ফীতি অনুমান করার জন্য গতিশীল অর্থনৈতিক মডেলিং ব্যবহারপূর্বক ভবিষ্যতের মুদ্রাস্ফীতির হার পূর্বাভাসের সক্ষমতা থাকতে হবে।

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Book Review

Abul Barkat, Md. Badiuzzaman, Rowshan Ara,
M. Taheruddin and Farid M Zahid (2008)
Political Economy of Madrassa Education in Bangladesh:
Genesis, Growth and Impact, **Dhaka: Ramon Publishers**

LAMIA ISLAM[*]

In this book, Abul Barkat and his coauthors explores, most likely for the first time, the various unexplored areas of political economy of madrassa education system in Bangladesh. The authors have focused on the political economy of the education system by analyzing the historical background of madrassa education, the increase of madrassas along with number of students and teachers overtime and projected numbers upto year 2050, the reasons for such increases (by types of madrassa – Alia and Quomi); the socio-economic background of teachers and students; the administrative and financial management systems; curricula; female students, the causes for sending children to madrassas and so on. A comparative analysis of the mainstream and madrassa education system has been done in the book. Besides, the book has highlighted the risk factors which are responsible for the rise of religion-based fundamentalism and extremism associated with madrassa education.

The authors have discussed about the four streams (General education, technical education, madrassa education and English medium education) of the education system in Bangladesh. They have mentioned that the curriculum, pedagogical methodology, behavior, educational standards of the teachers etc. are quite distinctive from one stream to another. As a result, these divisions cause stratification of education that causes rise to a discriminatory society instead of creating an egalitarian one.

[*] Lamia Islam, MSS, is an Assistant Professor in Department of Political Science at Jagannath University of Dhaka.

The Madrassa education system is discussed in the book as one of the ancient education systems in the Indian sub-continent which has strong social and religious identity. The authors have mentioned *forqania, hafezia and maktab* (naurani madrassas) as Quami Madrassas and *Ebtedayee* Madrassas as Aliya Madrassas. There are three distinct levels of madrassas; these are: primary, secondary and above secondary levels. After the partition of India in 1947, this education system got state patronization which was a new phase of educational development. Besides, it needs to mention that the authors have found the highest growth rate of madrassas during the military regimes of President Ayub Khan (1958-1969), President Ziaur Rahman (1976-1981) and President H. M Ershad (1982- 1990). The main reasons for the highest growth of madrassas during the military autocratic rulers are the establishment of religious political parties, change in state policies, encouragement of madrassa education and so on.

Every year a significant number of students are enrolled in madrassass of Bangladesh. The authors deeply observed that the highest numbers of students in the Alia madrassas are studying at the secondary level (Dakhil Madrassas) whereas the maximum students of the Quomi madrassas are enrolled at the primary level (hafezia, forqania, norani and other types of maktabs). Moreover, it is mentioned in the book that students' enrollment in both of Aliya and Quomi madrassas in rural areas is larger than that of urban areas. In addition, the female students are very few in number compared to male students in both categories of madrassas. The authors discerned that many of the female madrassa students believe in women empowerment. It is noticeable that Quomi madrassas do not pay attention to the women's empowerment and their role in economic and social development.

While examining the socio-economic status of the students, the authors ascertained that maximum madrassa students belong to large household which is higher than national average. Most of the students' household members have formal education and their occupations are farming, teaching, salaried jobs, petty trading, wage labor, business, housewife and students. The authors reported that a predominant part of the students are from poor and lower middle class family. The authors noticed that a major portion of the students' households are absolute poor (Calorie intake less than 2122 kilo calorie per day) whereas one third students are from hardcore poor (Calorie intake less than 1805 kilo calorie per day).

Furthermore, the authors have mentioned that although general subjects are included in the madrassa curriculum of both Aliya and Quomi madrassas besides religious subjects, the maximum students prefer to study Hadiths and Tafsir rather

than Geography, Economics and so on. In this regard, female students are less interested than male students to study general subjects. Likewise, Quomi madrassa students prefer religious subjects to general subjects than the students of Aliya Madrassas. It is noticeable that the students of Aliya madrassas are more interested to complete their higher studies than that of Quomi madrassas. When asked about their ideal personalities, majority of them have chosen the leaders of religion based political parties of Bangladesh whereas a significant number of students have mentioned about national poet, Kazi Nazrul Islam as their ideal personality. A very few of them have chosen Poet Rabindranath Tagore, Bangabandhu Sheikh Mujibur Rahman and Sher-e-Bangla A.K Fazlul Haque as their role model. Apart from that, the authors have an interesting finding that the madrassa students are conscious about social problems and constitutional rights.

Also, the book envisages the socio-economic factors of the teachers of both Aliya and Quomi Madrassas. The authors highlight some problems of madrassa teachers, for instance, inadequate salary, lack of training, lack of specific rules for promotion and so on. These problems cause negative impact on their living standard. Although the teachers are economically insolvent, they are socially respected persons. Moreover, it is identified by the authors that majority of the teachers of both categories madrassas send their children to the mainstream educational institutions.

The authors have diagnosed the religious, economic and other related reasons for the demand of madrassa education. The parents of the students have mentioned that learning and promoting Islamic knowledge, easy way to after life (heaven), and connection with following Islam are the main religious reasons for sending their children to madrassas. Besides, high educational expense in the mainstream education, high unemployment rate of the mainstream education's graduates, study opportunities for orphan, destitute and physically challenged child are significant factors for the high demand of madrassa education. Moreover, difficulty to understand the course curriculum of general education, essence of religious and modern knowledge in madrassa education, scope of joining mainstream education easily are the other related reasons for sending children to madrassas.

The authors have tried to identify the problems of madrassa education system from the perspectives of teachers, students, members of governing bodies and distinguished persons. Limited scope of joining government services, inadequate skilled teachers, outdated curriculum, insufficient financial assistance from government, lack of science and commerce education, no arrangement for

vocational training, limited scope of extra-curricular activities, rise of fanaticism are the major problems of the madrassa education system.

Finally, the authors have analyzed the risk factors of the madrassa students to involve in militancy. They have mentioned that outdated curriculum of madrassa education is not connected with radicalism. Mainly, some domestic political actors use the religious capital and manpower of the madrassas for their own advantages. The authors have mentioned that the rise of Islam-based militancy is not linked to only madrassa education system but also many internal and external factors are responsible for that.

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1. The Bangladesh Journal of Political Economy will be published in June and December each year.

2. Manuscripts of research articles, research notes and reviews written in English or Bangla should be sent in triplicate to the Editor, The Bangladesh Journal of Political Economy, Bangladesh Economic Association, 4/c Eskaton Garden Road, Dhaka-1000, Bangladesh.

3. An article should have an abstract preferably within 150 words.

4. Manuscript typed in double space on one side of each page should be submitted to the Editor. Submission of electronic version is encouraged.

5. All articles should be organized generally into the following sections: a) Introduction: stating the background and problem; b) Objectives and hypotheses; c) Methodological issues involved; d) Findings; e) Policy implications; f) Limitations, if any; and g) Conclusion (s).

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- Start with the full reference entry with the last name of the chapter's author, followed by initials, then state year of publication.
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(Cite the name of the writer of the chapter or section in the edited book).

Full reference:

NICHOLLS, G. (2002). Mentoring: the art of teaching and learning. In P. JARVIS (Ed.) *The theory and practice of teaching,* chap. 12. London: Kogan Page.

iii.   Referencing journal articles

- Start with the last name of the author of the article and initials of author.
- Year of publication.
- Title of article (this can go in inverted commas, if wished).

- Name of the journal or magazine (in italics or underlined).

- Volume number and part number (if applicable) and page numbers.

References to journal articles dojroMnclude the name of the publisher or place of **publication** unless there is more than one journal with the same title, e.g. ***International Affairs (Moscow)*** *and* ***International Affairs*** (London).

Example

Citation:

(Bosworth and Yang 2000).

Reference:

BOSWORTH, D. and D. YANG (2000). Intellectual property law, technology flow and licensing opportunities in China. **Internationa! Business Review,** vol. 9, no. 4, pp.453-477.

The abbreviations, 'vol.' (for volume), 'no.' (for number) and 'pp' (for page numbers) can be omitted. However for clarity and to avoid confusing the reader with a mass of consecutive numbers, they can be included, but be consistent. Note how, in the example above, the initials of the first author follows his last name (Bosworth, D.), but precede the second named (D. Yang). This is the practice illustrated by British Standard in their guidelines with Harvard and both numerical-referencing styles, although you may find the guidelines at your institution may differ on this point.

iv. Example of referencing an electronic source

Example

Citation:

(Djxons Group 2004)

Reference:

D1XONS GROUP PLC (2004). ***Company report: profile.*** [Accessed online from Financial Analysis Made Easy (FAME) database at http://www.bvdep.com/en/FAME. html 13 Dec. 2005].

13. Reference mentioned in the text should be arranged in alphabetical order and provided at the end of the article.

14. The Bangladesh Economic Association shall not be responsible for the views expressed in the article, notes, etc. The responsiblity of statements, whether of fact or opinion, shall lie entirely with the author. The author shall also be fully responsible for the accuracy of the data used in his/her manuscript.

15. Articles, not accepted for publication, are not returned to the authors.

16. Each author will receive two complimentary copies of The Bangladesh Journal of Political Economy and 25 off-prints.