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Editorial Note

I am delighted to publish the volume (13, No. 1) of the *Journal of Business Studies (JBS)*. JBS publishes interdisciplinary theoretical and empirical research papers spanning all the major research fields in business and economies. The aim of the *Journal of Business Studies (JBS)* is to provide an outlet for the increasing flow of scholarly research on contemporary business issues. Emphasis in the Journal is given on the theoretical developments and their implementations, empirical, applied, and policy-oriented research in business areas. The purpose of this journal is to improve the communications within the research communities, policy and operational decision makers at both private and public business sectors at national and international levels.

The editorial board is excited to present this issue which carries a varied range of submissions. The faculty has always been offering an intellectually rewarding and effective academic curriculum to the potential planners, business leaders and strategic thinkers of the future. To disseminate the research works in a greater scale, this issue is going to our esteemed readers at home and abroad. Although, not all articles could have been included in this issue due to the limited space, but the volume of articles received stands testament of the embracement of research culture amongst faculty members.

The conception and planning of this issue is the outcome of hard work, commitment and dedication of the entire team. I have received utmost cooperation from both the members of the editorial board and faculty members in publishing this issue. I express my sincere thanks to the parties concerned for this issue.

Prof. Dr. Md. Humayun Kabir
Chief Editor
Journal of Business Studies
and
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Investigating Social and Environmental Reporting by DSE Listed Companies in Bangladesh

Mohammad Abu Sufian ¹
Md. Elias Hossain ²
Sadman Kabir ³

Abstract

In the recent years, common-purpose financial statements and reporting are found to be inadequate to fulfill the demands of stakeholders who want some non-financial information related to society and environment where corporations work. For increasing the level of accountability and providing intangible benefits for society, corporations generally disclose social and environmental information out of their social responsibility. However, question remains as to whether multinational companies are doing good for our society. Thus, this study aims at assessing the level of corporate social and environmental disclosure (CSED) of the companies and identifying the factors affecting their CSED. A checklist of 60 items has been used for scoring CSED status following a dichotomous procedure under unweighted approach from the annual reports of 10 multinational companies listed on DSE for the financial years 2014-2018. This study is based on resource dependency theory as reasons for managerial actions to engage in social and environmental issues. A multiple linear regression model has been employed to examine the association between CSED and its determinants. The descriptive results show that sample companies disclose 42 items on average. The study also finds significant negative correlation between CSED and total assets and leverage, and significant positive correlation between CSED and net profit margin, listing age and number of shareholders. The findings of the multiple regression analysis revealed that total assets, listing age and numbers of shareholders are the important determinants of CSED. It is suggested that policy makers should consider these factors of corporate social and environmental reporting while formulating further regulations.

Keywords: Corporation, Social and Environmental Disclosure, Sustainability Reporting, Unweighted Approach, Resource Dependency Theory

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1. Introduction

Corporate accountability and transparency has become an effective tool to prevent and protect financial crisis. In early days, corporations used to show their responsibilities by disclosing only financial information in their annual reports. With the changing global business environment, corporations have to discharge greater form of accountability by integrating non-financial information in corporate reporting to the variety of stakeholders covering social, environmental and governance issues. For many years, corporate social and environmental accounting and sustainability reporting have been emerged as attempts to ensure greater accountability (Stent & Dowler, 2015). Based on the extent of accountability and transparency, and the quality and materiality of the information, corporate social and environmental disclosure (CSED) is gradually becoming important to both professionals and academics. CSED is a part of integrated reporting practice that discloses information on economic, environmental, social and governance performance as per the guidelines provided by Global Reporting Initiatives (GRI) and ensures long term profitability with ethical behavior, social justice and environmental care. The Global Reporting Initiative (GRI) is an international network-based organization established in 1997 in USA, which introduced free corporate social and environmental disclosure (CSED) guidelines in 1999 for all companies and organizations to make corporate social and environmental disclosure (CSED) standard practices. CSED takes into account economic and social issues, labor practices, human rights, economic performance, community, society, corruption, corporate governance and responsibility of products and services (Khan, 2015). While sustainability reports are used to make information available to all stakeholders, integrated reporting helps organizations such as providers of financial capital, to combine relevant financial and corporate social and environmental information through a multi-stakeholder approach (Haldar, 2015).

Since the late 1990s after GRI initiatives, several research works (Mobus, 2005; Gray, Kouhy & Lavers, 1995) have been conducted on corporate social and environmental disclosure (CSED) in the developed country contexts from a number of theoretical perspectives such as classical political economy theory, stakeholder theory, institutional theory and legitimacy theory. In the Asian context, most of the CSED studies have been conducted in the developed or newly developed countries such as Japan, Singapore, and Malaysia (Ahmad & Sulaiman, 2004; Fukukawa & Moon, 2004). A number of studies devoted to corporate social responsibility, environmental accounting and green banking have been done separately over the issues without putting emphasis on any theoretical perspective (Khan & Jui, 2016; and Azim, Ahmed & Islam, 2009). The growing practice of CSED has been influenced by some key drivers such as business pressures from investors, competitors and consumers; regulatory pressures from governments and non-governmental organizations; and wave of globalization (Chapple & Moon, 2005). As a developing country, Bangladesh has neither adopted any guideline nor enacted any law for development of CSED practices. Thus, this practice is still voluntary in nature for Bangladeshi companies though Bangladesh Bank, the central bank of Bangladesh, has formulated Environmental Risk Management (ERM) guideline in 2011, which is

mandatory only for banks, not for all companies. The research works of Islam and Chowdhury (2016) on sustainability reporting got low level of compliance with GRI index as there is no such pressure groups active in Bangladeshi corporate culture.

Thus, there is significant lack of studies on this field, which provides a ground for motivation of doing research on corporate social and environmental reporting focusing on Bangladeshi listed companies. In this present study, an attempt has been taken to measure the extent of corporate social and environmental practices by multinational companies listed on Dhaka Stock Exchange (DSE). It also aims to explore the empirical relationship between CSED and the different factors affecting CSED of the sample companies. This study would be of immense value for the primary and secondary stakeholders, financial analysts, academics and researchers. It is found that most of the studies on corporate social and environmental disclosure are carried out in the context of developed countries and no extensive research work in this field has been done on Bangladeshi multinational companies focusing on resource dependency theory perspective. In this background, this study would contribute significantly to the existing stock of literature on sustainability reporting.

The rest of the paper is organized as follows. Section 2 provides a review of theoretical and empirical literature; Section 3 describes hypotheses development; and Section 4 outlined the methodology of the study. Section 5 reports the results and discussion; and finally, the conclusion is presented in Section 6.

2. Literature Review

There is a plethora of literature, both theoretical and empirical, which have been devoted to analyze corporate social and environmental reporting. In the today's corporate world, ensuring extended form of information, sustainability reporting, and integrated reporting practices are gradually becoming important to both professionals and academicians, that measures and discloses information relating to economic, environmental, social and governance performance of corporations as per the guidelines provided by Global Reporting Initiatives, 2006 (GRI). It is considered as the triple bottom line framework for reporting as it provides three-dimensional relationships among governance performance, social and environmental performance, and financial performance (Rahman & Barua, 2016). The reasons for reporting corporate social and environmental information come from different theoretical perspectives. CPA Australia (2019) suggests enlightened self-interest theory, stakeholder theory, institutional theory and legitimacy theory as a framework of CSR reporting, while Mehedi and Jalaludin (2020) mentioned that agency theory, political economy theory, stakeholder theory, institutional theory, legitimacy theory, resource dependency theory and resource-based view motivate corporations to engage in CSR activities and voluntary disclosure practices depending on study contexts and corporate attributes.

Bani-Khalid, Kouhy and Hassan (2016) considered stakeholder theory as the theoretical perspective for the purpose of explaining variations in CSED practices and its determinants in the manufacturing sector of Jordan. On the other hand, Ali and Rizwan (2013) selected institutional theory as a framework for explaining the reasons of disclosing corporate social and environmental issues in the developing countries. Likewise, the study of Haider (2010) used political economy theory and the studies of Haniffa and Cooke (2002) adopted legitimacy theory to explain the CSR reporting practices. Both legitimacy and political cost theory was used to explain CSR disclosure in Malaysia (Mohd. & Nazli, 2007). Aerts, Cormier and Magnan (2006) inferred that institutional theory has been the basis of corporate environmental reporting of German, French and Canadian firms.

Agency theory explains the contractual relationship between corporate directors (agents) and shareholders (principals) under which shareholders delegate some of their powers to directors in respect of corporate strategic decisions but naturally they do not act for the best interest of principals. Rather, they put emphasis on their personal interest as the both parties are rational utility maximizers (Jensen & Meckling, 1976). Enlightened self-interest theory is a shareholder primacy perspective theory, which explains the views of CSR practices by a corporation in a society (CPA Australia, 2019). The term 'self-interest' does not mean selfishness. It considers the interest of the decision maker as well as others in a society. Stakeholder theory interacts with a nexus of relationships between various stakeholders (resource providers) and management for balancing and meeting conflicting demands to achieve the objectives of firms (Freeman, 1984). The essence of legitimacy theory is the notion of social contract. An organization is said to be legitimate and has become good corporate citizen if it brings benefits for the society and if it proves its worth to society (Chan, Waston & Woodliff, 2013). According to institutional theory, organizations conform and homogenize because failing to do so threatens their legitimacy, access to resources and survival capabilities (CPA Australia, 2019). CSR and environmental information is becoming institutionalized and has become an established norm through isomorphic process such as coercive, mimetic, or normative pressure that conforms to societal expectations and organizational growth (DiMaggio & Powell 1983). Resource dependency theory characterizes the corporation as an open system, dependent on contingencies of the external environment. According to this theory, firms engage in collaborations with external stakeholders in order to manage their dependency on critical resources (Mehedi & Jalaludin, 2020). In Bangladesh, multinational companies follow high ethical standards and the actions of management are highly regulated by local and international laws. Therefore, they realize social obligations to manage resources from society and show proactive or reactive behavior to involve social issues. For this reason, the present study has considered the resource dependency theory as a framework for the motivation of corporate economic, social and environmental disclosure.

The corporate social and environmental compliance, and the causal relationship with its determinants are different in the contexts of economy, nature of business and culture. Yadava and Sinha (2015) showed that reporting on economic dimension is comparatively better as compared to social and environmental dimensions in India. The overall

performance of a firm does not include only financial results but also include the performance of environmental and social reporting (Belal, Copper & Khan, 2015). Masud, Bae and Kim (2017) reported that banking companies of Bangladesh are disclosing more environmental information following Bangladesh Bank's guideline. In their research on Corporate Social Responsibility Disclosure (CSR) in Singapore, Ismail and Koh (1999) examined the relationship between corporate characteristics and the extent and trend of CSR of listed corporations on the Stock Exchange of Singapore. The major findings are: first, there is no relationship between size and industry type, and CSR, while there is positive relationship between profitability and CSR. Second, they found significant increasing trend of CSR for the earlier period (1980-1984) and the later period (1990-1994). Rahman and Azim (2009) observed corporate social reporting by pharmaceutical companies operating in Bangladesh and revealed that in 2007-2008, 33.33% of listed pharmaceutical companies made some kind of CSR disclosures.

The study done by Islam, Hosen and Islam (2005) on corporate environmental disclosure in Bangladeshi Public Limited Companies revealed that only 40% of companies surveyed have made environmental information, more general and descriptive in nature, in their annual reports for the year 2003. Hossain, Islam and Andrew (2006) conducted a study on Corporate Social and Environmental Disclosure in developing countries focusing on Bangladesh. Findings of the study are: (i) environment reporting is found in Bangladesh but it is done voluntarily; (ii) seven explanatory variables i.e. total sales, total assets, industry type, rate of return on total assets, net profit margin, international link of auditing firms, and subsidiary of multinational companies have been considered for determining the extent of environmental disclosure. The objectives of study done by Alam and Deb (2010) were to identify, quantify and report investment made in human resources of an organization as well as to investigate some corporate attitudes such as corporation size and profitability that influence human resource accounting disclosure in Bangladesh. Their study revealed a poor level of human resource reporting for Bangladeshi listed companies. Agustina, Jati and Suryandari (2018) examined that the disclosure of economic performance and environmental performance on sustainability reporting have no effect on financial performance while the disclosure of social performance on sustainability reporting increases the financial performance of the companies listed on the Indonesian Stock Exchange (IDX). The study of Laskar and Maji (2016) documented that the level of sustainability disclosures of Indian firms is high as they publish 88% of information specified in GRI framework only for legitimacy. CSR is found to have a strong positive impact on firms' financial performance in Bangladeshi Pharmaceuticals companies (Mashiur & Chowdhury, 2020). The research works of Islam and Chowdhury (2016) and Nurunnabi (2016) on sustainability reporting showed low level of compliance with GRI index as there is no active pressure group in Bangladeshi corporate culture. Similarly, Momin and Parker (2013) reported that Bangladeshi MNCs provide less disclosure and fail to meet the stakeholders' expectations.

Thus, it is found from the theoretical and empirical literature that there are different theoretical perspectives based on which corporations decide on disclosing their social and environmental information for the stakeholders. Due to the existence of multiple theories, the findings of different empirical studies also differed significantly. As the corporate world and its environment has been changing rapidly with its wave falling on the Bangladeshi companies as well, more and more studies are needed in this specific area research and this justifies the undertaking of the present study.

3. Hypotheses Development

The reporting practices of corporate social and environmental aspects vary across countries as well as across industries. As a result, researchers also adopted different theories or a combination of theories in explaining the reasons and extents of corporate social and environmental disclosures. Institutional theory (Ali & Rizwan, 2013), political economy theory (Haider, 2010), legitimacy theory (Amran & Susela, 2008; Tsang, 1998), political cost theory (Mohd. & Nazli 2007), etc. are the most common ones taken as frameworks for assessing corporate social and environmental disclosure in the context of different countries. It is found that a combination of different theories like legitimacy theory, stakeholder theory, and institutional theory have been applied to investigate the grounds for corporate social and environmental reporting practices of Bangladeshi textile industry (Islam & Craig, 2008). In Bangladesh, the legal environment also affects the reporting environment of corporations. Companies Act, 1994 has given a perpetual legal existence to corporations but they have no right to use economic resources from the society inherently. At the same time, they make social contact to assemble necessary resources for their operations, which sometimes affect our society negatively. From these perspectives, corporations by minimizing the legitimacy gap with society are practicing activities related to social and environmental aspects and reporting a low compliance level though Bangladeshi corporations have a strong legislative environment consisting of Act, Rules, Codes and Guidelines. Considering the above aspects, the present study has used the resource dependency theory as the theoretical framework, which provides a relationship among variables and builds a platform for hypotheses development. From the theoretical framework and the review of earlier studies, CSED is used as dependent variable and a number of firm characteristics have been considered as explanatory variables to explain the variation of CSED. In this study, six corporate determinants such as company size, profitability, leverage, governance, ownership structure, and company age are considered as explanatory variables to examine the relationship between firm characteristics and the level of CSED.

3.1 Factors affecting CSED

Earlier studies (Bani-Khalid, Kouhy & Hassan, 2016; Ali & Rizwan, 2013; Islam & Craig, 2008; etc.) suggest numerous influencing factors that affect the practices of social and environmental reporting. Bani-Khalid, Kouhy and Hassan (2016) reported that firm size, profitability, audit firm, ownership, type of industry and financial market level are the

main factors to explain the CSER practices. Ali and Rizwan (2013) stated that company characteristics, NGO, CSR networks and frameworks, government, media, institutional investors, employees, customers, multinationals and competitors are the main determinants that promote CSER practices in an emerging economy. Islam and Craig (2008) observed that western consumer associations, human rights organizations, foreign NGOs, ILO, UNICEF, and association of international media influenced the CSR practices of Bangladeshi corporations. Thus, different authors have considered different factors which influence the practices of CSED. Interestingly, the findings of these determinants are mixed and inconsistent. To explain the practices of CSED, the present study has considered the following factors as its determinants:

Size of the firm

The size of the reporting firm has either a positive or a negative impact on the variability of disclosure. A large firm has to mobilize more resources from society as it has many social obligations. Firm size may represent by several measures such as total turnover, total assets, fixed assets, paid up capital, shareholders equity, capital employed, number of employees and the market value of the firm. It is expected that a large firm has a good intention to disclose more CSE information in its annual report, because it wants to have increased external funds from stock markets and the costs of preparing and disseminating highly-detailed corporate annual reports is less burdensome for a large firm. Most of the researchers such as Ahmed and Nicholls (1994), Akhtaruddin (2005), Alam and Deb (2010) and Shaukat, Qiu and Trojanowski (2015) have found that there is a significant positive relationship between the firm size and the extent of corporate social and environmental (CSE) information. In this study, total assets is considered as a proxy for firm size.

Board Governance

The present study has considered the number of directors on the board as a proxy for board governance. As the directors are the agents of investors, more directors on the board means that higher governance is there in the firm. Hence, they do not involve in corruption and misappropriation of resources provided by investors rather than protecting of stakeholders' interest. Moreover, larger board size also represents a strong, effective, and efficient board, which can enhance an organization's resource, reputation, and performance and can lead to proactive managerial behavior regarding social and environmental issues. It is observed that more members on a board can ensure greater diversity and resources (Katmon et al., 2017). The extent of disclosure is directly influenced by the function of the board as well. In line with the findings of Mahmood et al. (2018), Ganapathy and Kabra (2017), Shamil et al. (2014), and Masud, Nurunnabi and Bae (2018), we can assert that there is positive association between board size and environmental sustainability reporting performance (ESRP) in the South Asian countries.

Profitability

Profitability may affect the firm's reporting of CSED. To represent profitability various measures were used in earlier studies such as net profit to sales, earnings growth, dividend growth and dividend stability, rate of return and earning margin, return on assets, return on capital employed and profit margin. The empirical results from these research are mixed. Ismail and Koh (1999), Akhtaruddin (2005), and Alam and Deb (2010) have found positive association between profitability and the level of disclosure. On the other hand, Bani-Khalid, Kouhy and Hassan (2016), and Shaukat, Qiu and Trojanowski (2015) have found no association between corporate sustainability performance and profitability. Profitable firms generally spend more on reporting of corporate social and environmental (CSE) activities. Therefore, it is expected that there is a positive association between profitability and CSED.

Leverage

Leverage has been identified as a determinant of corporate social and environmental disclosure and used in different manners such as debt-equity ratio, capital gearing ratio, and debt to total assets. This study has used debt-equity (D/E) ratio as a proxy for leverage. There is a fundamental link between accounting information and the cost of capital. A higher disclosure level is expected to reduce the cost of equity capital (Hussainey & Mouselli, 2010). Akhtaruddin and Haron (2012) have found no association between the disclosure level and leverage of the firm, while Chithambo and Tauringana, (2014) have observed a significant negative relationship between the two variables. On the other hand, Bokpin (2013) has noticed a positive association between disclosure level and leverage of the firms. It is argued that a firm with high D/E ratio can raise more fund at low cost and can perform more corporate social and environmental activities as managers are bound to provide more information under the lenders' pressure.

Company Age

Company age is an important factor that affect the level of disclosure of corporate social and environmental issues. It may represent the years of operation in the market. In this study, age of company implies the age of listing in the capital market as a public limited company. The study of Alam and Deb (2010) has revealed positive association between the level of disclosure and company age, while Bani-Khalid, Kouhy and Hassan (2016) and Akhtaruddin (2005) obtained the counter result between two variables. It is expected that a company, which is operating for many years, is likely to disclose more corporate social and environmental (CSE) information as more experienced companies are more regulated.

Company Ownership

In this study, the number of shareholders represents ownership of the company. The shareholders of the corporations are the central elements of corporate social and environmental disclosure. They have direct interest in the company in respect of long-term existence in the society as investors. Shareholders may be institutional investors and

foreign investors, and act as principal of organization. As the principal, they monitor the actions of management regarding social aspects, and can change the management (agent) if they see any wrong doing in terms of unethical practices. Shareholders i.e., investors can affect CSR disclosure in India (Sangle, 2010). Haniffa and Cooke (2005) found that CSR disclosure was significantly associated with the foreign shareholders in Malaysia. Therefore, it is expected in line with the prior researchers that the number of outside shareholders can pressurize management to disclose more CSE information to review their ethical actions.

From the above discussion and with the essence of resource dependency theory, an alternative hypothesis can be drawn as follows:

H₁: Corporate determinants i.e., assets size, board size, net profit margin, debt-equity ratio, listing age and the number of outside shareholders affect corporate social and environmental (CSE) disclosure positively.

4. Methodology

4.1 Sample Design and Data

Around 70 multinational companies have been operating in Bangladesh. Among them, 15 companies have been listed on the Dhaka Stock Exchange up to the end of December 2018. Grameen phone Ltd, Fu-wang food Ltd, Eastern Lubricants and Meghna Petroleum Ltd. are initially excluded from the sample as they are different in nature. From this sample frame, we have selected annual reports of 10 companies (Appendix-B) purposively. Companies generally disclose CSE information in a number of ways, such as through annual reports, advertisements or published articles detailing a company's activities, corporate websites, interim and quarterly reports, booklets or leaflets to address the social activities of the company, employee reports, environmental reports, special announcement and press releases. For the validity of data, annual reports audited by professional auditors have been collected from secondary published sources. Previous study (Sufian & Zahan, 2013) and G-4 guidelines of GRI have been considered to select the items of CSED index. The reason for considering GRI guidelines is that multinational companies listed on DSE have no framework for reporting CSE information in Bangladesh although DSE has published a draft framework of CSE information for listed companies based on GRI guidelines. A list of overall disclosure information can be found as Appendix- A.

4.2 Measurement Methods

4.2.1 CSED index and scoring

Many empirical studies have used content analysis for measuring the extent of disclosure from both qualitative and quantitative data (Robert, Weetman & Gordon, 2005). In content analysis, a disclosure checklist is designed to measure whether an item is disclosed or not. Then, number of sentences or lines is counted to measure the extent of disclosure. Content analysis treats all companies equally for different levels of disclosure (Ashfaq & Rui,

2018). This approach does not differentiate between companies in terms of the extent of CSE reporting in their annual report. Additionally, there are two widely used approaches for scoring disclosable items to determine the disclosure level of a corporates annual report i.e., weighted and unweighted approach. Under these methods, researchers identify some pre-selected items to construct the disclosure index to measure the level of disclosure (Hussainey, 2004). Many studies have criticized the weighted approach, which assigns weight on an item arbitrarily. This study has used unweighted approach by following the works of Yadava and Sinha (2015), Bani-Khalid, Kouhy and Hassan (2016), and Kilic and Kuzey (2017) for scoring items included in disclosure index with putting equal weight for all items of information. This method can avoid the assignment of autonomous weight for an item. Scoring procedure is conducted in a dichotomous system i.e. putting zero or one for each item reported in the environmental information category. Under this approach, a CSE item scores one if it is disclosed and zero if it is not disclosed. In this way, we can add up all the items disclosed by the company to measure the extent of disclosure. The following formula is used to measure the total CSED scores for a company:

$$TSES = \sum_{i=1}^n d_i$$

Where, TSES = Total Social and Environmental Scores

d = 1 if an item is disclosed, 0 if an item is not disclosed

n = number of discloseable items

4.2.2 Dependent and Independent Variables

From the theoretical framework and the review of earlier studies, TSES (a measure of CSED) is used as the dependent variable and a number of firm characteristics and corporate governance item have been considered as explanatory variables to explain the variations in TSES. In this study, six corporate determinants such as total assets as a proxy for company size, net profit margin as a proxy for profitability, debt-equity ratio as a proxy for leverage, board size to represent board governance, number of shareholders to represent ownership, and listing age as a proxy for company age, are considered as explanatory variables to examine the relationship between the level of CSED (represented by TSES) and its determinants.

4.2.3 Statistical Analysis

Correlation analysis can show the strength of bivariate relationship between the variables under study. Pearson correlation test is conducted to show positive or inverse relationship among the variables i.e. total disclosure scores, board size, listing age, net profit margin, total assets, and number of shareholders and leverage under study. To measure the effects and association between dependent and explanatory variables, this study employed a multiple linear regression model fitted to panel data to examine the association between corporate determinants and corporate social and environmental disclosure. Taken into

account the dependent and explanatory variables, the following regression model can be constructed to test the above hypothesis:

$$TSES = \alpha + \beta_1 \ln TA + \beta_2 BS + \beta_3 \ln NPM + \beta_4 \ln DE + \beta_5 LAGE + \beta_6 \ln NS + \varepsilon$$

Where,

TSES = Total social and environmental scores (measure of CSED),

TA = Total assets (measure of firm size),

BS= Board size defined as the number of directors on the board (measure of governance),

NPM=Net profit margin measured as net profit divided by net sales (measure of profitability),

DE = Debt-equity ratio measured as debt divided by stockholders' equity (measure of leverage),

LAGE= Listing age (measure of company age),

NS= Number of shareholders (measure of ownership structure),

α , β = Constants, \ln = natural logarithm, and ε = Stochastic error term.

5. Results and Discussion

The CSED scores (TSES), descriptive statistics, and correlation and regression analyses are done using Statistical Package for Social Sciences (SPSS) version 22 and the results are presented in the following sub-sections:

5.1 Extent of Disclosure

Disclosure practices in the sample multinational companies enlisted in the DSE are shown in Table 1. An investigation into the table reveals that the disclosure practices of multinational companies is elastic, as there is no significant variation of the disclosure trend over the years. The disclosure level of 40 percent (4 out of 10) companies is below the mean value i.e. 42.02. The mean ranks indicate that ACI Ltd. (S_7) is practicing the highest level of CSE disclosure followed by GSK Bangladesh (S_8) and Singer Bangladesh (S_3) with mean scoring 47.8 items, 46.6 items and 45.8 items, respectively.

Table 1: Disclosure Practices by Sample Companies

Code	2014	2015	2016	2017	2018	Average	Rank
S_1	43	42	44	44	43	43.2	4
S_2	40	30	31	31	30	32.4	8
S_3	45	46	45	46	47	45.8	3
S_4	39	39	39	38	40	39	7
S_5	44	43	43	43	43	43.2	4
S_6	39	40	40	40	40	39.8	6
S_7	47	49	51	50	42	47.8	1
S_8	45	47	46	48	47	46.6	2
S_9	39	40	40	40	40	39.8	6
S_10	43	42	42	43	43	42.6	5
Overall mean						42.02	

5.2 Descriptive Statistics

From conventional point of analysis, different descriptive statistics i.e. mean, standard deviation, maximum and minimum values, have been obtained for the dependent and explanatory variables, which are reported in Table 2. The average value of total assets of the sample companies is Tk. 6042.361 million and the average net profit is 10 percent on sales. It is observed that multinational companies have been making significant profit since the debacle of share market in 2010. The data also revealed that the average board size of sample firms is 9 which means that sample companies are comparatively governed as per new corporate governance code- 2018 requiring at least 5 directors on the Board. The mean scores of operating year as listing company (LAGE), TSES and debt-equity ratio for sample firms are 28.52 years, 42 items and 4.17 times, respectively. The descriptive result shows that the mean score of CSED (or TSES) is 70 percent. This result is consistent with a recent study of Khan & Jui, (2016) which reported a mean score of 71.48 percent. The table indicates that the sample firms disclose minimum 30 and maximum 51 items in their annual reports. From the critical examination of annual reports, it is seen that ACI Ltd. has maximum disclosure score of 51 while Lafarge Surma Cement Ltd. has minimum disclosure score of 31. In general, 50% companies are reporting 43 CSE items in their annual reports.

Table 2: Descriptive Statistics of the Dependent and Explanatory Variables

	N	Minimum	Maximum	Mean	Std. Deviation
Total Social and Environmental Scores (TSES)	50	30	51	42.02	4.644
No. of Shareholders (fig. in lac)	50	11.73	933.71	134.1544	198.30266
Board Size	50	7	12	9.02	1.571
Listing Age	50	8	42	28.52	10.593
Total Assets Size (fig. in lac)	50	4652.53	213724.00	60423.61	61956.30
Net Profit Margin	50	.32	40.87	10.0696	6.20926
Debt-Equity Ratio	50	.31	36.13	4.1660	7.51068
Valid N (listwise)	50				

5.3 Correlation Results

Table 3 depicts Pearson Correlation test results of the variables i.e. total disclosure scores, board size, listing age, net profit margin, total assets, number of shareholders, and debt-equity ratio considered in this study. Total disclosure score has a negative relationship with total assets and debt-equity ratio significantly at 5% level, and with board size insignificantly, while it has positive significant relationship with net profit margin at 5% level, and listing age and number of shareholders at 1% level of significance (2-tailed). There is a significant relationship between total assets and board size i.e. large companies

have big board size. The results also show that more aged companies have more shareholders and leverage. These relationships are significant at 0.01 level (2-tailed). A significant negative relationship is found between net profit margin and leverage at the 0.01 level (2-tailed).

Table 3: Correlation between CSED and Its Determinants

		TSES	BS	LAGE	NPM	TA	NS	DE
TSES	Pearson Correlation	1						
	Sig. (2-tailed)							
BS	Pearson Correlation	-.159	1					
	Sig. (2-tailed)	.269						
LAGE	Pearson Correlation	.523**	.154	1				
	Sig. (2-tailed)	.000	.286					
NPM	Pearson Correlation	.197*	.145	.283*	1			
	Sig. (2-tailed)	.047	.316	.047				
TA	Pearson Correlation	-.155*	.402**	.122	.203	1		
	Sig. (2-tailed)	.032	.004	.399	.158			
NS	Pearson Correlation	.433**	.210	.355*	.301*	.558**	1	
	Sig. (2-tailed)	.002	.144	.012	.034	.000		
DE	Pearson Correlation	-.178*	-.176	-.325*	-.545**	-.274	-.513**	1
	Sig. (2-tailed)	.021	.222	.021	.000	.054	.000	

*. Correlation is significant at 0.05 level (2-tailed). **. Correlation is significant at 0.01 level (2-tailed). N=50

5.4 Regression Analysis

Table 4 provides the estimated results from the regression analysis in column 1 and the t-statistics of null hypotheses that are reported in the parentheses. Regression results have been obtained by regressing TSES for the six corporate determinant variables i.e. board size, listing age, net profit margin, total assets, number of shareholders and debt-equity ratio. The R^2 of the regression model is 0.58, which reveals that the model is capable of explaining 58% variability in disclosing information in the annual reports of the selected companies. This value of R^2 is consistent with prior study of Bhuiyan, Hossain and Akther (2017) which obtained R^2 as 56.2%. The adjusted R^2 is 52.2% for the overall model, which indicates the explanatory power of the regression model. The difference between R^2 and adjusted R^2 (58%-52.2%) is small meaning that if the model had been derived from the population rather than sample it would show about 5.8% less variance in the compliance level of CSE information. The F statistic of the model explains the variation in CSE disclosure in annual reports is significant at the level 0.01. As expected, listing age, numbers of shareholders and leverage have a positive relationship while an opposite relationship is obtained for the variables i.e. board size, net profit margin and total assets.

Table 4: Results of Multiple Regression

	CSR	Significance
Intercept	6.411 (.648)	.000**
Board Size (BS)	-.148 (-1.358)	.182
Listing Age (LAGE)	.108 (.038)	.001**
Net Profit Margin (NPM)	-.201 (-.409)	.371
Log of Total Assets (lnTA)	-.480 (-.238)	.012*
Log of no. Shareholders (lnNS)	.654 (.247)	.000**
Log of debt-equity ratio (lnDE)	1.489 (1.236)	.158
R ²	.58	
Adjusted R ²	.522	
Durbin-Watson	2.060	
F Statistics	9.905	.000**

Note: Statistically significant at 1% (**) and 5% (*)

The findings of multiple regression analysis support our hypothesis for 50% cases and indicate that total assets, listing age and numbers of shareholders are the important determinants of CSED. This means that the managers of large and old companies have more social obligations and ethical standards to disclose more CSE information in their annual reports from the perspective of resource dependency theory. Moreover, more shareholders in the capital structure can create a pressure on the management to show proactive role to realize social obligations, which promotes more CSE information due to normative pressure of resource dependency theory. As per the regression results, age has emerged as an important determinant in this study which is similar to the study of Karthikeyani (2020). This study does not find any influence of profitability, board governance and leverage on CSED. The study of Okpala and Iredele (2018) reported that firm size influence CSED but board size and leverage do not influence the market value of Nigerian firms. So, their study supports the findings of the present study.

6. Conclusion

This study finds that multinational companies listed on Dhaka Stock Exchange disclose their corporate social and environmental practices in their annual reports although the extent of disclosure is low. The descriptive results shows that the mean score of CSED expressed in terms of TSES is 70 percent, which is moderately satisfactory. Total

disclosure score has a negative relationship with total assets, board size and leverage while it has a positive association with net profit margin, listing age and number of shareholders. The findings of multiple regression analysis indicate that total assets, listing age and numbers of shareholders are the important determinants of CSED. This conforms to our perceived theory of resource dependency. It can be inferred that more shareholders in the capital structure can create a pressure on the management to show proactive role to realize social obligations, which promotes more CSE information due to normative pressure of resource dependency theory. This study observes that CSED is not influenced by profitability, board governance and leverage situations of the companies.

This study only examined the annual reports of the sample firms to make disclosure index although it is known that firms use other mass communication mechanisms such as advertisements or articles published detailing a company's activities corporate websites, interim and quarterly reports, booklets or leaflets to address the social activities of the company, employee reports, environmental reports, special announcement and press releases. Therefore, a longitudinal study can be done by examining more corporate characteristics of large number of sample firms in the avenue of further research in this area. Though the disclosure of CSE information is important for the enactment of new policies in Bangladesh, poor public enforcement and lack of stakeholders' awareness are responsible as well for low level of disclosure social and environmental practices by multinational corporations in the country.

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Appendix A
Disclosure Index

1. Environmental Policies/ Regulations	31. Award program for employee
2. Involvement of Environmental Expert in Business	32. Child Labor & Related Actions
3. Environmental Audit	33. Scholarship for child of workers
4. Environmental Awards	34. Profiles of employees
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17. Recycling plant of waste products	47. Product Safety
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23. Employment of minorities	53. Organization standard's & Norms
24. Equality to all races, gender and religions.	54. Direct Economic Value on Revenue
25. Creation of on-farm /off-farm employment for the Monga afflicted Northern districts	55. Direct Economic Value on Operating Cost
26. Socially responsible practices abroad	56. Direct Economic Value on Employee Wages & Benefits
27. Employee health and safety	57. Payment for providers of Capital
28. Employee training and education	58. Payment to Government
29. Employee benefits / welfare / recreation	59. Community Investment
30. Share option for employee	60. Minimum wage / compensation Rules

Appendix B

Sample companies and their codes

Company Name	Code
Heidelberg Cement Bangladesh Ltd.	S_1
Lafarge Surma Cement Ltd.	S_2
Singer Bangladesh	S_3
British American Tobacco Bangladesh Company Ltd.	S_4
Linde Bangladesh Limited.	S_5
Berger Paints Bangladesh Ltd.	S_6
ACI Limited	S_7
GlaxoSmithKline – GSK Bangladesh	S_8
Reckit Benckiser Bangladesh Ltd.	S_9
Bata Shoe	S_10

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Bank-Specific and Macroeconomic Determinants of Non-Performing Loans of Commercial Banks in Bangladesh

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Abstract

Size of non-performing loans is a matter of concern and a threat to sustainable banking and macroeconomic development in Bangladesh. This study, therefore, explores the factors responsible for non-performing loans in commercial banks especially from bank specific and macroeconomic aspects in Bangladesh. The study has collected secondary data from 44 commercial banks operating in Bangladesh from 1997 to year 2019. The study has developed a linear multiple regression model to identify the significant factors responsible for non performing loans in the banking sector. The study results reveal that from the set of bank-specific aspects such as high volume of lending (advance deposit ratio), profitability in terms of return on assets, capital adequacy relative to risk weighted assets, high liquidity percentage of deposits have contributed significantly to creating non-performing loans in Bangladesh. On the other hand, from the set of macroeconomic aspects such as GDP growth rate, lending interest rate, unemployment rate and asset size of bank relative GDP also have significant contributions to non-performing loans in the country.

Key words: *non-performing loans, macroeconomic variables, bank-specific variables, multiple regression models.*

1. Introduction

The success of commercial banks primarily depends on profitability in earning assets or interest generating loans. The efficiency of earning assets management of commercial banks is directly reflected in the percentage of non-performing loans (NPLs). Reed and Gill (1989) pointed out that traditionally interest income from performing loans would contribute 85 percent of total income of a commercial bank. Performing loans, therefore, should constitute the majority of a bank's assets (Saunders and Cornett, 2005).

The increasing percentage of NPLs threatens financial performance and it would limit the earning capacity of commercial banks. NPLs not only reduce the bank's profit but also the capacity of lending by reducing bankable assets (Khalid, 2012). The huge amount of NPLs will accelerate the operating costs (Karim *et al.* 2010) which will increase the lending rates of the banks. When banks fail to collect their dues it creates liquidity pressure on them (Patwary & Tasneem, 2019).

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Moreover it is evident that a bank with a high percentage of NPLs suffers from erosion of capital if there is no provision. Capital inadequacy fails to protect depositors' interests and promote instability and inefficiency in banks (Berger & De Young, 1997). Depositors and investors start losing faith over the bank as they feel unsecured of getting back their invested money with expected returns. Increasing trends of NPLs also diminish the image of banking industry. A high level of non-performing loan is an indicator of unstable financial system and a worrying signal for banking industry and regulatory authorities (Dimitrios *et al.*, 2016).

It is imperative to control the volume of NPLs for the central bank with a close collaboration with commercial banks in any country. In order to control the volume of NPL it is necessary to explore the root causes of it in the financial sector (Rajaraman & Visishtha, 2002). This study, therefore, emphasizes on the determining factors that may cause NPLs in the banking sector of Bangladesh. Internal or bank-specific factors caused by internal decisions and functions of banks and external or macroeconomic factors caused by external decisions and environment created or taken by the central bank and government in fiscal and monetary policies are primarily the sources of NPLs in the banking and financial sectors (GEZU, 2014). Finding these factors affecting NPLs may help reduce the volume of NPLs in the banking and financial sectors and formulate policy decisions in this regard to cure this unwanted financial ailment in the economy.

1.2 Research Background

Bangladesh Bank as the regulatory authority of the banking sector has defined eight stages of loan classifications which include superior, good, acceptable, marginal /watch list, Special Mentioned Account (SMA), Sub Standard (SS), Doubtful (DF) and Bad and Loss (BL). As per the classification guidelines of Bangladesh Bank SS, DF and BL are considered as NPLs.

Table 01 in the following summarizes the NPL situation in commercial banks in Bangladesh. According to Bangladesh Bank (BB) data, as of June 2019, the volume of NPL in the banking sector was BDT 1124.2 billion. Classified loans of the state-owned banks stood at 57 percent of the total NPLs. Default loans of the eight state-owned banks increased 25.10 percent from the previous year and stood at BDT 534.9 billion at the end of 2018. The default loans at private commercial banks rose to 30 percent from the previous year and reached to BDT 381.4 billion in 2018. Amount of NPLs in foreign commercial banks also registered an increase of 6.19 percent and stood at BDT 22.9 billion during the same period. For a rapidly developing country like Bangladesh, size of NPLs is a matter of concern and a threat to sustainable banking and macroeconomic development.

Table 01: Amount of NPLs by Types of Banks in Last 11 Years (in billion BDT)

Bank Types	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
SCBs	117.5	107.6	91.7	215.2	166.1	227.6	272.8	310.3	373.3	487.0	537.4
DFIs	42.1	49.7	56.5	73.3	83.6	72.6	49.7	56.8	54.3	47.9	47.0
PCBs	61.7	64.3	72.0	130.4	143.1	184.3	253.3	230.6	294.0	381.4	519.2
FCBs	3.5	5.5	6.3	8.5	13.0	17.1	18.2	24.1	21.5	22.9	20.6
Total	224.8	227.1	226.5	427.4	405.8	501.6	594.0	621.8	743.1	939.2	1124.2
NPLR (%)	9.2	7.3	6.1	10.0	8.9	9.7	8.8	9.2	9.32	10.3	11.7

Source: Department of Off-site Supervision (DOS), Bangladesh Bank (2018-19).

1.3 Statement of the Problem

The NPL ratio reached 40.65% in 1998 (see appendix-1), which is the highest ever in the history of Bangladesh. Although it gradually came down, this was not enough as it had been 11.70% in 2019. The NPL ratio in Bangladesh still higher compared to the international level. The average NPL of Asian countries (27 countries) stood at 4.39 per cent in 2018. The global average NPL (121 countries) stood at 6.88 per cent in 2018. Bangladesh in terms of NPL stood second in Asia and 24 in the world (Source: World Bank).

As per Bangladesh Bank Guideline, banks are required to provide 1.0 per cent of the loans as expenses under the head 'provision'. But if any loan falls under 'sub-standard' category due to non-servicing of the loan, then banks are required to keep 20.0 per cent provision. In case the loans are 'Doubtful', then provision is 50.0 per cent and for 'bad and loss' category, 100.0 per cent provision is required. Thus, the huge amount of provisioning against income reduces the profitability of the banks. This reduction of net profit ultimately hampers the shareholder's equity, reduces the dividend-paying ability of the bank.

The considerable amount of NPL ultimately accelerates the operating costs and reduces employment opportunity. The effects of NPLs get reflected in high interest rates and low levels of investments resulting in the lower economic development of the country. When a loan becomes non-performing, it creates a significant impact on the liquidity. Due to non-receipt of installment, the planned cash buckets are directly affected. Banks are dependent on these loan installments for their further investment, meeting expenditure and also to repay the liabilities in time. In view of poor recovery, banks are required to go for short term borrowing from the money market or any other alternative cash sources which again, increases the expenditure having a negative impact on profitability. It is, therefore, necessary to find out both the internal (bank-specific) as well as external (macroeconomic) factors responsible for NPLs in Bangladesh. At the stage, the study examines the following research questions:

- i) what are the internal or bank specific factors that affect the NPLs of commercial banks operating in Bangladesh?
- ii) what are the external or macroeconomic factors that affect the NPLs of commercial banks operating in Bangladesh?

1.4 Objectives of the Study

The overall objective of the study is to find out the causes of NPLs in the commercial banks in Bangladesh. To be more specific this study has set the following objectives to address in the light of the overall objective:

- i) to identify the bank specific factors that affect the NPLs of commercial banks operating in Bangladesh; and
- ii) to identify the macroeconomic factors that affect the NPLs of commercial banks operating in Bangladesh.

1.5 Hypotheses of the Study

To investigate into the possible sources of NPLs of commercial banks for both internal and external factors of commercial banks, this study has examined the following relationships for proving its specific objectives. The following are the working hypotheses tested to attain the objectives of the study:

- H₁: Whether there is any significant relationship between lending and NPLs*
H₂: Whether there is any significant relationship between profitability and NPLs
H₃: Whether there is any significant relationship between operating efficiency and NPLs
H₄: Whether there is any significant relationship between capital adequacy and NPLs
H₅: Whether there is any significant relationship between liquidity and NPLs
H₆: Whether there is any significant relationship between GDP growth rate and NPLs
H₇: Whether there is any significant relationship between interest rate and NPLs
H₈: Whether there is any significant relationship between exchange rate and NPLs
H₉: Whether there is any significant relationship between unemployment rate and NPLs
H₁₀: Whether there is any significant relationship between asset size of banks against GDP and NPLs

1.6 Significance of the Study

There are few studies which have focused both macroeconomic and banks-specific variables to determine the causes and magnitude of non-performing loans in the banking sector. This research will be useful to explain the phenomena of NPLs from a more comprehensive manner. It will enable the readers, other researchers and policy makers to further broaden the horizon of knowledge in this particular field and will encourage more research on this issue in future to prevent loan default culture in Bangladesh. It will deepen the understanding of the issue among the banking professionals, policy makers and

regulatory authorities about macroeconomics variables or causes that may bring about substantial impact or change in the approach of bank assets management or to formulate policy guidelines to prevent unabated volume of NPLs. This study will provide useful comprehensive knowledge about the possible factors responsible for NPL to the managers of commercial banks so that they can improve the profitability of banks through expanding productive performing loans to businesses. Moreover, it will provide general useful knowledge to the vernacular readers, interested students as well as the conscientious borrowers on the issue of NPLs in Bangladesh.

1.7 Scope and Limitation of the Study

The study includes all scheduled commercial banks operating in Bangladesh as the population of research. It has used panel data of these commercial banks over the period from 1997 to 2019. An OLS is used to identify the determinants and their significance. Due to unusual time constraints and unavailability of authentic macro-economic publish data it was not possible to include more economic variables to address the issue from the broader perspective. All these are undesired limitations on the side of the researchers.

2. Review of Literature

Berger and De Young (1997) showed that low cost efficiency is positively associated with the volume of NPLs. They conclude that low capitalization lead to the increase in NPLs. Tsai and Huang (1999) also examined the relationship between management quality and cost efficiency within Taiwan's banking industry. They discovered that asset quality and cost efficiency are related. On the other hand, by taking into account risk and quality factors into the estimation of banks' cost efficiency in the Japanese commercial banks, Altunbas *et al.* (2000) finds that the level of NPLs are positively related to bank inefficiency.

Fan and Shaffer (2004) analyzed profit efficiency of large commercial banks in the U.S. by accounting for NPLs. They found that, although NPLs are negatively related to banks' profit efficiency, it is not statistically significant. The Karim *et al.* (2010) study on the relationship between NPLs and bank efficiency in Malaysia and Singapore revealed that a higher incidence of NPLs reduces banks' cost efficiency, thus negatively affecting profitability. Khalid (2012) also carried out a study on the impact of asset quality on profitability of private banks in India and found that asset quality had a positive significant effect on financial performance of banks. Ekanayake and Azeez (2015) found that NPLs increase with deteriorating bank's efficiency and loan to asset ratio is positively correlated with NPLs. Mehmood *et al.* (2013) found the same result for Pakistani banks for a panel of 13 commercial banks over the period of 2003-2012.

Boye (2007) found that the real interest rates and unemployment are positively related to problem loans when he examined the Nordic banking system over the period 1993–2005. Analyzing 22 advanced economies during the period 1996-2008 Glen and Mondragón-Vélez (2011) showed that, the developments of loan loss provisions are driven mainly by

the business cycle measured by real GDP growth and lending rate. Fainstein and Novikov (2011) published a comparative analysis of credit risk determinants in the banking sector in the Baltic States, applying a separate vector-error-correction model (VECM) for each of these three countries. Their results showed that real GDP growth was the most significant determinant of NPLs' growth in all three countries and that real estate market growth played an important role in two of these countries (Latvia and Lithuania). Klein (2013) investigated NPLs in CESEE (Bosnia and Herzegovina, Bulgaria, Hungary, Croatia, Czech Republic, Estonia, Latvia and Lithuania) for the period 1998–2011. In his study, NPLs were found to respond to macroeconomic conditions, such as GDP growth, unemployment and inflation.

Donath *et al.* (2014) estimated the evolution of bad loans ratio in relation to selected macroeconomic indicators such as GDP, inflation, unemployment and lending interest rates in the Baltic States and Romania for the period 2000–2013. The results of their study show that NPLs' variation had a significant negative correlation with GDP growth in all four countries. The inflation rate exhibited a negative correlation with the NPLs in all countries except Lithuania. The lending interest rate was positively correlated with the NPLs in all countries except Romania, while the unemployment positively correlated with the NPLs in each of the four countries.

Figiri *et al.* (2015) analyzed the factors influencing NPLs in Albania which had focused on macroeconomic factors. That study demonstrated that interest rate in the economy was positively related to NPL while GDP was negatively related to NPL. Blavy and Souto (2009) found that domestic and external macro-financial variables had been closely associated with banking soundness in the Mexican banking system. At the aggregate level, high external volatility and domestic interest rates were associated with higher expected default probability.

Adebola *et al.* (2011) provided evidence that interest rates were positively associated with NPLs. For Malaysian commercial banks, the study shows a strong relationship between interest rates and NPLs in long run while interest rates do not influence NPLs in short run.

De Bock and Demyanets (2012) analyzed the determinants of bank asset quality in 25 emerging countries in which they found that economic activities got slow down and exchange rates depreciate while NPLs had increased. Another empirical study by Beck *et al.* (2013) analyzed the macroeconomic determinants of NPLs across 75 countries using dynamic panel data. According to their findings GDP growth rates, share prices, exchange rates and lending interest rates had significant effects on the NPLs ratios in those countries.

Research activity of Ouhibi and Hammami (2015) on determinants of financial soundness indicators (NPLs) of the banking system of the countries of Southern Mediterranean (Tunisia, Morocco, Egypt, Lebanon, Jordan and Turkey) revealed that the nominal exchange rates, the consumer price indexes and the gross capital formation had been significant variables affecting the NPLs while the GDP, FDI, exports, unemployment rates had been found insignificant variables in that study.

Empirical study by Salas and Saurina (2002) found a significant negative contemporaneous effect of GDP growth on NPLs in Spanish commercial and savings banks for the period 1985-1997. Another finding was that the size of the bank had negatively effects on the level of NPLs. The study concludes that bank specific determinants serve as early warning signs for future changes in the problem loans. Jimenez and Saurina (2005) analyzed the Spanish banking sector again from 1984 to 2003 and found significant impact of GDP growth, high real interest rate and lenient credit term on NPL.

Goudarzi (2005) argued that with increasing inflation and GDP, NPLs in banks increase. Increasing lending rates and currency rates have contrary relationships with NPLs; and internal factors such as management skills and availability of bank branches have positive relationships with the increase of NPLs. Louzis *et al.* (2011) found that good quality of management of banks lead to fewer NPLs. Zeng (2012) concluded that with a view to decreasing NPLs in China, internal management efforts of banks must be enhanced. Vardar and Ozguler (2015) investigated linkages between NPLs and both macroeconomic and bank specific factors in the Turkish banking sector and found that volume of individual loans and GDP per capita had negative significant relationship with NPLs.

According to the study of Messai and Jouini (2013) problem loans in Tunisia vary negatively with the growth rate of GDP, profitability of banks assets; while vary positively with the unemployment rate, the loan loss reserve to total loans and the real interest rate. Reddy (2015) on NPLs in emerging economies-case study of India revealed that lending priority on sensitive sectors, size of the bank in terms of assets, capital adequacy ratio and growth rate of GNP had significant negative relationships with NPL. Chimkono *et al.* (2016) investigated the effect of NPL along with other variables on the financial performance of commercial banks in the Malawian. Their study concluded that NPL, cost efficiency ratios, and average lending interest rates had significant effects on the performance of banks.

From the above reviews of literature, this study has picked up lending activities, profitability, capital adequacy, cost efficiency and liquidity as bank specific variables; and GDP growth rate, lending interest rate, unemployment rate, exchange rate and asset size of banks as macroeconomic variables to determine the significant relationships with NPLs of commercial banks in Bangladesh.

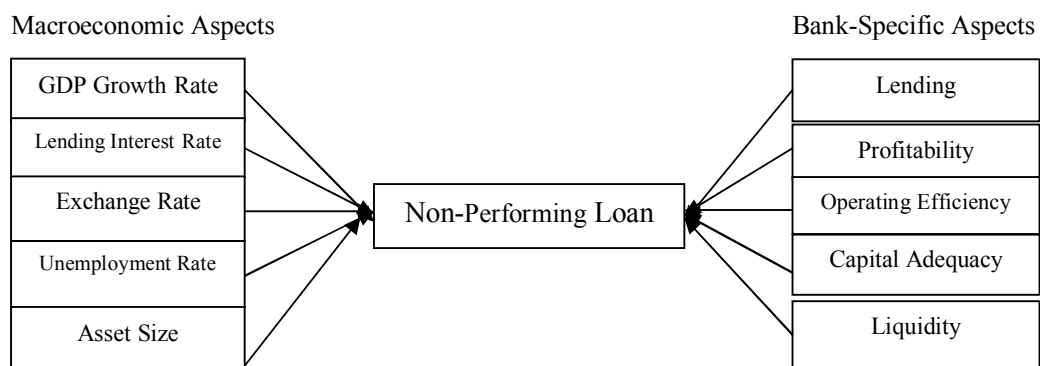
2.1 Research Gap

Most of the literatures reviewed above were made with reference to developed countries. They do not explain the issues for emerging market particularly for Bangladesh case. Therefore, it is not easy to make generalization about the determinants of NPLs for the developing economy based on the result of developed economy without making any research. Because, banking industry in Bangladesh has its own distinctive features that differentiate them from other countries financial market. Again, the results of those studies were not consistent. Besides, there has not been much research work conducted to date on the determinants of NPLs in Bangladesh.

2.2 Conceptual Framework of the Study

Depending upon some important cited empirical evidences regarding bank specific and macroeconomic determinants of NPLs; this study has developed a conceptual framework and selected some variables to explore their effects on NPLs in the banking sector of Bangladesh. The conceptual framework of the study has been portrayed in Figure 01.

Figure 01: Conceptual Framework of the study



Source: Conceptualized by the researcher

2.3 Short Description of Research Variables

2.3.1 Non Performing Loan (NPLs)

NPLs are loans that are outstanding both in its principal and interest for a long period of time contrary to the terms and conditions under the loan contract. Many loans become NPLs after being in default for 90 days.

2.3.2 Bank Specific Factors

2.3.2.1 Advance to Deposit Ratio (ADR)

The advance to deposit ratio measures advances as a percentage of deposits. The ratio shows that how much a bank is funding its advances from deposits. It is also called LTD ratio (loans to deposits).

2.3.2.2 Return on Assets (ROA)

ROA indicates the ability of bank management to generate profits by utilizing the available assets of the bank. The figure gives investors an idea of how effective the company is in converting the money it invests into net income. It is calculated by dividing a company's net income by total assets.

2.3.2.3 Operating Expenses to Total Asset Ratio (OTA)

Operating expenses to assets ratio is an efficiency ratio that measures the operating expenses, i.e., non-interest expenses, of a bank in relation to its size or the asset base. A lower ratio means that the asset base of the bank is sufficient to cover its operational costs. It also indicates management efficiency of banks.

2.3.2.4 Capital Adequacy Ratio (CAR)

CAR is a measure of banks solvency and ability to absorb risk. It is used to protect depositors and promote the stability and efficiency of financial systems. It is calculated by dividing a bank's capital by its risk-weighted assets.

2.3.2.5 Liquid Asset against Deposit (LQD)

It is the ratio of the value of liquid assets (easily converted to cash) to short-term funding plus total deposits. This ratio measures the liquidity available to the deposits of a bank.

2.3.3 Macroeconomic Factors

2.3.3.1 GDP Growth Rate (GDPGR)

The GDPGR indicates how quickly—or slowly—the economy is growing or shrinking. It is the most important indicator of economic health. When the economy is expanding, the GDPGR is positive.

2.3.3.2 Lending Interest Rate (INT)

Lending interest rate is the bank rate that usually meets the short- and medium-term financing needs of the private sector. It is the cost of borrowed funds. An increase in interest rate curtails the paying capacity of the borrowers.

2.3.3.3 Exchange Rate (EXG)

An exchange rate is the value of a country's currency versus that of another country. Currency depreciation decreases the wealth, which in turn affects the ability to service loans. Thus, currency depreciation usually leads to the increase in NPLs. Thus, currency depreciation usually leads to the increase in NPLs.

2.3.3.4 Unemployment Rate (UMP)

Unemployment rate is simply defined as the percentage of entire labor force that is unemployed but keenly looking for a job and willing to contribute (Bernstein, 2014). Higher unemployment is regarded as one of the factors contributing to the increase in problem loans. As business is not doing well, firm might sack their employees to reduce their operating costs, hence causing unemployment rate to be increased (Louzis et al., 2011).

2.3.3.5 Asset Size of Banks (AST_GDP)

The asset amount can be expressed in total assets value of the banking system against GDP size. The greater the assets or assets owned by banks the greater the volume of credit that can be channeled by them.

3. Methodology

This study has followed the following systematic as well as comprehensive research methodology to explore the objectives of the research.

3.1 Nature of the study

This study is an empirical research based on secondary data and it has used quantitative techniques to measure the variables and estimate the results.

3.2 Types and Sources of Data

This study has used secondary publish panel data for the research. These data have been collected mainly from published annual reports of commercial banks and Bangladesh Bank (BB), World Development Indicators (WDI) database, and International Monetary Fund (IMF). The study also taped some other websites like Google Finance etc.

3.3 Sample Size and Study Period:

The study has gathered 23 years data of 44 commercial banks currently operating in Bangladesh from 1998 to 2019 as the study period for this research. On the basis of continuous availability of data, this study has chosen such a period for the research.

3.4 Variables of the Study

Table 02 in the following shows the variables used in the study. The formulas for measurements of variables and their indicators are also included in the table. The conceptual framework of the study formulated based on extensive reviews of literature has guided the researchers to chose these variables for the research.

Table 02: Names of Variables, Indicators and Measurement

	Names of Variables	Indicators	Formulas for measurement of variables (%)
Dependent	Non-performing Loan	NPL	Non-Performing Loan / Total Loans
	Bank-Specific Variables		
Independent	Lending	ADR	Total Loans / Total Deposits
	Profitability	ROA	Net Income / Total Assets
	Operating Efficiency	OTA	Total Operating Expense / Total Assets
	Capital Adequacy	CAR	Total Capital / Total Risk Weighted Assets
	Liquidity	LQD	Total Liquid Assets / Total Deposit
	Macroeconomic Variables		
	GDP Growth Rate	GDP	Changes of Growth from the Previous Year
	Lending Interest Rate	INT	Average of Minimum and Maximum Lending Rate
	Exchange Rate	EXG	Average Exchange Rate against US Dollar
	Unemployment Rate	UMP	The Percentage of Jobless Labor Force
	Bank Asset Size to GDP Ratio	AST	Total Assets of Banks / GDP

3.5 Model Specification

The study has employed the following multiple linear regression model to find out the relationships and their magnitudes between the independent variable and the dependent variables:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \varepsilon_t$$

Where, Y represents NPLs; β_0 is an intercept, $\beta_1 \dots \beta_{10}$ = Coefficients of independent variables; $X_1 \dots X_{10}$ represent ADR, ROA, OTA, CAR, LQD, GDP, INT, EXG, UMP, AST respectively; and ε_t represents error term.

3.6 Techniques of Data Analysis and Hypothesis Testing

The study has generated descriptive statistics for the variables to better understand their meanings and trends; and examined their correlations among them. An appropriate multiple liner regression model shown in the model specification has been fitted for the variables and an appropriate test statistic, t-statistic, has been used to test the hypotheses for the research. The regression analysis has also examined the normality, autocorrelation and heteroscedasticity tests for better model fitting between the variables. The study has used EVIEWS-11 econometric software package to run the regression, test the hypotheses and measure the coefficients of independent variables.

4. Data Analysis and Interpretations of Results

4.1. Descriptive Statistics

Descriptive statistics of the variables are presented in Table 03. Descriptive statistics show number of observation, mean, median, maximum and minimum values, standard deviation, Skewness, kurtosis, Jarque-Bera statistic and p-value for each variable.

Table 03: Descriptive Statistics of Variables

Variables	Number	Mean	SD	Max	Min	Skewness	Kurtosis	Jarque-Bera Statistic	P-value
NPL	23	17.60	11.70	41.11	6.10	1.00	2.42	4.16	0.13
ADR	23	80.25	9.70	93.33	64.92	-0.45	1.61	2.61	0.27
ROA	23	0.78	0.38	1.80	0.29	1.27	4.08	7.25	0.03
OTA	23	2.44	0.92	5.65	1.20	-0.12	1.53	2.14	0.34
CAR	23	9.38	1.91	12.06	6.70	-0.13	1.44	2.39	0.30
LQD	23	25.25	11.36	50.80	15.20	1.22	3.27	5.80	0.06
GDP	23	6.16	0.90	8.15	4.40	0.35	3.02	0.46	0.47
INT	23	12.13	1.39	14.00	9.60	-0.65	2.16	2.31	0.32
EXG	23	66.68	12.90	84.90	42.70	-0.32	1.93	1.50	0.79
UMP	23	4.09	0.55	5.10	2.70	-0.53	3.38	1.20	0.55
AST	23	43.36	12.34	62.30	22.91	-0.27	1.97	1.30	0.52

The mean value or average NPL in the study period was 17.60 percent in Bangladesh. The average loan amount compared to total deposit (ADR) was 80.25 percent with only 0.78 percent average return on assets (ROA) and the average operating expenses to total assets (OTA) 2.44 percent. The capital adequacy coverage compared to total risk weighted assets (CAR) in the banking sector of Bangladesh was 9.38 percent in the study period. The average liquidity strength derived from total liquid assets out of total deposits (LQD) was 25.25 percent in the study period.

On the other hand, the average GDP growth rate of Bangladesh during the study period was 6.16 percent and the average lending interest rate in the banking sector was 12.13 percent. The average exchange rate stood at 66.68 BDT against USD during the study period and the unemployment rate at 4.09 percent. The average percentage of total assets AST owned by all commercial banks compared to total GDP in the country in the study period was 43.36 percent.

4.2 Correlation Coefficients of Variables

Table 04 presents the correlation coefficients of the variables used in the study with their levels of significance. The results reveal that the firm specific variables CAR, ROA, LQD and AST were found significant with NPL. On the other, GDP and EXG were found significant from macroeconomic variables.

Table 04: Correlation Coefficients of Variables

	NPL	CAR	ROA	OTA	ADR	LQD	AST	EXG	GDP	INT	UMP
NPL	1										
CAR	-0.77**	1									
ROA	-0.42*	0.22	1								
OTA	0.81	-0.84	-0.53	1							
ADR	-0.05	0.42*	0.12	-0.50	1						
LQD	0.91**	-0.57*	-0.41	0.62	0.16	1					
AST	-0.89**	0.88**	0.12	-0.82	0.27	-0.73*	1				
EXG	-0.89**	0.86**	0.11	-0.79	0.27*	-0.74**	0.99**	1			
GDP	-0.66*	0.65*	-0.05	-0.52	0.31	-0.55	0.79	0.78**	1		
INT	0.33	-0.22	0.34	0.10	0.08	0.34	-0.49*	-0.43*	-0.68*	1	
UMP	-0.21	0.39	-0.14	-0.21	0.03	0.04	0.25	0.22	0.08	-0.06	1

** Significant at 1% level, * Significant at 05% level.

4.3 Results of Regression Analysis

The regression model of the study has estimated the coefficients of the independent variables and the results of regression analysis have been summarized in table 05 below.

Table 05: Panel Least Square Model

Dependent Variable: NPL				
Method: Least Squares				
Sample (adjusted): 1997 2019				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	61.70	4.81	12.83	0.00
ADR	0.10	0.04	2.82	0.02
ROA	-5.79	0.67	-8.59	0.00
OTA	0.49	0.28	1.75	0.11
CAR	0.71	0.28	2.58	0.03
LQD	0.40	0.05	8.39	0.00
GDP	-2.81	0.49	-5.77	0.00
INT	-1.07	0.24	-4.51	0.00
EXG	0.06	0.08	0.73	0.48
UMP	-2.56	0.42	-6.13	0.00
AST	-0.67	0.10	-7.04	0.00
R-squared	0.9964	F-statistic		279.61
Adjusted R-squared	0.9929	Prob (F-statistic)		0.00

The regression results show that ROA, GDP, INT, UMP and AST have negative beta coefficients and hence they have negative relationships with NPLs. All these results are significant at zero percent level of significance. On the contrary, ADR, CAR and LQD have shown positive relationships with NPLs having positive beta coefficients. All these estimates are significant at below 05 percent level of significance. Only the coefficients of OTA and EXG were not found as significant at below 10 percent level and these results indicate that they have no significant impact on NPLs. High Values of R^2 and adjusted R^2 in this regression model indicate that the selected independent variables have adequately explained the variations in the independent variables. F statistic and its probability value indicate that the model rejects null hypothesis with greater accuracy which means that the regression analysis as a whole is significant. This study has rightly identified some significant firm specific and macroeconomic factors which have strong impact on NPLs in the banking sector Bangladesh in the study period.

4.4 Results of Hypotheses Testing

This study has summarized the results of hypotheses testing from the results of regression analysis presented in Table 05. The probability value of t-statistic of an independent variable reveals which corresponding independent variables are significant in the test. Table 06 presents the summary of hypotheses testing at 05 percent level of significance. It is clear that in terms of significance level (corresponding p-value) most of the explanatory variables had p-values of less than the selected significance levels (5%) except for OTA (operating efficiency) and EXG (exchange rate). As shown in Table, ROA (profitability), LQD (liquidity), GDP growth rate, INT (lending interest rate), UMP (unemployment rate) and AST (asset size of banks against GDP) have strong and statistically significant (p-value = 0.000) impact on NPLs even at 1% level of significance. Besides, LTD (lending) and CAR (capital adequacy) have also statistically significant (p-value = 0.02 and 0.03 respectively) impact on NPLs at 5% level of significance. However, contrary to the researcher's expectation, impact of cost efficiency and exchange rate is found statistically insignificant on NPLs as their p-values are 0.11 and 0.48 respectively.

Table 06: Summary of Results of Hypotheses Testing

Independent Variable	P-value	A	Decision	Conclusion
ADR	0.02	0.05	Reject H_0	Significant
ROA	0.00	0.05	Reject H_0	Significant
OTA	0.11	0.05	Accept H_0	Not significant
CAR	0.03	0.05	Reject H_0	Significant
LQD	0.00	0.05	Reject H_0	Significant
GDP	0.00	0.05	Reject H_0	Significant
INT	0.00	0.05	Reject H_0	Significant
EXG	0.48	0.05	Accept H_0	Not significant
UMP	0.00	0.05	Reject H_0	Significant
AST	0.00	0.05	Reject H_0	Significant

4.5 Diagnostic Checking

4.5.1 VIF test for Multicollinearity

The results of correlation analysis in Table 04 indicate that there are some problems of significant multicollinearity among explanatory variables. To overcome this problem, the study has conducted VIF test.

Table 07: Summary of VIF

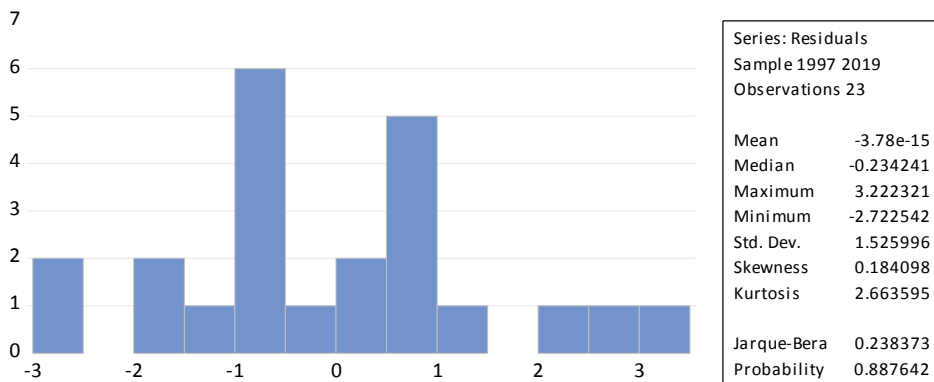
Variance Inflation Factors			
Sample: 1997 2019			
Included observations: 23			
	Coefficient	Uncentered	Centered
Variable	Variance	VIF	VIF
C	88.99	984.70	NA
ADR	0.00	282.98	3.90
ROA	1.87	15.22	2.78
OTA	0.29	21.94	2.49
CAR	0.15	280.11	10.21
LQD	0.01	60.27	9.17
GDP	0.72	307.66	6.13
INT	0.24	396.98	4.94
EXG	0.03	86.05	2.98
UMP	0.68	127.46	2.15
AST	0.01	160.62	10.77
Average			5.55

According to the rule of thumb, if VIF of a variable exceeds 10 the variable is said to be highly collinear (Bedru and Seid, 2005). The empirical results of VIF test are presented in Table 07 below. Based on the VIF results, it can be evident that there is no serious multicollinearity problem among the variables as the mean value of VIF is 5.55 which is much lower than the threshold level of 10.

4.5.2 Jarque-Bera test for Normality

The study has examined whether the assumption of the normality of error term is fulfilled. The results of the Jarque-Bera test are presented in the following Graph-01 below which indicates that the error values are normally distributed in the model.

Graph-01: Normality Graph of Jarque-Bera test



Skewness value of 0.1841 indicates that the distribution is approximately symmetric. Kurtosis value of 2.6636 indicates an approximate normality in the distribution. It cannot reject the null hypothesis since the p-value of Jarque-Bera test (0.887642) is greater than 0.05. Therefore, it is evident that the error terms are normally distributed in this regression model.

4.5.3 Durbin-Watson Test for Autocorrelation

In order to examine whether the error terms in the regression model are independently and identically distributed, the study has conducted the Durbin-Watson test. The Durbin-Watson test statistic is presented below. The test statistic indicates that there exists no autocorrelation in this model.

Table 9: Empirical Result of OLS Regression Model

Durbin-Watson test statistics	2.020748
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4.5.4 Ramsey RESET test for Model Specification

The study has conducted the Ramsey RESET test to examine if the model is specified correctly. The empirical result is presented below. The p-value generated in the test is 0.4153 which is less than 0.05. Therefore, it is evident that the regression model is correctly specified.

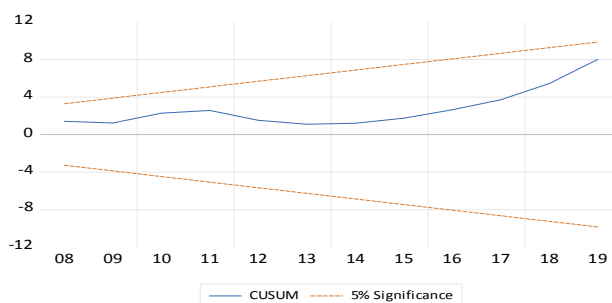
Table 10: Empirical Result of Ramsey RESET Test

P-value	0.4153
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4.5.5 CUSUM Test for stability of Model

The test results are presented in the graph below. Since the blue line is located within the two red lines, it is indicative that the variables in the model are quite stable.

Graph-02: CUSUM Test



5. Interpretations of Results Lending (ADR)

The result shows a positive and significant impact of lending (ADR) on NPLs in model. Under pressure to meet profitability targets and bonuses, bank managers take more risks in the form of excessive lending. The banks lower their lending standards and extend credit to unqualified borrowers who later default on their loans. This result is consistent with the findings of Salas and Saurina (2002), and Makri *et al.* (2014).

Profitability (ROA)

The result indicates that ROA has a significant but negative impact on the level of NPLs. This result confirms the finding of Boudriga *et al.* (2009) and Makri *et al.* (2014). However, it is contrary to the finding of Louzis *et al.* (2012). This implies that higher NPLs deteriorate the profitability ratio in terms of ROE.

Operating Efficiency (OTA)

The study result shows that operating inefficiency has a positive impact on NPLs. However, the result is not statistically significant. Bank managers have failed to restrict their operating expenses along when the percentage of NPLs is increasing in the banking sector. The result of the study is consistent with the findings of Louzis *et al.* (2010).

Capital Adequacy (CAR)

This study result shows that the capital adequacy (CAR) has a significant and positive impact on NPLs. There is a view that banks with high CAR have already involved in high risk loan portfolios and therefore associated with high NPL rates. The findings are consistent with studies by Boudriga *et al.* (2009), Klein (2013) and are inconsistent with the findings of Berger and DeYoung (1997), Sala and Saurina (2002), and Louzis *et al.* (2010).

Liquidity (LQD)

The study result shows that liquidity has a positive and significant impact on the level of NPL. Excess liquidity needs to be handled carefully so that banks not become too relax to extend bad loans. The results, however, are not in line with Klein (2013) and Makri *et al.* (2014) who suggest a negative relationship with NPLs.

GDP Growth Rate (GDP)

The study result shows GDP growth in the country has a significant but negative impact on NPLs. The demand loan increases when economic activity increases. Therefore, rapid growth of GDP induces large flow of credits in the economy and eventually higher rate of NPL. The finding matches with the results of Salas and Saurina (2002), Jimenez and Saurina (2006), Louzis *et al.* (2012), Messai and Jouini (2013), and Dimitrios *et al.* (2016).

Lending Interest Rate (LIR)

The regression result shows negative significant impact of lending interest rate on NPL. There should be a positive relationship because higher lending rate usually leads to

default. This was correctly established in the studies of Louzis *et al.* (2011) and Beck *et al.*, (2013) that there is a positive association between lending rate and NPLs of banks.

Exchange Rate (EXG)

The regression result shows a positive relationship between EXG and NPLs. However, the result is not statistically significant. The relationship is rightly established as revaluation or depreciation of foreign currency weakens overall purchasing power and this makes more difficult for customers to service their debts. This result supports the analysis conducted by Beck *et al.* (2015).

Unemployment Rate (UER)

The study result shows a negative significant impact of UMP on NPLs rate. This finding is not consistent with existing knowledge that unemployment reduces households' disposable income and weakens borrower's ability to pay their loan installments. This result has been deviated from the results of Boye (2007), Fainstein and Novikov (2011), Louzis *et al.* (2012), Messai and Jouini (2013), Klein (2013), Makri (2014), Donath *et al.* (2014) and Ouhibi and Hammami (2015).

Bank Assets Size relative to GDP (AST)

The study result shows a negative but significant impact of bank assets size on NPL. It implies that large banks need not to provide risky loans. Diversification of loan portfolio may lead to decrease in NPLs. This finding is consistent with the results of Salas and Saurina (2002), and Louzis *et al.* (2011).

6. Summary and Conclusion

The objective of this study was to identify the influencing determinants of NPLs of the commercial banks operating in Bangladesh. For this reason, this study selected five variables from bank specific aspects and four variables from macroeconomic aspects. The study collected secondary data from 44 commercial banks currently operating in Bangladesh from 1997 to year 2019. The study developed a linear multiple regression model to identify the significant factors responsible for creating NPLs in the banking sector.

The study results reveal that from the set of bank specific variables such as high volume of lending, profitability, capital adequacy and high liquidity have been found significant contributing factors to NPLs in Bangladesh. On the other hand, from the set of macroeconomic variables such as GDP growth rate, lending interest rate, unemployment rate in the country and asset size of bank relative GDP have been found significant determinants of NPLs in the country. But surprisingly the effects of lending interest rate and unemployment rate on NPLs are not found consistent with the theory or existing knowledge. Although the lending interest rate and the unemployment rate were found significant in the test but they revealed negative relationship with the dependent variable. Such relationships are unusual, not consistent with the existing theory and knowledge, as well as not supported by research.

6.1 Recommendation

To reduce NPL, banks should strictly follow guidelines and regulations provided by Bangladesh Bank time to time. Regulations should include setting benchmarks for NPL ratio, limits on loan concentrations, sector limits, and guidance on appropriate loan-to-asset ratios; and there should be clear consequences for violation of these.

Banks' management teams should sharpen their respective internal credit control and due diligence procedures. These include regular project monitoring, close follow-up on repayments from the borrowers, periodic collateral assessment, instituting appropriate and timely remedial measures for accounts in distress, etc. Bank should arrange visits and making reports by the officials regularly to ensure proper utilization of funds.

In order to improve asset utilization and reduce the level of NPLs, bank management and loan officers should always give a serious attention to the health of asset quality specifically loan performance for prevention of loans loss. Besides, loan officers should provide financial counseling to the borrowers on the wise use of loan and should make decision on timely fashion to meet their needs. Willful default of the borrower is another aspect which is required to be keenly sorted out.

Fair pricing of collaterals through competent accounting firms with global best practices is necessary. A data warehouse for collaterals also needs to be set up to bar borrowers from taking loans from several banks by way of using the same properties as collateral. To identify vulnerabilities associated with a large amount of credit disbursement, default and recovery banks should maintain the database for large credit also.

Corporate governance should be strengthened and careful due diligence followed in lending decisions by banks. Efforts are needed to ensure that loans are made only on commercial considerations, devoid of administrative or political influences.

It is better for the bank management to use moderate lending rate and overcome its costs via increasing fees and commission charges on current account and ATM withdrawal charges which are very important to reduce NPLs level as per the result of this study. The banks need to create a situation of relief from significant dependence on interest-based income. To attain this position, the banks should diversify their revenue sources by having an appropriate mix of interest and non-interest bearing assets in their portfolios.

Banks may be controlled by implementing contractionary lending policies during an economic downturn and expansionary lending policies during economic growth to ensure their sustainability in the long run. Bangladesh Banks and policymakers can to act as a guide in this regard.

6.2 Policy Implication

The research findings will certainly bring about some implications for decision makers and regulatory authorities to formulate policy issues in this regard and enrich the existing stock of knowledge in this field. This will certainly encourage future research in this field and helpful to reduce the problem of non-performing loans of lending institution.

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Appendix-1**Percentage of Non Performing Loan by Types of Banks**

Bank Types	SCBs	DFIs	PCBs	FCBs	Total
1997	36.6%	65.7%	31.4%	3.6%	37.5%
1998	40.4	66.7	32.7	4.1	40.7
1999	45.6	65	27.1	3.8	41.1
2000	38.6	62.6	22	3.4	34.9
2001	37	61.8	17	3.3	31.5
2002	33.7	56.2	16.4	2.6	28
2003	29	47.4	12.4	2.7	22.1
2004	25.3	42.9	8.5	1.5	17.6
2005	21.4	34.9	5.6	1.3	13.6
2006	22.9	33.7	5.5	0.8	13.2
2007	29.9	28.6	5	1.4	13.2
2008	25.4	25.5	4.4	1.9	10.8
2009	21.4	25.9	3.9	2.3	9.2
2010	15.7	24.2	3.2	3	7.3
2011	11.3	24.6	2.9	3	6.1
2012	23.9	26.8	4.6	3.5	10
2013	19.8	26.8	4.5	5.5	8.9
2014	22.2	32.8	4.9	7.3	10
2015	21.5	23.2	4.9	7.8	8.8
2016	25.7	26.1	5.4	8.3	10.1
2017	26.5	23.4	4.9	7	9.3
2018	30	19.5	5.5	6.5	10.3
2019	31.6	17.8	7.1	5.5	11.7

Source: Department of Off-site Supervision (DOS), Bangladesh Bank (1997-2019).

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An analysis of cash dividend announcement effect: Evidence from Dhaka Stock Exchange

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Abstract

This paper is written to explore and assess the presence of the cash dividend announcement effect on stock returns in the context of the Dhaka Stock Exchange. The classic event study methodology was used for this purpose and the study period was between 2014-2018. It was found that the cash dividend announcement effect was indeed observed on stock returns in the years 2018, 2016, and 2014 as evidenced by the rejection of the null hypothesis along with certain sectors of the market such as Food & Auxiliary, Fuel, Miscellaneous, etc. also showing a relationship on both the event and post-event dates. The research implications of this study are quite significant to the investors who can utilize this research output to formulate appropriate short-term trading strategies surrounding the cash dividend announcement dates in certain sectors of the market. These trading strategies, if executed properly, might enable the investors to achieve above-market returns during the concerned period. This study explores the cash dividend announcement effect in the context of Bangladesh- something that has not been done extensively in the past. Thus, this study attempts to fill a gap in the existing literature and is thereby a fairly original piece of study. In relation to measuring the event, there may be the influence of confounding factors. Another limitation of this study includes a relatively short study period (5 years). However, the switch from one type of market index to another by the DSE in 2013 precluded the use of a longer study period in this paper.

Keywords: *Announcement effect; Cash dividend; Event study; Dhaka Stock Exchange*

JEL: C12, G14

1. Introduction

To facilitate the goal of maximizing shareholders' wealth, finance managers perform their investment and financing activities in a manner which adds maximum value to the organization. Besides, finance managers also take optimal dividend decisions by taking into consideration various business and economic realities. These dividends provided by corporations are extremely crucial for investors as it forms a portion of their returns. Moreover, dividends may also impact the prices of the stocks and thereby impact

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the capital gain prospect of investors. Such ability of dividends to influence investor return has made dividend announcements and their impacts on stock prices and returns, an interesting domain for scholarly research. There have been numerous studies conducted on dividend policies and these studies have resulted in various dividend theories. Modigliani and Miller (1961) developed the dividend irrelevance theory, hypothesizing that dividends have no effect on the firm value in a perfect world. This is due to two reasons. Firstly, a dividend declaration results in a fall in the price of the securities after the ex-dividend date by the amount of the dividend. As a result, the overall wealth of the investors remains the same as the dividend receipts and stock's price depreciation cancel each other out. Secondly, the ability of investors to create "homemade dividends" also makes dividends irrelevant to them. The findings of this theory are supported by many other academicians such as Miller and Scholes (1978) who claim that dividend is irrelevant even in a world where taxes do exist. Thus, according to the dividend irrelevance theory, cash dividend announcement should have no effect on stock returns for investors. However, Litner (1956) believes that dividends lead to an increase in firm value as shareholders prefer to receive dividends immediately instead of waiting for future possible capital appreciation. Bhattacharya (1979) developed the signaling theory and said that firms use their dividend policy as a instrument to transmit signals to the shareholders regarding the prospect of the firm. As such, the dividend policy can have a significant impact on the value of the firm. According to the signaling theory, a dividend announcement will definitely draw reactions in the market and will impact the share prices and/or return. Asquith and Mullins (1983) supported the signaling theory while studying the impact of dividend payments on shareholder wealth and exhibited empirical proof in favor of the signaling theory. Easterbrook (1984) claims that dividends are of no value on their own. Rather, dividends are important because of their ability to combat the agency costs prevalent in an organization.

It is apparent that there is disagreement among the theories developed by scholars, concerning the implication of dividend declaration on stock prices. Such mixed results are also present in empirical studies with studies divergent results. For example, studies by Gordon (1959), Ogden (1994) have found that dividend announcements affect stock prices positively. On contrary, Bajaj and Vijh (1995) have shown that in perfect or near-perfect market conditions, any announcement of dividend does not have any effect on the return of share prices. Studies conducted in the context of Bangladesh; capital market have also produced conflicting results. Uddin and Chowdhury (2005) found that dividend announcements affected stock prices negatively. A similar observation was made by Mamun et al. (2013). However, Ali and Chowdhury (2010) stated there was no connection between dividend announcements and stock prices in the Bangladeshi capital market. This lack of consensus regarding the effects of cash dividend announcements in Bangladesh presents a research gap that this study wishes to fill. This paper will attempt to add to the existing literature by exploring whether the Bangladeshi capital market responds significantly to cash dividend declarations and identify the nature and direction of stock price movements after cash dividend announcements. In other words, this paper tries to

understand whether or not the presence of dividend announcement affects stock prices on the announcement and post-declaration date of different stocks that are trading in the Dhaka Stock Exchange (DSE). The unique characteristics of the Bangladeshi capital market such as impulsive trading by investors, the greater pervasiveness of day trading, the enhanced tendency of listed firms to declare stock dividends, etc. might also make the effects of cash dividend announcements different from those observed in other countries. This serves as yet another justification for studying the effect of cash dividend declaration in the context of Bangladesh.

The remainder of this paper is structured into seven sections. After the introductory part, Section two contains a detailed review of the existing literature. Section three outlines the objectives of the study. Section four describes the methodology used. Section five constitutes the crux of this paper and contains the data analysis. Section six includes the discussion of the results of the analysis and the findings. Finally, section seven concludes the paper.

2. Literature Review

These dividend theories postulated by different scholars give conflicting opinions concerning the impact of dividend declaration on investors' return. Lee (1995), Kalay and Loewenstein (1985) and, Stevens and Jose (1989) have shown that a statistically significant direct relationship exists between price return and cash dividend announcement. Eades, Hess, and Kim (1985) drew similar conclusions using a very similar methodology but they could not conclude how long it took for the result to be achieved. Chen et al.(2009) claimed that cash dividend declarations have a positive effect on share prices of stocks listed in various Chinese stock markets. However, the degree to which this was caused by the dividend signaling hypothesis was not conclusively identified. Yahyae et al. (2010) studied the impact of the dividend announcement effect in the Oman market. They found that the impact that dividend announcement has depends on the nature and amount of dividend declared. An announcement of a dividend-increase results in a rise in the stock prices whereas a declaration of decreased dividend results in stock prices falling. Dasilas and Leventis (2011) analyzed the dividend announcement effect in the context of the Greek capital market and found that the market reacted strongly to dividend announcements. Moreover, strong evidence was provided suggesting that such reactions to dividend announcement were due to the signaling effect hypothesis. Suwanna (2012) studied 60 Thai companies listed in the Thai stock exchange and showed that dividend declarations have a significant impact on the stock price during the forty days surrounding the announcement. Moreover, the study showed that dividend announcement effect is not only a reason for significant abnormal return but also raises cumulative abnormal return and this supported the presence of the dividend signaling effect. Ngoc and Cuong (2016) examined 432 listed companies in Vietnam and found that cash dividend announcements result in a rise in stock prices around the announcement date. Moreover, they also showed that such a rise in security prices persisted until the ex-dividend date, and subsequent to this date the stock prices started to decline. Anwar et al. (2017) concluded

the cash dividend announcement effect is present among manufacturing companies listed in the Bombay stock exchange. They showed that cash dividend announcements result in positive AARs and such AARs are impacted by the recession.

However, contrary findings are also there in the literature. Kalay and Loewenstein (1985) had found results that contradicted this conclusion where they found that daily abnormal returns around the announcement date were significant. It was further found that the market's reaction was in fact a bit slow and it took a couple of days to realize significant results. While such an incidence was higher for stocks that were priced lower, the opposite was the case for stocks with higher prices. Bajaj and Vijh (1995) suggested that in perfect or near-perfect market conditions, any announcement of dividend should not have any effect on the return of share prices. Uddin and Chowdhury (2005) examined the effect of dividend declaration on shareholders' value in the perspective of the Bangladesh capital market and found that dividend announcement has a negative impact on the return of investors. He claimed that investors lost almost 20% in the value of their stocks during the event window due to the announcement of the dividend and he attributed this decline as a support for the dividend irrelevancy theory. Ali and Chowdhury (2010) explored the impact of dividend announcement on the stock price of listed banks in the Dhaka stock exchange. They found no statistically significant relationship between dividend announcement and stock prices. Karim (2010) analyzed the impact of dividend announcement on stock prices in the London stock exchange and compared it with the impact in New York Stock exchange. He concluded that dividend announcement did not affect stock prices in NYSE. However, an inverse relationship was observed in the LSE whereby a positive dividend announcement brought about a negative market reaction and vice versa. Mamun et al.(2013) also examined the reaction of stock prices to dividend announcements in Bangladesh. They found that dividend declaration actually hurts investor returns by bringing about a fall in the stock prices both in the pre-dividend and post-dividend periods. Kadioglu et al. (2015) employed a panel regression method to examine 902 dividend announcements between 2003 to 2015 in the Istanbul stock market. They found that there exists a significant negative relationship between cash dividends per share and abnormal returns following the announcement of the dividend. They attributed this pattern to the tax clientele hypothesis effect whereby investors sold off their holdings subsequent to dividend declaration in a bid to avoid further taxes. Such a surge in sales of securities led to a fall in the prices of the stocks. Rabbani (2017) studied the announcement effect of cash dividend changes on the prices of stocks listed in the Dhaka stock exchange. According to this study, a zero change in announced dividend and an increase in announced dividend both didn't have any impact on the return of investors as evidenced by a normal return during the event period. However, announcements of increased dividends resulted in statistically significant abnormal return in the pre-announcement period whereas announcements of decreased dividends resulted in an abnormal negative return during the announcement date and the 20 days following the announcement date. In addition to empirical studies examining the immediate effect of dividend announcement on stock prices, many studies have focused on the longer-term effect. Bernard and Thomas

(1989) showed that markets often exhibit a phenomenon known as the “post-earnings announcement drift” whereby the market fails to react adequately initially and thereby leaves room for subsequent drifts. Bremer and Sweeny (1991) made similar findings but rationalized them differently. They suggested that stock prices changed after cash dividend announcements due to market overreaction and mean reversion in stock prices. They also did a study on about ten percent of the large stocks in the New York Stock Exchange and they had concluded that duration of six days post-declaration, prices reverted to almost 30% when it came to the stocks that had lost value or price. However, in the case of stocks that had seen a price increase, nothing of a similar sort was observed. Shefrin and Statman (1984) analyzed the effect of announcement or omissions of dividends through the “clienteles effect” theory. According to this theory, cash dividend announcements might bring about abnormal returns by causing a change in the category of the stockholder. This may be due to the fact that while some stockholders may prefer cash dividends due to the regular pattern of income, others may not prefer it since it has a negative tax effect.

3. Objectives

The primary objective of this paper is to identify the cash dividend announcement effect and recognize whether any market reaction occurs on the event and post-event date in the Dhaka stock exchange as a response to the announcement of a cash dividend. Moreover, exploration of year-wise and sector-wise market response to the declaration of the cash dividend is also an objective.

4. Methodology

Sources of data

This study makes exclusive use of secondary data. No questionnaire or survey has been conducted to complete the study. Relevant data for this study was obtained from the DSE library. Dividend declaration dates, price data of all the companies along with the market index were collected from the year 2014 to 2018.

Sampling technique and size

No sampling was used in this study. All cash dividend-paying companies throughout the five-year study period, with at least 90-day trading history prior to the event date, were selected for the study.

Event Study Methodology

The event study methodology is utilised in this study to explore and measure the relationship between the cash dividend announcement and stock price. Event study methodology is justified for this study as a similar methodology has been used in the past by Suwanna (2012), Hasan et al. (2012), and Rabbani (2017). Event study determines the impact an event has on the securities or the return of those securities. Events may be in many forms, such as changes in political condition, economic shock, dividend policy,

stock split, etc. In this study, the event was considered to be the announcement of cash dividends. The event study methodology involved determining security-specific returns around the event date and then aggregating those results to assess whether or not a pattern persists.

The following systematic steps have been used to conduct the event study:

- Defining the event and its timing: Only the firms that have already declared a cash dividend are taken in the study. The declaration of the event is considered to be the event and the date on which this takes place has been considered as the event date.
- Organizing the stock performance data against the occurrence of an event: 90 days of the event window was considered along with the event date (t) and the day immediately after the event date as the post-event date (t+1).
- Extracting stock specific portion of the return from the stock's total return at the pre-event period: The objective here is to measure the performance that has occurred as a result of an event. To do this, one must first establish what entails a "normal" return or performance and use that knowledge to establish what can be considered as "abnormal" performance. The amount by which the event returns differ from non-event returns (probable returns unrelated to the event) is the abnormal return. The adjusted market model has been used to determine the expected return, where it is assumed that probable returns are same among all shares at a certain point of time t, however, these returns may differ at different times. Market model approach has been applied in this study whereby the Ordinary Least Square technique is used to isolate security-specific returns. Firstly, daily returns of individual securities of the pre-event period from t- 90 through t- 1 are regressed on the return of the market of the same period. Now, the calculation of the stock-specific return is represented as follows:

$$A_{i,t} = R_{i,t} - \alpha_i - \beta_i (R_{m,t})$$

Where

$A_{i,t}$ = security- specific return of security i in period t or the Abnormal Return.

$R_{i,t}$ = total return of security i in period t

α_i = alpha or intercept of security i estimated from pre-event measurement period using Ordinary Least Square method.

β_i = beta or slope of security i estimated from pre-event measurement period.

$(R_{m,t})$ = total return of market in period t.

- The standard deviation of daily stock return for the pre-event period of t-90 to t-1 has also been calculated using the following equation:

$$\sigma_{i,pre} = \sqrt{\frac{\sum_{t=-90}^i (A_{i,t} - A_{i,pre})^2}{n-1}}$$

Where,

$\sigma_{i,pre}$ = standard deviation of security specific returns of security i estimated from pre-event measurement period

$A_{i,pre}$ = average of security specific returns of security i estimated from pre-event measurement period

n = number of days in the pre-event measurement period

- Segregating the stock return during the event and post-event periods: In order to determine the abnormal return on the event and post-event dates, one needs to subtract the expected return as suggested by the market return that day and the alpha and beta determined from regressing the stock returns on the market index returns, from the total or actual return of the stocks in those days. The equation applied in step three has been reused for estimating these returns with a subtle difference in that the subscript t, ranges from 0 to +1 replacing -90 to -1.
- Then the security-specific returns and the standard deviation of returns of the securities included in the sample of the study have to be aggregated both on the event day and the post-event days. This is done by summing up the abnormal returns on the event day and post-event day and dividing this aggregated value by the number of events/stocks in that year. This can be represented through the following equation

$$\bar{A}_t = \frac{\sum_{i=1}^N A_{i,t}}{N}$$

Where

\bar{A}_t = Mean of all stocks of stock returns

N = Numbers of stocks considered

The standard deviations are combined by utilizing the following equation:

$$\sigma_{N,pre} = \sqrt{\frac{\sum_{i=1}^N \sigma_{i,pre}^2}{N}}$$

Where

$\sigma_{N,pre}$ = Sum of pre-event standard deviations of stock specific returns of all securities.

- Finally, the assumption needs to be tested to examine whether the stock-specific returns on the event day and post-event days vary significantly from the value of zero.

The null hypothesis, in this case, is, therefore, that the abnormal return on the declaration date and post-declaration date is zero, therefore suggesting that any significant result suggests the rejection of the null hypothesis. A rejection of the null hypothesis bears huge implications as it suggests the possibility of being able to outperform the market by achieving predictable abnormal returns. In order to test the hypothesis, the T-statistic was used and it is calculated in the following manner:

$$t - statistic = \frac{\bar{A}_t}{\sigma_{N,pre}}$$

This study is based on the following hypothesis:

H0: The abnormal or the stock-specific returns on the declaration date and post-declaration date is zero

H1: The abnormal returns or the stock-specific returns on the declaration date and post-declaration date vary from zero.

5. Data Analysis and Results

Overview of Dhaka Stock Exchange

DSE as of December 2018 had 578 numbers of listings. The market cap of this stock exchange has amounted to \$ 46,123 million. Indexes used to reflect price changes in DSE are DSE 30, DSE Sharia, and DSEX. However, previously the market has used DGEN the main index for the stock exchange. Throughout 2018, the DSEX was seen to decrease by 10.83%, that is by 858.88 points to 5385.65 points. The total turnover was seen to decrease from BDT 92,382 million at the end of 2017 to BDT 87,055 million. The market cap also saw a decrease from BDT 4,234,237 million at the start of 2018 to BDT 4,185,133 million. According to analysts, the main reason for the fall of the market during the period was the political tension surrounding the 11th general election.

Overview of Cash Dividend Payment History

The following table demonstrates, the number of companies, classified by sector or industry who have paid cash dividends for the last years, i.e. from 2014 to 2018. The Banking, Cement, Engineering, Insurance, IT, Miscellaneous, Pharmaceuticals sectors have seen distinctive increases in the number of such companies, the likes of Ceramic, Paper & Printing have remained somewhat steady, the rest of them have seen a decrease in the number of such companies.

Table 1: Total Cash Dividend Paying Companies

Sector/Industry	Year				
	2014	2015	2016	2017	2018
Bank	14	15	17	18	23
Cement	4	6	6	7	7
Ceramic Sector	3	3	3	3	3
Engineering	15	13	16	17	23
Financial Institution	6	6	13	17	12
Food & Allied	6	7	7	7	6
Fuel & Power	5	5	7	17	18
Insurance	15	21	26	29	31
IT Sector	2	1	1	3	4
Jute	3	2	3	3	2
Miscellaneous	4	4	5	6	7
Paper & Printing	1	1	2	2	1
Pharmaceuticals & Chemicals	13	15	18	18	22
Services & Real Estate	1	2	2	2	3
Tannery Industries	3	3	3	3	3
Telecommunication	2	2	2	1	2
Textile	11	15	18	22	25
Travel & Leisure	1	1	2	2	2
Total Cash Dividend Paying Companies	109	122	151	177	194

Source: DSE

To better understand the trend, we can see that the total number of companies paying cash dividends has seen an increase over this timeline, While the total number of cash dividend-paying companies in 2014 was 109, this has jumped up to a total of 194 companies in 2018. The following figure helps to better understand the industry-wise classification for a particular year. We can see that the Insurance Sector predominantly likes to pay cash dividends, with 16% of the total quantity of cash-dividend disbursed firms coming from the insurance industries. The textile sector was at 13% while Banking, followed by Engineering were both at 12%. Pharmaceuticals were also close to them at 11%.

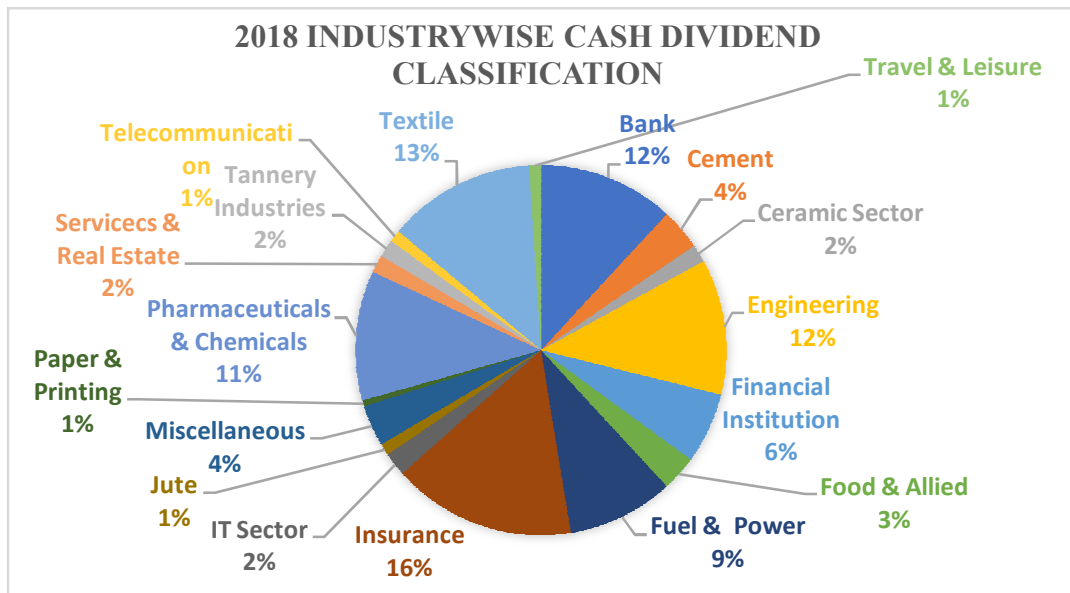


Figure 12018 industry-wise Cash Dividend Classification

Cash Dividend Announcement Effect Analysis

Analysis of the year 2018

The t-test performed at the declaration date resulted in a t value of -3.83 (Table 2) and this resulted in the null hypothesis being rejected on both the 1% and 5% significance level (Table 3). This means that the market reacted quite significantly at the event date in 2018 and this reaction was equivalent to an abnormal return of -5.79%. However, the null hypothesis is accepted at the post-declaration date having a t value of 1.23 (Table 2) which is once again significant at 1% and 5% significance level. This implies the lack of statistically significant reaction at the post-event date.

Table 2: Analysis of the Year 2018

2018		
Event Date	Abnormal Return	-5.79%
	Std. Dev	1.51%
	t-statistic	-3.83
Post Event Date	Abnormal Return	1.86%
	Std. Dev	1.51%
	t-statistic	1.23

Table 3: Hypothesis Analysis of 2018

2018					
Event Date			Post Event Date		
t-statistic	Null hypothesis		t-statistic	Null hypothesis	
	1%	5%		1%	5%
-3.83	Reject	Reject	1.23	Accept	Accept

As far as the sectoral analysis is concerned (Table 1A), on the event date, the null hypothesis was rejected at both 1% and 5% significance levels for the Cement sector, and Fuel & Power sectors as they had a t- statistic of 7.36 and -4.72 respectively. These two sectors had abnormal returns of 2.43% and -5.43% respectively. On the other hand, for Engineering, Food & Allied, and Miscellaneous sectors the null hypothesis got rejected only at the 5% significant level. They had t-statistics of -2.59, -3.54 and -3.26 respectively while their respective abnormal returns were -3.62%, -4.57% and -2.97%. On the post-event date, only Cement, Fuel & Power, and Services & Real Estate saw significant result at 5% level with t-statistic of 2.45, -2.56, and -2.93 respectively.

Analysis of the year 2017

The t-test performed at the date of event resulted in a t value of 1.36 (Table 4) and this resulted in the null hypothesis being accepted on both the 1% and 5% significance level (Table 5). This means that there was no statistically considerable market response at the event date in 2017 with the reaction being equivalent to an abnormal return of only -5.79%. Moreover, the null hypothesis is accepted at the post-declaration date as well due to having at value of -0.89 (Table 4). This implies the lack of statistically significant reaction at the post-event date.

Table 4: Analysis of the Year 2017

2017		
Event Date	Abnormal Return	1.28%
	Std. Dev	0.94%
	t-statistic	1.36
Post Event Date	Abnormal Return	-0.48%
	Std. Dev	0.54%
	t-statistic	-0.89

Table 5: Hypothesis Analysis of 2017

2017					
Event Date			Post Event Date		
t-statistic	Null hypothesis		t-statistic	Null hypothesis	
	1%	5%		1%	5%
1.36	Accept	Accept	-0.89	Accept	Accept

For 2017 on the event date, the results of the sectoral analysis are represented in Table 2A. The Cement, Food & Allied, and Jute sectors saw the null hypothesis getting rejected only at the 5% significant level. They had t-statistics of 2.52, -3.70 and -5.44 respectively while their respective abnormal returns were -2.90%, -4.26% and -11.91%. The rest of the sectors saw t-statistics that failed to reject the null hypothesis. On the post-declaration date, none of the sectors saw any statistically significant result at either of the levels.

Analysis of the year 2016

In 2016, the value of t-statistic was found to be 2.35 (Table 6) and the null hypothesis was only rejected from the context of the 5% significance level (Table 7). The market was also seen to react significantly at the declaration date in 2016, generating an excess return of 1.29%. However, at the post-declaration date, no statistically significant result was found with a t-statistic value of -0.4.

Table 6: Analysis of the Year 2016

2016		
Event Date	Abnormal Return	1.29%
	Std. Dev	0.55%
	t-statistic	2.35
Post Event Date	Abnormal Return	-0.22%
	Std. Dev	0.55%
	t-statistic	-0.40

Table 7: Hypothesis Analysis of 2016

2016					
Event Date			Post Event Date		
t-statistic	Null hypothesis		t-statistic	Null hypothesis	
	1%	5%		1%	5%
2.35	Accept	Reject	-0.40	Accept	Accept

As far as the sectoral analysis is concerned (Table 3A), in 2016 on the event date, the null hypothesis was rejected at both 1% and 5% significant levels only for Food & Allied with a t-statistic of 4.16. An abnormal return of 5.07% was found in this case. On the other hand, for only Pharmaceuticals & Chemical sector, the null hypothesis got rejected only at the 5% significant level. The t-statistic was 2.18 with an excess return of 2.59%. On the post-declaration date, only Food & Allied saw significant result at 5% level with t-statistic of 3.28.

Analysis of the year 2015

The t-test performed at the event of declaration resulted in a t-value of -1.98 (Table 8) and this resulted in the null hypothesis being accepted on both the 1% and 5% significance level (Table 9). This means that there was no significant market response at the declaration date in 2015 with the reaction being equivalent to an abnormal return of only -2.45%. Moreover, the null hypothesis is accepted at the post-event date as well having a t value of -0.17 once again at 1% and 5% significance level. This implies the lack of statistically significant reaction at the post-event date as well.

Table 8: Analysis of the Year 2015

2015		
Event Date	Abnormal Return	-2.45%
	Std. Dev	1.24%
	t-statistic	-1.98
Post Event Date	Abnormal Return	-0.26%
	Std. Dev	1.51%
	t-statistic	-0.17

Table 9: Hypothesis Analysis of 2015

2015					
Event Date			Post Event Date		
t-statistic	Null hypothesis		t-statistic	Null hypothesis	
	1%	5%		1%	5%
-1.98	Accept	Accept	-0.17	Accept	Accept

In 2015 for only Food & Allied sector the null hypothesis got rejected at the 5% significant level (Table 4A). The t-statistic was -6.47 with the excess return of -6.79%. On the post-declaration date, only Food & Allied saw significant result at 5% level with t-statistic of 3.87.

Analysis of the year 2014

The t-test performed at the declaration date resulted in a t value of -4.05 (Table 10) and this resulted in the null hypothesis being rejected on both the 1% and 5% significance level (Table 11). This means that the market reacted quite significantly at the event date in 2014 and this reaction was equivalent to an abnormal return of -5.79%. However, the null hypothesis is accepted at the post declaration date having a t value of 0.09. This implies the lack of statistically significant reaction at the post-event date.

Table 10: Analysis of the Year2014

2014		
Event Date	Abnormal Return	-2.47%
	Std. Dev	0.61%
	t-statistic	-4.05
Post Event Date	Abnormal Return	0.14%
	Std. Dev	1.51%
	t-statistic	0.09

Table 11: Hypothesis Analysis of 2014

2014					
Event Date			Post Event Date		
t-statistic	Null hypothesis		t-statistic	Null hypothesis	
	1%	5%		1%	5%
-4.05	Reject	Reject	0.09	Accept	Accept

In the year 2014 for only Ceramic and Engineering sectors, the null hypothesis got rejected only at the 5% significant level (Table 5A). The t-statistic was -4.54 and -2.40 with abnormal returns of -8.13% and -4.54%. On the post-event date, the statistically significant result could not be found for any of the sectors.

6. Findings

Based on the analysis conducted in this study, it has been found that the cash dividend announcement effect was indeed observed in the years 2018, 2016, and 2014 as evidenced by the rejection of the null hypothesis. This is in accordance with the findings of past studies conducted by the likes of Lee (1995), Kato and Loewenstein (1995), Ogden (1994), Stevens and Jose (1989), and Gordon (1959) who all also reported statistically noteworthy results after the announcement of a cash dividend. On the event date, the rejection was caused by a significant negative change in the abnormal returns in the years

2018 and 2014. This finding may have an impact on the strategy that day traders engage in the stock exchange; for instance, it insinuates that traders should avoid purchasing dividend paying stocks on the event date because it is likely to result in significant negative abnormal returns. Furthermore, given that Bangladesh Securities Exchange Commission has already drafted a rule for Short Sales for shares and is likely to be introduced in the future, day traders may also engage in the short sale of shares on the event date to profit from a fall in share prices of dividend paying stocks. There was no detection of any abnormal return in the post-event dates in any of the years. This suggests that it is not worthwhile for investors to engage in short-term trading based on dividend induced price movements on or after the post-event date.

7. Conclusion

Finance literature states that a cash dividend announcement will not have any impact on the market price in a perfect market. However, this study shows that some market reaction against cash dividend declaration has indeed been observed in Bangladesh. This raises questions regarding the prevalence of a perfect stock market in our country. The study also suggests that in the years 2015 and 2017 the market remains statistically insensitive. Besides, in 2014, 2016, and 2018 market presented a significant sensitivity against the declaration. One of the limitations of the methodology of this paper is the issue in relation to measuring events. Concerning measuring the event, there may be the influence of confounding factors. The declaration of dividend was defined as the event in this paper but for some securities, this announcement may overlap with some other information, for instance, the information about earnings. In addition to that, a period of five years was taken which may be deemed as a relatively short term for such a study. However, DSE's decision to change the market index from DGEN to DSEX in 2013 precludes the use of a longer study period for this paper.

This particular paper only looked at the impact of the declaration of a cash dividend on stock return in general. However, there is scope to assess whether or not any firm characteristic (such as firm size, firm category in the stock exchange) influences the relationship between the announcement of cash dividends and stock returns. Furthermore, this paper was not used to pry about the market efficiency of the Dhaka Stock Exchange. This is another area of interest that can be looked into in further studies. Finally, there has been very little work done, if any, on the effect of the announcement of stock dividend on stock returns/ shareholders' value especially in the context of Bangladesh. Therefore, more research is needed to explore this particular area of the announcement effect of dividend on stock returns. From thereon, it will also be possible to assess whether the effect of the declaration of stock dividends consistent with that of cash dividend or do they vary.

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Appendices

Table 1: A Sector wise Analysis of 2018

2018									
Sector	Std. Dev	Event Date				Post Event Date			
		AR	t-statistic	Null hypothesis		AR	t-statistic	Null hypothesis	
				1%	5%			1%	5%
Bank	0.31%	-0.50%	-1.61	Accept	Accept	-0.61%	-1.97	Accept	Accept
Cement	0.33%	2.43%	7.36	Reject	Reject	2.81%	2.45	Accept	Reject
Ceramic Sector	1.58%	-1.74%	-1.10	Accept	Accept	-0.87%	-0.55	Accept	Accept
Engineering	1.40%	-3.62%	-2.59	Accept	Reject	0.21%	0.15	Accept	Accept
Financial Institution	1.55%	0.88%	0.57	Accept	Accept	-1.07%	-0.69	Accept	Accept
Food & Allied	1.29%	-4.57%	-3.54	Accept	Reject	0.72%	0.56	Accept	Accept
Fuel & Power	1.15%	-5.43%	-4.72	Reject	Reject	-3.02%	-2.56	Accept	Reject
Insurance	1.60%	-0.45%	-0.28	Accept	Accept	-0.45%	-0.28	Accept	Accept
IT Sector	1.27%	-2.32%	-1.83	Accept	Accept	1.33%	1.05	Accept	Accept
Jute	2.40%	-1.62%	-0.68	Accept	Accept	-1.25%	-0.52	Accept	Accept
Miscellaneous	0.91%	-2.97%	-3.26	Accept	Reject	-1.03%	-1.13	Accept	Accept
Pharmaceuticals & Chemicals	1.40%	-1.26%	-0.90	Accept	Accept	-0.37%	-0.26	Accept	Accept
Services & Real Estate	1.04%	-0.83%	-0.80	Accept	Accept	-3.01%	-2.93	Accept	Reject
Tannery Industries	1.25%	-2.45%	-1.96	Accept	Accept	-0.07%	-0.06	Accept	Accept
Telecommunication	0.31%	1.31%	4.23	Accept	Accept	-0.39%	-1.26	Accept	Accept
Textile	1.17%	2.19%	1.87	Accept	Accept	0.62%	0.53	Accept	Accept
Travel & Leisure	1.06%	-4.82%	-4.55	Accept	Accept	0.85%	0.80	Accept	Accept

Table 2: A Sector wise Analysis of 2017

2017									
Sector	Std. Dev	Event Date				Post Event Date			
		AR	t-statistic	Null hypothesis		AR	t-statistic	Null hypothesis	
				1%	5%			1%	5%
Bank	0.37%	-0.48%	-1.30	Accept	Accept	-0.09%	-0.24	Accept	Accept
Cement	1.15%	2.90%	2.52	Accept	Reject	-0.77%	-0.67	Accept	Accept
Ceramic Sector	1.95%	1.67%	0.86	Accept	Accept	-1.54%	-0.79	Accept	Accept
Engineering	1.44%	-2.55%	-1.77	Accept	Accept	-0.64%	-0.44	Accept	Accept
Financial Institution	1.21%	0.27%	0.22	Accept	Accept	-0.64%	-0.53	Accept	Accept
Food & Allied	1.15%	-4.26%	-3.70	Accept	Reject	-0.40%	-0.35	Accept	Accept
Fuel & Power	1.24%	-1.61%	-1.30	Accept	Accept	-0.20%	-0.16	Accept	Accept
Insurance	1.30%	-0.48%	-0.37	Accept	Accept	-0.21%	-0.16	Accept	Accept
IT Sector	1.25%	2.41%	1.93	Accept	Accept	-3.90%	-3.12	Accept	Accept
Jute	2.19%	-11.91%	-5.44	Accept	Reject	-4.22%	-1.93	Accept	Accept
Miscellaneous	1.62%	-1.41%	-0.87	Accept	Accept	1.07%	0.66	Accept	Accept
Paper & Printing	2.71%	-9.13%	-3.37	Accept	Accept	3.66%	1.35	Accept	Accept
Pharmaceuticals & Chemicals	1.60%	0.23%	0.14	Accept	Accept	-0.55%	-0.34	Accept	Accept
Services & Real Estate	1.46%	-2.23%	-1.53	Accept	Accept	3.40%	2.33	Accept	Accept
Tannery Industries	1.29%	0.23%	0.18	Accept	Accept	0.67%	0.52	Accept	Accept
Textile	1.81%	1.24%	0.69	Accept	Accept	-1.39%	-0.77	Accept	Accept
Travel & Leisure	1.62%	-0.83%	-0.51	Accept	Accept	0.81%	0.50	Accept	Accept

Table 3: A Sector wise Analysis of 2016

2016									
Sector	Std. Dev	Event Date				Post Event Date			
		AR	t-statistic	Null hypothesis		AR	t-statistic	Null hypothesis	
				1%	5%			1%	5%
Bank	0.78%	-0.01%	-0.01	Accept	Accept	1.36%	1.74	Accept	Accept
Cement	0.97%	-1.20%	-1.24	Accept	Accept	0.49%	0.51	Accept	Accept
Ceramic Sector	1.18%	2.38%	2.02	Accept	Accept	1.27%	1.08	Accept	Accept
Engineering	1.62%	-0.24%	-0.15	Accept	Accept	-1.21%	-0.75	Accept	Accept
Financial Institution	1.31%	0.95%	0.73	Accept	Accept	-0.95%	-0.73	Accept	Accept
Food & Allied	1.22%	5.07%	4.16	Reject	Reject	3.34%	3.28	Accept	Reject
Fuel & Power	1.19%	-0.80%	-0.67	Accept	Accept	1.46%	1.23	Accept	Accept
Insurance	1.32%	1.12%	0.85	Accept	Accept	0.32%	0.24	Accept	Accept
Jute	1.37%	-4.60%	-3.36	Accept	Accept	-5.64%	-4.12	Accept	Accept
Miscellaneous	1.28%	0.18%	0.14	Accept	Accept	-1.80%	-1.41	Accept	Accept
Pharmaceuticals & Chemicals	1.19%	2.59%	2.18	Accept	Reject	-1.36%	-1.14	Accept	Accept
Services & Real Estate	1.04%	-3.18%	-3.06	Accept	Accept	-1.66%	-1.60	Accept	Accept
Tannery Industries	1.78%	-2.54%	-1.43	Accept	Accept	0.03%	0.02	Accept	Accept
Telecommunication	1.23%	-3.33%	-2.71	Accept	Accept	0.54%	0.44	Accept	Accept
Textile	2.21%	0.82%	0.37	Accept	Accept	-0.36%	-0.16	Accept	Accept

Table 4: A Sector wise Analysis of 2015

2015									
Sector	Std. Dev	Event Date				Post Event Date			
		AR	t-statistic	Null hypothesis		AR	t-statistic	Null hypothesis	
				1%	5%			1%	5%
Cement	1.64%	-7.12%	-4.34	Accept	Accept	1.95%	1.19	Accept	Accept
Ceramic Sector	1.10%	-0.10%	-0.09	Accept	Accept	-2.92%	-2.65	Accept	Accept
Engineering	0.97%	1.68%	1.73	Accept	Accept	1.53%	1.58	Accept	Accept
Financial Institution	1.23%	-5.08%	-4.13	Accept	Accept	-1.07%	-0.87	Accept	Accept
Food & Allied	1.05%	-6.79%	-6.47	Accept	Reject	-5.06%	3.87	Accept	Reject
Fuel & Power	1.32%	-1.94%	-1.47	Accept	Accept	2.30%	1.74	Accept	Accept
Insurance	2.31%	-0.32%	-0.14	Accept	Accept	-0.24%	-0.10	Accept	Accept
Pharmaceuticals & Chemicals	1.76%	-3.43%	-1.95	Accept	Accept	0.42%	0.24	Accept	Accept
Textile	1.87%	-1.85%	-0.99	Accept	Accept	-1.14%	-0.61	Accept	Accept

Table 5: A Sector wise Analysis of 2014

2014									
Sector	Std. Dev	Event Date				Post Event Date			
		AR	t-statistic	Null hypothesis		AR	t-statistic	Null hypothesis	
				1%	5%			1%	5%
Bank	1.44%	-2.02%	-1.40	Accept	Accept	0.26%	0.18	Accept	Accept
Cement	1.89%	-1.50%	-0.79	Accept	Accept	3.40%	1.80	Accept	Accept
Ceramic	1.79%	-8.13%	-4.54	Accept	Reject	3.02%	1.69	Accept	Accept
Engineering	1.89%	-4.54%	-2.40	Accept	Reject	-0.34%	-0.18	Accept	Accept
Financial Institution	1.40%	-2.47%	-1.76	Accept	Accept	-0.03%	-0.02	Accept	Accept
Food & Allied	1.29%	1.97%	1.53	Accept	Accept	0.65%	0.50	Accept	Accept
Fuel & Power	1.32%	-3.62%	-2.74	Accept	Accept	-0.67%	-0.51	Accept	Accept
Insurance	1.60%	-2.19%	-1.37	Accept	Accept	0.34%	0.21	Accept	Accept
IT Sector	1.63%	-0.82%	-0.50	Accept	Accept	4.94%	3.03	Accept	Accept
Jute	1.58%	-0.91%	-0.58	Accept	Accept	-4.76%	-3.01	Accept	Accept
Miscellaneous	2.02%	1.70%	0.84	Accept	Accept	2.34%	1.16	Accept	Accept
Pharmaceuticals & Chemicals	2.37%	1.05%	0.44	Accept	Accept	-0.71%	-0.30	Accept	Accept
Tannery Industries	1.25%	3.38%	2.70	Accept	Accept	0.21%	0.17	Accept	Accept
Textile	1.17%	0.54%	0.46	Accept	Accept	1.16%	0.99	Accept	Accept

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An Exploratory Approach to Pro-Poor Tourism and Poverty Alleviation of Some Selective Tourism Destinations in Bangladesh

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Abstract

Pro-Poor Tourism is set up in developing countries as a means to develop the local economy and the living standard of the local people. It promotes the linkages between tourism businesses and poor people, so that poverty is decreased, and poor people are able to involve more effectively in tourism development. Pro-Poor Tourism also provides special importance to involvement of local people of the society and to generate employment opportunities. However, it is observed that studies on Pro-Poor tourism and poverty alleviation have not been thoroughly investigated empirically to explore the real mechanism of tourism development and poverty alleviation for the Cox's Bazar, Rangamati and Kuakata, in Bangladesh. Thus, the main objective of the present study is to find out the role of pro-poor tourism and poverty alleviation in the context of Bangladesh. An exploratory research approach has been used to find out the main considerable issues of the pro-poor tourism and poverty alleviation. It is found from the in depth interview that the poor people are not much more aware regarding the role of tourism for reducing the poverty. The findings of this study are categorized into five important determinants-Social, Economic, Institutional, Environmental and Visitors which play multiplier role on Pro-Poor Tourism for poverty alleviation. The outcomes of this study could be applied in developing and underdeveloped countries by the policymakers for reducing poverty.

Keyword: *Pro-Poor Tourism, Poverty Alleviation, Qualitative Approach*

1. Introduction

Poverty has been emerged as a global challenge for centuries which continues to be. In 2018, it is estimated that 8.6 percent of the world's population was living in extreme poverty as the proportion of people living below the \$1.90 a day and it came down from about 28 per cent in 2000 and 16 per cent in 2010 (UN 2019). More than 12 countries are the inhabitants of 80% of the world's poor people and in 11 of them,

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tourism is a promising sector or at least a multiplying sector which contribute over 2% of GDP and 5% of international visitor exports. As a growth sector, international tourism has the potential to provide the economic benefits to a large number of poor population of developing countries (Spenceley, 2008).

The impetuous growth of the tourism industry over the last 3 decades has been recognized as the most noticeable economic and social phenomenon of this period (UNWTO, 2018). The growth confirms that the tourism sector is one of the most powerful drivers of economic growth and development today. It is our responsibility to manage it in a sustainable manner and transform this expansion into real benefits for all countries, and particularly to all local communities. Holding the concept of creating jobs opportunities and entrepreneurship, United Nations World Travel Organization (UNWTO) celebrated world tourism day 2019. There are several types of tourism under the Pro-Poor Tourism (PPT) approach. The only objective of Pro-Poor Tourism is to contribute the perceived benefits through tourism to the local community at any tourism destinations. Therefore, capacity building, stakeholders' support and infrastructure development play an important role in increasing local people's well-being. The main application of the PPT concept is to involve the poor into the tourism sector to improve their quality of life by providing them job and income generation opportunities.

Significant number of people of Bangladesh is stuck in extreme poverty that is difficult to solve the crippling problems of hunger, diseases and lack of infrastructure. Pro-Poor Tourism is an effective way to reduce poverty in a developing country like Bangladesh. It is also a means of improving the local economy for the benefits of local people. It builds and strengthens the linkages between tourism businesses and poor people that reduce poverty and enable poor people to participate effectively in the tourism development process. The two main objectives of PPT are to increase local employment and involve the local people in the decision making process. Any type of tourism stakeholder beyond the type such as a small lodge or a tour operator can be engaged in PPT. The Pro-Poor Tourism does not deal with the type of company or the type of tourism. It actually emphasis on increasing the net benefits of tourism for the poor people. Although the economic significance of tourism is primarily lauded in terms of its contribution to foreign exchange earnings, it also contributes towards generating employment opportunities, utilizing human resources and growth and development of industries and services related to tourism. With proper interventions, such economic benefits can play a crucial role in the process of poverty alleviation (Chichi, 2016). Even though there are multifold benefits of the PPT for any developing county like Bangladesh, this area is largely neglected. It is yet to explore the importance of PPT for poverty alleviation in Bangladesh. Thus, it is essential to have an exploratory research work on PPT.

Literature Review

The authors have reviewed a number of empirical and conceptual studies where different aspects on pro-poor tourism and poverty alleviation have mentioned. Only few are given in the following sections.

Ashley, Goodwin and Roe (2001) have examined six case studies of Pro-Poor Tourism initiated in Nepal, Uganda, St Lucia, Namibia, South Africa, and Ecuador. The study reveals the effects of Pro-Poor Tourism initiatives such as getting financial facilities for the poor, cultural product degeneration, business exploration opportunity, asset circulation for the poor, and involvement in tourism industry. **However, this study does not find the mechanism of poverty alleviation through pro-poor tourism.**

The study by Wood (2005) discusses the possibilities of using Pro-Poor Tourism can as a tool for achieving sustainable development in Peru. Meyer (2006), focused on the positive relationship between tourism business and local community in the Dominican Republic and the wider Caribbean. These studies try to show the relationship between tourism industry and the participation of local community in it **but do not show the contribution and interplay of different stakeholders involved in this tourism industry.**

According to a study in Burundi (Novelli, Morgan, and Nibigira, 2012) socio-economic enhancement can be achieved by training in the tourism industry. Thus training regularly provides people chances to get better jobs and increase their wealth which is essential to developing human capital in poverty alleviation. **However, the study fails to emphasize on stakeholder contributions in Pro-Poor Tourism both social and economic aspect.**

According to Pardellas, Padin, Vareiro, and Ribeiro (2004) the environment aspects has become more considerable since the last two decades, owing to a newer generation of tourists. Tourism, together with attractive natural landscapes and rural ambiance combined with traditional hospitality offer pleasant experiences to the tourists looking for relaxation and recreation. This also provides locals an income source from the tourism. **However, how the poverty alleviation can be possible is ignored in this study.**

Kitnuntaviwat and Tang (2008) mentioned tourism is developed so that it can develop economic source at a destination. And there is a positive relation between tourists and local community that is important to uphold the positive outcome of tourism. To achieve sustainable tourism development policymakers and governments must understand the needs and desires of the tourist. The researchers also observed that poverty elimination is possible by creating positive relation among various factors. **This study does not consider how different factors can play the role for poverty alleviation.**

Gascon (2015) concludes about PPT's concept of poverty shows that a loss of quality of life of rural people can occur due to unequal distribution of income. The results in the research of Stone and Stone (2011) show that Community based Natural Resource Management are popular in Southern African countries. However, there are still some restrictions. Boonratana, (2010) has studied -with respect to Pro-Poor Tourism, it is frequently addressed the involvement of poor people in such as home-stay, campsites, craft activities etc., as an important source of income. These activities provide opportunities for the lower income people of this area to involve in the tourism sector through employment opportunity. **Both studies are limited because do not consider environment and economic aspect.**

Manwa and Manwa (2014) stated, PPT is applied in developing countries to alleviate poverty, while simultaneously maintaining relationship between tourism business and the local community. Business can provide the locals with formal or informal employment or support existing micro businesses. The study of Chaichi (2016) indicates PPT as an instrument of poverty alleviation. The appeal that continued to see how and where tourism can come up with exploiting superior opportunities, boost economic growth as well as provide empowerment and safety to the poor. On the other hand, it can generate funds which may be used various reasons including investment in health, education and other assets. ***However, this study does not consider the relationship among destination development and poverty alleviation.***

From the above studies it is seen that each literature provided individual or several aspects on pro-poor tourism and poverty alleviation. It is important to authors that five important aspects; Social, economic, environmental, visitor, and institutional take more important role on pro-poor tourism and poverty alleviation. Thus, the present study has provided much focused toward these five factors.

A Brief Description of Context of the Study

Pro-Poor Tourism (PPT) has quite impact on alleviation of poverty in Bangladesh. The beautiful tourism destinations of this country draw the attention of visitors, and many business enterprises are engaged in multiple tourism businesses around the destinations which contribute to GDP and employment generation. In case of employment, 330 million jobs were created globally in Travel & Tourism industry in 2019 which is the 3.3% of total global employment. The forecast suggested that there should be a raise in this regards by 2.5% in the 2020. Moreover, Travel & Tourism is forecasted to support 3,244,000 jobs by 2028, an increase of 2.7% per over the period (WTTC 2020). In 2019, 1,85,9000 jobs were created in travel and tourism sector of Bangladesh which is 2.9% of total employment. The country also received BDT 28.3bn from visitor exports. It was expected to grow by 6.3% in 2020, and to attract 209,000 more foreign visitor arrivals. It is forecasted that by 2028, international tourist arrivals will be total 293,000 generating expenditure of BDT35.8b, an increase of 6.2% (WTTC, 2020). Pro-Poor Tourism (PPT) belongs to similar impact for alleviating poverty in Bangladesh; specifically, in the study area of Cox's Bazar, Rangamati and Kuakata.

Cox's Bazar is known as wide and long sandy sea beach; it is recognized as the world's greatest unbroken sandy sea beach at 120 kilometers long with a gentle slope. It is located 152km south of the Chittagong Seaport of Bangladesh. This beach is bounded by Bakkhali River on the north and east, Bay of Bengal to the west, and Jhilwanj union to the south. Cox's Bazar is also known by the name Panowa, literally meaning "yellow flower". Long marine drive beside the beach is of great scenic appeal for tourists. It recognized as one of the tourist attractions in Bangladesh which is most visited. For providing security to the visitors and to protect the habitants in the tourist spots of Cox's Bazar, the government of Bangladesh formed and developed the unit of Tourist Police. The economy of Cox's Bazar

mainly depends on tourism and its related activities. Every year, millions of domestic and international tourists visit this tourist spots. For this reason, many hotels, motels, and guest houses have been built in the near of this city and coastal region. By the hospitality and customer service businesses many people are engaged for their employment. Many international chain hotels have been operating hospitality service for the tourist in the Cox's Bazar, in the same way other investors are planning to develop hotels here. Many People are engaged themselves for their livelihood by the means of fishing and collecting seafood as well as sea products. With the help of tourist transportation businesses, many poor people are finding employment. The Cox's Bazar is one of the major tourist attractions and example of aquaculture in Bangladesh. That's why a large number of poor-people are engaged in tourism business to reduce their poverty.

Rangamati is located in the Chittagong Hill Tracts which is also treated as the administrative headquarters of Rangamati Hill District. For visiting in Rangamati, tourists are usually attracted by the Kaptai Lake, the hanging bridge and Pablakhali reserve forest are the other notable locations. The only obtainable path to the waterfall is through water, through the lake. By the means of boat People visit there. Because of the waterfall tourists are assumed it a well-known place, as well as it provides long hills and the natural adjoining.

Kuakata has a wide sandy beach on the southernmost tip of Bangladesh which situated 320 km south of Dhaka, and 70 kilometers from the district headquarters of Patuakhali District. Kuakata beach is 30 kilometers long and 6 kilometers wide. When the Rakhines settled in the area in 1784, Kuakata was also the part of world larger mangrove forest Sundarbans. It has a wide sandy beach from where one can get the unique opportunity of viewing both the sunrise and sunset. Thousands of poor people are engaged in the multiple jobs in this area.

Although the above three prominent tourism destinations are growing rapidly this growth is not enough for poverty alleviation because of not using appropriate Tourism development strategies. Though this industry has sometime been allied with poverty under the heading Pro-Poor Tourism but ironically most of the time poorer people get less benefit from it. On the other hand, academic literatures state that poverty alleviation is a multidimensional factor and it needs likewise multidimensional method to prevent it. In this case Pro-Poor Tourism (PPT) is a successful poverty alleviation approach because it can develop living standard of poor people by avoiding work against them.

Objective of the Study

Nowadays, poverty alleviation is a vital fact for all most all of the countries across the world. Bangladesh is not out of them. It is one of the most viable sectors that can enhance the reduction of poverty in the world because it is highly labor extensive nature. The travel and tourism industries contribute towards poverty reduction in their own ways. For example, recruiting and training local people, practicing sustainable supply chain

management (SSCM), i.e. through the local sourcing of products and services, building pro-poor partnerships and linkages and providing training and support to small independent enterprises (Mow & Munt, 2009). Thus, the main objective of the study is to find out the opinion of poor for poverty alleviation through pro-poor tourism. However, the specific objectives are;

i) to find out responsible aspects that have taken important role for development of tourism and poverty alleviation in Bangladesh; **ii)** to find out key stakeholders who are playing important role in pro-poor tourism development; **iii)** to provide recommendation for the development of tourism industry in Bangladesh and further research.

Research Method

This study conducted in-depth interview to find out the whether the poor have the idea on tourism and development of their livelihood, why and how the tourism business would help and apply Pro-Poor Tourism and poverty alleviation through tourism development for particular destination. The qualitative field study applied in this study, followed multiple exploratory approaches focused on capturing participants' interpretations of multiple realities rather than measuring an assumed single reality to be development of this tourism destination and poverty alleviation. Since this study is conducted in exploring the real mechanism of the development of pro-poor tourism and poverty alleviation judgment process in the context of Cox's Bazar, Rangamati and Kuakata of Bangladesh, the field study is the appropriate method to gain insight and understanding the information from participants as indicated in the literature (Malhotra et al., 2004). This research has chosen an in-depth interview method to collect the required data (Quaddus and Xu, 2005). According to Glock (1987), major source of data in survey research was the qualitative interview conducted in the planning phases of the research. Such interviews, with a small but roughly representative sample of the population, provided an indispensable way to learn about the nature of variation and how to operationalize it. At the information collection phase inductive approach was followed where deductive approach was used in analysis phase.

i) Sample Selection

According to Malhotra et al. (2004), a small sample size is required in designing exploratory research. The sample of this study relied on easily available subjects (Finstad and Berg, 2004). A random sampling process was taken at first (Malhotra et. al., 1996). The main selection criteria are the presence of stakeholder on the spot during interview time. A theoretical sampling (Draucker et. al., 2007) scheme was used to decide on the number of people to be interviewed. A random sampling method was applied in this study to select the participants. 16, 10, and 6 participants from Cox's Bazar, Rangamati and Kuakata for the purpose of interviewing them relating to the issue. As qualitative study was conducted to find out the variable context specific; a large sample size was unnecessary. It was found that after 32 interviews no significant new issues came up. These 32 interviewees were found to be knowledgeable in providing required information. All those who took part in the study did so voluntarily.

ii) Data Collection Based on Inductive Approach

The primary data collection tool was semi-structured interview technique, which mainly fixated on the areas of information needed to accomplish the objectives of this research. The researchers clarified to the interviewees on the areas he wanted to question on at first. An interview protocol was maintained grounded on the literature review. The semi structured interview approach was applied for the purpose of exploring relevant factors and corresponding variables that is related with pro-poor tourism and poverty alleviation. The researchers focused on main areas of the interviews like; (i) Would you please let me know the different social aspects that help in development of this tourism destination (ii) Could you please let me know some economic aspects in developing of this tourism destination and can help the poor? (iii) Would you please let me know the different aspects that help this destination as an institute? (iv) Could you please let me know some attributes those are environment related and that help in developing tourism destination? (v) Could you please inform me about some attributes which influences visitors coming to this destination and aspects that help in developing tourism destination? (vi) What is your overall evaluation in the contribution of tourism in poverty alleviation of this area? The interview schedule was formed using the schedule by Berg (2004) and demographic information was collected based on structured questionnaires.

The study conducted interviews vehemently for four (04) days with each interview lasting for 30 to 45 minutes which depended on the knowledge of the interviewee as suggested by Malhotra et al., (2004). These interviews were recorded in written form as well as audio recording. Two research associates was present with the researchers during this phase of the study. Their job was to write down conversations between the interviewee and researchers to their best capability as well as observe body language of interviewees throughout the interview.

iii) Transcribing Interviews

The systematic transcribing of the in depth interviews is a significant task in qualitative phase of the research because ultimate outcome of data analysis and interpretation depend on this aspect. There is also need to consider the body language of the participants which came as visual through posture, gesture etc. Maximum interviewed were made using Bengali questionnaires. So, for the requirement of transcribing the following two phases were followed.

Phase 1, the research associates followed the following steps

Firstly, any dissimilarity between the audio recording and written sheets had to be identified. this was done by listening to the audio three times at least whilst checking the written sheets. Secondly, the research associates noticed the body language that had been made during interview through indicative responses. Thirdly, they set together to find out the consistency and inconsistency of individual transcripts on the same issue. Then the associates tried their level best to identify any further differences and understanding the gaps. Finally, all transcripts were prepared by the researchers including raw written questionnaires.

Phase 2, the research associates followed the following steps

In this stage researchers sat down with the research associates to find out any misinterpretations (if any) between the transcripts by checking all Bengali transcripts manually. Secondly, researchers listened to all transcribed audio recordings to make sure the research associates had not left out any information mentioned by the participants from the interview scripts. Thirdly, researchers also considered body language and other cues for including further necessary information that the research associates left out in the Bengali transcripts. Then researchers confirmed that no new variables or factors came from the 32nd interview onwards. Finally, all transcripts were translated into English and checked multiple times by the researchers for data examination and future use.

vi) Data Analysis via Content Analysis

In this study, content analysis technique was applied to analyze the interview transcripts as the study is more exploratory than confirmatory in nature (Huang, Quaddus, Rowe, and Lai, 2011). Two steps approach was used in content analysis where first step performed with single-interview transcripts and the second step with cross- interview transcripts (Berg, 2004). Both inductive and deductive approaches were used to identify the factors and variables and to identify casual links among them to make the proposed conceptual model (Quaddus and Xu, 2005). In content analysis, no computer program regarding the text analysis was used. It was executed manually. In this part, researchers carried out the following parts.

Step 1

First of all, transcripts those were made by the research associates, were thoroughly read by the researchers to identify the main theme and to produce applicable key words with the correspondence of research objectives. An inductive process was followed for this activities because to find out the details. Second, crucial sentences were identified from the interviews where there were causal relationships among factors and variables. In third stage, key words were developed according to the study. Besides, sentences those have high-level factors and corresponding variables were also prepared for the betterment of the study. Besides, casual relationships within the factors were identified and categorized based on transcription of interview. In addition, from every single interview raw factors, variables and casual links were identified. Furthermore, factors and variables those were identified from interview were matched with the factors and variables from literatures in view of finalizing the conceptual framework. Finally, a separation approach was practiced for the factors and variable that was homogeneous to the existing literature and field interviews.

Step 2

In this step, the researchers combined all variables, individual factors and the relationship between them those pointed out from the content analysis. The chronological course of action was undertaken under this step: such as at the very outset categorized all identified factors, variables and their links of every transcript based on step one. It was mainly done to find out whether anything was overlooked or if there was anything more to consider.

Second, a table considering factors and variables from the interviews under each factors (social, economic, institutional, environment and visitor) from the literature as well as extracted new factors of field study was produced. Then, all the identified new variables for each factor were segregated to make more specific. Besides, based on meaning a common name was given for similar variables with the help of examples in the literature.

Profile of the Participants

The demographic characteristics of the participants of this study in different levels were measured by gender, age, education, marital status, income and profession. It was comprised with male 93.9% and female 6.1%. In respect of age of the participants, the average age was 30 years. After recoding the participants age, the result showed that 50% of participants ranged between 21 and 30, followed by 41+ (30%), and 31 to 40 (20%). The education level of participants of this study reveals that 10% of them were university degrees, where 20% were college level, 60% were high school level qualifications and the remaining 10% were others. This outcome implies that most education level of most the participants are not so high but had the required knowledge of tourism business. In terms of marital status almost 28% participants were married and the rest (72%) were single and others. Income level showed that 65% of participants had incomes below Tk. 40000. It is seen that 21% had incomes between Tk. 50000 to Tk. 70000. Around 9% had incomes Tk.70000 to Tk 100000. Only 5% of participants had incomes of above Tk.150000.

Findings and Discussion

This study has focused on identification of the opinion of the participants based on the five determinants (social, economic, institutional, environment and visitor) grounded by literature review and in context of contribution of pro-poor tourism in Cox's Bazar, Kuakata, Rangamati for poverty alleviation. Different types of stakeholders are respective interviewees. They have given valuable opinion regarding the development of tourism destination and poverty alleviation. It is seen from the data analysis that participants have mentioned multiple issues on pro-poor tourism and poverty alleviation. However, the authors have categorized their opinion into following five sections keeping the alignment with existing literature.

Social Development: In a certain society, it is observed that some similarities undertaken among the residents and these are called the social aspects. When tourism develops socio-economic advances occur (Chaichi, 2016). Local communities benefit from the development of tourism in their community as more and more people visit (Gascon, 2015). As a result, the locals will become educated and health conscious as well as security being enhanced (Jamieson, Goodwin, and Edmunds, 2004). The participants have provided their opinion on the aspect those are presented below.

Stakeholders believe that some social aspects related to tourism help in developing their area. Interviewee told that *the local people have come from different destinations and they make various local produce by using oyster, cane, and other materials and sell them to tourist in order to maintain their family. (Interview no-1)*. Stakeholders find overall safety

and security from tourism authority. According to one research participant: *The Tourism Police Department should be more cautious, increasing the number of traffic police that help developing safety and security of these areas. (Interview no-5)*

Another participant talked about the development of tourism destination. He said, *to increase social awareness, the administration, businessmen and the beach management committee need to be united and undertake effective measures. Influence on local life, reduces conflict within a community which can improve collective decision making. (Interview no-9)*

Poverty alleviation is possible through the development of tourism destinations. He told that *creating special areas for dry fish this first one. Secondly, developing educational facilities for local people so that they can easily intermingle with visitors. Thirdly, increasing social consciousness and telecasting merits of education is necessary. The next one is to avoid tendency of local people done any work by the other people. Finally, arrangements for government appointed guides and detailed signboards and informative indicators. (Interview no-15)*

Another interviewee conveyed that *the infrastructural development like local roads and highways and the need for travel friendly transports, airlines with convenient standards for the sake of both foreign and domestic tourists need special attention. Government initiatives should be taken to promote Cox's Bazar, Rangamati, and Kuakata as holiday destinations both in home and abroad. On the other hand, interviewee thought that finally there should be a master plan to establish Cox's Bazar stadium as an international cricket venue, construct Dhaka-Ctg.-Cox's Bazar-Rangamati railway. If government tries to introduce this types of facilities for tourist and tourism destination than tourism development and finally poverty must be decreased. Government initiatives regarding the above will contribute tremendously for the development of the concerning tourism sector and poverty alleviation. (Interview no- 17)*

Economic Development: From the economic aspects, we can know about the economic condition and standard of living of any particular society. Development of tourist destination indicates the economic progress of a society. In pro-poor tourism, the poor people become economically sophisticated as the discretionary income rises that result on tourism development. According to research participants- The development of the economic aspects is a crucial discussion in this context. Bangladesh is a developing country and an emerging middle income economy and yet a large number of its population is residing below the poverty line. Poor-Pro Tourism concept is an opportune concept that will facilitate development in their lives by creating scopes of livelihood and gradually causing developments in the social and economic ambiances. A few opinions of participants have presented in the following section.

A participant said that thousands of poor people (children) can be involved in dry fish area for drying fish. This area contributes more than core in a year. The launching of a new hotel also creates new employments like waiter, house keeper, cook etc. The employment opportunities in this case will be favorable for the tourists to travel with

conveniences. He observes partnership business very often were in Cox's Bazar. They have produced the wreath of oysters here but stakeholders fulfill the customer's demand of bigger snails by importing from Sri-Lanka, Philippines and so on. The interviewee suggests that the government should take initiatives to collect bigger snail from sea. (Interview no-1)

Research participants think that tourists look for comfortable visits and if the tourists' operators help to make a beach beautiful, arrange comfortable furniture, ensuring all necessary facilities on a beach- tourists feel interested to visit frequently and it will help the business of tourism flourish. On the other hand, different types of material are not permitted by authority such, swords, some toys, lighter etc. Business man collects these types of product by giving tax. Imposing low tax for import is welcomed to traders. (Interview no-6)

Other interviewee conveyed that eradicating poverty gets easier if the government set up facilities like factories, industries and micro-industries etc. Locals can produce snails and oysters, make floating restaurants. Opportunities to take a loan for different purposes get arranged. If education facilities are ensured then the local people get the chance to pick up knowledge, skills and degrees. (Interview no-8)

Another research participant told that, he thinks to develop this tourism destination which can help the poor, the microcredit businessmen will have to be supported economically. This can be done with providing loan by governmental, non-governmental or other organizations. Secondly, food price needs to be controlled. Finally, the opportunity for the foreign tourists to come here will have to be made. (Interview no-9)

Another participant mentioned that the government should increase the working opportunity and create different types of sculptures then it will attract the people to come here and that will develop the tourism destination. Through the proper management and by the renovation of the new donor, tourism destination may be developed and it can help the poor economically. Finally, through the construction of factory and hotel this place must be attracted to the people. These economic aspects will develop the tourism destination and can help the poor. (Interview no-21)

Institutional Development: Institutional aspects are the administrative layout and the system by which a full program is designed and implemented. In tourism industry, the tourism board, local administrative bodies and the managerial bodies of a tourism related enterprises are considered as institutional aspects. It is seen from the literature that to reduce poverty social, economic and institutional aspects are important Gartner (2008). A few opinions of participants are presented below.

This participant told, first of all the tourists can be trained how to swim in the sea to assure their life security. Secondly, he mentioned the need to improve the life-guard system in the sea and thirdly, the age-old buildings will have to get replaced with new ones. Besides these, the opportunity of enjoying the view of raining and storm needs to make for the tourists. In that case tourism business performs as institutions. (Interview no-2)

The research participant told that it is necessary to construct a park that is highly necessary and second one is to arrange zoo or safari type facility for seeing live animal like we can see from Hollywood movies. Thirdly, government may set up some information centers sacredly and the final one is to eradicate drug business that's why check-post must be recovered. (Interview no-17)

Yes, I can let you know different aspects that will help this destination as an institute. Firstly, personal jet-ski should keep off the beach then through this the tourists will be saved by this jet-ski and side by side beach bike should be kept off the beach to reach one place to another place within very short time. Finally rules and regulations should be increased yet flexed cautiously. (Interview no-21)

Another research participant said, to make this area as an institute some aspects that he is giving are - arranging more small stalls around the beach, proper cleaning system plays very important role in making this area as an institute. Free Wi-Fi facility should be improvised. Another aspect is sailing in the water is a good example of improving tourism policy. (Interview no-26)

Environmental Development: Environment is one of the key factors for tourists to visit a destination. Different stakeholder expressed their opinions about these aspects. They said positive environment act as a promotional tool to encourage tourists to come this destination. They believe if tourism operator can create friendly environment with the help of government contribution then tourists will come frequently. As a result, destination must be developed and poverty will be eliminated. According to interviewee-

The research participant said dustbin should be arranged on this tourist spot, photographers and sweepers should have their uniform, the ID numbers as life guard in every beach should be increased and the spot where wastage is dumped trees should be planted there. Security facilities should be increased. These are some important environmental aspects which help to develop destinations. (Interview no -2)

This interviewee thinks that water development board will have to be sincere about water recycling. If we can assure the toilet system in the fishing boats, we will be able to assure the water safety. Emergency health care system is essential. Besides these, we can also plant more trees such as fruits and forestry to make the environment better. Need to manage fish aquarium is quite important. (Interview no-11)

Interviewee told some attributes those are related to environment that helps in developing tourism destination. The initial fact is that; the construction of roads must be valued. Then the cleanliness has to be increased and last of all the development of health care should be developed. (Interview no-19)

Another interviewee told, he can inform some attributes those are related to environment and those will help in developing tourism destination. First of all, the drainage system has to be developed and there should be create the proper management of water supplying. Finally, tress has to be planted by the both sides of the roads in an organized way. (Interview-20)

There are some attributes those are related to environment and that will help in developing tourism destination. First of all, the authority should plant trees more and more. The authority should create a green revolution. Then the sitting chairs will be brought under the government's control and should keep them free for the tourists. (Interview no -22)

Development of Visitor Perception: Tourism industry should take special care of this aspect to development of this destination. Developed destination can help to reduce poverty reduction by creating opportunities tourism business of poor people. Consequent of research participant-

To influence visitors some deeds should be done. Making various types of sculpture is of them. On the other hand, some nice attractive structures should be made, the instruction of how to stay beach should be hanged and posted, fare of hotels should remain in control, the contact number of Tourist Police should be available in every hotel and medical facilities should be satisfactory, if least one good doctor should have to remain at the beach all time are some of attributes those can influence visitors for visiting this destination. (Interview no-6)

Another participant said, there are some necessary steps that may be taken for influencing the visitors. First one is beach carnival have to arrange at the show-off season. Second important one is-government must have to develop roads and other related things immediately. Finally, governments have to enforce that in every sector price will be reasonable. (Interview no -16)

We have to be concerned about good behavior with visitors; number of road worker should be increased. The other important one is to listen any problem from visitors that suffers visitors. Transport facility, good food, fresh water facility should be developed. (Interview no-18)

There are some attributes "I can tell those that will influence visitors for visiting this destination and that may help in developing tourism destination. Tourists entertainments have to be organized well first of all. For this reason, well organized park should be constructed that will attract the visitors for visiting this place. (Interview no-19)

Participant said, he can inform you some attributes which will influence the visitors for visiting this destination and this will help in developing tourism destination. Here, the primary thing is that there should be built attractive children's park and should create the proper playing fields for both children's and adults that will attract them to come here. (Interview no-20)

The concerning interviewee told that, there are many attributes that influence the visitors to visit this area and some tasks should be done in order to make a good impression upon the tourists. The scenic beauty is good but we need to assure the tourists about their safety. Help guide and watch tower service should be assured. Building a kids' zone is important. The sitting facility should be enhanced by governmental sponsorship. A fixed price transport and hotel price makes a good impression upon visitors. Hotel service system should be digitalized. Free sanitation system should be increased. Creating small sitting

place and helping the tourists by giving small loans also can make this area more attractive tourist spot. (Interview no-26)

It is seen from the data analysis that multiple parameters such as Social, Economic, Institutional, Environment and Visitors play important role on Pro-Poor Tourism for poverty alleviation. The main contribution of this study is implied on the exploratory method that has been adopted and applied in the current study in Bangladesh culture. A depth interview protocol was maintained using semi structured questionnaire. The main reason for this method relates to the fact that poverty alleviation through Pro-Poor tourism research is based on the Bangladesh perspectives. Referring to existing literature, most of the theories and research area were developed based on Western and European perspectives. Therefore, at the initial stage an exploratory method was used to explore the main understanding of community on tourism and poverty alleviation. It is understood that obtaining data in the aspects of social was a bit complex due to the multiple constructs and multi dimensions surrounding this area. However, community is still unaware on contribution of tourism for the development of livelihood of the poor. The development of skills and confidence among the poorest people shall enable them to participate in tourism business which will help achieve the sustainable Pro-Poor Tourism goals, and ultimately contribute to the destination development of the Destinations. It can be said that if Pro-Poor tourism development is accommodated and sustained properly, poverty level will decrease gradually.

Conclusion

This study presents the findings of the field study based on the content analysis. An exploratory research approach was undertaken through semi-structured interviews with 32 experienced visitors to the destination. The main objective of this study was to find out the sense of need of tourism for poverty alleviation. In addition, other relevant and significant important issues associated with pro-poor tourism particular context were determined. Now tourism is a key sector in the national economy, and as such Bangladesh has the potential to promote pro-poor tourism in order to contribute to poverty alleviation in these areas where poor people are available. To put poverty alleviation in motion, tourism's principles must be developed that help ensure get benefits from tourism business.

Limitations and Further Research

Despite of having some important findings, this research has a couple of limitations. Firstly, researchers consider only three prominent destinations such as Cox's Bazar, Rangamati and Kuakata that might not be enough considering the pro-poor tourism for poverty alleviation. Secondly, these results may not up to the marks for generalization of the research outcome and finally, only five aspects i.e. Social, Economic, Environmental, Visitor, and Institutional have been considered and questions were asked on these aspects. It might be different if focus is given in other issues such as community involvements, sense of need etc. Thus, the further researches are encouraged to explore responsible factors and variables those help present the real mechanism of poverty alleviation through pro-poor tourism especially for Bangladesh.

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Impact of Artificial Intelligence on Employment: Bangladesh Perspective

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Abstract

Machine is transforming most of the works around the world and thereby creating scarcity of jobs among job seekers. And the thing which is working behind this automation is known as Artificial Intelligence (AI) which is termed as the 4th industrial revolution because of its impact on overall activities (manufacturing, service etc.). This transformation or automation because of Artificial Intelligence will create more pressure on employment of unskilled and semiskilled workers as their activities are at the verge of transformation. It will be quite impossible for them to adjust or make them prepared for future possible job sectors created by this AI as they lack all the facilities to make them prepared. It is found in a study that the jobless people around the world would be 800 million by 2030. Apart from that people always try to make their things done within shortest possible time also incurring lower cost and this AI is fulfilling their wish of lower cost and shortest time through automation. So, at the same time AI is performing dual tasks; one is helping businesses and organizations to ease their activities and saving time & cost, another one is making people jobless. The aim of this paper is to find out the impact of Artificial Intelligence on employment. And the evidence against the aim is supported by analyzing data from respondents using statistical tool. In this study, the regression analysis is used to validate the study and it is found that the correlation coefficient $R = .931$ and the model indicates 86.6% R square. The Cronbach's Alpha is .805, which indicates higher internal consistency.

Key words: *Artificial Intelligence, 4th Industrial Revolution, Employment, Bangladesh.*

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1. Introduction

Technological Innovation always brings something new like the things we are having right now were not available in the past even seemed impossible to be innovated. Jobs, we are doing related with this innovation, were not available in the past and also many of the available jobs have gone away because of the technological innovation. Like all other technological innovation,

With the advancement in the field of information and communication technology, the 4th Industrial Revolution is on its way. And one of the most exciting factors of this industrial revolution is Artificial Intelligence. It's not only an evolution of modern technology but also more than the technological evolution which is shaping the current employment in its own way. Now-a-days all over the world this Artificial Intelligence is spreading so rapidly that people fail to adjust at the real time which is why we are observing the gap between negative and positive impact of this tremendous evolution. It's being said by the people that the impact of Artificial Intelligence will be more than expected and it may be more than electricity. You can easily understand the impact of Artificial Intelligence when you know that in 2017, worldwide total cost regarding Artificial Intelligence was about \$21.8bn which was almost 26 times more than the amount spent in 2015 (The Economist, 2018). Actually, in the coming days, Artificial Intelligence will the way of doing business in the field of HR, Financial, Operations, Customer service etc.

The mid-level workers (unskilled or semi-skilled) will be the sufferer of this Artificial Intelligence. Their jobs are at danger which will be traded by this AI in coming days. A study conducted by McKinsey showed that by 2030, because of Artificial Intelligence the amount of jobless people around the world will be around 800 million (Alessandra Malito, 2018). And this Artificial Intelligence is not only replacing the jobs but also performing it in a very convenient way which may not be possible by human being. The bosses of organizations, they usually think about saving cost and labors at the short run. From that point of view, we can see the impact of Artificial intelligence on future employment which will be negative. But if you broaden your eyes and try to observe then you will find out that the long-term opportunities of this evolution are enormous and several times more than the negative impact.

Within the next one or two decades, almost 47% of the workplace in USA will be at risk because of computerization and also 702 types of work in USA will be performed by machine (Frey and Osborne 2013). Subsequently, when it comes to discuss about any technological evolution, it is always seen that both positive and negative impact exist there. Some people will be benefited most because of this, others will face the opposite. Artificial Intelligence is not out of this context. It will wash away many of the jobs around the world in the near future as well as it will also create numerous opportunities for the betterment of human life through creating many newer forms of jobs. We are not going to make any debate here about this rather we will try to focus more on the objectives of this paper.

2. Literature Review

Numbers of workers in some sectors are getting lower day by day because of technological innovation around the world and companies are using computers more than human being (Brynjolfsson and McAfee, 2011). And this technological innovation is not confined within the normal manufacturing tasks; it's now spreading now in different sectors. Adamson (2017) stated that the gap between rich and poor will be more as a result of wide acceptance of Artificial Intelligence which will hollow out the labor market. Adamson showed AI will pose considerable impact on Australian economy. Jain (2017) Pointed that Artificial Intelligence will carry the threat of job loss but it will also carry many new areas of job opportunities which will create more scope. And for that reason, this AI should be used in more diversified way so that it can be made the new drivers of employment. In 1821 David Ricardo first raised voice about the machinery question which was like the utilization of machinery for employment will be detrimental (The Wall Street Journal, 2016). That means in some points this will be against the interest of the labor force which will impose more pressure on employment.

John Chellia (2017) described Artificial Intelligence as a trend which is actually reducing white-collar jobs and it's the competitor of the human labors right now. That's why the competition is being taken over in a wide range of cognitive task. Lee Beardmore stated that computer automation many of the blue-collar job loss and this Artificial Intelligence will do almost same things for the people but this time white-collar jobs will be more affected (Personnel Today, 2015). But at the same time, it will create more for the workers to work in higher values areas if they can manage to train up themselves and improve their skills. Marlin (2018) described in his article that people are divided in groups like-optimists and pessimists about Artificial Intelligence. Some think that AI will shrink the job market while other think that it will create more opportunity like other technological innovation did earlier. He also stated that both groups of people believe that the application of AI will be widespread. Press (2018) showed the impact of Artificial Intelligence in the writing thorough explaining the speech of Alan Turing at London Mathematical Society on February 20, 1947 where Alan Turing anticipated the current situation of machine working the human activities.

Artificial Intelligence is the replica of human which is considered more powerful than human imagination and able to think of themselves (Evans 2017). That's why it will be able to take away the human jobs and it will create new possibilities of jobs requiring higher skills. Artificial Intelligence will create many opportunities to solve different complex problem within a moment but along with these opportunities it will also bring some changes in the society and those changes will affect the labors, privacy, ethics, skills etc (EESC 2017). Amiot (2016) explained that in the coming decade Artificial Intelligence will change whole nature of different types of jobs keeping the possibility of huge unemployment but also concluded with saying that the positive things will be more than the negativity if people achieve higher skills. Prof Stephen Hawking said about the consequences of Artificial Intelligence that it might spell out the finish of human race by

posing a threat to human existence (Cellan-Jones 2014). Not only Prof Stephen Hawking but also the technology entrepreneur Elon Musk warned about Artificial Intelligence saying AI biggest existential threat (Cellan-Jones 2014).

Zanzotto F. Massimo (2017) stated Artificial Intelligence as a biggest knowledge theft of recent times which is making dramatic job market contraction through replacing many of the human jobs. It's called knowledge theft as Artificial Intelligence machine analyzes human responses without their knowledge for doing their jobs and creating these workers jobless. Bao (2017) explained that Artificial Intelligence is replacing human efforts such as manual labor and high-risk industrial works and showed that Artificial Intelligence will shrink the physical workers to 100 million in China by the next decade. Such a high level of replacements will equip organizations to achieve competitive advantage by means of lowering overall costs of the organizations. West and Karsten (2015) explained that development of Artificial Intelligence may cause large scale unemployment. There are so many works which can be performed by robots so perfectly with a decreasing cost relative to physical workers and these robots are several times faster in completing those works than human being (West & Karsten, 2015). Artificial Intelligence works on the information provided by people, so if given information is wrong then all the work done by it will be wrong (Michalski et al., 2013). Therefore, you can't depend all time on this machine without providing correct information. Michael Chui et al., (2016) stated that Artificial Intelligence will replace very few occupations in response it will create an unending opportunity of occupation whose benefits will be several times more than the negative impact of job replacement. Camilla A. Hrdy (2017) described the impact of Artificial Intelligence as the Labor-displacing as well as Labor-saving which will direct the workforce to technological unemployment and also stated that human fate is being threatened by this Artificial Intelligence.

3. Objectives of the Study

The literature identifies that exploring various impacts of Artificial Intelligence on employment is seeking attention of the researchers. Accordingly, this study aims to explore how Artificial Intelligence is altering the employment pattern in Bangladesh. In particular, the study investigates the fields of employment mostly affected by Artificial Intelligence and the employment fields where Artificial Intelligence performs better than human.

4. Artificial Intelligence and Future of Employment

Have you ever thought the job you and your co-workers are doing will be replaced by technology? Most of the answers will be no! But this is an important issue which we should think about seriously as people all over the world are talking about the impact of Artificial Intelligence whenever they are discussing about the relationship between jobs and technology.

Now a day's companies all over the world prefer to work with fewer employees as large portion of work is done by the Artificial Intelligence. With the help of this invention big data analysis and pattern identification are very much possible which will ensure the use of Artificial Intelligence in data security, financial trading, fraud detection etc. From discovering a tiny thing to personalized treatment plan in medical sector, people are using this Artificial Intelligence. The changes which are happening because of this Artificial Intelligence are happening more rapidly than anyone can imagine. That is why you can see the autonomous vehicles and it is thought that rapidly it will be coming for professional jobs. Consequently, it is considered that no one is going to be safe from being replaced by Artificial Intelligence in the coming future. Think about this- the job you are doing will be no longer available for you and replaced by machine. Brennan Hoban (2018) stated this as alarming in his writing that 58% of the CEOs are considering not to increase any job rather, they have already planned to reduce the number of jobs. Accordingly, only 16% among the CEOs have thought about increasing the number of jobs. This was interpreted as upsetting.

With the increasing number of people think how could they be facilitated with jobs while most of them will be replaced by Artificial Intelligence? Here people can say that technology is creating new jobs and undoubtedly this is true! But the question is how many jobs are being created because of the technology? The main fact behind this question is surprisingly it is reducing more jobs than increasing. Another thing is, the jobs which are being created require better skills and knowledge which will be a bigger challenge for the people losing their jobs. Brennan Hoban (2018) said that the issues are going to be true like Artificial Intelligence will involve fully in retail within 2031, write a popular book within 2049, and expected to drive a truck by 2027. If you spend few minutes of your valuable time to Google this you will find those are our future which are going to be real.

Now let's have a look at the modern tech world, there you will see most of the world leading tech firms like- Google, Amazon, Alibaba and Baidu all are big and successful because of using Artificial Intelligence for recommending products, making targeted advertisement and also forecasting demand. Amazon uses Artificial Intelligence for directing robots in the warehouse and making robots packing and delivering products. Traditional functions of business like- finance, HR, customer service will be replaced by AI in the coming future (Chui et al., 2016). Now a days you don't need any guide to direct you for travelling an unknown place because you can have the services of guide using some apps (such as Google map) in your mobile phone. Google has developed Google Assistant and that with the help of AI will help you to solve problem like- making reservation, communicating with people on behalf of you and making real contact in different situation. Thus, this will take over the job of personal assistant in the near future as you can do that with the help of Artificial Intelligence. It is perceived that alien coming from outer world getting acquainted with the environment through collecting information from people and then making them unemployed through replacing their jobs.

Hold Lipson, professor of engineering at Columbia University said that high skills and intellect jobs in the medical sector will be replaced by Artificial Intelligence (Kang C., 2015). You can raise question about how does it happen? Lipson expects that AI can allow or treat thousands of patients while only 10 to 20 patients can be treated by a doctor per day. Thus, this is helping in solving many different and complex problems in the medical field. This Artificial Intelligence also changing the scenario in the field of Journalism through replacing their jobs as technology like Quill is being used for that. Because machine generated articles are very much possible and with the help of Artificial Intelligence these stories can be made and available to people. It can be said that when it comes for analyzing the machines are much better than people and this technology like Quill can complete a task within shortest possible time for which people take too long. And because of this Artificial Intelligence cab drivers' role will be greatly reduced and it will be automated as mentioned earlier in this section. This is real now with the innovation of technology like Google self-driving car.

Tasks such as heavy construction, bomb disposal and highly risky tasks which can take people's life can be done perfectly and in a risk free way with the help of machine along with Artificial Intelligence. It is expected that 50% chance are there that all individual jobs will be outperformed by Artificial Intelligence in 45 years and in 120 years all human jobs will be automated (Brennan Hoban, 2018). This is going to be upsetting for the people around the world.

5. Methodology

5.1 Target Population and Data Collection

For this research project, the target population are those who possess knowledge regarding Artificial Intelligence and its impact on employment creation. Use of Artificial Intelligence in industries is growing in such a way that tracking the actual population is quite tough. In 2018, Artificial Intelligence startups' number in USA was almost 1,393 and worldwide the number stood at 3465 (Liu, 2020). In considering the above issue the number of populations for this research is kept unknown. For conducting the analysis, primary data has been collected by survey questionnaire from 150 respondents. Questionnaire for survey consisted of total 10 questions to gather primary information related to the study. The questionnaire consisted of multiple-choice questions, five-point Likert scale questions and open-ended questions.

5.2 Sampling Technique and Sample Size

For determining the sample size for this study, proportion-based sample size determination technique is applied. Moreover, a pilot survey on 10 participants reveals 10% of them are considering that Artificial Intelligence will negatively impact on employment. This finding leads to use the proportion-based sampling technique according to subsequent ways.

$$\text{Sample size, } n = pq \left(\frac{Z_{\alpha/2}}{e} \right)^2$$

Whereas,

$$q = 1 - p$$

P = Proportion of customers those are using E-Commerce sites to purchase at least one type of products.

$Z_{\alpha/2}$ = Standard value at 95% confidence interval and 5% level of significance.

e = Margin of error (i.e., 5%)

Applying the above stated formula, the total sample size comprises of 150 and those sample units are drawn from the population using snowball technique. As this technique will guide to the desired respondents who actually possess knowledge regarding Artificial Intelligence and impact of Artificial Intelligence on employment creation. Using this snowball technique initial respondents are nominated and through their social network other respondents who meet the eligibility criteria are selected.

5.3 Measurement and Scaling Procedure

Multiple regression analysis has been used to analyze the impact of artificial intelligence on employment. The dependent variable for this analysis is employment and the independent variables are Impose negative impact on society, AI will kill human jobs, AI driven cars are safer, AI performs jobs better than human, AI the 4th Industrial Revolution, AI Machines are more intelligent. For conducting the research study, five-point Likert scale has been used for independent variables in the questionnaire. (Ex. Strongly Disagree= 1, Disagree= 2, Neutral = 3, Agree = 4, Strongly Agree = 5). The multiple regression analysis with the help of SPSS software has been used for estimating the impact of artificial intelligence on employment.

6. Results and Interpretation

6.1 Analysis of Demographic Variables

This section represents the profile of the people responded to the questionnaire. The following table highlights the respondents' demographic information like- gender, age, academic qualification and occupation. Table 1 shows that out of 50 respondents 39 are male which constitutes 78% of the total and 22% of the total are female. If you see the age of the respondents, you will see 88% of the total respondents fall in between 26-40 years of age. In terms of academic qualification, 44 out of 50 which is 88% has master's degree whereas 12% has completed bachelor. In considering the respondents' occupation, 82% of the respondents are doing jobs whereas 8% are students, 6% are businessman.

Table-1: Demographic Profile

Demographic Variable	Frequency	Percentage
Gender		
Male	117	78
Female	33	22
Total	150	100.0
Age		
20-25	9	6
26-30	66	44
31-35	36	24
36-40	30	20
More than 40	9	6
Total	150	100
Academic Qualifications		
Bachelor	18	12
Masters	132	88
Total	150	100.0
Occupation		
Student	12	8
Job holder	123	82
Businessman	9	6
Others	6	4
Total	150	100.0

6.2 Multiple Regression Analysis

Table 2 summarizes result of model summary.

Table 2 Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.931 ^a	.866	.861	.28776
a. Predictors: (Constant), Impose negative impact on society, AI will kill human jobs, AI driven cars are safer, AI performs jobs better than human, AI the 4th Industrial Revolution, AI Machines are more intelligent				

Here in the table, correlation coefficient value $R = .931$, which indicates the a high degree of positive relationship between dependent variable (Employment) and independent variable (Impose negative impact on society, AI will kill human jobs, AI driven cars are more safe, AI performs jobs better than human, AI the 4th Industrial Revolution, AI Machines are more intelligent). R square of this model is .866 which actually indicates that 86.6% of the total variation of overall impact of AI on employment can be explained by regression model. The Adjusted R square is .861 which shows that the fitness of the model is 86.1%. The following table summarizes analysis of variance test results.

Table 3: Analysis of variance test results

ANOVA ^b						
	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	76.719	6	12.786	154.417	.000 ^b
	Residual	11.841	143	.083		
	Total	88.560	149			
a. Predictors: (Constant), Impose negative impact on society, AI will kill human jobs, AI driven cars are safer, AI performs jobs better than human, AI the 4th Industrial Revolution, AI Machines are more intelligent						
b. Dependent Variable: Employment						

The total variance has $N-1$ degrees of freedom and this degree of freedom is equal to the number of coefficients estimated minus 1. Here, there are 7 coefficients, so the degree of freedom of this model is $7-1 = 6$. And the error degree of freedom is 143 which is calculated like $DF \text{ total} - DF \text{ model}$, $149-6 = 143$. The F-statistic is found through dividing Mean Square (Regression) by the Mean Square (Residual): $12.786/.083$. The following table shows estimated coefficient values of the study.

Table 4: Estimated coefficient values

Coefficients ^a						
	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.732	.140		5.245	.000
	AI the 4th Industrial Revolution	-.047	.032	-.053	-1.484	.140
	AI Machines are more intelligent	.117	.024	.197	4.861	.000

	AI performs jobs better than human	.143	.025	.215	5.807	.000
	AI will kill human jobs	.131	.025	.175	5.169	.000
	AI driven cars are safer	.092	.023	.141	3.949	.000
	Impose negative impact on society	.416	.026	.595	15.881	.000
a. Dependent Variable: Employment						

Here B represents the values which can be used to predict the dependent variable from the independent variable.

Here whether a given coefficient is significantly different from zero or not that is tested by the t-statistics along with their 2-tailed p values. And the p value represents the significance of the variables. The variable can be said significant if its p value is smaller than 0.05. So it can be found that, the significant variables are- AI Machines are more intelligent, AI performs jobs better than human, AI will kill human jobs, AI driven cars are more safe and Impose negative impact on society.

6.3 Reliability Test

The following table shows reliability statistics of this study.

Table 5 Reliability statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
.805	7

Reliability is necessary to measure when it's the matter of having confidence in the article preparation and data analysis which will identify the degree to which it is error-free. And this measurement can be done by Cronbach's coefficient alpha (α) which is the common measure of scale reliability. This will also show the internal consistency among the items and by this it can be identified how a set of items are closely related as a group. The value ranges from 0 to 1 and the greater reliability can be indicated by higher values. The Cronbach's Alpha for 7 items is **.805** which actually indicates the higher internal consistency.

7. Results

Technological progress is always a blessing for mankind but there are negative impacts for this progress which is visible in this research study. In multiple ways, Artificial Intelligence is improving the world but there is always concern about the forthcoming impact of this revolution on employment and the workforce. The data analysis shows that

employment in industries will be affected significantly because of Artificial Intelligence advancement in industries. In future because of lack of adaptability with the change made by Artificial Intelligence many jobs will be taken over by technology basically by robots. There by it will create a large number of people jobless. The following figures show those things clearly.

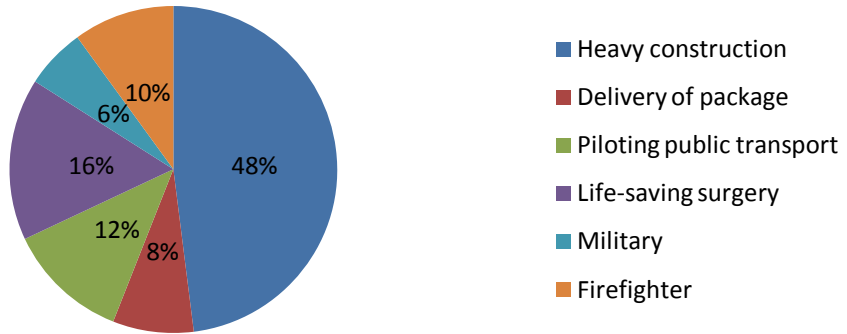


Figure 1: The fields Artificial Intelligence performs better than human

When asked about fields where the artificial intelligence performs better, respondents came up with the above results. The figure shows that 48% of them think AI will perform better than human in the field of heavy construction and 16% of the respondents think that its Life-saving surgery where AI will perform better than human. Among the respondents 12% think that piloting public transport, 10% of them think that firefighter, 8% think that delivery of package, and 6% of them think that it’s military where AI will perform better than human. These numbers are showing the risk of human jobs in future in different fields.

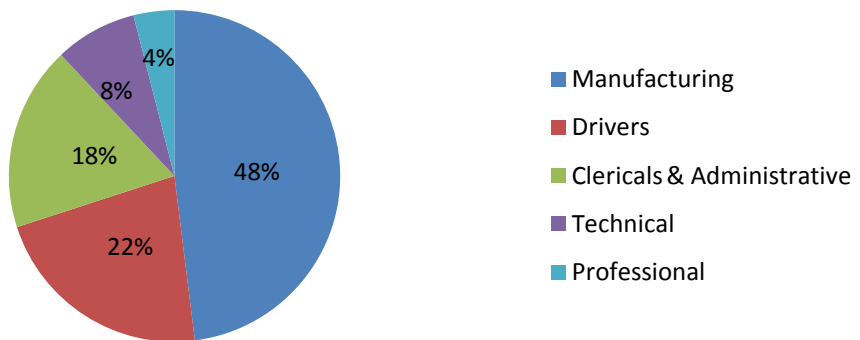


Figure 2: The fields mostly affected by Artificial Intelligence

The above figure shows the fields which is mostly affected by Artificial Intelligence. In the survey questionnaire there was a question like- which fields are mostly affected by Artificial Intelligence. Moreover, it was not surprising that respondents think that

Artificial Intelligence mostly affects the manufacturing field. And the responses of the respondents show that 48% of them consider manufacturing as the mostly affected field by Artificial Intelligence. The second field from the respondents' perspective is the profession of drivers which constitutes 22% of the total. Clericals and administrative field are thought as the affected field by 18% of the total respondents and 8% thinks technical and 4% thinks professional field as the mostly affected field by Artificial Intelligence.

8. Conclusion

The findings of this study reveal that Artificial Intelligence (AI) is influencing employments. In that the most concerned impact indicates AI is making people jobless. In almost all the sectors, such as heavy construction, delivery of package, piloting public transport, lifesaving surgery, military and firefighter are going to be altered with the use of AI. The impact is expected to be higher in the manufacturing sector. This study also shows that AI performs better than human in manufacturing sector. However, adaptability of the people who are currently working in this sector in Bangladesh remains a concern and seeks the attention of policymakers to minimize adverse future consequences. The risk of unemployment varies depending on the capacities of a country to adapt new technologies at mass scale. Moreover, there are some specialized fields as well as service-based sectors in which AI has little impacts due to the requirement of human intervention to accomplish the tasks. In general, AI will create possibilities for better jobs in future but it will require people to get prepared to cope up with AI for unforeseen challenges. Future studies can highlight those challenges while suggesting different approaches for developing capacities.

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Does Hospital Service Quality During Covid-19 Pandemic Lead to Patients' Satisfaction? Empirical Evidence of Hospitals in Bangladesh

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Abstract

The purpose of the study is to assess the patients' perception and satisfaction of hospital service quality during covid-19 crisis. The data were collected during six months from April, 2020 to October, 2020 through a structured survey questionnaire from the patients who experienced healthcare service from the studied 32 public as well as private hospitals situated Dhaka city corporation (North and South) and Tangail district. Out of the 400 distributed questionnaires, 300 (80.25%) were selected usable to proceed final analysis showing path relationship under structural equation model. This study reveals that there is a significant relationship between responsiveness, professionalism, communication, and baksheesh with overall patients' satisfaction. But, assurance, empathy, and tangible factors demonstrate an inconsequential relationship with patients' overall satisfaction. Moreover, responsiveness has a strong positive impact ($\beta = 0.394$) on patient's overall satisfaction as well as baksheesh has a strong negative impact ($\beta = - 0.163$) on patients' overall satisfaction. The main limitation of the study is the limited area of study. The study has several implications for researchers, health policymakers, healthcare practitioners, service providers and patients to identify and evaluate the factors affecting quality healthcare services to develop strategies and policies for improving health care services during covid-19 crisis.

Keywords: *Service Quality Perceptions, Patients' Satisfaction, Hospitals, Healthcare Services, SERVQUAL Model, Structural Equation Modeling (SEM).*

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1. Introduction and Background

The epidemic of Coronavirus (Covid-19) originated in December 2019 in Wuhan (China), has infected near about 50 million people and happened death of more than 1.2 million people globally at the end eleven month after detection. World Health Organization (WHO) declared a global crisis on January 30, 2020 and global emergency on Feb. 20, 2020 after the world war-II due to the epidemic of COVID-19 (Corona Virus Diseases-19). Then, on March 11, 2020, WTO officially declared Corona Virus (Covid-19) a global pandemic for the adverse effect on global healthcare system. Due to the pandemic of COVID-19, the most governments all around the world enforced lockdown policy through implementing to shut down boarders and limited activities, impose travel restrictions specially tourism and aviation as well as home and institutional quarantine that lead to impending world's largest economic recession and crisis (Kraemer et al., 2020). The first infected case of Covid-19 was found on 8 March, 2020 and first dead case was happened on 18 March, 2020 that's why government of Bangladesh declared lockdown on 26 March and till to end 30 May, 2020 with public holiday through shutting down all activities except emergency services. After that every establishment is opened except academic institutions and still now are closed. As of 06th November, 2020, the infected number of patients found all over the Bangladesh and world is 4,17,475 and 4,8625,084 respectively as well as death happened is 6,036 in Bangladesh and is 1232516 in the world respectively based on the database of John Hopkins University (Government, 2020). Over 200 countries affected and US has found most confirmed cases as well as death happened. The longer-term consequences of this pandemic arose from mass unemployment and business failures. During covid-19 pandemic crisis, both COVID-19 and non-COVID-19 patients are suffered a lot from getting healthcare services. This research will especially highlight on the patient's perception and satisfaction towards hospital service quality during Covid-19 pandemic situation prevailing in Bangladesh.

The improvement of good health and well-being is one of the apex goals of sustainable development for ensuring quality healthcare service. Bangladesh along with all other UN nations has taken the required steps in complying with the peace and prosperity for achieving SDGs. Bangladesh has already achieved MDG-4 targets by reducing child death, maternal death, and improving immunization coverage from infectious diseases (Ahmed et. al., 2017). The health care sector in Bangladesh has multidimensional transformations after the liberation war such as public, private, and non-government organizations or donor agency based. The primary health care service is ensured through Upazilla Health Complex, Union Sub Center & Community Clinics; secondary health care service is ensured through Sadar hospitals (District Hospitals); tertiary health care service is ensured through Medical College Hospitals established in different districts and finally, super-specialized care is ensured through the specialized hospitals in Bangladesh (Ahmed et. al., 2015). Healthcare service quality implies twofold dimensions relating to technical and functional whereas technical quality highlights on diagnostics accuracy as well as procedures and functional quality describe the way how to deliver services to the patient. Now, twelve hospitals located in capital city Dhaka are providing admission services for

covid-19 patients and 114 institutes around Bangladesh are providing Covid-19 test services (Government, 2020). The recent fraud of Jobeda Khatun General (JKG) Health Care and Regent hospital highlighted the patients' concern about Covid-19 test in Bangladesh. JKG Healthcare service and Regent hospital provided fake Covid-19 test certificate without proper test. The Regent hospital authorities so far issued more than 10,000 Covid-19 test results out of those most of them are fake (The Daily Star, 2020). Those incidences create concern and dissatisfaction in patients' mind towards hospital service quality in Bangladesh (Wtopnews, 2020; The Business Standard, 2020).

The more satisfaction of patients will result in the more congregations of patients' in hospitals for getting service and recommending others to go there (Zeithaml, et al., 1996). Besides, patients are becoming more open to competitive improvement and more known to the hospital services, and therefore only service benefit cannot be adequate to ascertain a long and broad affinity between the patients and the health sectors (Gaur, et al., 2011). Healthcare organizations will appraise patients' commitment towards this sector by examining the objects of patients' satisfaction with improving faith to reduce the perceived loss of receiving healthcare service (Ranaweera & Prabhu, 2003). Patients' satisfaction can be ensured through maintaining a strong affinity between patients and healthcare organizations (Aagja & Garg, 2010). Caring is more significant for patient satisfaction rather than providing information by nurses and hospital staff (Karaca & Durna, 2019).

Earlier studies conducted around the globe have their focus on multiple factors (i.e., admission, medical service, overall service, discharge process, and social responsibility, technical, procedural, infrastructural, interactional, personnel and social support through providing assurance, communication, empathy, responsiveness, professionalism, and tangible service facilities) affecting service quality that has a significant impact on patients' satisfaction (Parasuraman et al. 1985; Berry, et al., 1988 Anderson and Zwelling, 1996; Andaleeb, 2001; Wong, 2002; Sohail, 2003; Doran & Smith, 2004; Moghadam & Amiresmaili, 2009; John, et al., 2011; Ramanujam, 2011; Alborie & Damanhour, 2013). This study would like to focus on the extended SERVQUAL relationship between patients' perception and level of satisfaction based on service quality factors during Covid-19 pandemic. Do the key determinants of healthcare service quality effect on measuring the patients' perception and satisfaction during Covid-19 pandemic? Therefore, this research will assist the hospitals to have a better understanding of the patients' service quality perception and satisfaction level during Covid-19 pandemic that will lead to maintaining the long-term affiliation between the patients and the hospitals and help the government to formulate policies to face the further wave of Covid-19 or any other dangerous flu viruses in future. But if health sectors do not succeed in understanding the necessity of delivering service and satisfying the customers that will bring the probable damage of health care sector (Andaleeb, 1998); (Padma, et al., 2010) For this reason, patient satisfaction has been considered as a prime concern to maintain a long-term relationship between patients and health care sectors (Oliver, 1980).

The remaining part of this study is structured as follows: the second chapter describes the objectives of the study, later one covers the methodological issues, and the fourth chapter elaborates the previous studies that focus empirical and theoretical literature with key constructs for developing hypothesis that demonstrate proposed model of the study, and the fifth chapter describes the main results and analysis, and finally, it provides a conclusion that includes recommendation, limitations, and implications along with future research directions to the wide range of stakeholders (service providers, patients, and policymakers) to whom this study will serve.

2. Objectives of the study

The purpose of the study is to find out the patients' perception towards hospital service quality and to explore the patients' level of satisfaction from the perceived services provided by the hospitals (public and private) in Bangladesh during Covid-19 pandemic situation.

3. Methodological Issues

3.1 Selection of Sample:

The reported data were collected during 6 months of tiresome operations from April, 2020 to October 2020 to test the patients' perception and satisfaction of healthcare service quality of private and public hospitals during Covid-19 pandemic in Bangladesh. The study was conducted at 32 public and private hospitals and clinics in five Upazila (Town) of Tangail district i.e. Tangail Sadar, Delduar, Nagarpur, Kalihati, and Ghatail upazilla and Dhaka City Corporation (North & South) area in Bangladesh. The range of adequate sample size lies between 30 and 500 for most of the research of this nature (Sekaran and Bougie, 2009). In conducting this study, researchers have taken a 95 percent confidence level with having tolerance error at 6.5 percent and unknown population standard deviation to determine the minimum size of the sample (Zikmund et al., 2013). The estimated necessary sample size is about 228 but the sample is taken 300.

3.2 Questionnaire design and Development:

The questionnaire was designed and developed based on an intensive review of the literature (Andaleeb, 1998); (Andaleeb, 2001); (Andaleeb et al, 2007); (Nasim and Janjua, 2014); (Handayani et al, 2015). At the start of designing research works, a panel review was arranged which consisted of experts from different fields i.e. researchers, academicians, physicians of health sectors for evaluating, correcting, and justifying the latent constructs and its statements. The questionnaire was primarily developed in English, but the valid questionnaire was then translated into Bengali by the expert translator including a panel of English language teachers and Bengali language teachers at the university level to ensure the translation validity of the questionnaire for a proper understanding of the respondents because the Bengali language is the mother tongue in Bangladesh. The questionnaire is divided into two parts that consist of 40 questions; Part-A (13 questions) and Part-B (27 questions). Part-A covers demographic information of the

patients regarding their gender, age, educational level, occupation, residence, income level, hospital type, hospital ward, reason for choosing the hospital, health condition and medical care experiences in the past at this hospital, symptom of Covid-19 virus with testing and recovering information . On the other hand, Part-B contains questions regarding seven independent SERVQUAL variables (i.e. Assurance, Baksheesh, Responsiveness, Communication, Empathy, Tangible and Professionalism) and one dependent variable (overall Satisfaction) in developed research model using 5-point Likert scale from (1) "strongly disagree" to (5) "strongly agree."

3.3 Data Collection:

The patients' detailed information is collected from the hospitals' information booth. The patients' list was collected from the respective ward-in-charge of the public hospitals and the patient relations in-charge of the private hospitals. Using simple random sampling, patients were selected from this list. Then, we contacted, distributed and requested to the patients to fill up the self-administered questionnaire who experienced healthcare service quality from the studied 32 public and private hospitals in the study area and collected those questionnaires to go physically, with the help of e-mail and social media i.e. Facebook. Especially, inpatients are evaluated after having been discharged from the hospital and outpatients are evaluated after having been visited the doctors. Each respondent has approximately taken 25-30 minutes to fill up the questionnaire with the support of data collectors. A total of 400 patients were distributed and requested but 321 were returned whereas the resulting response rate 80.25 percent. Twenty-one incomplete questionnaires were dropped from the analysis. Finally, 300 questionnaires were selected to proceed for the final analysis.

3.4 Statistical Analysis:

Smart-PLS 3.0 software was used to analyze data adopting 'partial-least square-structural equation modeling (PLS-SEM). Recently, the partial least square (PLS) technique is one of the most popular tools for model fit and examining developed hypotheses. Thus, the partial least square (PLS) technique was used to analyze measurement and structural analyses for our proposed model. Furthermore, this PLS technique was applied for only predictive analyses (Hair et al, 2017). So, paramount predictive accuracy can be ensured through using PLS-SEM (Wang et al. 2013).

4. Literature Review-theoretical framework and key constructs with hypothesis development:

Patients' satisfaction meaning, importance, and significance:

The term "Hospital Service quality" has been attained universal attention to evaluate patients' satisfaction. Satisfaction is a psychological concept with the emotional attachment of judgment and experience regarding an object (Chakraborty & Majumdar, 2011). So, customer satisfaction reveals accomplishing customers' needs or expectations through the cognitive and affective dimensional responses of customers presenting

discrepancy between prior expectations and perceived performance (Churchill and Surprenant, 1982; Lewis and Mitchell, 1990; Oliver, 1997). Customer satisfaction is two-dimensional aspects, one is transaction-specific satisfaction and the other is overall satisfaction. Transaction-specific satisfaction denotes the individual level and overall satisfaction represents a cumulative aspect that is attained based on overall experiences of purchasing or consuming products or services (Johnson and Fornell, 1991; Deng et al., 2010). It is claimed that evaluation of overall satisfaction in predicting the customers' post-purchase behavior is effective through considering the performance of service providers (Wang et al., 2004; Kuo et al., 2009). The patient's perception is being observed as a meaningful indicator of healthcare services quality that represents the crucial indicator (O'Connor et al. 1994). Determining patients' satisfaction is essential to appraise patient outcomes based on perceived service (Lewis and Mitchell, 1990). So, the sustainability of organizations largely relied upon the quality of services offered for attaining competitive advantages, long term relationship, profitability, and financial performance (Alanezi, et al, 2010); (Carter, et al, 2002). In the general sense, the perception of service quality in the health sectors is based on the judgment of the patient's services provided by the health sectors and will increase the affinity between the patients, nurse, doctor, and staff (Fuentes, 1999). Providing improved quality of service is essential for organizational success and sustainability that leads to an impact on customer perceived value, satisfaction as well as loyalty (Laohasirichaikul et al., 2010).

SERVQUAL development and application to patient satisfaction:

Parasuraman et al. (1985) firstly introduced and developed SERVQUAL concept as well as defined perception and expectation to measure the service quality under five-dimensional crowns (i.e. reliability, assurance, empathy, tangible and responsiveness) and several researchers applied those dimensions of assessing service quality for public and private hospitals (Anderson and Zwellling, 1996; Wong, 2002; Sohail, 2003; Doran & Smith, 2004; Moghadam & Amiresmaili, 2009; John, et al., 2011; Ramanujam, 2011; Alborie & Damanhour, 2013). Then, (Berry, et al., 1988) proposed the SERVQUAL model with five constructs of service: (1) Tangibles – physical advantages, machinery, and presence of employees; (2) Empathy – become caring and supplying personal concentration; (3) Assurance – knowledge and gentleness of personnel and their capacity to convey belief and confidence; (4) Reliability – capacity for performance with the promised service dependably and properly; (5) Responsiveness – a willingness to assist consumers and supply immediate service. The SERVQUAL model recognized a significant gap between consumer perception with feelings and expectation towards services in considering the level of actual satisfaction that is provided by organizations to the customers for the time being (Parasuraman, et al., 1985) and described that quality of services consisted of five measurements (tangible, reliability, responsiveness, assurance, and empathy). The SERVQUAL model has given a perceived imagination of service quality with a model to evaluate acquiring service quality and supply more diagnostics and real applications, rather than previous probable thoughts of services, through five dimensions indicating admission, medical service, overall service, discharge and social

responsibility identified significant relationship with service quality (Amin & Nasharuddin, 2013). Swain & Kar, (2018) developed a "6-Q Framework" comprising all possible dimensions identified under six areas (technical, procedural, infrastructural, interactional, personnel and social support quality) through which patients' perceived quality of service in hospitals determined. Moreover, (Aagja & Garg, 2010) established the service quality of a public hospital (PubHosQual) five dimensions: admission, medical service, overall service, discharge process, and social responsibility. Hospital service quality was measured under the SERVQUAL model through evaluating five constructs (tangibles, reliability, responsiveness, assurance, and empathy) were found enough negative quality gap on each aspect of service quality (Butt & Run, 2010); (Sohail, 2003). Fatima et al. (2018) found that the service quality dimensions (i.e. physical and customer-friendly environment, responsiveness, communication as well privacy, and safety) are significant and positive relationship with patients' satisfaction that leads to patients' loyalty. Patient's perception of hospital service quality is based on three constructs: physical atmosphere (Comprising circulatory Condition, tangibles, and social factors), interaction quality (comprising attitude and behavior, expertise and process quality), and quality of results (comprising waiting time, patient satisfaction and loyalty) (Chahal & Kumari, 2010). Same as, (Arasli, et al., 2008) identified six constructs of the service quality in public and private health care sectors: empathy; providing priority to the needs and wants of the patients; affinity between staff and patients; professionalism; food and the physical atmosphere. Excessively, (Brady & Cronin, 2001) denoted interaction quality, physical atmosphere quality, and quality of the result as constructs for measuring hospital service quality. Moreover, (Brady & Cronin, 2001) described that three constructs (outcome, interaction, and environmental quality) led to the perceptions of service quality. In this case, service quality perception of patients integrates interactive interaction with patients' expectations and perceived services from the healthcare sector. So, the affinity between patients and the healthcare sector is influenced by the functional and technical quality of services that develop patients' perceptions towards services (Bourdeau, et al., 2006); (Orava & Tuominen, 2002). Though Service, technical and customer quality are three principal dimensions for the assessment of health care quality patients' emotion is also a significant determinant of satisfaction where highest positive emotion of patients denotes the highest level of satisfaction and higher intention to return in the hospital and vice-versa (Pinna et al., 2018). Consumer satisfaction is fulfilling the consumer desire of services through the comparison with the performance which is perceived. Perceived service quality leads to customer satisfaction (Endara, et al, 2019) as well as the perceived performance becomes similar to the customer desire of service whether they are satisfied or dissatisfied (Oliver 1997). Previous research has found that there are several changes of variables in determining customer satisfaction in the healthcare sector but a specific aspect of how consumers feel cared for in countries and cultures that cannot be generalized during the pandemic situation like Covid-19. For example, Linda, (2002) recognized special attention that patients' satisfaction is a thoughtful approach that influenced emotionally to patients' subjective feelings. Again, (Thomas et al., 2002) identified that the interpersonal affinity between the patients and the hospital service provider is the

essential determinant of consumer satisfaction (Gill & White, 2009). Although the patient perception of the service quality level significantly influences the choice of hospital, it is not easy for a patient to realize the level of service quality provided which involves many dimensions to evaluate service quality (Arasli, et al., 2008); (Hoel & Saether, 2003). For example, (Eleuch, 2011) highlighted that patients lack knowledge and skill to properly judge medical service quality for the technical aspects of services, such as the surgeon's skills or practitioner's diagnostics. In this case, the evaluation of patients regarding the medical services is defined as the interaction between patients and doctors, this interaction will improve the patient's confidence in the quality of the hospital services supplied by a hospital (Suki et al., 2011). Again, to adopt service quality effectively in the health care organization, management is needed to understand properly the characteristics of service quality and how to apply and adjust it in the context of hospital culture.

SERVQUAL empirical support in predicting patient satisfaction:

Private hospitals have higher patient satisfaction in terms of quality of service rather than public hospitals in considering age diversities because there is a high level of satisfaction with the quality of service in terms of reliability, tangible, empathy and loyalty of young Bangladeshi patients (≤ 20 years) (Ahmed et al., 2017). Though Medical service quality is different from our developing economy in considering the European and American context, the healthcare service quality largely relies upon the satisfaction of patients. A developed country like the USA, admission procedure, doctor service, nursing service, sympathy to family and friends, a satisfaction of encircling, and discharge procedure was used to measure the service quality of health sectors (Kurz & Otani., 2004). Although SERVQUAL model variables have been validated based on the Western context, the cultural significance of the customers will likely affect its application. Advanced Service quality systems in one culture may contain sensitivities of service quality in another culture (Karatape, et al., 2005). Though there is a discrepancy between the public hospital, local private hospital, and foreign hospital; they are nonetheless competing in the same market regarding offering praiseworthy products and services for the patient (Antony & Taner, 2006). Like as, the benefit of the affinity between patients and doctors have a considerable influence on the measurement of patient's satisfaction. In this perspective, patient satisfaction is referred to as the evaluation prepared by patients on their desires for hospital services that have been fulfilled or not in case of both technical and interpersonal. Thus, a hospital's capacity to provide these advantages continuously will affect the patient's satisfaction level (Amin & Nasharuddin, 2013).

Why is critique and model inclusion necessary?

Service quality can be increased by monitoring patient perceptions along with the application of an action plan with patients' feedback. The service quality perception of patients' largely impacts on the behavioral intention that leads to satisfaction in considering administrative and staff service performance, facilities condition, and nursing care (Giovanis et al., 2018). The SERVQUAL framework has provided guidelines about several studies in the service sector that focus on banks, repair and maintenance services,

telephone companies, physicians, hospitals, hotels, academic institutions, and retail stores (Berry et al., 1988); (Carman, 1990). The SERVQUAL tool was used by various researchers for evaluating empirically hospital service quality to determine validity and reliability for evaluating patient satisfaction. For measuring hospital service quality and patient satisfaction in Bangladesh, few studies were conducted and SERVQUAL was used in most of them with or without modification (Rahman & Kutubi, 2013).

Oliver (1980) projected a model for conveying consumer satisfaction in considering expectation and expectation disconfirmation function where buying intention is changed by the attitude of customers. Furthermore, Spring & McCoy, (1996) established a modification model of perceived service quality and satisfaction framework that is consistent with determining the quality of service and the level of customer satisfaction by modifying the desires congruity and expectations disconfirmation associated with aspirations, perceived performance, and expectations. Thus, behavioral intention, perceived healthcare quality, and patient satisfaction with perceived service are interrelated (Akhtar, et al. 2019). In most of the research relating to patient satisfaction of hospital service quality in Bangladesh, samples were taken from the patients of the public and private hospitals situated in Dhaka city (North & South) (Andaleeb, 2000, 2001, 2010; Andaleeb, et al., 2007, Rahman & Kutubi, 2013) mentioning different SERVEQUAL constructs i.e. responsiveness, assurance, empathy, communication, tangible, discipline, baksheesh, process characteristics, cost, billing service, and treatment result but the construct "professionalism" not studied in Bangladesh perspective, though patients' satisfaction largely depends upon the professional behavior of doctors and nurses of the hospitals (Gunes and Deveci, 2002; Handayani et al., 2015). Moreover, such type of study is not done in this area yet. Though the proposed research model is not beyond the shortcoming because the constructs are studied earlier separately but not collectively and found different results in different countries with a different aspect. So, it is essential to the inclusion of hypotheses based on the constructs in considering customers' expectations and needs.

Factors to satisfy patients: the study framework

Assurance:

Assurance has defined the knowledge, cordiality, promise, and trust of the organizational workforce to serve and preserve the best interest of the patients. (Parasuraman et al. 1985, 1988; Buttle, 1996). A basic expectation of patients that the services are provided by well-trained and competent staffs (doctors and employees) where the patients rely on doctors' advice (prescriptions and medical tests) with the favorable cost through careful attention (Rashid and Jusoff, 2009); (Nasim and Janjua, 2014); (Andaleeb, 2001).

H1: The greater the level of assurance provided by the hospital staff; the greater will be the level of patients' overall satisfaction with the services.

Baksheesh:

Baksheesh is defined as 'tips' demanded by the staff and attendants from the patients to provide better healthcare services facilities where there is no proper system or mechanism and no benchmark is maintained effectively (chang, 2009); (Nasim and Janjua, 2014). When patients are interested in getting better and faster services than the others, then they are being harassed to get services with extra money. (Andaleeb, 2001).

H2: The greater the perceived harassment of getting better and faster service unless “Baksheesh” is paid to the hospital staffs, the lower will be the level of patients’ overall satisfaction with hospitals.

Communication:

Communication is defined as exchanging adequate information between hospital staff (doctors, nurses, and officers) and patients. Patients, in particular, expect physicians and nursing staff to communicate clearly and concisely about laboratory and other diagnostic test results, prescriptions, healthcare, etc. Similarly, patients expect nurses to understand the problems and communicate properly with the doctor (Andaleeb, 1998; Suki *et al.*, 2011). If physicians and staff refuse to answer questions or describe treatment features and possible outcomes, this can lead to patient dissatisfaction. (Andaleeb, 2001).

H3: The better the level of communication between the hospital staff and the patients, the greater will be the level of patients’ overall satisfaction with hospital services.

Empathy:

Empathy is personalized consideration (accepting the perspective of others, having a sense of feelings of others, and listening to others) given by the organization towards patients. Empathy is defined as a company’s capacity to understand users' needs and provide careful and personal attention to customers (Parasuraman et al. 1985,1988). (Yavas et al. 1997) highlighted the essence of empathy to satisfy the customers. Patients expect doctors to be concentrative and knowing towards them. Patients are always interested and expect that doctors will be attentive and understanding to them as well as nurses provide their personal care and psychological support. (Andaleeb et al., 2007).

H4: The greater the level of empathy (personal care and psychological support) of hospital staff (doctors and nurses) towards patients, the higher will be the level of patients' overall satisfaction.

Responsiveness:

Responsiveness denotes the eagerness of the service providers to assist customers and to provide immediate or prompt service (Parasuraman et al. 1985,1988; Bebko and Garg, 1995; Buttle, 1996; Khan et al., 2018). It also involves doctors' appointments, providing services through advice, check-up, and medicines quickly (Naidu, 2009). Patients desire for the staffs of the hospital to respond immediately when needed. Moreover, they also desire the prescribed medicines to be attainable and accurately administered (Andaleeb et

al., 2007). So, if the staff gives more responsiveness and concentration to the needs of patients promptly, carefully, and in way of courtesy; then it will lead to the more patients' overall satisfaction (Andaleeb, 2001).

H5: The better the responsiveness of hospital staff to the patients, the greater will be the level of patients' overall satisfaction.

Professionalism:

Professionalism is defined as the dexterity and good performance of doctors, staff, and nurses to provide the services toward the patients in hospitals. Reliability largely depends upon the professionalism of doctors and staff of the hospital (Gunes and Deveci, 2002). Besides, all doctors and personnel of the hospital should have the experiences and skills regarding the patient's services and also should have the mentality to maintain and obey the rules, regulations, and ethical codes of the hospitals (Handayani et al., 2015).

H6: The greater the professionalism of hospital staff with the patient, the greater will be the level of patients' overall satisfaction.

Tangibility:

Tangibility refers to the presence of the organizations, physical advantages, machinery, and employees. The tangibility of the physical environment might influence customer responses more emotional than perceptive (Wakefield and Blodgett 1999). Commonly, nice appearance (tangibility) of the physical facilities, equipment, personnel, and written materials impress positively. A neat and well-decorated appearance of a hospital, its staff, its premises, restrooms, equipment, wards, and beds can affect patients' fascination regarding the hospital. However, in Bangladesh, almost all hospitals/clinics are wanting in many of the upper characteristics, therefore diminishing patient satisfaction (Andaleeb et al., 2007).

H7: The better the tangible facilities of hospitals, the greater will be the level of patients' overall satisfaction.

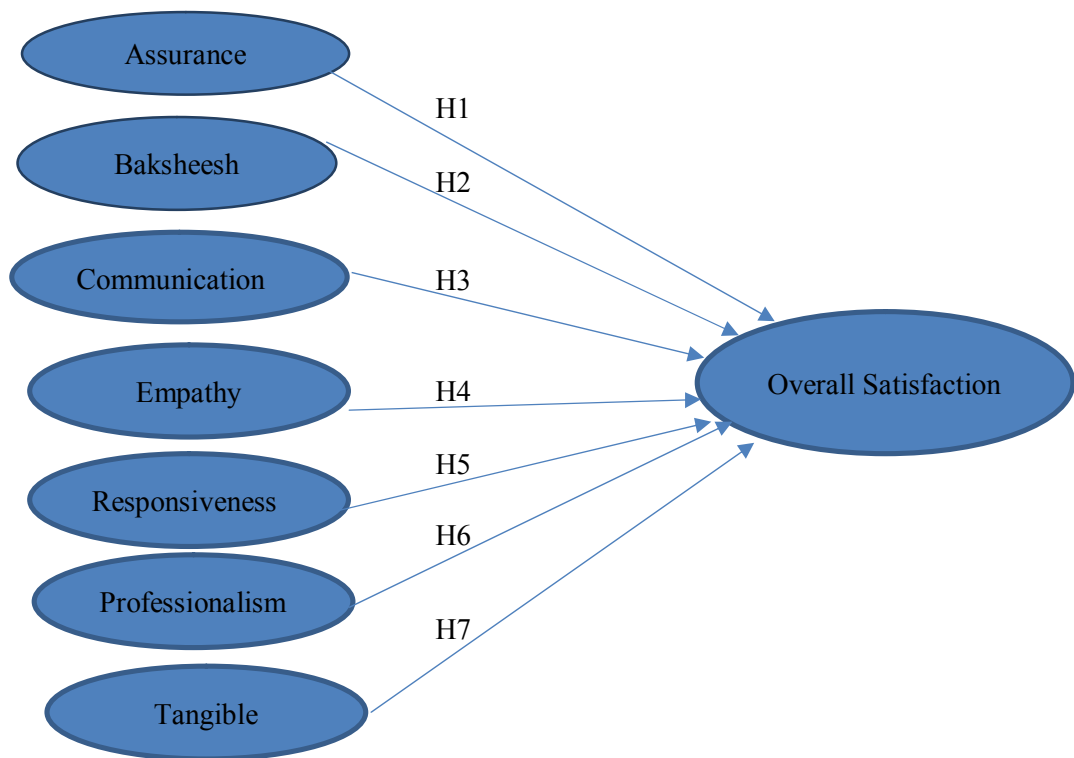


Figure-1 Proposed Research Model

Source: Prepared by the Authors'

So, several studies have exposed the direct impact of service quality factors (responsiveness, assurance, communication, empathy, professionalism; tangibility) on patients' satisfaction showing that the patients are satisfied with the service of the hospitals (Gooding, 1995; Yavas et al. 1997; O'connor et al., 2000; Gunes and Deveci, 2002; Wu et al., 2008; Wakefield and Blodgett 1999; Andaleeb, 1998; Suki *et al.*, 2011; John, et al., 2011; Ramanujam, 2011; Alborie & Damanhour, 2013; Nasim and Janjua, 2014). Likewise, if there is no existence of tips for getting healthcare services, the level of patients' satisfaction can be raised (Andaleeb, 2001; Nasim and Janjua, 2014).

5. Empirical Results and analysis with sample profile of the study:

Table-1: Socio-demographic information of patients

Demography	Attributes	Frequency	Valid (%)
Gender	Male	114	38
	Female	186	62
Age	≤ 30	81	27
	31-40	72	24
	41-50	72	24
	51-60	55	18.33
	≥ 61	20	20
Educational Level	Primary & Secondary School	113	37.67
	College/University (Academic Degree)	187	62.33
Occupation	Student	48	16
	Homemaker	103	34.33
	Businessman	30	10
	Service holder	54	18
	Farmer/worker	13	4.33
	Others	52	17.33
Marital Status	Single	64	21.33
	Married	232	77.33
	Separated	4	1.33
Residence	Urban	158	52.67
	Rural	142	47.33
Income Level (annual)	≤ TK 50,000	188	62.67
	TK 50001-1,00,000	30	10
	TK 1,00,001-1,99,999	66	22
	≥ TK 2,00,000	16	5.33
Hospital Type	Public	139	46.33
	Private	161	53.67
Hospital Ward	Inpatient	75	25
	Outpatient	225	75
Reasons for choosing the hospital	Recommendations from peers	55	18.33
	Reputation	134	44.67
	Facilities and affordable cost	72	24
	Medical staff conformity	39	13
Use of health care	≤ 5	223	74.33

Demography	Attributes	Frequency	Valid (%)
services of the last 5 years	6 <10	65	21.67
	11 <15	9	3
	≥16	3	1
Health Condition	Excellent	15	5
	Good	99	33
	Average	112	37.33
	Bad	74	24.67
Medical care experiences in the past at this hospital	Yes	140	46.67
	No	160	53.33
Have you any symptom of Covid-19 virus?	Yes	48	16
	No	252	84
Did you test Covid-19 virus?	Yes	11 (positive)	3.66
	No	289	96.34
If yes, have you infected after test and recovered from Covid-19 virus?	Yes	11	100%
	No	0	0

Source: Authors' findings.

In table 1, demographic information of the respondents shows that 38 percent were male respondents and 62 percent were female respondents. From the surveyed information the majority ages of the respondents were ≤ 30 (27% of the respondents), majorities' educational qualification was academic degree with college/ university (37.67%), most of the respondents were homemaker (34.33%) in considering occupation, the major portion of the respondents are married (77.33%) in regarding marital status. 52.67% of urban patients and 47.33% of rural patients came under the study. On the other hand, more than half (62.67%) of the respondents annual the income level BDT ≤ 50000 , data collected 53.67% patients from private hospitals as well as clinics and 46.33% patients from public hospitals. Data are collected from outpatients and inpatients 75% and 25% respectively. The majority of the respondents (44.67%) highlighted on reputation as the main reason for choosing the hospitals. 74.33% of patients use ≤ 5 of the healthcare services of the last five years. The majority of the respondents' (37.33%) health condition was average which means the patients who frequently (thrice or more in a month) visit to the doctors for their health problems. 53.33% of respondents indicate "No" and 46.67% of respondents indicate "Yes" mentioning the medical care experiences in the past at the same hospital. The number of 48(16%) patients felt the symptom of Covid-19 virus and 11 (3.66%) patients test Covid-19 where 11 patients result positive and recovered fully according to their comment.

Table-2: The Measurement Model and Cross loading Matrix

Constructs	Items	Indicator Loadings	AVE	Composite Reliability	Cronbach's Alpha	R Square
Assurance	A1	0.874	0.742	0.852	0.653	0
	A2	0.848				
Baksheesh	B1	0.912	0.823	0.903	0.785	0
	B2	0.902				
Communication	C1	0.891	0.685	0.866	0.767	0
	C2	0.853				
	C3	0.729				
Empathy	E1	0.823	0.717	0.883	0.803	0
	E2	0.841				
	E3	0.875				
Professionalism	P1	0.728	0.65	0.847	0.733	0
	P2	0.894				
	P3	0.789				
Responsiveness	R1	0.79	0.702	0.934	0.915	0
	R2	0.868				
	R3	0.826				
	R4	0.878				
	R5	0.794				
	R6	0.869				
Tangible	T1	0.699	0.78	0.933	0.9	0
	T2	0.957				
	T3	0.935				
	T4	0.917				
Overall Satisfaction	OS1	0.902	0.823	0.949	0.928	0.811
	OS2	0.857				
	OS3	0.936				
	OS4	0.933				

The Measurement Model exposes the reliability and validity analysis of data. Evaluation of reliability and validity is crucial before testing the hypothesis (Hire & Hult, 2016). The consistent internal reliability was assessed by using Cronbach's alpha and composite reliability. The acceptable value limit of Cronbach's alpha and composite reliability is 0.70 or more to attain the internal consistency (Hire et al, 1995). The value of Cronbach's alpha

and composite reliability below 0.60 indicates a lack of internal reliability (Hire & Hult, 2016). Table 2 shows the composite reliability values of the constructs are more than 0.80, which is greater than the recommended value. On the other hand, Cronbach’s alpha values of the constructs are more than 0.70 except the value of assurance (0.653) due to limitations, unfortunately, whereas the recommended value of Cronbach's alpha is 0.70. Thus, as per the results, constructs were deemed to have enough reliability. Moreover, the validity was assessed by evaluating convergent and discriminant validity. The convergent validity is considered to be satisfactory when the value of Average Variance Extracted (AVE) of constructs is at least 0.50, and values of item loading are well above 0.50. The measurement model table shows that AVE ranged from 0.65 to 0.823 whereas the indicators loading ranging from 0.699 to 0.957 are larger than the recommended value. So, the conditions for convergent validity are met in this study. The measurement model highlights 81.1% (0.811) percent variance in the overall satisfaction of hospital service quality.

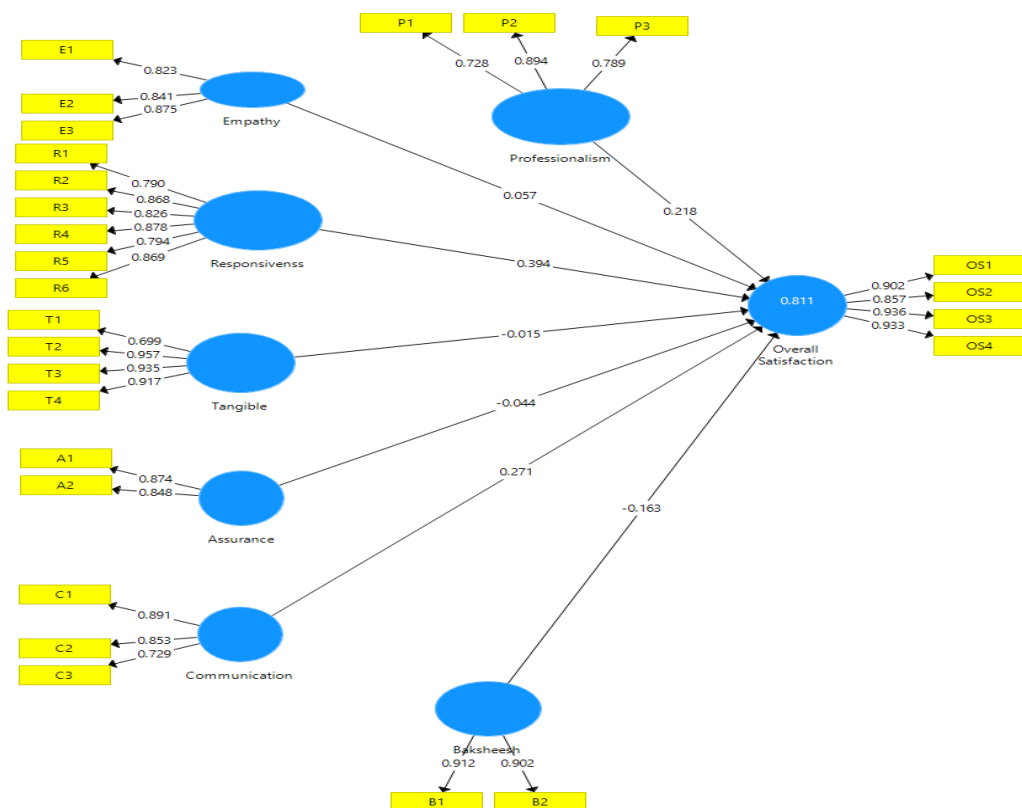


Figure-2 Proposed research Model Validation with Path Coefficient

Source: Smart PLS 3 output

The discriminant validity was assessed by the correlation matrix, the square root of AVE as well as a cross-loading matrix. Outer loading of a construct should be greater than the other corresponding loadings. Table 3 indicates cross-loading for discriminant validity analysis and reveals that all outer loadings are greater than their corresponding loadings. For achieving an acceptable limit of discriminant validity, the value of the square root of AVE of a construct must be greater than the correlation of its row and column (Henseler, Ringle & Snikovics, 2009). So, the square roots of AVE are greater than their corresponding correlation representing the good discriminant validity of data shown in Table 4 but in the Responsiveness construct, there is a variation 0.841 is greater than 0.838 in the corresponding column. Whereas, the validity of data has been met and satisfied for further analysis. constructs are highly correlated with each other a prospective problem can occur as a result the coefficients will be highly sensitive due to change in the model that will reduce the precision of the regression model (MS, 2020; Wang et al. 2013).

Table-3: Cross Loading for discriminant Validity Analysis

	Assurance	Baksheesh	Communication	Empathy	Professionalism	Responsiveness	Tangible	Overall Satisfaction
A1	0.874	-0.476	0.594	0.405	0.519	0.657	0.542	0.595
A2	0.848	-0.409	0.509	0.475	0.677	0.554	0.481	0.545
B1	-0.511	0.912	-0.515	-0.434	-0.507	-0.634	-0.493	-0.66
B2	-0.422	0.902	-0.521	-0.587	-0.58	-0.562	-0.431	-0.627
C1	0.608	-0.551	0.891	0.531	0.654	0.619	0.463	0.722
C2	0.547	-0.446	0.853	0.498	0.574	0.571	0.428	0.631
C3	0.423	-0.408	0.729	0.413	0.483	0.407	0.345	0.544
E1	0.508	-0.471	0.525	0.823	0.549	0.652	0.671	0.639
E2	0.415	-0.43	0.481	0.841	0.497	0.55	0.56	0.512
E3	0.361	-0.515	0.473	0.875	0.521	0.629	0.6	0.598
P1	0.543	-0.283	0.477	0.306	0.728	0.333	0.21	0.449
P2	0.654	-0.582	0.695	0.568	0.894	0.664	0.529	0.746
P3	0.463	-0.529	0.475	0.583	0.789	0.487	0.432	0.577
R1	0.651	-0.511	0.563	0.486	0.493	0.79	0.609	0.666
R2	0.547	-0.597	0.48	0.669	0.524	0.868	0.769	0.709
R3	0.625	-0.569	0.67	0.602	0.607	0.826	0.595	0.721
R4	0.532	-0.575	0.475	0.7	0.49	0.878	0.829	0.655
R5	0.524	-0.53	0.479	0.62	0.55	0.794	0.744	0.628
R6	0.658	-0.535	0.597	0.574	0.543	0.869	0.691	0.712
T1	0.62	-0.423	0.489	0.419	0.461	0.6	0.699	0.561
T2	0.487	-0.441	0.424	0.692	0.425	0.796	0.957	0.579

	Assurance	Baksheesh	Communication	Empathy	Professionalism	Responsiveness	Tangible	Overall Satisfaction
T3	0.485	-0.474	0.402	0.705	0.435	0.793	0.935	0.589
T4	0.505	-0.456	0.451	0.726	0.47	0.76	0.917	0.597
OS1	0.609	-0.655	0.748	0.632	0.643	0.749	0.565	0.902
OS2	0.614	-0.634	0.648	0.68	0.695	0.773	0.735	0.857
OS3	0.567	-0.64	0.694	0.613	0.67	0.729	0.576	0.936
OS4	0.613	-0.645	0.703	0.594	0.724	0.706	0.524	0.933

Table-4: Latent constructs Correlation Matrix and Squire Root of Average Variance Extracted (EVA)

Constructs	Assurance	Baksheesh	Communication	Empathy	Professionalism	Responsiveness	Tangible	Overall satisfaction
Assurance	0.862							
Baksheesh	-0.515	0.907						
Communication	0.642	-0.571	0.827					
Empathy	0.509	-0.56	0.584	0.847				
Professionalism	0.69	-0.598	0.695	0.619	0.806			
Responsiveness	0.705	-0.66	0.652	0.726	0.639	0.838		
Tangible	0.595	-0.511	0.502	0.726	0.51	0.841	0.883	
Overall Satisfaction	0.663	-0.71	0.77	0.695	0.753	0.816	0.662	0.907

The structural model used to check the hypothetical relationship among variables (Hair, et al., 1998) and reveal the interaction between dependent and independent variables (Lowry & Gaskin, 2014). The hypotheses in the research were tested using a structural model after assessing and confirming the reliability and validity of the constructs. PLS algorithm and bootstrapping methods were used to test the relationship between endogenous and exogenous variables by path coefficient (β) and t-statistics were appraised through a 5 percent level of significance.

Table-5: Structural Model

Hypothesis	Paths	Beta Value(β)	T-Value	P-Value	Comments
H1	Assurance---> Overall Satisfaction	- 0.044	0.829	0.407	Not Supported
H2	Baksheesh---> Overall Satisfaction	- 0.163	3.246	0.001	Supported
H3	Communication---> Overall Satisfaction	0.271	5.027	0	Supported

Hypothesis	Paths	Beta Value(β)	T-Value	P-Value	Comments
	Overall Satisfaction				
H4	Empathy---> Overall Satisfaction	0.057	1.292	0.197	Not Supported
H5	Professionalism---> Overall Satisfaction	0.218	4.709	0	Supported
H6	Responsiveness---> Overall Satisfaction	0.394	4.555	0	Supported
H7	Tangible---> Overall Satisfaction	- 0.015	0.234	0.815	Not Supported

Table-5 shows the path relationship between dependent and independent variables. The level of significance (p-values) and t-values exposed the acceptance and rejection of the hypothesis and demonstrated the interaction between dependent and independent variables where t-values were near or greater than 2 (Lowry & Gaskin, 2014) and p-values were less than 0.05. The ranges of beta value(β) and t-values are from - 0.163 to 0.394 and 0.234 to 5.027. The study reveals that the relationship between baksheesh and overall satisfaction ($t=3.246$, $\beta=-0.163$, $p<0.05$), Communication and overall satisfaction ($t=5.027$, $\beta=0.271$, $p<0.05$), Professionalism and overall satisfaction ($t=4.709$, $\beta=0.218$, $p<0.05$), and responsiveness and overall satisfaction ($t=4.555$, $\beta=0.394$, $p<0.05$) are found significant whereas H3, H5 & H6 are found supported and H2 is negatively supported. On the other hand, assurance and overall satisfaction ($t=0.829$, $\beta=-0.044$, $p>0.05$), empathy and overall satisfaction ($t=1.292$, $\beta=0.057$, $p>0.05$) and tangible and overall satisfaction ($t=0.234$, $\beta=-0.015$, $p>0.05$) are not found supported whereas H4 is found positively insignificant, and H1 & H7 are found negatively insignificant. Patients want assurance for getting quality services and treatment accuracy delivered to them by the hospitals (Yesilada and Direktor, 2010). Thus, H2, H3, H5, and H6 are found supported. On the other hand, H1, H4, and H7 are not found support in this research. The overall satisfaction of patients from hospital services is largely depended upon better communication skill, better responsiveness attributes, greater professional attitude of hospital staffs and lower harassment for getting services to give baksheesh to the staffs (Andaleeb,1998; Andaleeb,2001; Andaleeb, et al, 2007; Nasim and Janjua, 2014; Handayani, et al., 2015). The responsiveness attitude of hospital staff has the greatest impact on patient overall satisfaction because of having standardized $\beta=0.394$ value. Communication and professionalism have the second and third largest impact on patient overall satisfaction with standardized (β) beta value 0.271 and 0.0218. The result of Communication and responsiveness with the patients' overall satisfaction is significant with the results of (Frohna et al., 2001; Curry and Sinclair, 2002; Stain et al. 2005; Graugaard et al., 2005; Nasim and Janjua, 2014; Fatima et al. 2018) that was done before Covid-19 pandemic. As well as the result of Baksheesh (Tips) with the overall patients' satisfaction is also significant with showing the negative beta value (Andaleeb,2001; Nasim and Janjua, 2014). Surprisingly, Baksheesh has the least significant impact on patient satisfaction but

it does mitigate customer satisfaction. Patients give Baksheesh to the hospital staff because of reducing harassment of getting services. Patients want assurance for getting quality services and treatment accuracy delivered to them by the hospitals (Yesilada and Direktor, 2010). But assurance has the lowest negative and insignificant effect on patient satisfaction according to the result found (Lim & Tang, 2000) because patients are not so much assured by the hospital staff especially doctors and nurses in delivering services. The tangible effect of facilities on patient satisfaction is insignificant due to negative $\beta=-0.015$ beta value that represents negative co-efficient as well as empathy has an insignificant impact on patient satisfaction because doctors are not sensitive to listen to patient feelings and understand patient needs. So, the constructs of the current study (i.e. assurance, tangible and empathy) in term of overall satisfaction are quite different from the previous studies (Parasuraman et al. 1985,1988; Yavas et al. 1997; Wakefield and Blodgett 1999; (Andaleeb et al., 2001, 2007; Ahmed et. al., 2017; Rashid and Jusoff, 2009; Nasim and Janjua, 2014; Andaleeb, 2001).

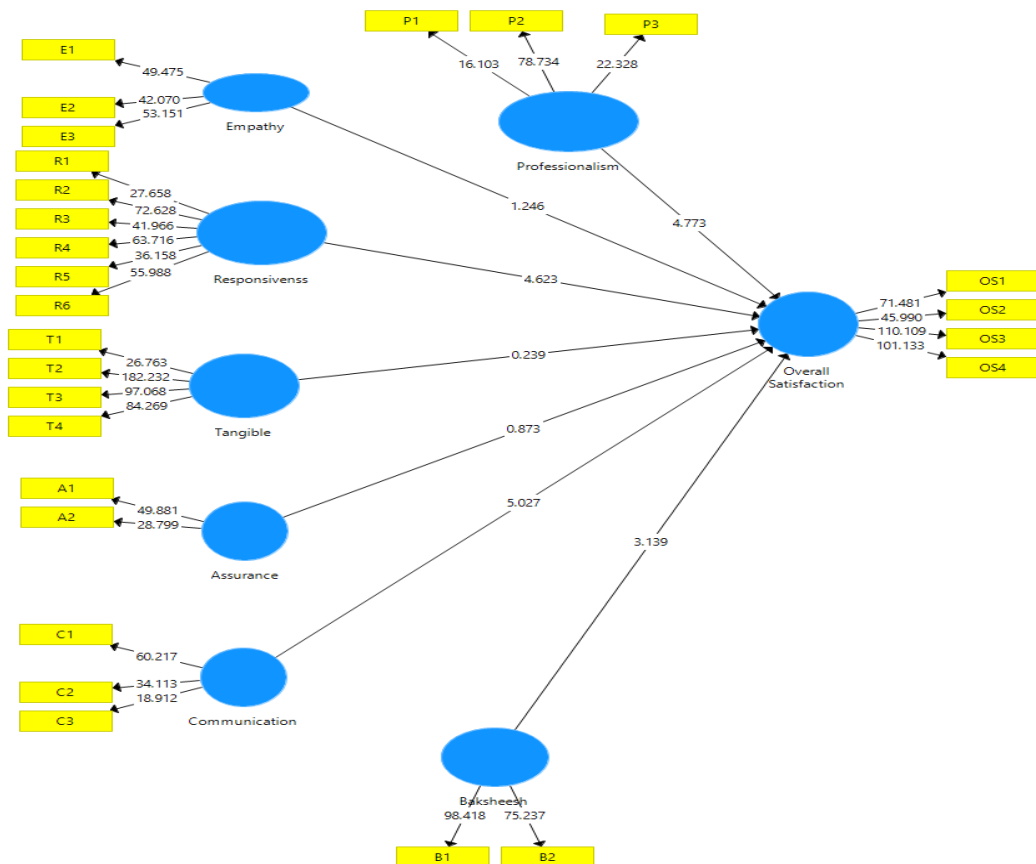


Figure-3 Bootstrapping Results of the Proposed Research Model for Hypothesis Testing Validation Source: Smart PLS 3 output

6. Conclusion

Customer satisfaction is the most significant factor is to be considered in evaluating strategies of any business because the customer is the king. The primary function of this research to evaluate patients' perceptions and satisfaction in the healthcare service sector. Now, this sector is in the deep concern of the reformation throughout the world. Medical service is a system that should be: by the people, for the people, and of the people. Medical leaders and managers have a strong belief in the improvement of quality health care, through reducing the diagnostics error rate, ensuring affordable cost with the proper system, and adopting modern technologies that can create a radical changing effect on healthcare service quality (Lee et al., 2012). Our findings have direct implications for the ministry of health of the People's Republic of Bangladesh, district health office and the health policymakers in Bangladesh for the continuous improvement through regular monitoring so that the quality of health care service can be assured. From the result, it is revealed that intangible factors (communication, baksheesh, professionalism, empathy, and responsiveness) are a more significant predictor of patient satisfaction rather than tangible factors during covid-19 pandemic situation. The result of the study is somewhat relevant to the previous study (Goding, 1995; Yavas et al. 1997; Andaleeb, 1998; O'connor et al., 2000; Andaleeb, 2001, 2007; Gunes and Deveci, 2002; Wu et al., 2008; Wakefield and Blodgett 1999; Suki *et al.*, 2011; John, et al., 2011; Ramanujam, 2011; Alborie & Damanhour, 2013; Nasim and Janjua, 2014). Health care service providers especially government and private hospitals' and clinics' management and administration can evaluate these research findings to look into the matters of patients' dissatisfaction during covid-19 crisis period. So, this study is sufficiently fruitful for the ministry of health of Bangladesh government, private hospital owners, managers, academics, community, and the other stakeholders involved in the healthcare service.

Implications and suggestions:

The doctors and nurses are the front-line support staff of the hospitals to satisfy patients. The assurance dimension finds problems because patients' expectations are highest in this regard to the doctors, nurses, and other support staffs during Covid-19 pandemic. Patients expect that doctors should have a wide spectrum of medical knowledge in the respective field and meticulously explicate current medical conditions with proper treatment. Patients' expectation degrades when fraud is found out from practicing doctor with illegal certificate and fake covid-19 test report and other diagnostic test report. One major problem is most of the workforce especially medical technologists engaged in collecting and testing samples at private clinics especially in Upazilla level without a degree in pathology and working there through getting training for 2-4 weeks from private medical training institutes. Those hospitals and clinics offering patients with low-cost service where patients are not assured of test reports. It is also observed that results are found different from the same test at different hospitals at Upazilla and district levels. In considering the aspect of empathy, front-line support staff especially doctors and nurses should be more empathetic, sensitive, and attentive to the specific needs of patients for the properness of

service delivery by providing personal care and psychological support. Patients feel hapless when doctors are providing healthcare services with maintaining a long distance at covid-19 pandemic crisis. Regarding tangible facilities, the hospital administration should be emphasized on the re-arrangement of modernized equipment for proper diagnostic tests both in public and private hospitals and clinics so that patients can get all testing facilities with accurate test reports on time. Most of the washroom facilities are dirty and unhygienic both in public and private hospitals during the covid-19 pandemic situation. Hospital administration will make available clean and hygienic washroom, floor as well as interior facilities, and provide a comfortable environment for waiting time to visit the doctor. The hospital staffs provide service to patients without wearing facial mask and PPE. The established bad culture in public and private hospital is giving Baksheesh to the supporting staffs for getting good service. Hospital authorities should set up appropriate monitoring systems and may place a complaint box in the hospital ground to assess patients' perceptions and take immediate action against complaints. Strong managerial alignment should be initiated to provide quality service both in public and private hospitals in Bangladesh. Moreover, hospital managers should monitor the patient-friendly service factors like cost-effectiveness, technical, and operational or functional quality of service offered by hospitals from the patients' perspective for maintaining patients' satisfaction. Based on the behavioral evaluation of the study, it can be suggested that service providers engaged in the healthcare sector should be given motivation and proper training to cope up the pandemic situation like Covid-19. Efficient support staffs should be employed. Physical environmental in the hospitals should be neat and clean and disinfect chamber (enter and exit) should be established with hand sensitizing facilities in the passage of the entry gate. Wearing mask and social distancing should be maintained in the hospital ground. Quality healthcare protection materials (PPE, masks, gloves and sanitizer) are to be supplied to the front-line support staff (e.g. doctors, nurses and other support staffs). Proper arrangement of life saving materials should be available like ventilator and ICU room during the pandemic situation. Separate Covid-19 unit should be established both in Public and Private hospitals and clinics so that covid-19 infected patients are not in touch with non-covid-19 patients.

Limitation and future research direction:

Our research is not beyond certain limitations that confine the generalization of results. First, the research results are based on Dhaka north and south city corporation as well as certain regions (upazella) of Tangail district in Bangladesh if other parts of the country are studied the result could be more generalized. Second, inpatient data are collected from patients at the time of discharge from the hospital but different results can be found from the hospitalized patients at the time of discharged and year after discharged. So, the result should be applied for further decisions with proper cautions. Further study can be conducted to compare patients' perception and level of satisfaction towards service quality of hospitals with different districts and divisions in Bangladesh.

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Earning Differentials between Working Groups: An Analysis Based on Oaxaca-Blinder Decomposition Approach

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Abstract

Inequality of earnings between men and women from economic activities is a common phenomenon in the developing countries like Bangladesh. Similarly, wage differential between the government and private (or non-government) employees is also found in these countries. Thus, analysis of earning gaps from the perspectives of gender, and public-private sectors has received significant attention of the researchers in the context of developing countries. This study aims at assessing the wage gaps from the above perspectives to achieve better understanding about the extent of discrimination in wage between different groups of employees through performing a decomposition analysis. This is an empirical study in the context of Rajshahi City on the basis of primary data that are collected randomly from selected employees involved in different job sectors. It explores the wage gaps between male and female employees, and between government and non-government employees. The widely accepted Oaxaca-Blinder Decomposition method is applied to analyze the wage differentials towards recognizing as to how far the current wage gap can be attributed to differences in the characteristics of employees and to labor market discrimination. The results of the decomposition analysis show that male employees and public sector employees earn on average 35.6% and 71.2% more than the female and private sector employees, respectively. Finally, the study suggests that appropriate policy reforms need to be done to reduce the earning gaps between men-women as well as public-private employees.

Key Words: *Earning Differential, Labor Market Discrimination, Oaxaca-Blinder, Decomposition, Bangladesh.*

1. Introduction

Economists and policymakers often emphasize on reducing wage inequality between different working groups to provide people with equal opportunities for achieving sustainable development. Decomposition of wage differentials helps policy makers to identify the wage gaps in the labor market and to take effective policies to reduce those wage gaps as well as labor market discriminations. Thus, decomposition of wage differentials has become a contentious issue, and it has received a great deal of research attention in the recent years in the developing world with a view to identifying wage gap and its determinants (Anjum, 2016). Existence of wage differentials has been examined extensively which resulted in a growing number of literature in the field of labor

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economics. Gender and public-private sector based wage differentials are documented very comprehensively by different researchers in the context of different countries, and significant gender based wage gap has been found in the studies of developed countries (Sanborn, 1994, Blau et al., 2017; Melly, 2005; Jann, 2005). The main findings of these studies revealed that male workers earn more than their female counterparts. Wage gap between public and private sectors is also found in the developed countries such as in the US (Smith, 1976; Quinn, 1979) and Germany (Dustmann & Van Soest, 1997), where employees in the public sector have been paid more than that in the private sector.

In the context of developing countries exposure of gender and public-private sector earnings gap is found more than those in the developed countries. Male and public sector employees earned more than female and private sectors employees as found by different studies in the context of the developing countries. It is found that public sector employees of eleven Latin American countries earned more than that of private sector employees (Mixala et al., 2011), while male employees earned more than female employees in Pakistan (Siddiqui & Siddiqui, 1998; Hyder, 2007). Although wage differentials are found significantly in the context of developing countries, the pattern of wage differential vary across regions of a country as well as employers' nature, and the determinants of wage differentials also differ accordingly.

Bangladesh is a developing country with a huge labor force. Over time, remarkable changes have been observed in labor force participation and wage structure in the country. Participation of female labor has been increasing day by day in every sector of the economy. According to the Labor Force Survey 2016-17, 30.7% of the total employed population in the three broad sectors in Bangladesh is female, which was 29.8% in 2015-16. Although, females are participating in both formal and informal labor markets, the participation rate of women in both sectors is substantially lower than men. It is observed from the recent labor force survey of Bangladesh that 69.3% of total employment is pervaded by male labor and the rest 30.7% of employed population is comprised of female labor. As a result, the status of labor force participation documents an unequal scenario between male and female labor. In addition, the average earning of male labors, working in different sectors of Bangladesh, is higher compared to their female counterparts (BBS, 2018). The existing inequalities in both participation and earnings between male and female labor force hinder the achievement of the national goal of empowering women and ensuring equality among people of different groups of this country. Similarly, in the formal labor market, earning gaps interrupts the implementation of government policies to ensure income equality in every sector and to achieve the SDG goal of equality for all as well. Therefore, to achieve the SDG goals of gender equality, it is indispensable to reduce gender based earning gaps in the formal as well as in the informal labor markets. Therefore, it is undeniable that analysis of earnings gap is an important issue that helps policy makers to determine the policies to address this problem in the context of Bangladesh.

In Bangladesh, the analysis of gender based wage differentials has received significant attention of the researchers in the recent times. It is evident that men earn more than women as evidenced in several studies in the context of Bangladesh (Rahman & Islam, 2003 & 2013; Rahman, 2004; Anjum 2016; Ahmed & Maitra, 2016). Most of the previous studies tried to report the wage gap between male and female labors in the labor market of Bangladesh based on different areas and conditions. Women are paid less wage than men everywhere as remuneration for their works and the gap is higher at the lower end of the distribution (Ahmed & Maitra, 2011). Similarly, women earn less than men in the informal labor market (Rahman & Al- Hasan, 2018) and male workers earn 32.1% more than female workers in the formal labor market (Anjum, 2016). Incidence of male-female wage gap is also found in other studies such as Kapos (2008), Rahman (2004), Khan et al., (2012), and Amara et al., (2017). Although gender based wage gap analyses in Bangladesh reported almost similar findings, the gap varies with data used and areas of study. Thus, further investigation is needed to identify both earnings gap and its determinants from gender perspective that can help to seek better understandings of the labor market in Bangladesh.

Analysis of wage gap between public and private sector employees can provide better understanding about the labor market in which public sector has different wage structure than that of private sector. Differences in pay structures between public and private sectors are found in the labor markets of Bangladesh (Anjum, 2016). Although gender based wage gap has been analyzed in several studies, public-private sector based wage gap analysis received poor attention of the researchers in the context of Bangladesh. Public sector employees enjoyed 60 percent more wage than private sector employees in the labor market (Anjum, 2016). Existence of public-private sector wage gap is also found in the earlier studies done by Lucifora and Meurs (2006), and Mizala et al., (2011). However, the results found by the previous studies did not cover every sector and employment areas of the economy and also did not focus on the factors that worked behind creating wage differentials. Further studies looking into the wage differential dynamics in Bangladesh labor market from the perspective of public and private sectors would provide deeper insight of the issue.

Rajshahi city is one of the largest cities in Bangladesh. Like other cities of the country difference in wages are also found between male and female, and between public and private sector employees in Rajshahi city. It is presumed that male employees earn more than female employees in Rajshahi city, and public sector employees also get higher remuneration compared to their private sector counterparts, although there is no such study conducted on Rajshahi city. Thus, an empirical investigation looking into the presence of wage differentials among the male-female and public-private wage earner groups is the demand of the time, and this study aims to analyze these wage gaps along with identifying the determinants of the existing wage gaps. It is often emphasized that proper understanding of wage differentials is possible when a decomposition of the differentials can be performed to recognize how far the current wage gap can be attributed to

differences in the characteristics of employees and to labor market discrimination. This study tries to fill this gap in the literature.

The rest of the paper is organized as follows. Section 2 presents a brief review of literature on the research issue; Section 3, describes the methodology followed in this study to obtain the research objectives. Results and findings of this study are described in Section 4, and finally, Section 5 reports concluding notes on the study.

2. Literature Review

There is a large number of earlier studies devoted to analyze earning differentials in the global literature. Earlier researchers have contributed extensively to analyze wage gap in the perspective of developed world even though developing countries like Bangladesh has received less attention from the perspective of this research. It is evident that, male-female wage gap was substantially found in the labor market of USA (Sanborn, 1964; and Blau et al., 2017). Gender wage gap was found at 0.72 based on US census data (Sanborn, 1964). On the other hand, 23.1 percent gender wage gap on average was found on the basis of US PSID data. In addition, gender wage gap was also examined very comprehensively in the perspective of different countries such as Germany (Fitzenberger, 1999; Fitzenberger & Kunze, 2005; Melly, 2005). Fitzenberger (1999) found wage inequalities between male and female employees based on time series data. On the other hand, public sector employees enjoyed higher wage premium in the lowest distribution in the case of Germany (Melly, 2005). In the same manner public-private wage gap was also identified in developed countries such as employees in the public sector were paid more than that of private sector in US labor market (Smith, 1976; Quinn, 1979). However, in the recent time, wage gap analysis has generated much interest in developing countries also. For example, wage differentials were examined in Pakistan (Siddiqui & Siddiqui, 1998; Awan & Hussain, 2007; Khan et al., 2012; Mizala et al., 2011) in Zambia (Rosholm, 2001) and in Malaysia (Arshad & Ghani, 2014). The results of the earlier studies revealed that women workers earned less than their male counterparts (Awan & Hussain, 2007) and male workers, on average, received 40.3 percent higher wage than the female workers holding other factor constant (Arshad & Ghani, 2014).

In Bangladesh, very few studies attempted to analyze the wage gap between different groups of employees who live in a particular area of this country. Ahmed and Maitra (2011) conducted a distributional analysis of the gender wage gap in Bangladesh. They applied a new decomposition analysis to the Bangladesh Labor Force Survey (LFS) data. They used the Wellington (1993) method to extend the single period Oaxaca-Blinder approach to analyze changes in the wage gap over time. The study found that women are paid less than men everywhere on the wage distribution and the gap is higher at the lower end of the distribution. The study also found that the wage gap has widened over the period 1999-2005. Rahman and Al-Hasan (2018) investigated male-female wage gap and wage discrimination in Bangladesh labor market on the basis of Quarterly Labor Force Survey 2015-2016 data. They conducted their study using the Blinder-Oaxaca (1973)

decomposition analysis. Mean wage decomposition showed that, on average, women earns 12.2% lower than men in formal labor market. About half of the wage gap was found to be caused by labor market discrimination against women. On the other hand, female receives 14.4% lower wage than male in informal labor market. In a likely manner, Anjum (2016) tried to find gender wage gap in public and private sectors in Bangladesh by using the Labor Force Survey (2005-2006) data. Results of this study based on Oaxaca-Blinder decomposition revealed that female employees earn about 32.1% less than their male counterparts. Less than half of the total wage gap was explained by human capital, demographic and labor market related variables but the rest of the wage gap was still remained unexplained. Wage gap between public sector and private sector workers was also widely studied in the context of different developed as well as developing countries. A pool of researchers have examined public-private wage gap focusing on US employees (Smith, 1976; Quinn, 1979; Bellante & Long, 1981; Smith, 1981). These studies tried to report that public sector workers were paid more than workers in the private sector. Moreover, other empirical studies addressed public-private wage differentials in Europe focusing mostly on the mean of the wage distribution (Lussibille, 1998; Muller, 2000). In addition, studies representing the perspective of developing countries also found significant wage gap between public and private sector workers, and workers of public sector were rewarded more than that of private sector (Mizala et al., 2011).

Earning differentials between male and female labor has been widely investigated by both theoretical and empirical research studies based on different methodological underpinning. Including Mincerian Earning Function model (Mincer, 1958 & 1974), some recent developments of statistical techniques such as Quantile Counterfactual Decomposition (Chernozhukov et al., 2013), Oaxaca-Blinder Decomposition (Oaxaca, 1973, and Blinder, 1973) etc. contribute to analyze in-depth in the related field. In most studies, researchers used Oaxaca-Blinder Decomposition method to identify the earning gap between two groups and understand whether the gap can be explained by different productivity characteristics or by labor market discrimination. Oaxaca-Blinder Decomposition method is applied to document the gender wage gap in Bangladesh by some studies (Ahmed and Maitra, 2011; Kapos, 2008; Rahman, 2004; and Anjum, 2016), which reported labor market discrimination against female labor. Most of the studies on Bangladesh used Labor Force Survey data to report gender wage discrimination and analysis on the basis of primary data is almost absent. Moreover, very few studies are conducted to report wage discrimination between public and private sector employees in Bangladesh. It is undeniable that there is sufficient scope to conduct a study on analyzing the earning differentials with the perspectives of gender and sectors of employment. Wage discrimination has significant regional dimension as well which reflect the impacts of differences in socio-demographic factors across different regions. Getting in-depth insight on wage discrimination with respect to regional contexts requires studies to be done based on primary data focusing on a particular area that would contribute extensively to the existing literature.

3. Methodology

3.1 Sampling and Data Collection

This study is mainly based on primary data that are collected from the employees working in both public and private sectors in Rajshahi City Corporation area of Bangladesh. Rajshahi City Corporation is one of the largest city corporations in Bangladesh. For collection of data, a multistage random sampling technique is followed in this study. A sample of 100 respondents has been selected for data collection. To achieve the objective of (both male and female) this study, only salaried employees working in the formal labor market are selected, because the informal labor market in Bangladesh is mainly based on the agriculture sector in which there is no specific wage structure. Among the respondents, 40 are selected from Boalia thana, 40 are selected from Rajpara thana and 20 are selected from Shah Mukhdum thana. Data are collected in a very careful way so that they can be fitted to the specified model for estimation.

3.2 Theoretical Background

Wage differences between demographic and employment related groups (males and females, blacks and whites, public and private sector employees) are examined using a number of approaches reported in the literature in the contexts of different parts of the world. The most commonly used and basic approach is to include a dummy variable for each attributable factor into the earning function (Gregory & Borland, 1999). For example, sex (1 for male and 0 for female) is generally included as a dummy variable in the earning function (Mincer, 1974). This dummy variable approach estimates the effects on the raw wage gap between males and females. This represent that the effect of the wage gap is shown by the intercept term. It allows no differences in the coefficients of other variables in the model. There are other approaches described in the literature as well that used separate wage equations for males and females to measure the gap, and to decompose the observed wage gap depending on race, gender, and ethnicity. In order to estimate the different characteristics' effects on wages, male and female equations need to be estimated separately. According to human capital theory developed by Becker (1964), earning differentials between individuals differ because of their productivity differences. A good method for decomposition of the overall gender wage gap should measure the differences due to human capital and other work related variables or endowment differences (the explained part of the gender wage gap), and the differences due to returns to those factors (unexplained part of the gender wage gap sometimes known as discrimination). This decomposition method was independently developed by Oaxaca (1973) and Blinder (1973) which is also known together as the Oaxaca-Blinder method.

3.2 Empirical Method: The Oaxaca-Blinder Decomposition Approach

In this study, a decomposition analysis is conducted at the mean on the basis of Oaxaca-Blinder decomposition method (1973) to analyze the wage gap between male-female employees and public and private sector employees. Two-fold decomposition of this method is applied in this study. This method splits the wage differential between two

groups into two parts: one is ‘explained’ and another is ‘unexplained’. The ‘explained’ one refers to the part which is explained by group differences in productivity characteristics such as education or work experience. And the residual part that cannot be explained by such differences in wage determinants is called the ‘unexplained’ part, which is applied often to analyze labor market discrimination. According to this framework, discrimination is revealed by difference in the estimated coefficients.

The male-female wage decomposition framework is given by the following equations:

$$\ln Y^m = X^m \beta^m + u^m \dots (1)$$

$$\ln Y^f = X^f \beta^f + u^f \dots (2)$$

Using OLS regression, the estimated wage for males and females are given by the equations- Equation (3) and Equation (4).

$$\overline{\ln Y^m} = \overline{X^m} \hat{\beta}^m \dots(3)$$

$$\overline{\ln Y^f} = \overline{X^f} \hat{\beta}^f \dots (4)$$

Mean of u^m and mean of u^f are equal to zero as OLS estimates run through the mean. In this model, it is assumed that male wage structure is used as the non-discriminatory wage. Therefore, the raw wage differential between males and females is expressed by Equation (5) as:

$$\overline{\ln w_m} - \overline{\ln w_f} = (\overline{X_m} - \overline{X_f}) \hat{\beta}_m + \overline{X_f} (\hat{\beta}_m - \hat{\beta}_f) \dots (5)$$

The first term on the right hand side of the above wage equation refers to the explained part *i.e.* the part which is explained by group differences in productivity characteristics. And the second one refers to the unexplained part that cannot be explained by such differences in wage determinants which is often used as a measure for discrimination.

Similarly, the raw wage gap between public and private sector employees is reported by Equation (6) as:

$$\overline{\ln w_{pub}} - \overline{\ln w_{pri}} = (\overline{X_{pub}} - \overline{X_{pri}}) \hat{\beta}_{pub} + \overline{X_{pri}} (\hat{\beta}_{pub} - \hat{\beta}_{pri}) \dots (6)$$

Where,

$\overline{\ln w_m}, \overline{\ln w_f}, \overline{\ln w_{pub}}$ and $\overline{\ln w_{pri}}$ denote natural logarithm of mean wage of male employees, female employees, public sector employees and private sector employees, respectively, while $\overline{X_m}, \overline{X_f}, \overline{X_{pub}}$ and $\overline{X_{pri}}$ denote the mean characteristics of male,

female, public sector and private sector employees, respectively. $\hat{\beta}_m, \hat{\beta}_f, \hat{\beta}_{pub}$ and $\hat{\beta}_{pri}$ are the estimated vectors of returns to employees' characteristics. The first part of right hand side of the equations (1) and (2) is the explained part, on the contrary, the second part of the right hand side of them is the unexplained part, which is also known as discrimination effect.

4. Results Discussion

The decomposition outcome provides an assessment of the causes of wage gap in the formal sector. Wage gap can be found due to variations in characteristics of employees as well as labor market discrimination. The impact of endowment differences as well as labor market discrimination on wage gap can be identified from the Blinder-Oaxaca decomposition analysis. The raw wage gap is approximately the percentage difference at the geometric mean of the observed male and female wages (Reimers, 1983). There are different terms used in the literature such as 'log points' (Oaxaca & Ransom, 1999 and Watson, 2009), and the most commonly used is 'percent' (Reimers, 1983). However, most of the studies in this regard used 'percent' to express the wage gap. For example, generally a *ln* wage gap equal to $0.356 \cong 35.6$ percent. The decomposition also provides the wage gap by splitting the gap into major explanatory factors based on the Oaxaca-Blinder decomposition method. The factors that affect the wage gap positively indicate that one group (e.g. male) receives wage advantage compared to other group (e.g. female) assuming male wage as a non-discriminatory factor.

4.1 Results of Gender Wage Gap

The results of Blinder-Oaxaca decomposition method for gender wage gap is presented in Table 1. It is found that raw wage gap between male and female employees is 0.356 which implies that the male employees earned 35.6% more than the female employees.

Table 1: Results of Gender Wage Gap				
	Coefficient	Std. Error	Z	p> z
Male	10.168***	0.090	112.55	0.000
Female	9.811***	0.118	82.80	0.000
Raw wage gap	0.356**	0.149	2.39	0.017
Explained	0.143	0.121	1.18	0.240
Unexplained	0.213**	0.100	2.11	0.035

Note: *** and ** significant at 1% and 5% level of significance

Source: Author's own calculation

This result also reports that the value of explained part of total raw wage gap is 0.143. That means male employees earned 14.3% more than females due to differences in their endowments. The table shows that the value of unexplained part is 0.231. This value

implies that male employees earned 23.1% more than female employees due to labor market discrimination against female. Therefore, removing such type of discrimination against female may increase their income. Impacts of explanatory factors behind the gender wage gap are presented in Table 2.

Factors	Per Month Wage Gap (ln)			In Percentage of Total Wage Gap		
	Explained	Unexplained	Total	Explained	Unexplained	Total
Education	0.060	-0.230	-0.17	17.05	-65.34	-48.30
Exp	0.028	-0.435	-0.407	7.95	-123.58	-115.63
Exp ²	0.060	0.161	0.221	17.05	45.74	62.78
Training	0.021	0.128	0.149	5.97	36.36	42.33
WH	-0.001	0.076	0.075	-0.28	21.59	21.31
Family B.	-0.029	0.063	0.034	-8.24	17.90	9.66
E. sector	0.000	0.191	0.191	0	54.26	54.26
Edu. Type	0.001	-0.079	-0.078	0.28	-22.44	-22.16
Constant		0.337	0.337	0	95.74	95.74
Total	0.143	0.213	0.356	39.77	60.23	100

Source: Author's own calculation

It is observed from Table 2 that 39.77% of total wage gap is explained by the endowment differences. On the other hand, the remaining 60.23% is unexplained due to discrimination effect, and is unobservable which the explanatory factors cannot measure. The explanatory factors of explained part such as education (17.05%), experience (7.95%), experience square 17.05%), training (5.97%), and type of education (0.28) affect the wage gap positively. On the contrary, some factors like working hours (-0.28%) and family background (-8.24%) affect wage gap negatively. Finally, this result implies that male employees receive 14.3 % more wage due to differences in endowments, which is 39.77% of total wage gap. Moreover, the male employees receive 21.3% more wage compared to the female employees due to unexplained factors or discrimination, which is 60.23% of total wage gap. This could be the effect of discrimination in promotion or on-the-job training or other work related benefits that are not covered by the model.

4.2 Results of Wage Gap between Public and Private Sector Employees

In this section, this study tries to analyze the wage gap between public and private sector employees. Wage gap due to endowment differences and due discrimination between public and private sector employees are also investigated in this section. The impact of different factors on explained and unexplained part of total wage gap can also be identified here, using the Blinder-Oaxaca decomposition analysis. The results of wage gap using Blinder-Oaxaca decomposition method is presented in Table 3.

	Coefficient	Std. error	z	p> z
Public	10.456***	0.083	126.55	0.000
Non-government	9.744***	0.093	104.63	0.000
Raw wage gap	0.712***	0.124	5.72	0.000
Explained	0.289***	0.113	2.56	0.010
Unexplained	0.423***	0.129	3.29	0.001

Note: *** significant at 1%, level of significance

Source: Author's own calculation

From Table 3 it is found that the average monthly wages of public and private sector employees are 10.456 and 9.744, respectively, and the raw wage gap is found as 0.712. The raw wage gap in the Oaxaca-Blinder decomposition method reports that the employees in public sector in this sample earned 71.2% more than their counterpart. It also reveals that the wage gap is decomposed into the explained part due to differences in endowments between employees of public and private sectors. The value of the explained part is 0.289 that means employees in public sector earned 28.9% more than those in the private sector for such difference. The value of the unexplained part is found as 0.423, which reports that public sector workers earned 42.3% more than their counterpart due to labor market discrimination against non-government employees. Thus, if this discrimination against private sector employees is removed from the labor market then they would earn 42.3% more than their current earning. Impacts of explanatory factors behind the wage gap between public and private sector employees are presented in Table 4.

Factors	Per Month Wage Gap (ln)			In Percentage of Total Wage Gap		
	Explained	Unexplained	Total	Explained	Unexplained	Total
Education	0.116	-1.253	-1.137	16.29	-175.98	-159.69
Exp	0.017	-0.264	-0.247	2.39	-37.08	-34.69
Exp ²	0.036	0.144	0.18	5.05	20.22	25.27
Training	-0.008	-0.023	-0.031	-1.12	-3.23	-4.35
WH	0.139	-1.667	-1.529	19.52	-234.27	-214.75
Family B.	0.009	-0.136	-0.127	1.26	-19.10	-17.84
Gender	0.000	0.124	0.124	0	17.42	17.42
Edu. Type	-0.020	0.046	0.026	-2.80	6.46	3.66
Constant		3.454	3.454	0	485.11	485.11
Total	0.423	0.289	0.712	40.45	59.55	100

Source: Author's own calculation

It is observed from Table 4 that 40.45% of total wage gap is explained by the endowment differences. The remaining 59.55% is still unexplained which is the discrimination effect and remained unexplained by the factors. The explanatory factors of explained part

affecting the wage gap positively are education (16.29%), experience (2.39%), experience square (5.05%), working hour (19.52%) and family background (1.26%). But some other explanatory factors of explained part such as training (-1.12%) and type of education (-2.80%) are affecting wage gap negatively. Finally, this result implies that due to differences in endowments public sector employees receive 42.3 % more wage compare to private sector employees, which is 40.45% of total wage gap.

Again, the public employees receive 28.9% more wage due to unexplained factors or labor market discrimination which is 59.55% of total wage gap. Discrimination in promotion, on-the-job training, and other work related benefits may be attributable to this, which are not covered by the model.

5. Conclusion

It is almost undeniable that women in the developing countries like Bangladesh lag behind men in many spheres. Research scholars tried to show the earning inequalities by gender in Bangladesh, and still there is scope to conduct study on analysis of earning gaps with respect to different groups, areas and conditions. In this context, this study has tried to assess the existence and extent of wage gap between male and female employees, and between public and private sector employees. This study showed that the gap can be explained by differences in productivity characteristics or by presence of discrimination in the labor market. The Oaxaca-Blinder decomposition method enabled us to analyze the wage differential that helps to recognize how far the current wage gap is attributable to differences in the characteristics of employees and to labor market discrimination. The results of decomposition method revealed that the raw wage gap between male and female employees is positive, and reported that the male employees earned 35.6% more than female employees. We also found that the explained percentage of the gender wage gap emerged due to endowments differences between male and female employees which is less than the unexplained percentage which is labor market discrimination effect. In addition, wage gap between public and private sector employees shows that employees in public sector earned 71.2% more than their counterpart. Public sector employees earned more than private sector employees due to differences in endowments between these groups as well as presence in discrimination against employees working in private sector in the study area.

The findings of this study contributed to identify wage gaps from the perspectives of gender and employment sectors, and the dynamics of labor market discrimination in connection to earnings gap. A large amount of total gender wage gap comes from labor market discrimination against females and private sector employees which is unjustified and undesirable. Government and non-government policy makers may conceive the implications of the findings of this study in adopting future policies. This study suggests that employers and policy makers should come forward to take effective steps to reduce wage gaps between males and females as well as between public sector and private sector employees. Development policy makers must emphasize to design a uniform salary structure across sectors to minimize the gaps as well as discrimination against women and private sector employees.

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Health and Hygiene Status of Hosiery Industry at Pabna District in Bangladesh

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Abstract

Pabna is one of the reputed districts of the hosiery business in Bangladesh. A large number of hosiery industries are opening in the town. It uses readymade garments waste called cut piece (jhoot) as its raw materials, and this jhoot based hosiery plays a significant role in employment generation and socio-economic development of Pabna. Based on the emergence and importance, this study designed to find out the health, hygiene status, and quality of life of workers of the hosiery industry located in Pabna. For serving objectives of the study, a structured questionnaire was distributed among 120 hosiery workers are administered, analyzed, and observed various aspects of the working environment and quality of life of workers of the hosiery industry in town and countryside areas of Pabna. The study concludes that the health and hygiene status of the hosiery industry located in Pabna is progressing very softly, and hosiery workers are struggling with sustaining their life due to depressed wages. The study suggests that the hosiery factory needs to improve health and hygiene issues for accelerating productivity and need to ensure justified wages for the wellbeing of the workers for the socio-economic development of grassroots level peoples working within the hosiery industry.

Keywords: *Health Issue, Hygiene Issue, Hosiery Industry, Labor Law 2006, Hosiery Labor*

1. Introduction

Pabna is one of the famous districts of Bangladesh. The business started in this district since the ancient period. Hosiery business is one of the oldest and leading business sectors of this locality. In 1905, hosiery named Shilpo Sanjivani established at Delalpur in Pabna town. Zamindar Roy Bahadur and Jitendra Nath Kabiraj both were eminent entrepreneurs of this business. Based on their business progression, others started investing in the hosiery business. From 1950 to 1918, the hosiery business in Pabna marked as formative years of hosiery business in Bangladesh. Just within ten years, by 1915 in and around

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Pabna towns 600 small and large hosiery industries were setup. From 2018, at a rapid rate, large numbers of hosiery workshops/factories established and operated in the Pabna district. Accordingly, the market of yarn, color, and chemicals also get started in Pabna for meeting the demand for hosiery factories (TBS News, 2019, November 26).

The jhoot business commenced in Pabna in 1990. During that time, some entrepreneurs started to do business with the jhoot with some degree of risk. The majority of garment factories located in the Dhaka division started preparing samples for cutting clothes and buying them at a lower price than the cloth mill. At the very beginning of this business, the hosiery workshop made a variety of Genji (Like as T-shirt) from cutting pieces (jhoot) and sold these hosiery products by ferries in then early located hats and bazaars. Step by step, the jhoot products spread across the adjacent districts of Pabna within a short period of time. The success of this business inspired and motivated other business people to get started investing in the hosiery business. Due to the higher profit turn over than capital investment, Pabna currently has more than one and a half thousand small hosiery factories. Hosiery products made in Pabna district currently exporting India, Malaysia, and African countries after meeting the demand of Bangladesh (Rahman, 2019, August 16).

1.1. Statement of the Problem

Various types of diseases, mainly due to workplace conditions and the dust produced from raw materials, frequently affect the health of hosiery workers. They suffered from malnutrition because of no ability to take nutritious food. They reported several health issues due to working conditions, including coughs, fevers, jaundice, asthma, allergy, respiratory problems, and thus, workers experience illness and become unable to continue working. Furthermore, as most hosiery workers do not get full payment when on sick leave because of daily/piece basis payment agreement. Due to these facts, they suffer physical illness and psychological stress and financial burden to lead their rest of life. Parallel to workers in other sectors, hosiery workers have a legitimate claim to work in an environment that is safe and healthy. In the light of Bangladesh Labor Law 2006, Chapter V, the health and hygiene determines the measures and attention of employers to provide and maintain healthy working conditions. In essence, better working conditions benefit the owners, workers, and the economy in the long term. In the light of these considerations, it is vital to know the underlying causes and consequences of health vulnerabilities issues to explore an effective way to ensure working conditions to scale down the vulnerabilities of workers at now and the future.

1.2. Objectives of the Study

Based on the emergence and importance of health and hygiene issues of the workplace, this study designed to know the health and hygiene status of the hosiery workshops/factories workers of Pabna in light of the Bangladesh Labor Law 2006 and highlighting the neglected aspects of hosiery work environment in order to ensure a healthy working environment for hosiery workers. At the same time, the workers themselves, labor organizations, employers, employers' organizations and other regulatory agencies can work together to improve their quality of life.

1.3. Overview of the Hosiery Industry of Pabna

Hosiery products are apparels made from knitted fabrics. The raw material cost of hosiery is cheapest, and labor cost is just 2% of its fabric cost, it is one of the critical success factors for the hosiery business (Shilla, 2014). Bangladesh is the 2nd biggest apparel supplier in the world. In 2016, Bangladesh attained the global apparel market by 6.4 percent. (Mirdha, 2018). Bangladesh has lower cost knitted fabrics, which known as a cut piece in the garments industry, primarily known as Jhoot used as a primary material of hosiery product manufacturing in Pabna.

Ex-President of Pabna Hosiery Manufacturing Group (PHMG)(Ali,2019, June 19)states that Ray Bahadur first started hosiery business in Pabna in 1905. Later, its spread began gradually in Pabna. Ray Bahadur started his factory called circular knitting machines. Betwixt 1955 and 1978, around 50 businessmen put into operation hosiery business by factory production. At that very moment, the area in which the factories established known as the Shilpogoli. After the independence of Bangladesh in 1971, a significant number of preeminent traders left the country, resulting in a business crisis that occurred in Bangladesh. At present, the business not manufactured in the knitting product, but traders started producing products by garment wastage, known as a cut piece of the garment, which is locally known as jhoot. The traders started producing products with jhoot, which gradually became profitable overtime.

According to an executive member of Pabna Hosiery Manufacturing Group (PHMG)(Islam, 2019 June 15), Pabna is the organization under the Ministry of Commerce, registered on January 7, 1978. Currently, there are 561 registered members under this organization, and there are around 200 unregistered hosiery establishments. Presently Pabna hosiery factories are manufacturing various products, including T-shirts, trousers, polo shirts, jersey, and winter apparel. Vendors from different districts of Bangladesh come to buy hosiery products made in Pabna at wholesale prices. Sell it to various parts of the country, as well as exporting hosiery products indifferent countries.

In Pabna, the hosiery industry is one of the most crucial sectors, which emerged as a niche market for the export sector of the hosiery industry in Pabna. Apart from this, the hosiery industry emerged as an essential player in the economy in terms of employment generation, poverty alleviation, and women empowerment. In recent years, the sector has been facing challenges regarding compliance with the capital requirement, skilled labor, self-contained machine, the international standard to ensure workplace safety and better working conditions for the hosiery workers, including image smearing due to accidents, political turmoil, energy crises, and improper supply chain management. Moreover, most of the hosiery factories and wholesale hosiery market of Pabna do not comply with national and international standards, e.g., minimum standards prescribed in building and construction legislation, safe working environment, and labor rights.

Most of the wholesale hosiery markets located at AR Corner, Pabna, and there are about 200 shops here. There are some wholesale markets located in different parts of the Pabna

town such as Notungoli, Char Tola More, Bangla Bazar, and Sadhupara Banglabazar, Hajirhat, Arifpur, Betipara, Noinamoti, Paitkapara, Dipchar, Islampur, Padma College, and Lanch Ghat. There are some factories scattered in different areas of the town. Labor secretary of Pabna Hosiery Sramik Union (Islam, 2019 June 22) stated that there is an organization of hosiery workers, whose name is Pabna Hosiery Sramik Union (PHSU). About 10,000 workers are directly involved in this organization. In Pabna, most of the workers employed on a contractual basis. Therefore, the hosiery industry located in Pabna termed as an unorganized sector, where most of the laborers appointed as day or piece basis contract laborers (Mittal, 2012).

1.4. The Emergence and Importance of Health and Hygiene Issues in the Workplace in Light of the Bangladesh Labor Act, 2006

Cleanliness(Bangladesh Labor Act, 2006, Chapter V, Regulation51):Industrial hygiene or cleanliness is concerned in creating conditions in the industry that will prevent accidents, promote workers' health by eliminating adverse influences, and in creating environmental conditions (Scott, 2018). A dirty environment caused visible sickness; workers may feel less motivation due to these unsuspecting causes. The cleaning practices positively impact the overall health of employees (Tariq, Jan, & Ahmad, 2016).Following the Bangladesh Labor Act-2006, every factory should be kept clean and free from effluvia causing from any drain, privy, or other nuisance.

Ventilation and temperature(Bangladesh Labor Act, 2006, Chapter V, Regulation 52):Fresh air is needed respiration, to dilute and remove impurities and odors, and to dissipate excess heat (Anuja, & Priya, 2019). Fresh air called after nature's tonic. It is quite as necessary to have plenty of fresh, pure air as it is to have a proper amount in the subject of proper ventilation.

Then again, a specific temperature of the workers should adequately regulate, and it should not vary with the temperature outdoors, especially in the summertime. The heat of the sun, body, and other sources of heat easily disturbed by sudden changes in the temperature of the worker because there is an increased expenditure of the internal energy to bring about adaptation. The suitable arrangements shall make in every factory for maintaining adequate ventilation by the circulation of fresh air and temperature (Bangladesh Labor Act, 2006).

Dustandfume (Bangladesh Labor Act, 2006, Chapter V, Regulation53): Dust and fume often hazardous to human health (Moriarty, 2016).Occupational Safety and Health Administration (OSHA) develops and enforces health-safety standards for the workplace. OSHA standard regulates a wide range of factors in the textile industry, such as air contaminants and determining concentrations of cotton dust (Michaels, 2016). Air contamination includes gases, dust, and smoke. The cotton dust leads to many health hazards in the majority of textile workers like seasonal cough, and bronchial asthma in weaving industry fiber fly liberated by the friction of weft (Periyasamy, & Militky, 2017). From the viewpoint of the Bangladesh Labor Act, effective measures should take to

prevent its accumulation in any work-room and its inhalation by workers. If any exhaust appliance is necessary, it shall be applied as near as possible.

Disposal of wastes and effluents(Bangladesh Labor Act, 2006, Chapter V, Regulation 54):The improper garments waste management affects human health, socio-economic conditions, rivers, and affect soil by land filling (Alom, 2016).Adequate arrangements shall make in every factory for disposal of wastes and effluents due to the manufacturing process carried on therein according to the Bangladesh Labor Act 2006.

Artificial Humidification (Bangladesh Labor Act, 2006, Chapter V, Regulation 55):Humidity as the amount of relative moisture in the air, the relative humidity at the saturation point is 100% (Unit, 2006). Humidification or dehumidification is a process where a carrier gas, usually air, rediscovered in aqueous vapor, stirring up to saturation, and then cooling the humid air, creating a source of freshwater. Moving to warm air and moisture is usually increased, which can bring with it water vapor or produce by evaporation. Warm air can always reduce atmospheric pressure while replacing fresh air (Niu, Kozai, & Sabeh, 2016). Under the Bangladesh labor law, the humidity should increase artificially to maintain a healthy working atmosphere.

Overcrowding(Bangladesh Labor Act, 2006, Chapter V, Regulation56):If the room overcrowded, it will be hot and sweaty. In the factory, there need powerful lighting for sewing and weaving. Many workers may feel sick, vomiting, and eye irritation. In Labor Law in Bangladesh, it says that no workroom in any factories should not overcrowd to an extent injurious to the health of the workers employed therein.

Lighting (Bangladesh Labor Act, 2006, Chapter V, Regulation 57): Workers must be able to work on illumination, use the benefits, and operate safely and without eyestrain and other ill health effects (Ünsal, 2018). Lighting is essential for sewing and weaving in the hosiery industry. The proper lighting system is essential to prevent a worker from any eye diseases. Proper illumination also helps in attaining high efficiency in production. Low light causes various eye problems. Eyesight disorders occur due to constant close attention to the point of weaving (Phillips, 2018). In Bangladesh Labor Act it is quoted that in every part of a factory where workers are working, should provide and maintain sufficient and suitable lighting, natural or artificial, or both and prevention of the formation of shadows to such an extent as that causes eye strain or risk of any worker.

Drinking water(Bangladesh Labor Act, 2006, Chapter V,Regulation58):Adequate clean drinking water should provide to all persons at work (Spellman, 2017).The body requires a very significant amount of water for the performance of the bodily functions at such a high temperature in Pabna, especially in summer. A sufficient supply of drinking water is a prerequisite for work. Bangladesh Labor Act says practical arrangements need to provide a sufficient supply of wholesome drinking water and fresh drinking water during the hot weather.

Latrines and Urinals (Bangladesh Labor Act, 2006, Chapter V, Regulation59): Must supply any latrine and urine in proportion to the number of male-female workers generally

employed (Cohn, 2019). There should be one urinal for every 50 employees, and there should be one latrine for every 20 employees (World Health Organization, 2017). At least 1 (one) latrine for every 25 males shall be provided (Factories Rules, 1979).

Dustbin and spittoon (Bangladesh Labor Act, 2006, Chapter V, Regulation 60): Dustbins are containers that hold waste until it is removed. Every factory needs to use a dustbin. Each establishment will provide an adequate amount of dustbins and spittoons, which will maintain a clean and healthy state.

2. Materials and Methods

This study tries to find out various health and hygiene issues of the hosiery factory/workshop located in Pabna. The elements of working conditions of hosiery workshops/factories such as cleanliness, ventilation & temperature, dust & fume, disposal of wastes, artificial humidification, overcrowding, drinking water, lighting, latrines, urinals and quality of life are investigated based on research objectives in light of Labor Law 2006 Bangladesh.

The Observation Technique

This study reflects the answer of the workers who participate in the survey. Most of them are uneducated. They do not know how to respond to the survey questionnaire. Therefore, the researchers used an observation technique in addition to unraveling the real picture of health, hygiene issues, and quality of life of workers of the hosiery workshops/factories located in the Pabna district.

The Survey of Questionnaire

Conducting the primary survey: The primary survey designed to get a clear specific idea of health, hygiene issues, and quality of life of workers of the hosiery industry based on referred books, relevant articles published in national and international journals, newspapers, and related official websites.

Preparing an initial questionnaire: In this stage, the initial questionnaire is drafted based on the feedback of the preliminary survey and rectified based on an in-depth review of the literature.

Verifying and finalizing the questionnaire: In this stage, the questionnaire is finalized based on stakeholders and expert opinions.

Data collection: A structured questionnaire and a personal face-to-face interview initiate to gather relevant information regarding health and hygiene issues.

Data processing and analysis: The Statistical Program for Social Science (SPSS) and Microsoft Excel programs use in data analysis and presentation. Descriptive statistics like frequencies, percentage, average, total, and grand-total computed and presented in tables, for a better presentation of facts of the study.

3. Data Analysis and Interpretation

3.1 Respondents Demographics

For serving the purpose of the study, 120 hosiery workshop/factories workers have covered with a random basis with structured questionnaires and, besides, working conditions of hosiery workshops investigated by observation technique by the researchers of the study. Questionnaire survey and observation conducted mostly in the AR Corner market, Chartala more, Shadhupara, Banglabazar, Hajirhat, Arifpur, Betipara, Noinamoti, Paitkapara, Dipchar, Islampur, Padma collage, and Launch Ghat area. In the hosiery workshop, the wage rate varies due to the nature of the work of workers. Some proprietors of hosiery workshop work in his workshop as labor; their income is comparatively lower than the other proprietors of hosiery workshops due to the volume of business. On the other hand, some cutting master called Khalifa earn higher wages than any other job in the workshop; for that reason, their quality of life varies due to differential wages. The table shown below indicates respondent demographics (personal information):

Table 1: Personal Information

Respondents Demographics		Frequency	Percent
Gender	Male	119	99.2
	Female	1	.8
	Total	120	100.0
Age (Year)	Under 18 Years	9	7.5
	18-30 Years	74	61.7
	30-40 Years	32	26.7
	40-50 Years	4	3.3
	Above 50 Years	1	.8
	Total	120	100.0
Marital Status	Married	76	63.3
	Unmarried	44	36.7
	Total	120	100.0
Living Location	Village	103	85.8
	Town	17	14.2
	Total	120	100.0
Educational Attainment	Under Class-Eight	68	56.7
	Class-Eight	36	30.0
	SSC	7	5.8
	HSC	7	5.8
	Graduate	2	1.7
	Total	120	100.0
Monthly Income (Wages)	Below Tk 5000	2	1.7
	Tk 5,000 - Tk 10,000	53	44.2

Respondents Demographics		Frequency	Percent
	Tk 10,000 - Tk 15,000	53	44.2
	Tk 15,000 - Tk 20,000	9	7.5
	Above Tk 20,000	3	2.5
	Total	120	100.0
Monthly Expense (Taka)	Below Tk 5000	3	2.5
	Tk 5,000 - Tk 10,000	92	76.7
	Tk 10,000 - Tk 15,000	21	17.5
	Tk 15,000 - Tk 20,000	4	3.3
	Total	120	100.0
Monthly Savings (Taka)	No Savings	62	51.7
	Below Tk 1,000	22	18.3
	Tk 1,000 - Tk 3,000	30	25.0
	Tk 3,000 - Tk 5,000	6	5.0
	Total	120	100.0

Source: Survey (July- December 2019)

The survey indicates 99.2% of male workers covering 120 sampling hosiery workshops comprising 0.8% of the female worker. A female worker is low because of various vicinal incidences, but they indirectly related to the workshop as a helping hand of the male worker because many hosiery workshops build on home and adjacent to the home of the owner or workers.

The study found that most of the workers in the hosiery workshop at a young age. The study indicates that 61.7% of workers are young whose age is between 18-30 years. 26.7% of workers found whose age is between 30-40 years. It found that some child labor around 7.5% who are under 18. The workers whose age between 40-50 years represent 3.3% and aged above 50 years found only 0.8% of the total respondents of the study.

The study found that most of the workers of hosiery workshops are married, calculated as 63.3%. The study found some under 18-age child labor, and they are not married; on the other hand, unmarried workers whose percentage comprise of 36.7% of the total sample of the study.

The workers of the hosiery workshop of the hosiery industry located in Pabna, most of them live in the village area calculated as 85.8%; on the other side, 14.2 % live in the Pabna Sadar municipal area.

The study found that most of the workers are Under Class-Eight, comprising 56.7%. Worker's Class-Eight pass calculated as 30%. There is some SSC (5.8%), and HSC (5.8%) pass worker works in the hosiery workshop. The data indicates some undergraduate workers who work as part-time workers comprising 1.7% of the total respondents.

Wages of most of the workers of the hosiery workshop range in between Tk 5000-Tk 10000, comprising 44.2% of total respondents. Wages group within the range Tk 10000-

Tk 15000 calculated as 44.2%. Only 7% of workers' wages range Tk 15000- Tk 20000 comprises 7.5%. Above Tk 20000 are got by the hosiery work shop owners who works as a worker as well comprising 2.5% of total respondents.

Most of the workers expensed most of their income. Monthly family expenses below Tk 5000 comprising 2.5% of respondents of the study who are unmarried. The monthly family expenses ranged from Tk 5000- Tk 10000 presented maximum frequency figured as 76.7% of total respondents. Monthly family expenses range Tk 10,000 - Tk 15,000 comprising 17.5% and Tk 15,000 - Tk 20,000 calculated as 3.3% of the total respondents.

The maximum workers of the hosiery workshop of Pabna do not have any savings comprising 51.7% of total respondents. 18.3% of respondents reported that their monthly savings below Tk 1000 per month. 25% of worker reported their savings within range Tk1000- Tk 3000-Tk 3000 comprising 25% of the respondents only 5% of the respondents monthly saving within range Tk 3000- Tk 5000 per month. Most of them take a loan from Samobay Samity or NGO and pay their debt through installment for meeting their demands of life.

3.2 Cleanliness

Table 2: Cleanliness

Cleanliness (Statements)	Responses			Percentage		
	Yes	No	Total	Yes	No	Total
Whether the factory floor is always kept clean?	114	6	120	95	5	100
Is there no dirty trash around the factory?	118	2	120	98.3	1.7	100
Is there no odor in the factory?	119	1	120	99.2	.8	100
The odor does not cause any health problems?	116	4	120	96.7	3.3	100
<i>Grand Total</i>	467	13	480	389.2	10.8	400
<i>Grand Average</i>	116.75	3.25	120	97.3	2.7	100

Source: Survey (July- December 2019)

The data shows that only a few factories whose floors not kept clean reported at only 5%. However, most of the hosiery workshop, comprising 95%, kept their floor clean and swept every morning before starting the work. The dirty trash around the factory; only 1.7 % of workers of the hosiery workshop realized about this problem. Most of the worker does not face any nasty odor except 0.08%. Only some factories situated in town have some drain odor or open dustbin problem. Only a few workers have an odor problem for these reasons, and they face health-related problems comprising 3.3% of total respondents.

3.3 Ventilation and Temperature

Table 3: Ventilation and Temperature

Ventilation and Temperature (Statements)	Responses			Percentage		
	Yes	No	Total	Yes	No	Total
Is there any air cooling system?	3	117	120	2.5	97.5	100
Is there any exit system for hot air?	87	33	120	72.5	27.5	100
Is the workshop temperature tolerable for health?	46	74	120	38.3	61.7	100
<i>Grand Total</i>	136	224	360	113.3	186.7	300
<i>Grand Average</i>	45.33	74.67	120	37.77	62.23	100

Source: Survey (July- December 2019)

The study does not find any air-cooling system of any factory; only 2.5 % of workers asserted they have an air cooling system, but they mean it about the fan. 72.5% workers reported there is a hot air exit system as a ventilation hole in the wall existed in the workshops, but some factory are built-in tin shade room, in the time of the middle of the day is very difficult to stay in the workroom. 61.7% of workers argued that they face problems in midday time when the sun at the top of the head.

3.4 Dust and smoke

Table 4: Dust and smoke

Dust and Smoke (Statements)	Responses			Percentage		
	Yes	No	Total	Yes	No	Total
Is there any system for air purification?	0	120	120	0	100	100
Is there any fiber fly/fabric dust filtration system?	0	120	120	0	100	100
Do the workers use masks during work hours?	24	96	120	20.0	80.0	100
Does the owner provide masks to the workers?	2	118	120	1.7	98.3	100
Is fabric dust favorable for r health at the workshop?	22	98	120	18.3	81.7	100
<i>Grand Total</i>	48	552	600	40	460	500
<i>Grand Average</i>	9.6	110.4	120	8	92	100

Source: Survey (July- December 2019)

The study does not find any air purification system in any of the factories. The study does not find any 'fiber dust filtration system' in any of the factories. Most of the worker does not use or wear a mask during the working time reported as 80% of total respondents. The data indicates that 20% of workers use masks, but they do not use musk regularly; when they feel worse than they use the mask for particular working time. The owner of the factory does not provide any mask to the worker reported as 98.3% of the total respondents. The study indicates that 81.7% of workers face health problems due to fabric dust at the workshop. Only 18.3% of workers affirmed that they do not feel any problem because they are newcomers. Overall, fabric dust causes health problems after a long time.

3.5 Waste and Waste disposal

Table 5: Waste and Waste disposal

Waste and Waste Disposal (Statements)	Responses			Percentage		
	Yes	No	Total	Yes	No	Total
Is the wastage of the workshop removed regularly?	119	1	120	99.2	.8	100
Does the wastage of hosiery workshop is tolerable for health?	119	1	120	99.2	.8	100
<i>Grand Total</i>	238	2	240	198.4	1.6	200
<i>Grand Average</i>	119	1	120	99.2	0.8	100

Source: Survey (July- December 2019)

All the waste produced by the hosiery workshops sold to other traders as a raw material for cotton production; therefore, the waste does not cause any problem for the workers reported as 99.2% of the total respondents of this study.

3.6 Humidity

Table 6: Humidity

Humidity (Statements)	Responses			Percentage		
	Yes	No	Total	Yes	No	Total
Is there any heat reduction system	0	120	120	0	100	100
Is there any moisture regulation system?	0	120	120	0	100	100
<i>Grand Total</i>	0	240	240	0	200	200
<i>Grand Average</i>	0	120	120	0	100	100

Source: Survey (July- December 2019)

Survey did not found any heat reduction system in any factory. It is essential for the worker because in time of midday in summer, it is unbearable, especially those who work in the tin shade workroom. The installation of a heat reduction system is costly; it is not possible for the owner. There is a solution to plant a tree around the factory, which reduces the heat produced by the sunlight. The survey does not find any moisture regulation system in any hosiery workshop/factory located in Pabna.

3.7 Overcrowding

Table 7: Over crowding

Overcrowding (Statements)	Responses			Percentage		
	Yes	No	Total	Yes	No	Total
Is there enough space for the workers in the workplace?	111	9	120	92.5	7.5	100
Is your workspace crowded?	114	6	120	95.0	5.0	100
Is the workspace tolerable for health?	112	8	120	93.3	6.7	100
<i>Grand Total</i>	337	23	360	280.8	19.2	300
<i>Grand Average</i>	112.3	7.7	120	93.6	6.4	100

Source: Survey (July- December 2019)

Most of the workers, calculated as 92.5%, contended that they have enough workspace in their workroom. Because of enough workspace, the workplace not overcrowded except only some factories, which is around 5%. Most of the workers assumed that there is no overcrowded in their workspace or workstation; therefore, they do not have any health problems regarding these issues comprises 93.3% of the total respondents.

3.8 Lighting

Table 8: Lighting

Lighting (Statements)	Responses			Percentage		
	Yes	No	Total	Yes	No	Total
Is there sufficient lighting system in the workplace?	116	4	120	96.7	3.3	100
Does a satisfactory lighting system available at work?	117	3	120	97.5	2.5	100
Does lighting system tolerable for eyesight?	116	4	120	96.7	3.3	100
<i>Grand Total</i>	349	11	360	290.9	9.1	300
<i>Grand Average</i>	116.3	3.7	120	97	3	100

Source: Survey (July- December 2019)

The data indicates that around 96.7% of workers pointed out they have no problem with the lighting system. Most of the workers in this survey acknowledged that they are satisfied with the lighting system in their workplace comprising 97.5%. The results indicate no complaint about the lighting system on this survey, only a few workers who endorsed that they have eye problems due to the lighting system calculated as 3.3% of the total respondents.

3.9 Drinking Water

Table 9: Drinking Water

Drinking-Water (Statements)	Responses			Percentage		
	Yes	No	Total	Yes	No	Total
Is there sufficient pure water supply in the workplace?	107	13	120	89.2	10.8	100
Is there sufficient cold water supply in the workplace?	104	16	120	86.7	13.3	100
Do the water that collected for drinking at work is healthy?	109	11	120	90.8	9.2	100
<i>Grand Total</i>	320	40	360	266.7	33.3	300
<i>Grand Average</i>	106.67	13.33	120	88.9	11.1	100

Source: Survey (July- December 2019)

Most of the workers, 89.2% in the survey, proclaimed that they have sufficient pure water supply in their workplace through tube-well. They do not face any problem because of being overpopulated country they every house has water sources of their own, and the worker collects water from the house or mosque. Because of using tube-well, most of the

workers can get sufficient fresh water comprises 86.7%. However, some worker has no water supply; they collect water and store in a bottle and drink when they need. There are a few workers estimated as 9.2% faced health problems due to lack of freshwater supply at work stores/factories.

3.10 Latrine and urinal

Table 10: Latrine and urinal

Latrine and Urinal (Statements)	Responses			Percentage		
	Yes	No	Total	Yes	No	Total
Are there enough urinals in the workplace?	95	25	120	79.2	20.8	100
Are there enough latrines in the workplace?	88	32	120	73.3	26.7	100
Is there any facility to wash hands after using latrine and urinal?	85	35	120	70.8	29.2	100
Are latrines and urinals cleaned regularly?	92	28	120	76.7	23.3	100
Is there a healthy latrine and urinal system at the workplace?	84	36	120	70.0	30.0	100
<i>Grand Total</i>	444	156	600	370	130	500
<i>Grand Average</i>	88.8	31.2	120	74	26	100

Source: Survey (July- December 2019)

The study indicates that 79.2% of workers stated that they have a urinal facility. On the other hand, 20.8% of workers claim that they use a mosque or another market urinal, and some of them finish their urinals process here and there. 73.3% of workers reported that they have a latrine facility in their workplace for them. 26.7% have no latrine facility on their own or for the worker, and they use a public toilet or mosque toilet. There is water supply in the latrines and urinals, but 29.2% asserted that there is no facility to wash hands after using latrine and urinal. 70.8% of workers stated that they use their soap for washing hands. Market authority or owner does not provide any soap. All most all of them comprising 76.7% indicated that latrines and urinals clean regularly. The study testified that 70% of workers claim that their toilet facility is not healthy and hygiene.

3.11 Quality of life

Table 11: Quality of life

Quality of Life (Statements)	Responses			Percentage		
	Yes	No	Total	Yes	No	Total
Having the affordability of managing nutritious food for the family?	54	66	120	45.0	55.0	100
Having the affordability of suitable accommodation for the family?	69	51	120	57.5	42.5	100
Having affordability to buy required clothes for the family?	54	66	120	45.0	55.0	100
Having the affordability of medical	26	94	120	21.7	78.3	100

Quality of Life (Statements)	Responses			Percentage		
	Yes	No	Total	Yes	No	Total
expenses for the family?						
Are you visiting with your family here and there at the weekend?	71	49	120	59.2	40.8	100
Do you want to educate your child?	73	47	120	60.8	39.2	100
<i>Grand Total</i>	347	373	720	289.2	310.8	600
<i>Grand Average</i>	57.83	62.17	120	48.2	51.8	100

Source: Survey (July- December 2019)

Over 55% of the worker in the survey contended that they have no affordability to manage nutritious food like milk, seasonal fruits. All most every worker comments that they do not afford to buy beef and high-quality fish except the festival. There is a lack of protein in the worker and their family members. Around 85.8% of workers in this study (see table 1) live in the village, almost half of the 42.5% said that they have some problems with suitable accommodation. Stagnant water in road and pond, the unhygienic canal is the main problem in the village area on the other hand in town, open-drain or open dustbin in front of or behind the house are responsible for unhealthy accommodation. The study indicates 55% of workers argued that they are not affordable to manage new and clean cloth for them and their family members; they need to borrow money from friends, relatives, or mohajon in times of festival to manage new cloth for their family. All workers in the survey asserted that they generally go to the local pharmacy in case of a general problem. They go to Pabna General Hospital in case of an acute problem, but they do not have enough money to expend money in the time of purchasing prescribe medicine or other medical tests, which is a burden for 78.3% of workers of the study. 59.2% of workers stated that it has gone to family visits with their family members or child here and there not every weekend but once or twice a month. The study indicates that 60.8% of workers affirmed that their kids attached to an educational institution and willing to send their kids to school. However, within 39.2%, most of them are unmarried/have no kids.

4. Conclusions and Workplace Implications

This study designed and investigated to find out the health and hygiene issues of the workers of the hosiery industry located in Pabna in light of the Bangladesh Labor Act, 2006. In this instance, most of the worker asserts that they clean the floor everyday, but there is no cleaner for this work to clean the workroom. A worker is for specific work in the factory, not for all factory work. The owner should mind it for worker welfare purposes. Labor association, hosiery association, and other organizations should pay attention to workers' physical and psychological wellbeing.

In the case concerned of workroom temperature, most of the workers affirmed that they have a hot air exit way called ventilation system as a ventilation hole though the temperature is higher than the natural temperature when the sun at the top of the head creates a problematic situation for the worker because of their tin shed workroom. High temperature is harmful to humans. Although the workers opine that they used to cope up

with the temperature, insane, it is inhuman behavior of the owner to the worker working in this type of temperature in midday in summer. It very much needs worker welfare to reduce the temperature. It is not possible mechanically than try to plant a tree around the workroom keeping the room temperature naturally healthy.

In the present circumstances, most of the workers face the dust/fiber fly problem, which causes various distressing health problems. Contrarily, they do not use a facemask in most of their working time, and almost all owners are unaware of this issue and do not provide any mask to the worker. Dust or fabric dust is responsible for various chronic health problems of the worker's health issue although some workers remark that they do not feel any problem in this issue, the study observed that dust causes health problems of the workers after a long time.

In such a situation, workers have noticed that they have enough urinals and latrines facility, and these urinals and latrines cleaned regularly, but the survey found that this toilet not cleaned as which supports the health and hygiene issue. On the other hand, most of them proclaim that they have a hand wash facility after using the toilet, but ultimately, they have only a water supply facility and no hand wash facility with soap after using the toilet. In some cases, the owner of these toilets takes a subscription fee for using the toilet.

In particular, workers mention that they have enough space in the workroom in some observation find that raw materials stored beside the worker working space, which creates a lower space for the worker.

The study remarks that the same type of lighting system used for every worker. Albeit, in reality, workers need different lighting systems such as cutting working need much lighter than the ironman worker does. The study recommends that the owner needs to ensure the proper lighting system for worker eye care.

The study ascertained that most of the workers use tube-well water as drinking water, but many of them collect this water from various sources such as mosque, neighboring houses. In several instances, they drink water from tea stall or other unhygienic sources, which may cause water-borne diseases. The study advocates that the chamber of commerce and labor welfare organizations need to take collaborative, proactive measures for solving these issues. The owner should take proper steps to provide pure drinking water to the worker for their wellbeing.

The study watched that some work places without latrines facilities. Against this background, the workers vocalize they have toilet facilities, but physical observation remarked that some unhygienic toilets do not clean regularly.

A part from the health and hygiene issues, this study attempt to realize the quality of life of hosiery workers to realize the socio-economic conditions and lifestyle of the workers of this industry.

In concordance with the results, most workers of the hosiery industry are struggling to provide nutritious food to their families due to lower-income. The workers are not

affordable to arrange suitable housing for their families. They cannot buy the required clothes for their family. Workers are often unable to afford the medical expenses of themselves and their families. Therefore, they are entirely dependent on the government hospital. A significant portion of the workforce does not go anywhere with the family on the weekend and during the period of vacation. Many workers have expressed arrogance for their children's education. All of these are a manifestation of a depressed group of workers' socioeconomic status. This research outlines that the industry is progressively blossoming because of the labor of workers. The worker of this industry is very low paid, and many of them have no savings. Workers are struggling with sustaining their life. In order to accelerate the prosperity of the hosiery industry, the individual and organization need to work to ensure justified wages for the interest of society.

Therefore, taking everything into account, the hosiery labor association, owner association, chamber of commerce, and other regulating agencies should work together to interfere with these problematic issues for improving the health, hygiene, and socio-economic status of the hosiery industry workers in Pabna.

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Accounting Software Education in Bangladesh: Students' Perspectives

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Abstract

Accounting software (AS) automates an organization's financial functions and transactions with modules including accounts payables, accounts receivables, payrolls, billing, taxes, general ledgers etc. It is a versatile tool in this modern age to the accounting students and practitioners that draws the attention of many researchers. The objectives of this study are: to show the present status of accounting software learning of students, to know the perception of learning accounting software from accounting students, to find out the problems that the students face to learn accounting software, reveal the prospects and benefits of learning accounting software and investigate the differences in using and teaching of accounting software among public Universities in Bangladesh. To attain the objectives of the study, we have developed a structured survey questionnaire and delivered it to 150 students of the Dept. of accounting of eight public Universities of Bangladesh. The results show that 51% of the accounting Dept. of public Universities of Bangladesh use accounting software and only 27% of them teach accounting software to their students. The students mention that unavailable lab facilities (26%) and shortage of trained faculties (18%) are the major impediment to the way of learning accounting software. The students believe that the syllabus of accounting department does not cover sufficient topics related to this issue properly and most of the faculties (47%) have little knowledge on accounting software. But 99% of the students assume that knowledge on accounting software is necessary even after completion of graduation for surviving in their professional life in future. The study also finds that there are significant differences in use of AS teaching, inclusion of topic related on AS in curriculum of accounting department in public Universities in Bangladesh. So, Computerized accounting software curriculum should be offered and implemented at public universities in the departments of accounting due to meet the expectations of industry and commerce.

Keywords: *Accounting Software; Public University; Learning Status; Bangladesh*

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1. Introduction

1.1 Background of the Research

Accounting software is a valuable tool for accounting practitioners that greatly helps boost the productivity of the finance department (Kenya, 2019). One of the main benefits of accounting software is its ability to track incoming cash as well as outflow of cash, with many packages also giving powerful reporting tools (Marder, A. 2015). It provides competencies to students to be well trained and skilled workforce. But at present, accounting software creates a well source of learning accounting education in all kinds of public and private universities. Need of accounting software is increasing day by day in commercial sectors, banks, companies and many other organizations. Computerized accounting systems have now replaced manual accounting systems in most organizations (McDowall and Jackling, 2006; Curtis et al., 2009). The working world has left the days of manually capturing accounting transactions far behind to take advantage of the flexibility, power and automation of accounting software. Yet, many public universities have yet to introduce accounting software into classroom, some for reasons of budget and others because they don't perceive the value that it adds to the teaching of this important subject (Daigle & Morris, 1999). By the cautious use of accounting software in classroom, business education can be superior (Boulianne, E. 2012).

Corporate hegemony leads to calls for the commodification of higher education to make it more efficient in the training of students, a movement that all critical theorists deplore since it subordinates the basic role of higher education from developing knowledgeable citizens to providing trained workers. Dugger (1995) argued that corporatism had contributed to subreption, pollution, and the emulation in the United States in business education. He recommends that business education has become transparent in its desires to serve corporate interests. Dugger's (1980) contented that the main function of higher education has been to create a surplus of qualified and focused professionals for corporate jobs rather than to create an educated citizenry reinforced by the language of industry accreditation requirements. Employers have become the consumers of the educational products (disciplined specialists). Higher education is a way of fulfilling business objectives in a world dominated by capitalist values, rather than a means of spreading knowledge for the sake of knowledge, the conventional function of higher education (Hines, 1988; Funnell, 1998; & Zeff, 1989).

The most important reason, however, to introduce accounting software at public university is that it helps learners to prepare for tertiary education and the working world. Blundell notes that most commerce degrees and bookkeeping certifications today place a heavy emphasis on computerization, so students who arrive with knowledge of accounting software package will have an edge.

In the working world, meanwhile, there are very few businesses left that do not have accounting software in place. In addition to preparing public university learners to work or study in the field of accounting, making them familiar with an accounting package helps

them to develop general computer literacy, critical thinking, and analytical skills. We see accounting as a life skills subject. Public universities should not only be teaching learners to pass the exam, but also provide them with the opportunity to take their place in the knowledge economy. What they learn in the accounting classroom is the most basic and important business discipline of all, and a skill that will serve them well in nearly any career. (Blundell, 2015).

Accounting is a great career opportunity for public university leavers because there is a shortage of qualified professionals in this field. Accounting prepares youngsters for a range of roles in business and makes them highly employable. But it also gives them the skills to run their own small businesses and take charge of their personal financial destiny, says Blundell. Sage Pastel Accounting has a longstanding and successful initiative for teaching basic computerized accounting and bookkeeping to learners in grades 8 to 12. The Sage Pastel Certified School Programme aims to teach learners how to use a computerized accounting solution in line with the accounting curriculum. Accounting software is hugely beneficial for teachers, administrators, students, and employees alike. Solutions in these categories provide users with a host of benefits, from improved visibility and content distribution to analytics and better communication channels. Smart content, enhanced communication, consolidation of data and information, and improved efficacy and efficiency are all benefits that accompany the implementation of accounting software. Many types of accounting software are designed to combine related information in a centralized repository. Consolidating all related data within a single program allows for better oversight and the extraction of more accurate insights from that data. Administrators and education professionals can utilize those insights to guide both teaching strategy at a lower level and administrative policy at a higher level.

1.2 Rationale of the Study

Veblen (1918) provided a clear critique of corporate interests' continuing attempts to commodify education, i.e. to consciously turn knowledge from human and cultural self-knowledge to training objects for the benefit of others. In the United States, the merger revolution of the late 19th century produced a tiny, influential community of financial capitalist men who Veblen (1918) believed were seeking to subvert all social structures to support the desires of a few wealthy men who dominated the resources of the country. He bitterly acknowledged the effect on higher education that corporate interests had, concluding that colleges in the United States had lost their identity since World War I, becoming rivals for traffic in merchantable instruction (Veblen 1918, 65). Critical theorists echoed institutionalists' concerns about corporate hegemony throughout the 20th century. Lyotard (1984), like Veblen, noted the constant efforts by business interests to commodify education. More recently, the technological revolution was addressed by Noble (1998, 2002) in higher learning. He concluded that the distance education trend was not only inspired by technology, but also by the desire to further commodify schooling for business purposes. Technology also given colleges with the opportunity to build Veblen branded merchantable instruction. This scenario is related to a developed country namely USA but what is about a developing country like Bangladesh in this regard? The question is too relevant at this era of information technology. The examination of technological

advancement specifically teaching of accounting software is crucial at university level. Consequently, this study is based on students' perceptions on learning status of accounting software in public university in Bangladesh. It is more or less true that accounting students of public university comes from different social, economic and cultural background and it is also perceived that the accounting students understand the theory aspects but lack on the following practical areas: problem solving, analytical thinking and application and use of accounting software. It is from this background that motivated the researchers into investigating whether the implementation of accounting software curriculum enhances students' practical, technical skills, problem - solving skills and analytical thinking skills.

The application and use of accounting software are increasing day by day because the accounting software can be able to maintain huge business transactions accurately rather than to maintain business transaction manually. With rapid technological development, the nature of business and transaction become more complex than it was ever. For this reason, modern banking companies and multinational companies want those employees who have good knowledge and experience of accounting software but in Bangladesh there is a lack of such employees. Modern banking companies, multinational companies, Government institutions use accounting software by the areas of bank transactions, garments or factories for measuring debit& credit, maintaining employee salary of any type of company, estimating balance job cost of any type of project, Counting any types of company's assets, assessing full time & over time income of labor, maintaining import/export order, calculating profit& loss of companies. Thus, the study aims at exploring the perception of accounting software from students in public universities.

It is important to mention that no such research has been conducted about the learning of accounting software yet as per best of knowledge of the researchers in Bangladesh. Thus, the study aims at exploring the perception of accounting software from students in public universities. This study seeks to add new dimensions of research to the literature and provide results that can be utilized to help open discussions as to whether accounting education with respect to accounting software to be tailored from its current status to meet its needs of students.

1.3 Objectives of the Study

The major purpose of the study is to find out the existing status of implementation, execution and barrier of execution (if any) of accounting software learning in public University in Bangladesh.

- (i) To examine the present position of accounting software education in public Universities in Bangladesh.
- (ii) To find out the perception of accounting software learning from students of public Universities in Bangladesh.
- (iii) To identify the problems that the students face to learn accounting software.
- (iv) To know the prospect and benefit of learning accounting software.
- (v) To investigate whether there is any differences in using or teaching of accounting software among the public Universities in Bangladesh

1.4 Research Questions

In order to address the research problem, the following question would be administered.

- (i) What is the current level of accounting software learning status of public Universities in Bangladesh?
- (ii) What are the students' perceptions towards accounting software education?
- (iii) What are the main hindrances of learning accounting software in public Universities in Bangladesh?
- (iv) What are the benefits and prospects that accrue from the learning of accounting software?
- (v) Is there any difference in using or teaching of accounting software among the public Universities in Bangladesh?

2. Literature Review and Hypotheses Development

Since an important responsibility in research is to compare your findings with those of others, it is here that literature review plays an extremely important role. During the write-up of a research report it helps you to integrate your findings with existing knowledge—that is, to either support or contradict earlier research. The higher the academic level of your research, the more important a thorough integration of your findings with existing literature becomes. Now, the following paragraphs present the existing literature in these aspects.

The origin of accounting software can be traced back to 1959 when IBM developed “9PAC”, a first report generation “language”, which allowed users to store and access structured data from relational databases from their computers (Scott, 2015). The companies started to invest in the development of proprietary accounting systems designed to specific requirements, as jobs were done in batches. Though the learning of accounting software has been increasing day by day, there are a few literatures available in the research field concerning the learning of accounting software among which most of them related to technical discussion of different module of accounting software.

According to Pulakanam and Suraweera (2010), accounting software used in Australia carry educational oriented activities in order to service business, environment and technical purpose. In view of Tsai et al. (2011) accounting software has widen its scope with the passage of time and started fulfilling other needs related to operations, human resource management, customer relationship management and has also performed various other functions. Accounting software is a finest way to develop educational learning strategies, methods and record transactions. This has resulted in gradual implementation of accounting software throughout the educational institutions like college, public and private universities. Success of accounting software depends on the extent of ability of accounting software to cater the need of organization (Guse, 2012)

Tsai et al. (2011) states that well experienced professional are required for teaching of accounting software to the students in the public University. These experienced professional charges a high amount of fees which is a challenge for public universities. In

addition, public universities need to impart accounting software knowledge to students with the help of coaching which incurs additional cost to public university. Chua, et al., (2012) found that choice & use of appropriate accounting software is the key in helping the students and employees in the different terms such as stock analysis, payroll analysis, sales and budget preparation. The main advantages of this are its speed, accuracy, up to date information, legibility and efficiency. Hence, the use of accounting software reduces the cost of staff and time on the maintaining the firms' account.

Machera R. P & Machera P. C. (2017) have written an article on "Computerised Accounting Software; A Curriculum that Enhances an Accounting Programme". The findings of the study indicate that the introduction of a computerized accounting curriculum is endorsed by both the focus group workshop and the face-to - face interview as it improves an accounting program. This Computerized Accounting module assists students in mastering skills that are needed after the completion of the Accounting Program during the internship as well as in industry and commerce

Chong & Nizam (2018) have conducted a research on "The Impact of Accounting Software on Business Performance." The objective of this paper is to investigate and explore the effect of accounting software on business performance of Malaysian companies. Modern literature and the result of this study shows that AIS characteristics possessed by the accounting information such as: efficiency, reliability, ease of use, data quality and accuracy have significant effects on the use of AIS and firm's performance.

There is strong evidence that introducing recognized accounting software at public university level can bring significant benefits to learners (Boulianne, 2014). A study conducted by Boulianne, E. (2014) at Concordia University in Quebec, Canada, showed that students who first completed an accounting course manually and then completed the same course using accounting software experienced the best knowledge acquisition. Meanwhile, students who completed the course using only accounting software, experienced better knowledge acquisition than students who completed the course only manually.

2.1 Accounting and Accounting Software

Accounting is the measurement, processing, and communication of financial and non financial information about economic entities such as businesses and corporations (Needles, Belverd E.; Powers, Marian, 2013).. The modern field was established by the Benedikt Kotruljevic in 1458, (Italian: Benedetto Cotrugli; 1416–1469) merchant, economist, scientist, diplomat and humanist from Dubrovnik (Croatia), and Italian mathematician Luca Pacioli in 1494. Accounting, which has been called the "language of business", measures the results of an organization's economic activities and conveys this information to a variety of users, including investors, creditors, management, and regulators. Practitioners of accounting are known as accountants. The terms "accounting" and "financial reporting" are often used as synonyms.

Accounting software describes a type of application software that records and processes accounting transactions within functional modules such as accounts payable, accounts

receivable, journal, general ledger, payroll, and trial balance. It functions as an accounting information system. It may be developed in-house by the organization using it, may be purchased from a third party, or may be a combination of a third-party application software package with local modifications. Accounting software may be on-line based, accessed anywhere at any time with any device which is Internet enabled, or may be desktop based. It varies greatly in its complexity and cost ("Accounting software," n.d).

Accounting software is a computer program that assists bookkeepers and accountants in recording and reporting a firm's financial transactions. The functionality of accounting software differs from product to product. Larger firms may choose to implement a customized solution that integrates a vast amount of data from many different departments. Small firms often choose an off-the-shelf product. At its simplest, accounting software is a type of computer software used by accounting professionals to manage accounts and perform accounting operations.

2.2 Digitalization of Public University in Bangladesh

Bangladesh is a technologically rising country in the world. The proportion of using ICT is increasing day by day. In recent year it is a common point is that "Digital Bangladesh". Digitalization is the integration way of digital technologies into the daily life by the digitalizing of everything or that can stand by the modern and update technologies. The Present government of Bangladesh manifests a plan to make Bangladesh digitalize, it is the amalgamation plan that to assist Bangladesh as a country of digitalization by 2021. Through the digitalization of Bangladesh, Public Universities have been digitalized gradually. The prime Minister of Bangladesh grants a huge amount of money every year for the development of Public University. Bangladesh has many public universities that providing education to the bulk of higher studies students. These Universities are funded by the government while managed as self-governed organizations. Dhaka University, Rajshahi University, Jahangirnagar University and Chittagong University are the greatest demanded Public University in Bangladesh among all other public Universities. The digitalization of these Public Universities is increasing gradually by using modern technology.

Digitalization of public University means digitalizing public university by ensuring an ICT based society where information will be available on line. Here all the possible tasks of public university will be performed using digital technology. It is positive attitude result is shown towards the digitalization of public university. By the increasing of computer uses, internet uses, ICT knowledge enlargement, and the modern technology uses for different sectors, is the finest achievement of digitalization of Public University in Bangladesh. In Public Universities, teachers are teaching their students by using multimedia projector, computer lab facilities. As a result students can know the world education and can able to compete with global educational circumstances. To borrow books from library, to do any academic activities and to get medical facilities we can use smart ID card that was provided by public university but

before ten years ago we had not Smart ID card. All administrative activities of public university are done by using modern technology and all information are available in online. The Vice chancellor of Rajshahi University and Jahangirnagar University has taken a Mega project for the development of Rajshahi University and Jahangirnagar University in recent time. All are the result of digitalization of public university. The research indicates that not all public university are digitalizing equally rather they are digitalizing gradually compare to the other public universities. A large sample study by MIT's Professor David Pritchard published in 2014 in The International Review of Research in Open and Distance Learning found that the actual learning in traditional classrooms and in online classes has measurable difference in its effectiveness. This research indicates that not only public university but also every educational institution should be digitalized in order to create effective students. It is important to mention that no such research has been conducted about the student's perception (regarding teaching environment, problem existed and probable benefit of accounting software), on learning of accounting software especially in public Universities in Bangladesh. Thus, the study aims at exploring the said aspects of learning status of accounting software from students' perspectives in public universities in Bangladesh. Based on aforesaid review of literature, the following hypotheses of the study are developed:

S. N.	Hypotheses Statements
H ₁	There are differences in using accounting software by public Universities in Bangladesh.
H ₂	There are differences in teaching accounting software by public Universities in Bangladesh.
H ₃	There are differences in problems in implementing accounting software teaching by the public Universities in Bangladesh.
H ₄	There are differences in syllabus regarding topic on accounting software among the public Universities in Bangladesh.

3. Methodology of the Study

3.1 The Nature of the study

The study is empirical in nature.

3.2 Sample Selection

The population of the study is the students of public universities who are studying at the Department of accounting. The sampling technique used in this research was random probability sampling method which is popular among researchers as this technique eliminates prejudices by allowing the results to exceed depending on sampling population. On the contrary, respondents are selected by researcher in non-probability sampling method may have impact on validity of the results. It is found that there are 46 public

Universities in Bangladesh. The University Grants Commission of Bangladesh has introduced the cluster system for student's enrollment. According to this system all public Universities in Bangladesh should be sorted in five clusters i.e., agricultural universities, medical universities, science and technology universities, engineering universities and general universities. In our study, we have selected general universities as other type of universities is mainly concerned on their technical education. It is seen that there are 15 general public universities in Bangladesh and we have randomly selected 8 public universities in our study. The sample frame of our study is given in Table 1.

Table 1: Table showing the sample public Universities in Bangladesh

S. N	Name of University	Establishment year
1	Dhaka University	1921
2	Rajshhai University	1953
3	Chittagong University	1966
4	Jahangirnagar University	1970
5	Islamic University	1979
6	Jagannath University	2005
7	Jatio Kabi Kazi Nazrul Islam University	2006
8	Barishal University	2011

Source: Authors' compilation

3.3 Data Source, Study Period and Data Collection Method

The nature of data is based on primary source. Data for the study were collected through structured (close ended) questionnaire from the students of accounting department of 8 public universities in Bangladesh. A total 150 questionnaires were distributed, 122 returned and out of 122, 22 questionnaires were rejected due suspicious answers. This research used cross-sectional data collection technique which is a form of quantitative sampling methods used in explanatory research (Brady and Johnson, 2008). The data for the study has been collected over the period from 18 April, 2019 to 15 November 2019.

3.4 Statistical Tools

The data collected for the study was analyzed by the simple statistical tools like frequency distribution, percentage, Chi-square test although there are more rigorous tools to analyze primary data. SPSS were applied to highlight to what extent accounting software is being taught, used etc and the perception of students about the necessity, benefit and problem of learning of accounting software.

4. Results and Discussions

4.1 Demographic profile of the respondents

Table 2: Table showing the demographics of respondents

Description		Frequency	Percentage	Total
Gender	Male	84	84%	100%
	Female	16	16%	
Age (in year)	16-20	37	37%	100%
	21-25	60	60%	
	26-30	3	3%	
Education level	1 st year	27	27%	100%
	2 nd year	11	11%	
	3 rd year	15	15%	
	4 th year	20	21%	
	Masters	27	27%	
	M. Phil/Ph.D	Nil	Nil	
Birth place (Division)	Dhaka	19	19%	100%
	Chittagong	16	16%	
	Rajshahi	9	9%	
	Khulna	31	31%	
	Barisal	5	5%	
	Sylhet	3	3%	
	Rangpur	8	8%	
	Mymensing	9	9%	

Source: Prepared by researchers using survey data in 2019

The demographic characteristics are presented in Table 2. A total of 100 students of 10 public universities were interviewed and found that 84% of the students are male and 16% of the students are female. Of the surveys analyzed, majority of the students are in honors degree (73%), age in between 20-25 years (60%) and came from Khulna division (31%).

4.2 Present Status of Accounting Software education at public University in Bangladesh

Table 3 represents the information regarding the use of accounting software by the sample Universities. A total number of 100 students were selected from public university among them 51% students said that their departments use accounting software and 49% students said that their departments do not use accounting software. It is also found that 27% of the students said that their departments teach accounting software and 73% students said that their departments do not teach accounting software.

Table 3: Extent of use and teaching of accounting software by the sample Universities

	Use of accounting software		Teaching of accounting software	
	Frequency	Percent	Frequency	Percent
Yes	51	51.0	27	27.0
No	49	49.0	73	73.0
Total	100	100.0	100	100.0

Source: Prepared by researchers using survey data in 2019

4.3 Perception of Accounting Software Education: Students' Perspectives

In this section, the perception of students of accounting department is tried to show.

Table 4: Showing the purpose of using computer lab by the sample accounting departments

Particulars	Variable of interest	Frequency	Percent	Total
Purpose of computer lab	Teaching of ACC. software	27	27.0	100
	Teaching of other education	45	45.0	
	Official purpose	25	25.0	
	Personal purpose	3	3.0	
Accounting related topic in Curriculum	Included portion	52	52.0	100
	Not inclusion	48	48.0	
Status of expert faculties	Number of expert faculties	54	54.0	100
	Number of amateur faculties	46	46.0	

Source: Prepared by researchers using survey data in 2019

Table 4 represents the information regarding the existence purpose of using computer lab by the sample accounting departments. The results show that 27%, 45%, 25% and 3% of the uses of computer lab are for teaching accounting software, teaching other education, official work and personal use respectively. The study reveals that 48% of the syllabus do not provide due consideration on inclusion of accounting software related topics. It is also found that 46% of the faculties have no expertise to teach accounting software to their students.

Table 5: Percentage of qualified teachers and their level of knowledge on accounting software

Particulars	Characteristics	Frequency	Percent
Level of qualified faculty	Qualified	67.0	67.00%
	Unqualified	33.0	33.00%
Level of expectation of trained & expertise faculty	Trained	85	85.00%
	Not trained	15	15%
Level of knowledge	All	30	30%
	Half	15	15%
	Few	47	47%
	No	8	8%

Source: Prepared by researcher using survey data in 2019

Table 5 represents the information regarding teacher is or are not qualified to teach accounting software in accounting departments. 67% of the students believe that their teachers are qualified to teach accounting software in their departments and 33% of the students think that teachers are not qualified to teach accounting software in their departments. Table 5 represents the information regarding teachers should or should not be well trained and experienced to teach accounting software to their students. 85% of the students expect that teachers should be well trained and experienced to teach accounting software. Table 5 also shows the information regarding the level of knowledge of faculty of accounting Departments on accounting software. It is found that majority of the faculty (47%) have few knowledge on accounting software. Even 8% of the faculties of accounting department have no knowledge on accounting software at all.

4.4 Problem of Providing Accounting Software Teaching

In this section, the problem of teaching accounting software in public universities is shown. Table 6 represents the information regarding the reasons of less teaching of accounting software by the sample accounting departments. The following Table represents that most of the students said that their departments do not teach accounting software because of shortage of trained faculty followed by unavailable lab facilities and lack of willingness of students.

Table 6: Reasons behind less teaching of accounting software

Reasons of not teaching of accounting software	Frequency	Percent
Lack of willingness of students	5	5.0
Unavailable lab facilities	26	26.0
Shortage of trained faculties	18	18.0
Others	25	25.0
System missing	26	26.0
Total	100.0	100

Source: Prepared by researcher using survey data in 2019

4.5 Prospect and Benefit of Learning Accounting Software

In this section, the prospect and benefit of learning accounting software have been described from the students' point of view. The results of the study are as follows:

Table 7: Showing the benefits and prospects learning accounting software

Particulars		Frequency	Percent	Total
Useful After graduation & post graduation	Useful	99	99.0	100
	Not Useful	1	1.0	
In professional life	Required	98	98.00	100
	Not Required	2	2.00	
Capability of providing practical training	Capable	61	61.0	100
	Not Capable	39	39.0	
Benefits to skill development & professional career	Skill development	20	20.0	100
	Help in professional life	18	18.0	
	Both skill development & professional life	62	62.0	
Academic result.	Strongly Agree	18	18.0	100
	Agree	43	43.0	
	Indifferent	14	14.0	
	Disagree	21	21.0	
	Strongly Disagree	4	4.0	

Source: Prepared by researcher using survey data in 2019

Table 7 represents the information regarding the knowledge of accounting software will be helpful after completing graduation and post graduation. 99% students said that knowledge of accounting software will be helpful after completing graduation and post graduation. Moreover, 98% of the students think that learning of accounting software is necessary in their professional life. Table 7 shows the information regarding the capability of accounting departments to provide practical training facilities to teach accounting software. 61% students said that their departments are able to provide practical training facilities to teach accounting software. Most of the students (62%) said that if they learn accounting software that will be helpful in their skill development and in professional life. Table 7 also reveals that 61% of the students believe that the knowledge of accounting software helps to get good academic result. Rest of the students is indifferent, disagree and strongly disagree on this issue.

4.6 Hypothesis Testing and Results

Table 8: Showing the results of Chi-square tests of developed hypotheses of the study

S.N.	Statement	Tests	Value	Sig. (P)	Results
H1	Difference in using accounting software by AIS dept. among public universities	Pearson Chi-Square	28.558 ^a	.000	Accepted
		Likelihood Ratio	31.903	.000	
		Linear-by-Linear Association	15.556	.000	
1 cells (6.3%) have expected count less than 5. The minimum expected count is 4.90					
H2	Differences in facing problem in implementing accounting software teaching by the public University	Pearson Chi-Square	33.058 ^a	.000	Accepted
		Likelihood Ratio	37.425	.000	
		Linear-by-Linear Association	15.160	.000	
8 cells (50.0%) have expected count less than 5. The minimum expected count is 2.70.					
H3	Differences in syllabus regarding topic on accounting software among the public university in Bangladesh	Pearson Chi-Square	22.338	.002	Accepted
		Likelihood Ratio	24.576	.001	
		Linear-by-Linear Association	3.126	.077	
1 cells (6.3%) have expected count less than 5. The minimum expected count is 4.80.					
H4	Difference in effect on academic result in public university	Pearson Chi-Square		.002	Accepted
		Likelihood Ratio		.000	
		Linear-by-Linear Association		.608	
34 cells (85.0%) have expected count less than 5. The minimum expected count is .40.					

Source: Prepared by researchers using survey data in 2019

Table 8 shows that all research hypotheses have been accepted as p values of Pearson Chi-Square and Likelihood ratio are statistically significant at 5% level of significance. It implies that there are differences in respect of using and teaching of accounting software among the public universities. Acceptance of research hypothesis three (H₃) indicates that there exists differences in curriculum of public Universities in Bangladesh regarding the inclusion of topics related to accounting software. Finally, results of research hypothesis four (H₄) direct that opinion on influence of accounting software on academic result from the students is not consistent.

5. Recommendations

To improve the use and teaching of accounting software, the following actions may be taken by the Accounting Department of public university:

- (i) The finding of the study shows that the use of accounting software by AIS department is approximately 51% which is not desirable in this modern age. So, accounting discipline of public University in Bangladesh should take necessary action to adopt and implement the use of accounting software in official purpose to foster the academic and official functions.
- (ii) Only 27% of accounting department of public university in Bangladesh teach accounting software in Bangladesh which quite dissatisfactory. So, it is an urgent need to launch accounting software teaching to all accounting department as soon as possible.
- (iii) As the inclusion percentage of accounting software in the curriculum is 52%, so the accounting departments must be conscious in preparing accounting syllabus so that accounting software related topics can include and taught. Moreover, Curriculum of accounting discipline should be uniform among and up to date
- (iv) Only 27% of lab facilities is used to teach accounting software learning. Therefore, it is necessary to ensure the maximum use of lab facilities of accounting departments to teach accounting software.
- (v) The accounting departments should make available lab facilities, trained faculties and identify other reasons that were faced by the accounting departments not to teach accounting software and remove it.
- (vi) Teacher's competencies and skill should be developed by arranging conferences, seminars, and works shop on accounting software learning.
- (vii) The ability of providing practical training facilities should be developed for teaching accounting software.
- (viii) As the findings of the study direct that there are significant differences in respect of facing problems by different accounting discipline of public universities in Bangladesh, the problem solving strategies should be different as per the nature and limit of the problems.

5.1 Policy Implications of the Study

This study has significant theoretical and practical implications. In this paper, crucial contribution has been made to the existing literature on accounting software learning issues. We do believe this study advances the study of accounting software learning and usage among university students that's in turn, will keep a significant contribution toward the theoretical and empirical basis for further research on accounting software learning in other universities as well as institutions of the globe. This study also might be used as a signal to the administration of accounting education of public University in Bangladesh to

improve the infrastructure and develop the quality of the faculties in this regard. Moreover, teaching of accounting software has a more accurate reflection of standard practices of providing education which may ensure better prepared students for the competitive business world. Course designer should consider the importance of integration of software into the curriculum

5.2 Limitation and Future Direction of the Study

The authors have identified a few limitations which should bear in mind in using the findings of the study. The study based on only accounting department of public university and the study does not consider private, national and international universities. It was mainly based on the perception of accounting students. In this study, we also do not consider teachers and staffs of public universities. So, future researchers can select private and international universities and accounting institutions for this issue. Comparative study between public and private universities as well as developed and developing countries can be conducted by the researcher in future.

5.3 Conclusion

The present study finds the present position of accounting software education in public universities. The study reveals that 51% of the public university uses accounting software regarding their own official activities, 27% of the public university teaches accounting software to their students, only 27% of the computer lab of public university is used to teach accounting software and 45% of the computer lab is used to teach other education. So, it is obvious that the level of using and teaching accounting software in public university in Bangladesh is not satisfactory. The study indicates that accounting departments do not teach accounting software because of unavailable lab facilities, shortage of trained faculties and lack of sufficient computer facilities. The study also reveals a surprising matter that 48% of the public university does not include accounting software related topics in their syllabus, 46% of the public university does not have expert faculties for teaching accounting software. Moreover, the study reveals that the necessity of learning accounting software has increased in the job market and in professional life. Knowledge of accounting software will be helpful after completion of graduation and post graduation. Multi-national companies ,banks, financial institutions and other govt. and private sectors are increasing day by day as a result the demand of accounting software is more at present time. Finally we can conclude by uttering from Dugger (1980, 906), where hesitates:

“If we are to change that structure, and surely we must, because it is inconsistent with democracy, with liberty, equality, and fraternity, then we must first change the institutions and social processes that create and support it. Simply calling for a revival or a renewal of the individual human spirit will not suffice. That spirit is a pattern of learned habits of thought, and through institutional analysis, we know where those habits of thought are learned. (emphasis added).”

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