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Message from Chief Patron

The mankind has always been in the quest for truth through journey of knowledge that governs the ways of the world. Without scientific search for knowledge, the ever-changing human civilization could not have progressed. I believe that the publication of BUP Journal, Volume 9, Issue No. 2 will contribute to the expansion of newer thoughts and innovation with its multidisciplinary research findings.

BUP Journal is a good forum for sharing knowledge on various fields through pragmatic research papers written by academicians, professionals, industry experts and researchers producing scientific and strictly peer-reviewed articles conforming to international editorial standard. The journal is committed to publishing research papers that receive high priority recommendation by reviewers. I am glad to find that this issue contains articles from multiple disciplines. There are articles from Media and Journalism, Economics, English Literature, Disaster Management, Public Health and Cryptocurrency.

I sincerely thank and appreciate the BUP Journal editorial board and Centre for Higher Studies and Research (CHSR) for their painstaking efforts to make the publication of the issue a success. I thank all experts and esteemed reviewers for providing the crucial peer-review and ensuring the academic standard of the research articles with correction, revision and appropriate comments. I also convey my heartfelt thanks to the contributors who have joined the venture of producing research works which undoubtedly enjoys a place of eminence in all our efforts for national and international understanding and collaborative research for creation of a better tomorrow for our coming generations.

I hope and believe that the present issue of BUP Journal will enhance the interests of readers and researchers to conduct and publish research works more and more and contribute to the dissemination of knowledge and fostering innovation.

Major General Md Mahbub-ul Alam, ndc, afwc, psc, MPhil, PhD
Chief Patron, BUP Journal and
Vice Chancellor, Bangladesh University of Professionals

Message from Chief Editor

It is indeed a great pleasure that BUP Journal, Volume 9, Issue No. 2 gets published. On behalf of the editorial team, I welcome the readership of the issue. I offer heartfelt thanks to the authors, and reviewers and express profound regards to the editorial board and all who lighted way the significant publication of this issue of the BUP Journal.

The BUP Journal attempts to promote research at academic level through encouraging researchers' inquisitiveness to find out the truth through scientific approaches of investigation and cultivation of true knowledge. The journal, therefore, inspires researchers producing scholarly write-ups that are befittingly methodical, having contents meticulously analysed and useful in drawing inferences realistically. The BUP Journal is registered with E-ISSN and generally receives a good number of research papers, all of which are sent to expert reviewers who conduct blind peer review. After a rigorous selection process, the expert reviewers finalize the articles for publication. For this 2nd Issue of Volume 9, the research papers, the finally selected articles had to go through a stringent evaluation process for publication. I convey special thanks to the learned members of the Editorial Board who paid significant efforts to improve and finetune the articles up to the optimum level. The BUP Journal is dedicated to the propagation of knowledge through high quality research papers.

I like to express my indebtedness to the Chief Patron of the journal and the esteemed Vice Chancellor of Bangladesh University of Professionals, Major General Md Mahbub-ul-Alam, ndc, afwc, psc, MPhil, PhD for his enormous support, interest and guidance throughout the processes of publishing the BUP Journal, Volume 9, Issue No. 2.

Authors and reviewers are always welcome. We also welcome remarks and ideas that would pave way of the journal's progress and quality. I hope you will contribute and find the BUP Journal even more enlightening and useful in future.

Brigadier General Monzurul Alam, BSP, PBGM, ndc, afwc, psc, MPhil

Chief Editor, BUP Journal

&

Dean, Centre for Higher Studies and Research

Bangladesh University of Professionals

Contents

SL	Title	Page
01	Empirical Scrutiny of Kaldor's First Law: A Bangladeshi Standpoint Mitu Rani Roy Tabassum Zaman	1-24
02	A Comparative Study of Dehumanizing Gender Narrative in D. H Lawrence's Sons and Lovers and Franz Kafka's The Metamorphosis Ahmed Tahsin Shams Ashfaque Akhter Siraj Uddin Ahmed	25-36
03	Influence of Social Media Advertisements on University Student's Purchasing Behavior Sanjoy Basak Partha Umme Hani Fabia Dina	37-62
04	An Exploration of the Mechanism for Adapting to Flood Induced Vulnerabilities in Gaibandha, Bangladesh Ram Proshad Barman Al Jamal Mustafa Shindaini Md. Mahbubur Rahman	63-84
05	Impact of Better Sleep on Academic Grades: A Study on the Students of University of Dhaka Lubaba Binth Halim Sharika Sabha Mayeesha Tabassum Hadika Zannat Oishee	85-102
06	Impact of Budgetary Control System on Budgetary Performance of Managers: Evidence from Bangladesh Mohammad Mizanour Rahman Bilkis Akhter	103-136

Empirical Scrutiny of Kaldor's First Law: A Bangladeshi Standpoint

Mitu Rani Roy¹
Tabassum Zaman²

Abstract

The economy of Bangladesh has undergone a series of structural transformation since independence where manufacturing sector emerged as a vital factor. This paper scrutinizes the offerings of manufacturing sector to the economic performance of Bangladesh using Kaldor's first law for the period of 1971-2019. Applying Autoregressive Distributed Lag model, this study found that, a rise in manufacturing sector growth stimulates GDP growth both in long run and short run. The bi-directional causality between GDP growth and manufacturing growth using granger causality test was also obtained by the study. It explored that manufacturing sector though potential is not a sustainable key to economic growth in the country since the underlying factors of supportable manufacturing growth by labor productivity is not proved by this study. The study recommends that the manufacturing sector requires product diversification, export driven growth, easing credit, labor productivity etc., for its stability.

Key Words: Kaldor's First Law, Service Growth, Employment Growth, Autoregressive Distributed Lag (ARDL).

1. Introduction

Manufacturing sector has been proved in many economies as one of the major operators of GDP growth. The vision 2041 of Bangladesh with its ambitious targets considers manufacturing sector as a vital part of the economy. Since the last 50 years, the sectoral formation of Bangladeshi economy has experienced a series of transformation. Particularly the share of service sector in GDP has increased from 26.43% to 54.63% and that of manufacturing sector has increased from 7.04% to 28.79% between the year 1975 and 2020 respectively. Whereas the share of agriculture in GDP, has decreased from almost 62 % to 12.65% in the same period (WDI, 2020). The structural conversion of manufacturing sector

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as approximately of 29% of cumulative GDP, favors its role in ensuring economic growth potentials.

In this vein, the theoretical underpinning of the role of manufacturing growth over GDP growth was formally introduced by Kaldor. Kaldor's first law of growth posits a positive causal relation between the growth of manufacturing output and the growth of GDP owing to static and dynamic returns to scale in manufacturing and rising productivity outside the manufacturing sector since resources are relocated from diminishing returns activities (Lopez and Thirlwall, 2014).

This paper is based on the Kaldorian model which was evaluated in the sixteenth century and concentrated why Kaldor's increasing dissatisfaction with the mainstream neo-classical philosophy of growth evolved, which was centered on the supply-side of the economy (Kaldor, 1996). After the first clarification of the principles of economic development and growth, Kaldor (1967) and Kaldor (1968) particularized and formalized them further in terms of a series of "laws" on economic development and growth.

Despite the fact that Kaldor's original work provided insight on the growth disparities between developed countries, his growth theories were so profound that they were also applied in the developing economies (Thirlwall, 1983). Since the developing countries are prone to unemployment, inefficient labor, inequality, and poverty etc., insurance of employment, productivity and per capita income stability by the manufacturing sector help to assuage the poverty challenges in many countries.

The World Bank Group explores that, the nascent condition of the manufacturing sector in Bangladesh is still in crisis since its productivity has not shown a matured trend despite having a potential RMG subsector in the current decades. With this perspective this paper highlights the importance of manufacturing industry in Bangladesh in view of the first law of Kaldor. The general objective of this research is to show the nature of influence of manufacturing growth on economic growth in Bangladesh based on the Kaldorian first law. Specific research objectives are to examine the significances of manufacturing, service and employment sector growth on economic performance in Bangladesh and to establish the direction of causality using the granger causality test among the variables. In this connection many studies have confirmed that manufacturing sector growth accelerates economic growth (Tsoku *et al.*, 2017; Adugna, 2014;

Keho, 2018; Yamak, Erdem and Koçak, 2016; Uddin, 2015). However, there is also evidence by others that manufacturing sector growth has little or negative effect on economic growth and thus not considered as engine of growth (Evans, 2014; Egüez, 2014).

Therefore, we can proceed our investigation to analyze whether there is any relationship between economic growth and manufacturing growth or not and examine Kaldor's first law applicability in Bangladesh.

To be structurally arranged the literature review, data description and research methodology, results and interpretation and finally conclusion and policy suggestions are designed respectively for the study analysis.

2. Literature Review

The first law of growth established by Kaldor delineates that there remains a robust positive causal link between manufacturing output growth and the aggregate output growth of a country. This law is seen as the machine of progress since it assumes that the movements in GDP performances are largely driven by labor productivity. This can be explained by two main reasons. Firstly, the presence of increasing returns through the dynamic and static economies of scale results a positive link between productivity of labor and industrial output. Secondly, with the diminishing returns of agriculture along with the petty services and the withdrawal and inserting of resources from these activities into industry become the after effects as industry expands. This will result a rise in the labor productivity in non-industrial activities (Thirlwall, 1983).

A host of literatures focusing on Kaldor's growth hypothesis with a particular focus on manufacturing sector and economic performance has been in the focus for the last few decades. In this vein the relevant empirics are analyzed in this section.

An empirical study applying quarterly data from 2001-2014 on South Africa showed the significance of Kaldor's first growth law. The Johansen co-integration approach has been found to be functional by the researchers to examine the Kaldor's idea. The co-integration outcome disclosed the presence of an association among GDP, manufacturing, service and employment in the long run. Granger causality further disclosed a one-way or a unidirectional way of causality between manufacturing progress to GDP growth. Finally, the study assured that in South Africa, Kaldor's first growth related inference was pertinent (Tsoku *et al.*, 2017).

Another context was analyzed on eleven Latin American economies over the period of 1980-2006. This study showed the link between manufacturing performance and overall economic performance where a significant positive relation between them was evident (Libanio, 2011).

Another study applied panel data over the period of 1975 to 2006 on five Mediterranean countries (Alexiou and Tsaliki, 2010). This study applied Time-Series-Cross-section as an econometric tool to inspect the relation and the results that uncovered manufacturing as a better growth apparatus in comparison to other segments for the economy.

Further extending Kaldor's first law, an analysis on Eastern Africa was conducted using the data over the period 2000-2013 for six countries. The result found that Kaldor's first law has some little support, but not strong for the Eastern African region (Martin, 2015). In most cases, the manufacturing sector remains to be a key pilot of economic growth, but in this context, it was not the case because here the impact of manufacturing output on GDP is negligible.

Concentrating specifically on Bangladesh a study found that, manufacturing and agriculture are the crucial elements of the economy of Bangladesh (Islam *et al.*, 2020). The researchers applied ARDL model to compare long-run and short-run potentials of these sectors on the economic viability with a particular focus on India and Bangladesh from 1975 to 2019. To concentrate on the manufacturing sector of Bangladesh in particular this study found that, the sector showed a striking stable upward trend during the last few decades.

Further, a study using data range from 1965-2004 showed the relationship among industry value added, export, import and economic growth by applying regression, Johansen co-integration and causality test. It evidenced a strong long-run relationship between GDP and industrial value added than in between GDP and export and import (Sultan, 2008).

Moreover, Census of Manufacturing Industries (CMI) from 1981-82 to 1999-2000 in Bangladesh established that there exists a higher increasing growth in value added for some industries in the post-liberalization period (1991-92 to 1999-2000) while for the most important industries, satisfactory growth level in the pre-liberalization period (1981-82 to 1990-91) has been experienced. Additionally, the study found that all manufacturing industries recorded positive and negative employment elasticities relating to value added and fixed capital

whereas only positive output elasticities with respect to fixed capital and employment for the same (Das *et al.*, 2008).

Another research on quarterly data from 1986-2018 using ARDL bound testing approach showed the contribution of ready-made garments exports earning to economic growth in Bangladesh. The results depicted that RMG exports earning significantly improves the economic growth rate in both short run and long run and it also confirmed a unidirectional causality from RMG exports earning to economic growth (Islam, 2020).

Finally, we can see that though the affiliation between the growth of GDP and manufacturing performance is found in many studies the underlying reasons of this is not addressed. Additionally, most of the studies undertaken on the Kaldor hypothesis are conducted in the developing and middle-income countries. Being on the verge of middle-income country Bangladesh can rarely follow the findings of others where their economic situation does not match with Bangladesh most of the time. Accordingly, it is high time for Bangladesh to explore its situation of manufacturing to GDP growth through the lens of Kaldor.

Delving deep into the Bangladesh context, it is found that studies only separately focus on Manufacturing growth, value addition, trends and its relation with employment elasticity. But combined manufacture, economic growth and labor productivity and their interlinkages with each other through Kaldor's perspective is not pursued by any literature so far. In this research this literature gap has been attempted to be filled up.

3. Methodology

3.1 Data

This paper used seasonally stable yearly data ranging from 1971 to 2019. The principal series in the study are economic growth as GDP growth (GDPGr) and manufacturing growth (MGr). As additional variables, Employment growth (EGr) and services sector's growth (SGr) are introduced in the study. In this vein the dependent variable is GDP growth (GDPGr) whereas the independent variables are manufacturing growth (MGr), employment growth (EGr) and service sector's growth (SGr). The data source for GDPGr, MGr and SGr is World Development Indicators of the World Bank and the data source for EGr is Federal Reserve Economic Data (FRED). All variables are measured in homogenous unit (annual % growth).

The variables selected for the study are considered to validate the Kaldor's first law in Bangladesh where the growth of manufacturing and economic performance is directly addressing Kaldor's hypothesis and the employment growth and service sector's growth are introduced in the study from their relevance in the literature as well as to fill up the research gap in the context of Bangladesh.

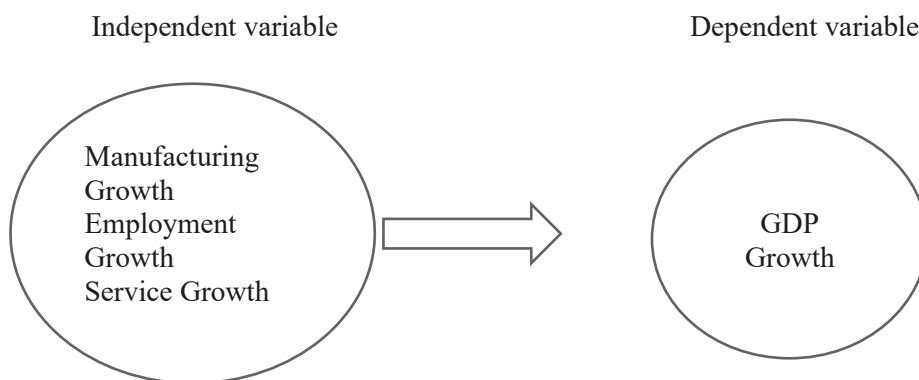


Figure 1: Conceptual Framework

3.2 Test for Stationarity

In this paper, the Augmented Dickey Fuller (ADF) as well as Phillips-Perron (PP) test statistics have been used to examine the presence of unit root for the concerned time series variables (Gujarati and Gunasekar, 2007). The ADF and PP tests rely on the null hypothesis of existence of unit root in the variable that reflects the non-stationarity of the time series variables.

3.3 Model Selection

This paper analyzes the time-series data to inspect the short run as well as long run association amid the variables. As there is mixed stationarity in variables the researchers choose to take ARDL model. It was claimed by research that for a small sample data set an improved result of co integration can be obtained from Autoregressive Distributed Lag (ARDL) method (Haug, 2002). Accordingly, depending on our data behavior, unit root test results and small data set, the researchers found ARDL test more appropriate than other conventional approaches for this study.

Bound Testing Approach to Co-integration

Co-integration test detects the long run affiliation among the variables. The long – run (LR) link among the time series of non-stationary and stationary data has been identified by ARDL model which was developed and clarified by many scholars (Granger, 1981; Engle and Granger, 1987; Pesaran and Shin, 1999).

For bound test, the Unrestricted Error Correction Model (UECM) is applied. The UECM regression equations are expressed as:

$$\Delta GDPGr_t = \alpha_0 + \sum_{i=1}^p \alpha_{1i} \Delta GDPGr_{t-i} + \sum_{i=0}^p \alpha_{2i} \Delta MGr_{t-i} + \sum_{i=0}^p \alpha_{3i} \Delta EGr_{t-i} + \sum_{i=0}^p \alpha_{4i} \Delta SGr_{t-i} + \alpha_5 GDPGr_{t-1} + \alpha_6 MGr_{t-1} + \alpha_7 EGr_{t-1} + \alpha_8 SGr_{t-1} + u_{1t} \dots \dots \dots (1)$$

$$\Delta MGr_t = \gamma_0 + \sum_{i=1}^p \gamma_{1i} \Delta MGr_{t-i} + \sum_{i=0}^p \gamma_{2i} \Delta GDPGr_{t-i} + \sum_{i=0}^p \gamma_{3i} \Delta EGr_{t-i} + \sum_{i=0}^p \gamma_{4i} \Delta SGr_{t-i} + \gamma_5 GDPGr_{t-1} + \gamma_6 MGr_{t-1} + \gamma_7 EGr_{t-1} + \gamma_8 SGr_{t-1} + u_{2t} \dots \dots \dots (2)$$

$$\Delta EGr_t = \beta_0 + \sum_{i=1}^p \beta_{1i} \Delta EGr_{t-i} + \sum_{i=0}^p \beta_{2i} \Delta GDPGr_{t-i} + \sum_{i=0}^p \beta_{3i} \Delta MGr_{t-i} + \sum_{i=0}^p \beta_{4i} \Delta SGr_{t-i} + \beta_5 GDPGr_{t-1} + \beta_6 MGr_{t-1} + \beta_7 EGr_{t-1} + \beta_8 SGr_{t-1} + u_{4t} \dots \dots \dots (3)$$

$$\Delta SGr_t = \lambda_0 + \sum_{i=1}^p \lambda_{1i} \Delta SGr_{t-i} + \sum_{i=0}^p \lambda_{2i} \Delta GDPGr_{t-i} + \sum_{i=0}^p \lambda_{3i} \Delta MGr_{t-i} + \sum_{i=0}^p \lambda_{4i} \Delta EGr_{t-i} + \lambda_5 GDPGr_{t-1} + \lambda_6 MGr_{t-1} + \lambda_7 EGr_{t-1} + \lambda_8 SGr_{t-1} + u_{3t} \dots \dots \dots (4)$$

Here, in equation 1 ($\alpha_{1i}, \alpha_{2i}, \alpha_{3i}$ and α_{4i}) represents the short-run and ($\alpha_5, \alpha_6, \alpha_7$ and α_8) represent the long-run parameters of the model. The no co integration hypothesis as null hypothesis is given below:

$$H_0: \alpha_5 = \alpha_6 = \alpha_7 = \alpha_8 = 0$$

Whereas, the alternative hypothesis (Co-integration exists)

$$H_1: \alpha_5 \neq \alpha_6 \neq \alpha_7 \neq \alpha_8 \neq 0$$

Short Run Dynamics

The ECM in the short run was familiarized in econometric analysis to show how the change in dependent variables can be interpreted by the independent variables among the co-integrated variables (Engle and Granger, 1987). The negative sign along with the statistical significance of the ECM confirm long-run relationship among the variables in the model. This is the easiest model to validate co-integration among the variables (Banerjee *et al.*, 1998).

The short-run and long run dynamics have been explored by the Akaike Information Criteria (AIC) and thus the equation (5) is representing the Error correction in the following:

$$\begin{aligned} \Delta GDPGr_t = & \alpha_0 + \sum_{i=1}^p \alpha_{1i} \Delta GDPGr_{t-i} + \sum_{i=0}^p \alpha_{2i} \Delta MGr_{t-i} \\ & + \sum_{i=0}^p \alpha_{3i} \Delta EGr_{t-i} + \sum_{i=0}^p \alpha_{4i} \Delta SGr_{t-i} \\ & + \lambda ECM_{t-1} + w_t \dots \dots \dots (5) \end{aligned}$$

Where, (α and λ) are parameters, ECM is Error Correction Model and w_t is error term.

ECM_t can be defined by the following equation:

$$ECM_t = GDPGr_t - \hat{\alpha}_0 - \sum_{i=0}^p \hat{\lambda}_{1i} MGr_{t-i} - \sum_{i=0}^p \hat{\lambda}_{2i} EGr_{t-i} - \sum_{i=0}^p \hat{\lambda}_{3i} SGr_{t-i} \dots \dots \dots (6)$$

Long Run Dynamics

The long run dynamics can be defined by the following equation:

$$\begin{aligned}
 GDPGr_t = & \alpha_0 + \sum_{i=1}^p \alpha_{1_i} GDPGr_{t-i} + \sum_{i=0}^p \alpha_{2_i} MGr_{t-i} + \sum_{i=0}^p \alpha_{3_i} EGr_{t-i} \\
 & + \sum_{i=0}^p \alpha_{4_i} SGr_{t-i} + w_t \dots \dots \dots (7)
 \end{aligned}$$

Granger Causality Test

Granger implied that, causality test is a method where a time series variable is said to be ‘granger cause’ if and only if *X* cause *Y* to the historical values of *Y* (Granger, 1988). It is called unidirectional *X* to *Y* if *X* cause *Y* but *Y* does not cause *X* (*X* → *Y*). In contrast bi-directionality exists *X* to *Y* if *X* cause *Y* and vice versa. Additionally, no-directionality exists when both variables are independent from one another.

Hypotheses for causality test by Granger are given below:

Null hypothesis (Ho): There is no granger causality /no existence of short run causal relation amid the variables.

Alternative hypothesis (H1): There is granger causality / existence of short run causal relation amid the variables.

3.4 Diagnostic Test and Stability Check

Diagnostic tests include Jaurque-Bera’s normality test, Breusch-Godfrey’s Serial correlation LM test, test of Autoregressive Conditional Heteroscedasticity (ARCH) and Breusch-Pagan-Godfrey’s test of Heteroscedasticity. Furthermore, to perform the sensitivity analysis Cumulative Sum (CUSUM) and Cumulative Sum of Square (CUSUMQ) tests are conducted to ensure the validity of the data of the variables inserted in the econometric model.

4. Results and Discussion

Table 1: Unit root test outcomes

	ADF Statistics		PP Statistics	
Level	Intercept	Intercept & Trend	Intercept	Intercept & Trend
GDPGr	-0.2217 (0.9277)	-6.6098* (0.0000)	-5.3818* (0.0000)	-6.9084* (0.0000)
MGr	-7.1157* (0.0000)	-7.0783* (0.0000)	-9.2791 (0.0000)*	-11.0980* (0.0000)
Egr	-4.7032* (0.0004)	-4.5821* (0.0032)	-4.6616* (0.0004)	-4.5302* (0.0037)
SGr	-7.0528* (0.0000)	-8.6058* (0.0000)	-7.2788* (0.0000)	-9.8682* (0.0000)
First Difference	Intercept	Intercept & Trend	Intercept	Intercept & Trend
$\Delta(\text{GDPGr})$	-10.6725* (0.0000)	-4.2585* (0.0083)	-12.6879* (0.0000)	-12.9478* (0.0000)
$\Delta(\text{MGr})$	-6.1632* (0.0000)	-6.1340* (0.0000)	-14.4407* (0.0000)	-14.0998* (0.0000)
$\Delta(\text{Egr})$	-8.6387* (0.0000)	-8.6681* (0.0000)	-10.8682* (0.0000)	-12.6627* (0.0000)
$\Delta(\text{SGr})$	-12.3866* (0.0000)	-12.0847* (0.0000)	-13.8515* (0.0000)	-13.9499* (0.0000)

Source: output estimation using E-views 10.

Note: (*) denotes 1% level of significance, (**) denotes 5% level of significance, (***) denotes 10% level of significance and () values represent p-value.

The null hypothesis suggests for ADF and PP tests that the series include unit root. In the table 2, the outcomes of ADF and PP test signify that all the variables were integrated at order I(0) and I(1), implying that they were stationary at their first difference in both intercept and intercept & trend except GDPGr which is found to be non-stationary at the level of I(0). Since the variables' integration was evident at both order I (0) and I (1), there exists a mixed stationarity. The nonexistence of any I (2) series confirms the condition for ARDL bound testing co-integration approach applying the ADF as well as the PP tests.

Lag Length Criteria and Co-Integration Test Results

The selected ARDL model is (3,2,0,1) in this paper and the minimum value of the AIC and HQIC decide the optimum lag order as 3 for the model (Appendix table B1). ARDL is pursued to test long-run equilibrium relationships by using different dependent variables to validate the study findings.

Table 2: F test to validate long-run co-integration and lag length criteria

Functional Form	F-test value	Lag
f(GDPGr MGr, EGr, SGr)	37.6206*	3
f(MGr GDPGr, EGr, SGr)	33.3981*	3
f(EGr GDPGr, MGr, SGr)	6.15372*	3
f(SGr GDPGr, MGr, EGr)	12.9329*	3

Source: extracted from estimation output using E-views 10.

Note: The F-statistic critical value ranges are respectively 4.29-5.61, 3.69- 4.89, 3.23-4.35 and 2.72-3.77 at the significance levels of 1%, 2.5%, 5% and 10% respectively.

Table-2 given above signifies the lag length as of 3. The null hypothesis of no co-integration among the variables needs to be tested. The first, second, third and fourth long-run relationship refers to the case where GDPGr, MGr, EGr and SGr are the dependent variables respectively. The above tabular presentation verifies a long-run link amid the variables because the F- statistics values of the specific four functions are greater than both the upper and lower bounds. It is verified at

1%, 2.5%, 5% and 10% critical values. Here, the rejection of the null hypothesis is certain since the F-statistics are larger than both upper and lower bound values. Therefore, we can get a significant co-integration relationship between the series based on the bound test approach. In this regard the first model f (GDPGr|MGr, EGr, SGr) is considered by the study to analyze the applicability of Kaldor's model in the context of Bangladesh where the dependent variable is economic growth and the independent variables are manufacturing growth, employment growth and service sector growth.

Short-Run Outputs

**Table 3: Estimation Outputs of Short Run Error Correction Regression
(Dependent variable = GDPGr)**

Variables	Coefficient	Std. Error	t-Statistic	Probability
C	0.4606	0.0891	5.1648*	0.0000
$\Delta(\text{MGr})$	0.2328	0.0282	8.2419*	0.0000
$\Delta(\text{SGr})$	0.0472	0.0556	0.8481	0.4020
$\Delta(\text{EGr})$	-0.0867	0.0818	-1.0599	0.2962
ECM(-1)	-0.8968	0.0702	-12.7680*	0.0000

Source: Estimation of output using E-views 10.

Note: (*), (**), (***) indicates respectively 1%, 5% and 10% significant level.

The short run result indicates that, for a 100% increase in MGr, GDPGr will increase by 23% at 1% level of significance. A positive but insignificant relationship between SGr and GDPGr is also found, showing a 4 % increase in GDPGr in response to a 100% increase in SGr, whereas, a negative and insignificant relationship between EGr and GDPGr, showing an 8% decrease in GDPGr in response to a 100% increase in EGr by the study. The ECM value is both negative and significant obtained at 1% level of significance. The negative error term signifies that the short run errors can converge towards the long run equilibrium with a speed of 89 percent.

Long Run Outcomes

Table 4: Long Run Estimation (Dependent variable = GDPGr)

Variables	Coefficient	Std. Error	t-Statistic	Probability
C	0.4606	0.4748	0.9702	0.3384
MGr	0.1733	0.0397	4.3577*	0.0000
EGr	-0.0967	0.0918	-1.0537	0.2990
SGr	0.7519	0.0919	8.1735*	0.0000

Source: Estimation of output using E-views 10.

Note: (*), (**), (***) indicates respectively 1%, 5% and 10% significant level.

The long run result shows that, for a 100% increase in MGr, GDPGr will increase by 17% at 1% level of significance. The long run result shows that manufacturing growth positively drive the GDP growth, which proves the relevance of Kaldor’s first law in Bangladesh. Additionally, for a 100% increase in SGr, a 75 % increase in GDPGr at 1% level of significance is also found by the study. Whereas, both a negative and insignificant relationship is found between EGr and GDPGr, showing GDPGr will decrease by 9% in response to a 100% increase in EGr.

Pair-wise Granger Causality Test

Table 5: Test Result of Pair-wise Granger Causality

	$\Delta GDPGr$	ΔMGr	ΔEGr	ΔSGr
	F-statistics			
$\Delta GDPGr$		11.012* (0.00)	1.972 (0.13)	63.990* (0.00)
ΔMGr	6.925* (0.00)		0.710 (0.55)	4.249* (0.01)
ΔEGr	0.124 (0.94)	0.149 (0.92)		0.056 (0.98)
ΔSGr	2.255*** (0.09)	2.613** (0.06)	0.984 (0.41)	

Source: Estimation of output using E-views 10.

Note: (*) represents significant at 1% level, (**) represents significant at 5% level, (***) represents significant at 10% label and () values represent p-value.

The above data with the probability value of greater than 0.05 implies that the null hypothesis cannot be rejected means that there is no short-run causal relation exists among the independent and dependent variable. From table 5, we can see the growth in manufacturing sector is significant at 1% level to stimulate GDP growth in the short run whereas GDP growth is significant at the level of 1% to stimulate the growth in manufacturing sector. So, there exists bi-directional causality ($MGr \Leftrightarrow GDPGr$) between the variables.

Whereas, we can see the growth in employment sector is insignificant at 1% level to stimulate the GDP growth and also GDP growth is insignificant at 1% level to stimulate the growth in employment sector. So, there exists no causality between the two variables.

The service sector growth at 1% level of significance stimulates the manufacturing growth and manufacturing growth on the contrary is significant at 10% level to stimulate the service sector growth. So, there exists bi-directional causality ($SGr \Leftrightarrow MGr$) running from service sector growth to manufacturing growth.

The service sector growth is significant at 1% level to stimulate the GDP growth and GDP growth is significant at 10% level to stimulate the service sector growth. So, there exists bi-directional causality ($SGr \Leftrightarrow GDRGr$) running from service sector growth to GDP growth.

As the manufacturing sector significantly stimulating the economic growth (GDP) in the short run, as per the causality test by Granger, we can verify the pertinence of Kaldor's first law in Bangladesh.

Diagnostic and Stability Tests for ARDL Model

Table 6: Diagnostic and Stability Test

Sensitivity Analysis	Coefficients
Serial Correlation LM Test	0.8494 (0.4769)

Heteroscedasticity (BPG) test	0.6648 (0.7345)
Heteroscedasticity (ARCH) test	1.0988 (0.3612)
Normality	0.7520 (0.6865)

Source: Output extracted from E-views 10.

Note: () represent probability of F-values.

Here the condition is that the probability of F-value must be greater than 0.05 to become serially uncorrelated, homoscedastic, white noise (ARCH) approved and normally distributed. In table 7, Serial correlation LM test, homoscedastic, white noise (ARCH) and normally distributed values are 0.4769, 0.7345, 0.3612 and 0.6865 respectively which are greater than 0.05. So, all the results confirm homoscedasticity, white noise (ARCH) and normality. The normality result is shown by figure in (appendix, figure A2). The broad table of diagnostic and stability test is given into (appendix, table B6).

The CUSUM and CUSUMSQ tests postulate that the estimated ARDL model is consistent and constant over time both for the long run coefficients and the short run dynamics. The parameters in the study are found to be stable as the values of the plotted recursive residuals are within the prescribed critical ranges at 5% level of significance (appendix, figure A3). CUSUMSQ further confirms that the coefficients in the model display consistency over time.

The study findings settle that the underlying ARDL model is confidently well identified, homoscedastic with verification of white noise error terms and stable for the projected period. The analysis pursues unbiasedness and validity of the estimated parameters of the study. Thus, the study result is worthy to be used as a rational policy input for Bangladesh.

5. Discussion

The results of this paper assures that manufacturing is a vital contributor to the economic performance of Bangladesh both in long and short run. It also confirms bidirectionality of causation among manufacturing growth and GDP growth. Hence in this section this paper aims to validate the above results. The results above provide us with an opportunity to engage the Kaldor's first law to the

economy of Bangladesh. All of the above results except employment growth agree with Kaldor's first law. Thus, the results require the researchers to delve deep into the Kaldor's primary growth-related decree in Bangladeshi context.

This study manifests how manufacturing progress of a country can largely kindle the GDP growth. It is due to the fact that, both the short run and long run aspects significantly confirm the change in GDP growth with respect to change in manufacturing growth. The results of this research justify with the findings of a host of other researchers (Adugna, 2014; Tsoku *et al.*, 2017; Islam *et al.*, 2020). Additionally, another study has found that increasing the stake of manufacturing sector would undoubtedly have far optimistic consequences on the economy, which resembles our result (Khan and Siddiqi, 2011).

In this vein granger causality via pair-wise test was conducted further which revealed bi-directional casualty between the variables. That means, manufacturing growth causes GDP growth and vice-versa.

The performance of other variables may further validate the study findings. It was observed that an undesirable relationship between employment growth and GDP growth was evident in the context. Employment growth shows both negative and insignificant result both in long and short run. This negative relationship can be explained by the prevalence of inefficient, unskilled and semi-skilled labor of Bangladesh. Thus, labor productivity in manufacturing and non-industrial sector is not proved by this study. Despite having basic comparative advantage of endless supply of unskilled cheap labor, the country failed to ensure adequate remunerative employment group. Employment progressed at a relatively slow rate since the 1990s, though the economic growth of the country was increasing at a stable rate. The faster growth of labor force than the employment opportunities has been responsible for the growing number of unemployed persons over time (Raihan *et al.*, 2015). It was validated further by a similar study in India that employment is not a crucial factor to impact the GDP of a country positively. GDP in industry can be amplified due to technological innovation, advanced process and speedy expansion and progress (Agarwal *et al.*, 2019).

Other views are the trend of hiring more foreign consultants and experts in the country may reduce the opportunities of domestic employees in Bangladesh (Sultana, 2020). The increase in the number of expatriates may also prove that Bangladesh is suffering from jobless growth as a greater number of labor are

getting employed in international labor market (Bangladesh Economic Review, 2020). Consequently, the Okun's coefficient identifies that the short-run sensitivity of labor markets to output in least developed countries is about half as large as that of in advanced countries. Though noticeable diversity across different countries prevails, Okun's ideology properly justifies the status of the developing world (Ball *et al.*, 2019).

In contrast, the long run result shows that service sector growth has positive relationship with GDP growth. Service sector contributed approximately 52.85 percent in Bangladesh's GDP in 2019. Service sector is the largest to contribute to Bangladesh's GDP. Liberalization of service sectors (especially telecom and financial sectors) has opened a new door for Bangladesh. The research findings of this study commensurate with the research output of other studies (Yousuf *et al.*, 2019). This trend of service sector further scrutinizes the role of manufacturing sector on the GDP of Bangladesh.

Though the service sector is stable in the long run, its short run impact is not found to be significant on GDP. In contrast the manufacturing sector is contributing to economic growth in both short run and long run significantly but at a rate lower than the service sector. Contrary to this tendency the Rostow model shows that economic transition takes place from agriculture to manufacturing to service for the transition economies. It may reflect that our manufacturing sector may still not have reached its saturation point. In this regard it is also a possibility that service sector growth does not stimulate growth in agricultural and industrial sectors whereas other sectors may drive the service sector performance (Nwani, *et al.*, 2020).

So, we may doubt the stability of Kaldor hypothesis in Bangladesh since the underlying reasons behind the manufacturing led economic growth by Kaldor was labor productivity inside and outside the manufacturing sector. In this regard the anomaly the researcher found is that, in Bangladesh, employment growth rate negatively impacts the GDP growth. It explains that our labor productivity is not satisfactory. Thus, it is not based on dynamic and static efficiency as the Kaldor hypothesis is based on. Additionally, service as another sector is not showing significant positive relation with GDP trend in the short run and questions the labor productivity outside the manufacturing domain. Accordingly, role of manufacturing sector in the country becomes dubious. In this vein the higher growth of service sector than the manufacturing sector is also not a conventional wisdom for the country. Accordingly, though the manufacturing growth is responsible for GDP growth in the country by the study, its stability is not

confirmed with the underlying reasons behind. Consequently, it shows there are ample scopes to improve our manufacturing sector further.

6. Conclusion and Policy Suggestions

The general objective of this study is to find how manufacturing growth as a determinant of economic growth in Bangladesh can be explained by Kaldorian growth model. A positive relationship between them has been found evident by the study. But the underlying reasons of the Kaldor's growth theory is found to be not active in the country. The result accordingly verifies how relevant is the Kaldor's first law of growth in the context of Bangladesh during the period 1971 to 2019.

Manufacturing sector is one of the major income and employment generating sectors in Bangladesh. Nevertheless, this sector cannot be regarded to be stable enough in its path. In order to enhance the sustainability of this sector some specific policy recommendations are offered by the researchers of this study.

As our manufacturing sector is RMG (Ready-Made Garment) dominating (85% of total export), international trade fluctuations may cause inconsistency in this sector. For this reason, the manufacturing sector should be diversified properly to sustainably put impact on the economic progress.

The government of Bangladesh should support the promotion of export led manufacturing growth by offering subsidies, easing credit and exchange rate policies, enhancing trade protection, advising on local trading and finally creating diplomatic pressure on the external world. The government can further encourage the production of imported materials within the local, regional and national industries through import substitution. An import bar on manufactured goods may not only boost up the demand for domestically produced goods but also reduce pressure on budget and foreign dependency. This may further reduce the lead time for the export products shipment. Particularly infant industries should be provided government support either by direct subsidies, protective tariffs, tax incentives or tax holidays.

Manufacturing sector always gets impetus by Foreign Direct Investment (FDI). The utility permission, land accusation, etc. are some of the hurdles for foreign investors in the country. By addressing them the government may assist our industries by ensuring not only investment but also advanced technology transfer, labor productivity and finally employment.

Since Kaldor Law is supported by a positive relation between the growth rates of GDP and the growth rate of labor productivity, sustaining Kaldor's hypothesis requires labor productivity. To ensure labor productivity, wage income should be ensured. As the advocates of wage-led growth claim that the declining share of wage income compared to capital income results in the main cause of inertia in the global economy.

A particular focus on Bangladeshi manufacturing industries requires a timely strategy that considers the barriers namely unskilled human resources, political unrest, administrative inefficiency etc., with special importance. The sector should concentrate on a balanced combination of technology and labor and thus its stability may emanate automatically.

The application of Kaldor's second and third laws in Bangladeshi context may be a reasonable supplement to the present study. Specifically, additional explanation should address how the effect of Kaldor's second and third law varies among different phases of manufacturing sector transition in Bangladesh. Consequently, different phase wise policy options may flourish the sector further for the economy. Manufacturing and economic development can be an additional study scope.

References

- Aduagna, T. (2014) 'Impacts of manufacturing sector on economic growth in Ethiopia: A Kaldorian approach', *Journal of Business Economics and Management Sciences*, 1(1), pp.1-8. Available at <https://silo.tips/download/impacts-of-manufacturing-sector-on-economic-growth-in-ethiopia-a-kaldorian-approach> (Accessed: 24April 2022).
- Agarwal, S., Gupta, D. and Verma, P. (2019) 'Impact of Employment on GDP Contribution of Various Sectors in India', *Global Journal of Enterprise Information System*, 11(1), pp.48-52. doi.org/10.18311/gjeis/2019.
- Alexiou, C. and Tsaliki, P. (2010) 'An Empirical Investigation of Kaldor's Growth Laws: Evidence from the Mediterranean Region', *The Indian Economic Journal*, 58(3), pp.144-155. doi.org/10.1177/0019466220100309.

- Ball, L., Furceri, D., Leigh, D. and Loungani, P. (2019) 'Does One Law Fit All? Cross-Country Evidence on Okun's Law', *Open Economics Review*, 30(7), pp.841–874. doi.org/10.1007/s11079-019-09549-3.
- Banerjee, A., Dolado, J. J. and Mestre, R. (1998) 'Error-correction mechanism tests for cointegration in a single-equation framework', *Journal of Time Series Analysis*, 19(3), pp.267-285. doi.org/10.1111/1467-9892.00091.
- Das, S., Baten, M, A., Rana, M, M. and Kheleque, M, A. (2008), 'Analysis of the Growth of Manufacturing Industries in Bangladesh', *South Asia Economics Journal*, 9(1), pp.85-108. doi.org/10.1177/139156140700900104.
- Egüez, A, and Elena, M. (2014) 'Manufacturing the Only Engine of Growth? An Extension of Kaldor's First Law', *Magisterbeit.* doi.org/10.25365/thesis.32548.
- Engle, R. F. and Granger, C. W. (1987) 'Co-Integration and Error Correction: Representation, Estimation, and Testing', *Econometrica*, 55(2), pp.251-276. doi.org/10.2307/1913236.
- Evans, R. M. (2014) 'Manufacturing Industry and Economic Growth in Kenya: A Kaldorian Approach', *University of Nairobi*, pp.1-50. Available at <http://hdl.handle.net/11295/77062> (Accessed: 5 March 2021).
- Finance Division, M.o.f., 2020. *Bangladesh Economic Review*. Available at: <https://mof.portal.gov.bd/site/page/28ba57f5-59ff-4426-970a-bf014242179e> (Accessed 6 January 2021).
- Granger, C. (1981) 'Some Properties of time series data and their use in econometric model specification', *Journal of Econometrics*, 16(1), pp.121-130. Available at [http://www.sciencedirect.com/science/article/pii/0304-4076\(81\)90079-8](http://www.sciencedirect.com/science/article/pii/0304-4076(81)90079-8) (Accessed: 4 January 2021).
- Granger, C.W. J. (1988) 'Some Recent Developments in the Concept of Causality', *Journal of Econometrics*, 39(1-2), pp.199-211. Available at [http://www.sciencedirect.com/science/article/pii/0304-4076\(88\)90045-0](http://www.sciencedirect.com/science/article/pii/0304-4076(88)90045-0) (Accessed: 5 March 2021).

- Gujarati, D, N, and Gunasekar, S. (2007) *Basic econometrics*. 5th edn. Tata McGraw-Hill Education Private Limited.
- Haug, A. (2002) ‘Temporal Aggregation and the Power of Cointegration Tests: a Monte Carlo Study’, *Oxford Bulletin of Economics and Statistics*, 64(4), pp.399-412. doi.org/10.1111/1468-0084.00025.
- Islam, M. S. (2020) ‘Ready-made garments exports earning and its contribution to economic growth in Bangladesh’, *GeoJournal*, 86(7), pp.1301-1309. doi.org/10.1007/s10708-019-10131-0.
- Islam, M, S., Hasif, M, A, M., Ema, N, S. and Jahan, H. (2020) ‘Role of Agriculture and Manufacturing Sectors in the Economic Growth of Bangladesh and India: An ARDL Approach’, *The Romanian Economic Journal*, , 23 (78), pp.82-92. Available at <https://ideas.repec.org/a/rej/journal/v23y2020i78p82-92.html>(Accessed: 12 March 2022).
- Kaldor, N. (1967) *Strategic Factors in Economic Development*. Ithaca N.Y: ILR Press.
- Kaldor, N. (1968) ‘Productivity and Growth in Manufacturing Industry: a Reply’, *Economica*, 35(1), pp.385-91. doi:10.2307/2552347.
- Kaldor, N. (1996) ‘Causes of Growth and Stagnation in the World Economy’, *Cambridge University Press, Cambridge*. doi.org/10.1017/CBO9780511559709.
- Keho, Y. (2018) ‘Manufacturing and Economic Growth in ECOWAS Countries : A Test of Kaldor’s First Law’, *Scientific Research Publishing, Modern Economy*, 9(5), pp.897-906. doi.org/10.4236/me.2018.95057.
- Khan, K, S. and Siddiqi, M, W. (2011) ‘Impact of Manufacturing Industry on Economic Growth in case of Pakistan: A Kaldorian Approach’, *Interdisciplinary Journal of Contemporary Research in Business, Forthcoming*, 3(1). Available at <https://ssrn.com/abstract=1926783> (Accessed: 6 June 2021).

- Libanio, G. and Moro, S. (2011) 'Manufacturing industry and economic growth in latin america: a kaldorian approach', *Federal University of Minas Gerais, Brazil*, XXXVII (86), pp.1–14. Available at <https://ideas.repec.org/p/anp/en2009/86.html> (Accessed: 14 December 2020).
- Martin R, E. (2015) 'Manufacturing Industry and Economic Development in Eastern Africa: A test of Kaldor's first Law', *University of Nairobi*. doi.org/10.2139/ssrn.2660708.
- Nwani, S., E, Kelikume, I. and Osuji, E. (2020) 'Does Service Sector Growth Cause Agricultural and Industrial Development? A Dynamic Econometric Approach', *International Journal of Management, Economics and Social Sciences*, 9 (2), pp.58-75. doi:10.32327/IJMESS/9.2.2020.4.
- Pacheco-López, P. and Thirlwall, A. (2014) 'A new interpretation of Kaldor's first growth law for open developing economies', Review of Keynesian Economics, 2(3), pp.384-398. doi:10.4337/roke.2014.03.07.*
- Penn World Table, U. o. G., 2021. *Federal Reserve Economic Data*. Available at: <https://fred.stlouisfed.org/series/EMPENGBDA1?fbclid=IwAR2Sg-> (Accessed: 10 June 2021).
- Pesaran, M. H. & Shin Y. (1999) 'An autoregressive distributed lag modelling approach to cointegration analysis', *Cambridge University Press*, pp.371-413 doi.org/10.1017/CCOL521633230.011.
- Raihan, S., Khondker, B, F., Ferdous, F, B. and Uddin, S, A. H. (2015) 'Bangladesh Country paper: Employment Effects of Different Development Policy Instruments', *Swiss Program for Research on Global Issues for Development*, R4D, 2015/5. Available at <https://www.readkong.com/page/bangladesh-country-paper-employment-effects-of-different-8776171> (Accessed: 12 June 2021).
- Sultan, P. (2008) 'Trade, Industry and Economic growth in Bangladesh', *Journal of Economic Cooperation and Development*, 29(4), pp.71-92. Available at <https://sesricdiag.blob.core.windows.net/sesric-site-blob/files/article/283.pdf> (Accessed: 12 August 2021).

- Sultana, M. (2020) ‘Metro rail work: Foreign experts start arriving’, *The Financial Express*, 12 August, Available at <https://www.thefinancialexpress.com.bd/trade/metro-rail-work-foreign-experts-start-arriving-1597204196> (Accessed: 10 May 2021).
- Thirlwall, P, A. (1983) ‘A Plain Man’s Guide to Kaldor’s Growth Laws, Palgrave Studies in the History of Economic Thought: Essays on Keynesian and Kaldorian Economics’, *Palgrave Macmillan* c14, pp.326-338. doi.org/10.1057/9781137409485_15.
- Tsoku, J. T., Mosikari, T. J., Xaba, D. and Modise, T. (2017) ‘An analysis of the relationship between manufacturing growth and economic growth in South Africa : A cointegration approach’, *International Journal of Economics and Management Engineering*, 11(2), pp.433–438. Available at https://www.researchgate.net/publication/314086190_An_Analysis_of_the_Relationship_between_Manufacturing_Growth_and_Economic_Growth_in_South_Africa_A_Cointegration_Approach (Accessed: 10 July 2021).
- Uddin, M, M, M. (2015) ‘Causal relationship between Agriculture, Industry and Service sector for GDP growth in Bangladesh: An Econometric Investigation’, *Journal of Poverty, Investment and Development*, 8, pp.124-129. Available at <https://iiste.org/Journals/index.php/JPID/article/view/19298> (Accessed: 13 July 2021).
- World Development Indicator. (2020), World Bank. Available at <https://data.worldbank.org/source/world-development-indicators>.(Accessed:9 June 2021).
- Yamak, R., Erdem, H. F., & Koçak, S. (2016) ‘A re- examination of Kaldor’s engine -of-economic growth hypothesis for the Turkish economy’, *Acta Universitatis Danubius. OEconomica*,12(4), pp.347-357. Available at <http://journals.univ-danubius.ro/index.php/oeconomica/article/view/3334/3464> (Accessed: 5 January 2021).

Yousuf, Raju Ahmed, N. A. and Lubna, S. M. S. (2019) 'Estimating the Services Sector Impact on Economic Growth of Bangladesh: An Econometric Investigation', *Asian Journal of Economic Modelling*, 7(2), pp.62–72. doi.org/10.18488/journal.8.2019.72.62.72.

A Comparative Study of Dehumanizing Gender Narrative in D. H 25 Lawrence's *Sons and Lovers* and Franz Kafka's *The Metamorphosis*

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Abstract

In D. H. Lawrence's Sons and Lovers and Franz Kafka's The Metamorphosis, Walter Morel and Gregor Samsa are the only father figures as they are expected to fulfill the demands of the family members to survive. The inability to earn enough makes Walter and Gregor fail in their relationships. Through a qualitative inductive approach, this paper diagnoses how money determines human consciousness, and thereby, the superstructure cum family plays a pivotal role in victimizing Walter and Gregor in the texts. This descriptive analysis of the text reveals that their identities were questioned and dehumanized as Walter and Gregor have been pressurized to be the money printing machine in the family. Firstly, this paper explains the direct participation of the family members being the agents of capitalism and how they alienate Walter and Gregor. Secondly, this paper elucidates how alienation leads to the dehumanization of Walter and Gregor in the novels. This comparative study aims to reveal those males—the financial resource persons—become the victims of capitalistic patriarchy by the first agent of superstructural apparatus: family members.

Key Words: Dehumanization, Alienation, Agents of Capitalism, Family Members, Father-Figure, Superstructural Apparatus, Counter Gender Narrative, Capitalistic Patriarchy.

1. Introduction

D. H. Lawrence presents the life tales of the Morel family, who are struggling to overcome the economic and personal difficulties due to the Industrial Revolution in the novel *Sons and Lovers*, published in 1913. The novel seems to be a story based on the conjugal life of Gertrude Coppard and Walter Morel. The lady, Mrs. Gertrude Morel, had a wealthy bourgeois upbringing, and the man turned into nothing but a local miner by spending nights at the local pub. Consequently, Mrs. Morel shifts her attention to her sons, beginning with her oldest son William and

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the younger one, Paul. The father's role turned into a money-making machine to supply the family's needs which Mr. Morel fails. Such failure opens up Pandora's box within the family resulting in the dehumanization of Walter by alienating him from the family bonds. On the other hand, a similar consequence is perceived in *The Metamorphosis* by Franz Kafka, where the protagonist Gregor Samsa is a young salesman. Indeed, this job had become his identity. When that feature has become futile, as a human, his value remains like ruins---especially when he showed up with a different body by turning into an insect. The horrifying incident when he transformed into a hybrid human did not only leave his mother, father, and sister in shock but also revealed their changing reactions to a creature that had lost its capacity to provide material needs in the family. As seen in the novella:

“And not one member of his family feels compelled to console the creature by, for example, pointing out that a beetle is also a living thing, and turning into one might, for a mediocre human living a humdrum life, be an exhilarating and elevating experience, and so what's the problem?” (Kafka 3).

Again, financial instability in the capitalistic social system made Samsa a failure, like Mr. Morel in D. H Lawrence's *Sons and Lovers*. Kafka's fiction showed how Gregor Samsa's family, similar to the Morel family, prioritized the financial needs in the end over the human essence of the individual. Even when Gregor died, he constantly thought of the family, their needs, and toils. After he had gone from his room, it was on rent to utilize the space economically, which had been earlier occupied by a creature with no capacity to provide daily material needs.

Going back to the root of the Industrial Revolution, from the mid-18th to early 19th century in Western Europe, it was not only technological advancement that scaled up but also class-consciousness and hegemonic ideals that started taking material shape. Thereby, practices turned out into traditions and eventually stood out as institutional ethics. Thus, as part of that intuition, the family members made Mr. Morel and Gregor Samsa victims in the two novels.

2. Literature Review

Ideology is defined as a cultural practice by theorists. Louis Althusser elaborates on this definition of ideology in the chapter 'Ideology and Ideological State Apparatuses' in the book *Lenin and Philosophy and Other Essays*: “exists in an

apparatus, and its practice...” (Althusser). To standardize the practice as a norm and tradition, various other superstructure forces work behind that. When these practices become norms and rituals through organic intellectuals in society, Gramsci addresses them as hegemony in *Prison Notebooks*:

“Its aim is always that of creating new and higher types of civilization of adapting the civilization and morality of the broadest popular masses to the necessity of the continuous development of the economic apparatus of production.” (Gramsci 242).

However, when the power structure in society accepts and naturalizes them, German philosopher Friedrich Engels termed it as false consciousness. That is how the ruling or dominant ideology takes shape within the mindset of the mass, discusses Georg Lukacs in *History and Class Consciousness*. As seen in both novels, the role of the petty bourgeoisie questions the concept of consciousness as they appear where “transitional class in which the interests of two other classes become simultaneously blunted, it will imagine itself “to be above all class antagonisms.” (Lukas 70) This notion of maintaining the hegemonic trend of gender roles not only put women in shackled situations but also patriarchy fell severely into its trap. Ernesto Laclau, in *Politics and Ideology in Marxist Theory: Capitalism, Fascism, Populism*, puts forward how such false consciousness leads to alienation of the self. Class principles control gender roles and thrust particular responsibilities on family members based on the relations of “production that are basic to a society” that certainly lacks “articulating principle of their own and the unification of their ideology will depend on other classes” (Laclau 164).

This loss of free will marginalizes Mr. Morel in *Sons and Lovers* and Gregor Sama in *The Metamorphosis*. Such otherization dehumanizes the victims when the material needs end. This paper establishes the role of family members in both novels, analyzing how the protagonists in the novel got deprived of empathy due to material failure in their lives. Most of the previous research on these two novels critically observes various social justice and class consciousness or gender roles but hardly focuses on the primary superstructural apparatus—the family—that acts as the first agent to victimize the two protagonists in the two selected novels.

In the book, *The Dehumanization of Man*, Ashley Montagu, and Floyd Matson describe the ‘dehuman syndrome’ of the present world: “The theme of alienation, connoting powerlessness and pessimism, has been a staple of our literature and drama” (Montagu and Matson xiv).. and “this familiar paradox—the collective

sense of immense powerfulness, of "superpower," matched by the personal sense of intense powerlessness" (Montagu and Matson xiii) driven contemporary society in its peak of false consciousness. These are resourceful materials to fill this gap in how social relationships contributed to Mr. Morel's and Gregor Samsa's lives, who are victimized not by the State or its other apparatuses—but by their parents, siblings, children, and partners.

3. Methodology

The two texts *Sons and Lovers* and *The Metamorphosis* are diagnosed through the qualitative inductive method and compared to draw a commonality. That is how superstructure, particularly the family members, turn out to dehumanize rather than be empathetic material failures. This paper is grounded on the institutionalization of a capitalistic patriarchal narrative on how thrusting upon the financial responsibility to men at home turns them into money machines by seizing the essence and existence of the characters, which eventually erases their humane identities.

Thereby, the process of dehumanization in the case of Mr. Morel and Gregor Samsa, the two protagonists of the two novels, has been studied from a theoretical perspective with critical approaches to how their family contributed to victimizing these characters. Firstly, this paper explains the capitalistic hegemonic principle based on which the society imposes dogmas as burdens where human identity is only measured from a material perspective. Secondly, the study reveals that the superstructure maintains an ideology that dehumanizes Mr. Morel and Gregor, eventually alienating them from their existence by limiting their identity only as money producers, treating them like an object—associated with 'coal' for Mr. Morel and 'insect' for Gregor Samsa, when they fail to be economically resourceful.

The paper borrowed the theoretical framework of cultural and political theorists like Karl Marx, Antonio Gramsci, and Louis Althusser to illustrate how the family relationship is materialized by societal institutions and practicing capitalistic dogmas in the name of trends and duty. Finally, the paper extends its framework on how such practices dehumanize the protagonists in the aforementioned novels.

4. Discussion

4.1 Alienation by the Family Members

When readers meet a collier named Walter Morel in *Sons and Lovers*, it is perceived how he toils in the morning as a miner and returns home in the evening. In addition, after work, the workers used to go to the tavern and drink. None of the family members---Mrs. Morel or his sons: William and Paul, understands this scheduled truth of the capitalistic system. Thereby disharmony takes place in their relationships as time goes by. In Gramscian Marxism, "an organic ideology" (Ramos) is spread throughout civil society or social institutions like the family, the media, schools, and other organizations by the "integration of diverse class interests and practices" into a "unified system of socio-economic relations." (ibid). Therefore, this socio-economic relation formed the identity of the characters like Gregor Samsa, who is the sole financial bread-maker of the family to pay his father's debts. A stroke of ill luck would have it, once that account gets settled, the son is erased like a vermin.

In *The Communist Manifesto*, Karl Marx and Friedrich Engels said, "The bourgeoisie has torn away from the family its sentimental veil and has reduced the family relation into a mere money relation." In both novels, the family members of Mr. Morel and Gregor Samsa represent certain "ideological discourses" that have class character (ibid). That is how Gertrude Morel, William, and Paul contribute to the process of Mr. Morel's dehumanization. Similarly, Mr. and Mrs. Samsa with Grete Samsa contribute to the death of the salesman Gregor Samsa.

The role of Wife Mrs. Morel in *Sons and Lovers*:

Thomas L. Jeffers, considering the historical background of workers' habit of drinking, mentions in his article 'We Children Were the In-betweens': Character (De) Formation in *Sons and Lovers* that "in a typical working-class household," men or fathers work "in rough-and-tumble worlds of men." So, the hardships make them exhausted and after the working hours "refreshment of drink and camaraderie in the pub" becomes a necessity as seen in many capitalistic societies. It is also notable that those father figures return home as "a tired, grimy, tipsy intruder" (Jeffers).

Mrs. Morel, an engineer's daughter who is dominating in nature, tries to impose her way of life on Mr. Morel. After meeting both ends in the mine, she refuses to recognize that her husband also has a particular personality of his emotional

requirement for love and sympathy. Before marriage, Gertrude's lifestyle was social, whereas, after marriage, she feels uncomfortable conversing with the neighborhood as it's a paradigm shift for her: from the palace to the slum. Class-consciousness, indeed, played its dice upon the mindset of Mrs. Morel. On the other hand, Walter Morel complains when he is served with water or tea only when he needs a strong drink. The family often waited for Mr. Morel to have dinner together as Mr. Morel mostly lays drunk in the pub. He was "shut out from family affairs. No one told him anything. The children, along with their mother, told her all about the day's happenings, everything." (Lawrence 88). Eventually, he was unable to bear himself.

Moreover, Mr. Morel is also oppressed by his employer, so he, in turn, oppresses his wife, who emotionally soothes her son. The continuous effort of Mrs. Morel to reform her husband's personality according to the hegemonic principles could not be fruitful as the reality suggests Mrs. Morel belongs to the opposite pole compared to Mr. Morel. So, trying to make him nobler than he could be, it can be argued that she destroyed him. Once, Walter kicks his son William in a ruthless manner that raises a storm in a teacup resulting in a violent quarrel between Mr. and Mrs. Morel. One evening after his return from the coal mines, Mr. Morel asked for food in a drunken state, and Mrs. Morel gave an insulting reply. The relationship's expectations of more output and profit brought tragic outcomes.

The role of the sons William and Paul in *Sons and Lovers*:

Indeed, Paul constantly wished his father to be dead, it is evident how the Industrial Revolution impacted the relationship and bonding among the family members. Hence, to wait for such a man at dinner seems silly to Paul. Moreover, Paul hated how the man, his father, would turn up and brutally take dinner. As a result, no sign of understanding is perceived; hatred and grudge towards their father only escalate. The materialistic culture ruined the fulfillment in family associations, and only a state of alienation remains.

The role of parents—Mr. and Mrs. Samsa in *The Metamorphosis*:

The relationship faced a questionable stage when Gregor Samsa, the tragic protagonist in the short story, failed to earn money for the family. His father, Mr. Samsa, hardly offered help after the surreal transformation project in the novella. Upon seeing his transformed son, he "clenched his fists, as if to drive Gregor back into his room" (Kafka 28). It is ironic as Gregor used to hate the job he undertook only to pay off his father's debts. The day he was done with his wages

way back home, the family situation turns like this: Mr. Samsa attacked Gregor by “pelting him with apples—an ironically biblical choice of weapon,” leaving Gregor with a severe wound (Kafka 36). Kafka's depiction of family bonds in *The Metamorphosis* is “uniformly grim,” leading to “an exclusion of Gregor,” getting him to ride of “the family circle.” (Rowe) It was shocking to see a denial of his humane essence and looking for ways to replace him with income by renting that room, as critically pointed out by Michael Rowe in the article ‘The Metamorphosis: Defending the Human.’

However, in the beginning, his mother, Mrs. Samsa, begged for her son’s life when his father was brutal with apples. But in the end, the affection evaporated, bringing Gregor to non-existence. Furthermore, Gregor starved to death, and his departure from the room made Herr Samsa say: “Well... now we can thank God!” (Kafka 84). Instead of mourning the loss, the family planned a tour to cherish the warm sunshine. Instead, they discussed Gregor's death's economic benefits and their upcoming financial plans. It's a grotesque image of not only a human body turning into monstrous vermin but also how family members formed relationships based on ‘money’ since the Industrial Revolution. Inability to work made Gregor valueless to the family. An asset can be loved, the family members’ action hints at, but a liability to be thrown out!

The role of sister Grete Samsa in *The Metamorphosis*:

Her sister Grete Samsa was the only character who showed empathy toward the victim. In the first weeks, Gregor's sister was the sole visitor. She fed Gregor, being observant, cleaned the room for Gregor's comfy insect walk, and removed furniture so that Gregor could be what he had become. But all these romantically glorified actions went futile when an asset became a liability. Therefore, his very sister, who was once highly caring, said if that bug were Gregor, he would have realized long ago that human beings can't live with such a creature, so “it has to go...have to try to get rid of it” (Kafka 79-80). Certainly, Gregor's existence is at a questionable phase. Removal of wages in life also removed relationships. In this manner, all the family members: Mr. and Mrs. Samsa, and Grete, alienate Gregor when he becomes a burden from an asset.

4.2 Alienation Leads to Dehumanization

In *Economic and Philosophical Manuscripts of 1844*, Karl Marx points out that people are doomed to be estranged from themselves and each other in capitalist industrial production. According to 1884 writings, there are four aspects of alienation. These are successively alienation from the product of work, the

working process, human nature, and man's alienation from man. In the first type of estrangement, a worker is alienated from the product/object of his labor. Workers do not have the possibility of possessing or making use of things that they produce no matter how much they use their creative abilities: "The more the worker spends himself, the more powerful becomes the alien world of objects which he creates over and against himself, the poorer he— his inner world — becomes, the less belongs to him as his own" (Marx).

The second aspect of alienation is the process in which workers are estranged from the labor process. In this process, workers do not have control over working conditions, hours, or how the work is organized. Marx's argument on this issue is as follows: "It is activity as suffering, strength as a weakness, begetting as emasculating, the worker's *own* physical and mental energy, his life as an activity which is turned against him, independent of him and not belonging to him" (ibid).

The alienation of human beings from species being—human nature—is the third element of alienation. He further asserts that labor is about "satisfying a need in which human beings maintain their physical existence." (ibid) This is a conscious life activity carried out voluntarily. Man is alienated from "his own body, as well as external nature and his spiritual aspect, his human aspect" (ibid).

The estrangement of man to man is alienation's fourth and final aspect. This alienation occurs partly as a consequence of the antagonisms that take their source from the class structure of society. Therefore, men are initially estranged from those exploiting our labor and what they produce. Secondly, men are alienated since they can only know each other through the objects they buy and consume. Men are only connected through those products. As Judy Cox mentions in the article 'An Introduction to Marx Theory of Alienation'. Human nature has a tendency to perceive each other as superior or subordinates rather than fellow colleagues or with equal rights. Therefore, the concept of Marxist alienation affirms how humans consider each other as another extension of capitalism—as products with hierarchical relationships. (Cox) About this final phase of alienation, Karl Marx accordingly states as such: "What applies to a man's relation to his work, to the product of his labor and himself, also holds of a man's relation to the other man, and to the other man's labor and object of labor. The proposition that man's species-nature is estranged from him means

that one man is estranged from the other, as they are from man's essential nature.” (Marx).

Egalitarianism mirrors social inequality by allocating social positions by age, authority, gender, wealth, and so on, where social hierarchies like classism define the individuals. Thereby an inevitable hegemonic dominance exists in the characters' mindset that presents the roles of Mr. Morel and his wife, Mrs. Morel, or Mr. Samsa and his son Gregor Samsa. Recognizing these victims as individuals ceased long ago and turned out to be nearly a machine to make money. Such treatment, like ceasing an individual's identity, is one form of dehumanization, and certainly, dehumanization is another form of objectification (Rowe).

Mr. Morel's Dehumanization:

When Mr. Morel met with another accident in the pits and was admitted to a hospital ten miles away at Nottingham, Mrs. Morel was indifferent to visiting the hospital. In Walter Morel's absence, the Oedipus bond takes shape between Mrs. Morel and his sons. Gradually, the societal roles that define human existence, whether the role of husband or father, Mr. Morel went beyond all these. Therefore, he returned home in a state of heavy drunkenness. Hardly readers can connect any empathy with Mr. Morel as he showed no sign of affection too for his wife and children. So, he was with his family neither at the coal mines nor at the house. D. H. Lawrence heightens the adverse effects of industrialization in the novel at various levels—rural landscapes are transformed, the environment drastically polluted, characters are separated from idyllic nature, and many more. Even Lawrence's selection of a floral name—Morel—as the central character in *Sons and Lovers* is because of his interest in botany, and his criticism of industrialism, claims Michael Patrick Gillespie in the article 'Lawrence's *Sons and Lovers*' (Gillespie).

The word 'Morel' has two different meanings which corresponds to two types of plants that are successively mushrooms and nightshades. “One of these morels is an edible and delicious mushroom that grows on burnt-out land, matures early in the spring, and that hunters tastefully search for” (ibid). Morel is also the name of an “edible nightshade which has hairy, poisonous foliage and white flowers” (ibid). In this reading, the Morel family becomes a victim of industrialism, like morels in nature.

Furthermore, readers get to know the Morel family, or particularly the characteristics of Mr. Morel, from the lens of Mrs. Morel. From Gertrude's

perspective, not Walter's, narration of the situation seems to explode, sometimes through her stream of consciousness-type monologues portrayed by the environmental imageries. For instance, D. H Lawrence used red as several visual imageries in different situations: young Mr. Morel's "ruddy" cheek (Lawrence 15), Mr and Morel's metaphoric relationship as "a brand red-hot down on her soul...till the mark was burnt in," (32) Mrs. Morel and Paul's Oedipal relationship - "She was warm in the ruddy firelight" (88), and in Miriam's description "She was ruddy and beautiful" (202), Gregor Samsa's Dehumanization:

The end sequence tells the ultimate dehumanized condition of the protagonist Gregor Samsa in the novella. When the charwoman arrived for a usual visit to Gregor's room, she saw Gregor lying "there so motionless on purpose." (Kafka 83) The way she behaved was also dehumanizing; however, that seemed natural only because of the context where Gregor is not a human but an insect. So addressing Gregor with a "low whistle" and inviting others to have a look - "it's gone and croaked - just lying there, dead as a doornail!" (ibid).

However, the narration picked height to the harsh treatment of dehumanization when the family members cheer the day of getting rid of the liability who once dedicated his labor and time to fulfill family necessities.

5. Conclusion

This paper provides a counter-gender narrative: how men are becoming victims of the bourgeois attitude in civil society not by any other external force in the superstructure but by their very beloved family members. Thrusting the role of 'father figures' or 'wage earners,' the family members treat them only as income generators and a failure that ceases their identity and essence. Therefore, the very 'loving' family members participate in the process of alienation and consequently dehumanization of the victims. Thus, Walter Morel merely remains a human in the eyes of the family and instead turns into a coal pit. Similarly, Gregor Samsa turns into a vermin. The present capitalistic patriarchal society that values a human being from its economic utility is vividly reflected in D. H. Lawrence's *Sons and Lovers* and Franz Kafka's *The Metamorphosis*.

References

- Althusser, Louis. *Ideology and Ideological State Apparatuses by Louis Althusser 1969-70*. www.marxists.org/reference/archive/althusser/1970/ideology.htm. Accessed on 29 Sept. 2021.
- Cox, Judy. *Judy Cox: An Introduction to Marx's Theory of Alienation (July 1998)*. www.marxists.org/history/etol/newspape/isj2/1998/isj2-079/cox.htm. Accessed 29 on Sept. 2021.
- Gillespie, Michael Patrick. "Lawrence's Sons and Lovers." *The Explicator*, vol. 40, no. 4, Informa UK Limited, June 1982, pp. 36–38. <https://doi.org/10.1080/00144940.1982.11483594>.
- Gramsci, Antonio. *Selection From the Prison Notebooks*. Edited by Quintin Hoare and Geoffrey Nowell Smith, 1st ed., International Publishers, 1971.
- Jeffers, Thomas L. "We Children Were the In-betweens": Character (De) Formation in Sons and Lovers." *Texas Studies in Literature and Language*, vol. 42, no. 3, 2000, pp. 290–313.
- JSTOR, www.jstor.org.proxy.library.nd.edu?url=https://www.jstor.org/stable/40755311.
- Kafka Muir, Willa Muir, Edwin, F. (1915) *The Metamorphosis, In the Penal Colony, and Other Stories*. Schocken Books.
- Kafka, Franz, et al. *The Metamorphosis: A New Translation by Susan Bernofsky*. eBook, W. W. Norton and Company, 2014.
- Lawrence, D. H. *Sons and Lovers*. Icon Group International, 2005.
- Lukács, Georg. *History and Class Consciousness*. Translated by Rodney Livingstone, Merlin Press, 1967.
- Laclau, Ernesto. *Politics and Ideology in Marxist Theory: Capitalism, Fascism, Populism*.

- Marx, Karl. *Marx's Economic and Philosophic Manuscripts of 1844*. www.marxists.org/archive/marx/works/1844/manuscripts/preface.htm. Accessed 29 Sept. 2021.
- Montagu, Ashley, and Floyd Matson. *The Dehumanization of Man*. 1st Edition, McGraw-Hill, 1983.
- Rowe, Michael. "Metamorphosis: Defending the Human." *Literature and Medicine*, vol. 21 no. 2, 2002, p. 264-280. *Project MUSE*, doi:10.1353/lm.2002.0024.
- Shams, Ahmed Tahsin. "Industrialization, Alienation, Dehumanization, and Family." *The Daily Observer*, 4 Feb. 2017, www.observerbd.com/news.php?id=56754.
- Valeriano Ramos, J. (1982) 'The Concepts of Ideology, Hegemony, and Organic Intellectuals in Gramsci's Marxism.' Available at: <https://www.marxists.org/history/erol/periodicals/theoretical-review/1982301.htm>.

Influence of Social Media Advertisements on University Student's Purchasing Behavior 37

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Abstract

The aim of this paper is to examine how consumer online purchasing behaviour among Bangladeshi undergraduate students is influenced by several factors like information adoption, e-WOM, online brand experience, and online brand familiarity. In collecting information like E-WOM, social media advertising and consumer purchasing behaviour, a survey questionnaire was used. A total of 130 participants from Bangladesh University of Professionals (BUP) participated in the survey. Stratified sampling technique was used to determine the sample size. In the context of online shopping, peripheral routes have been identified to have positive effects on the information adoption process. E-WOM has been found to have a significant impact on the link between information uptake and consumer purchase behaviour. It has been found out that online brand experience influences consumer online purchase behaviour favourably. It has also been found that online brand familiarity somewhat mediated the association between online brand experience and consumer purchasing behaviour. The research has investigated how E-WOM, online brand experience, and online brand familiarity influence undergraduate students' purchasing decisions from the perspective of a developing nation like Bangladesh. Additionally, this study examined factors which have more influence on both the central and periphery routes in affecting consumers' responses to social media advertising.

Key Words: Social Media, Advertising, Consumers' Purchasing Behaviour, E-WOM, Online Brand Experience, Online Brand Familiarity.

1. Introduction

Over time, emerging digital applied technological modes and tendencies have started to infringe on traditional business norms. Marketers constantly develop new strategies for delivering their messages and persuading customers to purchase their goods and services. When the twenty-first century began, experts

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predicted that the internet would reduce the distance between customers and marketing organizations (Hamel & Sampler, 1998; Sotelo, 2017). The internet would be the main platform for consumer shopping at the start of the 21st century, predicted researchers like Ward et al (1998). People could easily purchase what they needed consequently without disrupting the merchandise's original locations.

Social media has been becoming more and more integrated into every part of people's life. As a result, consumers are more actively engaging with the major social media sites both behaviourally and perceptually (Kapoor et al., 2017; Kim & Kim, 2018). Peoples' interactions with both private and public organizations are significantly altered by social media. Indeed, social media platforms create a brand-new setting for interactions between individuals, groups, and even governments in the commercial, social, political, and educational spheres as well as for the exchange of ideas, information, goods, and services (Rathore et al., 2016; Zhu & Chen, 2015). As a result, businesses all over the world have begun to consider how utilizing these platforms might help them draw clients and develop profitable marketing relationships with them (Kamboj et al., 2018; Lin & Kim, 2016).

Porter (2001) and Weaver et al. (2017) argue that companies must rely on technology to survive in the modern commercial sector. Digital marketing, which includes mobile-smart marketing, social networking sites, mobile applications, and mobile websites, is one of the most recent trends in marketing (Horner & Swarbrooke, 2016). These social media platforms have become crucial in the corporate world for predicting consumer behaviour. Jones (2010) concluded that people use social media to share their opinions and information about the products and services they use. As a result, one of the most popular issues right now is the interaction between technology and consumer purchasing habits (Horner & Swarbrooke, 2016).

Meeting the demand, companies nowadays have incorporated social media as one of their largest advertising channels and allocated a significant amount of their advertising budget to social media channels due to the power and unparalleled growth of social media (Okazaki and Taylor, 2013; Saxena and Khanna, 2013; Lee and Hong, 2016; Arora and Agarwal, 2019). Social media platforms have aided businesses in creating commercials that can monitor consumer reactions, host interactive sessions, and create personalized messaging (Haida and Rahim, 2015). Another advantage of these platforms is how simple

it is to assess their efficacy through metrics like ad clicks (Regelson and Fain, 2006), likes, and comments (Bunker et al., 2013).

Marketers today need to comprehend how social media has affected consumers' purchasing decisions. Consumer behaviour is a crucial component of marketing as it helps companies create effective and powerful marketing plans and tactics. Marketers now consider social media marketing to be a crucial component of their communication strategies. Marketers can learn more about their clients' requirements and potential markets by interacting with them. Consumers can rate items, refer them to contacts or friends, and publicize purchases on social media to key business features of social media.

It is essential for advertisers to properly develop their ads and then assess their success because of the social media sites' remarkable growth, which has encouraged businesses to target their consumers by advertising through the most popular platforms. There is scarcity of studies that have looked at the usefulness of such platforms, despite the widespread use of social media by businesses and consumers for a variety of objectives. Additionally, very few studies have been done to thoroughly assess the attitudes and opinions of young consumers in Bangladesh concerning social media ads, which is the research gap of this study. The number of social media users in Bangladesh is rapidly increasing. As of latest data, Bangladesh holds more than 48 million Facebook users, which accounted for 28% of its entire population. Among this population, 21 million users are aged between 18-24 (Afrin, 2021), who are mostly university going students. Building on these arguments, this study aims to assess how young consumers feel about social media marketing from the perspective of online shopping. The principal research question for this study is to identify whether social media advertising influences the consumer buying decision making process of Bangladeshi youths, especially the university students.

2. Rationale of the Study

This study mainly focuses on how E-WOM, online brand experience, and online brand familiarity influence undergraduate students' purchasing decisions from the perspective of a developing nation like Bangladesh. Additionally, this study examines which factors have more influence on both the central and periphery routes in affecting consumers' responses to social media advertising.

3. Research Objectives

Advertisers have always sought the greatest feasible and ideal media to help them communicate their marketing message to their target audience. Advertisers have typically accepted changes in the media landscape as society progresses. Prompters have been at the forefront of trying new things with any media that may propagate their publicizing messages since city messengers were replaced by books, handouts, posters, banners, radio, television, and billboards. However, consumers might convey a shifting attitude toward this channel as a communication vehicle for advertisement. The main objectives of this study are-

- a. To evaluate the young purchasers' attitude toward social media advertisements, and
- b. To assess whether young purchasers are being influenced by social media advertisements when it comes to the point of buying online.

4. Research Questions

In line with the research objectives, considerable research questions for this study are:

- a. Does social media advertising influence the decision-making process of consumers?
- b. Does Electronic Word-of-Mouth (E-WOM) create any impact in consumer buying decision-making process?

5. Literature Review

5.1 History of Consumers' Purchasing Attitude

The behaviour patterns of consumers, that precede, determine, and follow on the decision process for the acquisition of need-satisfying items, ideas, or services could be used to determine consumer decision-making (Du Plessis et al., 1990). Marketers have connected consumers' varied buying strategies to their increased usage of social media. E-WOM (Electronic Word of Mouth), a realistic, carefully planned information transmitter that can affect consumers' purchasing behaviour and is determined to keep them satisfied, has been introduced by marketers as a solution to this issue (Okumus & Bilgihan, 2014).

Sheehan (2010) asserted that modern buyers tend to investigate and become familiar with the produce before making a purchase. Thus, the best method for influencing consumers' purchase decisions is through technology (Court et al., 2009).

Social media is an online marketplace that links buyers and sellers through a shared brand identity. Social media should constantly be resourceful and proactive in influencing consumers' perceptions of choosing a company (Vollmer & Precourt, 2008). Social media marketing is an easy and practical marketing strategy that enables businesses to connect with customers as they make decisions about what to buy (Sheehan, 2010). The process of customers' decision-making enables customers to look at the discrepancy between their goals and the kind of information they have access to (Reid & Bojanic, 2009; Lee et al., 2016). In addition, consumers must be familiar with the goods and services to determine their purchasing patterns (Butler & Peppard, 1998).

5.2 Electronic Word of Mouth (E-WOM)

The internet has given the 1950s-introduced idea of word-of-mouth (WOM) a new dimension. WOM is defined by Arndt (1967) as 'person-to-person communication between a receiver and a communicator regarding a brand, product, or service that the recipient views as non-commercial.' According to Kimmel and Kitchen (2014), WOM influences all stages of consumer decision-making, from product awareness to selection and post-purchase evaluation. WOM is a key source of information for consumer buying decisions, influencing attitudes, perceptions, and expectations of brands, products, and services. The increased interconnectedness of people on social media has given WOM additional relevance nowadays (Kimmel and Kitchen, 2014).

Online word-of-mouth, or eWOM, is a type of WOM where internet users' rate and evaluate a variety of goods and services on review websites (Bronner and Hoog, 2010). It is defined as any good or negative words made about a product or firm by prospective, present, or past customers, which are made available to numerous individuals and institutions via the Internet (Hennig-Thurau et al., 2004). Although e-WOM makes it harder to assess the authenticity of communication (Popescu et al., 2013), consumers are utilizing it more frequently since it is more accessible and has a wider audience than traditional WOM (Orzan et al., 2013). Positive online reviews boost consumers' confidence, lower their risk, and affect their online purchasing habit (Vermeulen and Seegers, 2009). Electronic WOM can be spread in a variety of ways, such as through

social media platforms or the comments sections on e-commerce websites; nevertheless, company-led marketing communications are rarely the source of the information shared. EWOM is also considered as a remark that customers express as a person in online reviews of other businesses. Depending on the experience that these customers have with the purchased goods or services, the words in online reviews may be negative or positive (Reyes-Menendez, Saura & Filipe, 2019).

5.3 Social Media and Online Purchasing Attitude

Unconventional web-based applications in internet marketing involve social media. It refers to internet-based channels that enable users to seamlessly engage with one another and get value from user-generated material (Nabity-Grover et al., 2020). Since there is no question regarding the effectiveness of social media and its significance for marketing initiatives, it has grown to play a significant role in business marketing strategy (Štefko et al., 2014). Businesses use social media to grow online communities and construct fresh company models with innovative product marketing channels (Chung & Buhalis, 2008; Ulusu, 2010). Social media is essential for successful marketing since it creates a perceived positive image, which results in a perceived value for the customer (Hanaysha, 2016). Mhlanga and Tichaawa (2017) pointed out, however, that the impact of social media on consumers' experiences may vary depending on their gender, age, food and drink preferences, level of service, and environment. Online communities created by new marketing channels enable marketers to learn more about customers, infer their needs and priorities from their experiences using the communities, and get direct feedback from consumers (Sigala, 2003).

Shi and Liao (2015) found through an empirical analysis that social media online customer reviews had an impact on perceived effectiveness and familiarity with group buying. In a different investigation, Bilal, Ahmed, and Shahzad (2014) revealed that Facebook, Google, blogs, and YouTube have a favourable influence on consumers' choices. Customers' use of social media when making their first purchase of a product has a big impact because they need to do their homework. Due to the social media platform's ability to provide information on various goods, services, and brands, social media has an impact on how people seek for information during the decision-making process (Edelman, 2010).

Prasath & Yoganathen (2018) revealed that most of the consumers (92%) relied on social media platforms (Facebook, Instagram etc.) when they make decisions

about purchasing online, whereas only 8% depended on photo and video sharing sites (Flickr, YouTube) and Micro blogging (Twitter). Another study disclosed that Facebook & Instagram are the most popular and used social media platforms for promotional activities, as these two are mostly used by young generation (Taha et al., 2021). After studying on Malaysian consumers, Kumar et al. (2020) disclosed that close to 60% consumers' purchasing attitude was shaped by social media advertisements, which resembled with previous studies also (Rasool, 2015). The researchers also came into conclusion that when it comes to looking for information before making decisions about purchases, modern consumers are frequently affected by technology (Kumar et al., 2020). Some researchers argue that due to the high level of involvement in user generated content and superiority of social media ads over traditional ads, consumers are going to social media sites (Arora et al., 2020; Alalwan, 2018; & Rathore et al., 2016).

Rahman et al. (2018) figured out the likings and disliking about online shopping from Bangladeshi perspective. The study result showed that most of the users like e-shopping for home delivery facility, discount offers, and time saving. And the point of dissatisfaction involved inability to trial products, high price, tendency of fraudulence, and poor customer handling. Notably, more than half (56.25%) of the respondents said that they know about online shopping from various social media advertisements.

While choosing social media for product purchasing, consumers look up to several parameters to fix up their mind. The validity of the advertisements becomes extremely important as consumers are nowadays flooded with advertising due to the active use of the internet by marketers. Additionally, misleading advertising tends to diminish its value and create a bad attitude among consumers (Arora et al., 2020). The importance of entertainment has also been linked to favourable attitudes towards online commercials. The emotional requirements of consumers might be satisfied via entertaining commercials (Wang and Sun, 2010). Several studies reveal that entertainment factor increases the value of the advertisement and creates positive impression among the potential customers (Arora & Agarwal, 2019; Hamouda, 2018; Martins et al., 2018). Additionally, interaction was associated with a positive impression toward social media marketing. Consumers typically desire two-way communication rather than merely acting as message receivers (Sundar et al., 2014). Customers have the chance to provide feedback through interactive social media ads, which can assist marketers in learning their viewpoints and addressing the issues they raise (Jiang et al., 2010). However, a negative attitude toward social media advertising was privacy concerns. Therefore, it can be

difficult for marketers to create relevant ads, which leads to privacy concerns. As a result, while gathering consumer preference data for the purpose of constructing the ads, marketers must bear in mind that their customers' privacy should not be abused (Arora et al., 2020).

However, Voramontri & Klieb (2018) demonstrated some different outcomes than previous studies. The study revealed that the usage of social media increased consumer satisfaction throughout the early phases of information search and alternative evaluation but did little to increase satisfaction during the stage of making a purchase decision or during the evaluation of the experience thereafter. Since many customers are still happy to make their purchases in conventional physical stores after doing their research and comparison shopping online, brick-and-mortar retailers are still important.

5.4 Generational Difference in the Level of Influence by Social Media Advertisements

Generation Y, also known as the 'digital natives' and 'millennials,' is the first generation to have grown up entirely in a digital environment. Information technology has had a significant impact on both their personal and professional lives, and they have enjoyed extended periods of rapid advancements in social networking, instant messaging, and globalization. These factors have shaped Generation Y and have had an impact on their use of social media and purchasing habits (Taha et al., 2021). Some authors, such as Bento et al., assume that Generation Y representatives interact with social media in a more natural and intuitive way than do Generation X (born between 1965-1980) representatives. According to their research, Gen Y users absorbed more material on Facebook brand pages than Gen X users. Some more studies also claimed the same that due to their gender and age group, customers' experiences and buying habits may be affected by social media differently (Kumar et al., 2020; Mhlanga & Tichaawa, 2017).

6. Conceptual Framework

For integrating the factors that influence consumers' purchasing behaviour online, this study adopted Elaboration Likelihood Model (ELM) as the conceptual framework. The elaboration likelihood model, first developed by Richard E. Petty and John T. Cacioppo, is a comprehensive theory of persuasion that aims to explain how people interpret stimuli differently and how these

interpretations alter attitudes and behaviour. People can have either high or low levels of elaboration, or the willingness and capacity to examine an argument, according to this model. The ELM is widely used to assess how well consumers accept new information to generate favourable online word-of-mouth for various forms of purchase activity (Cheung and Thadani, 2012; Yan et al., 2016).

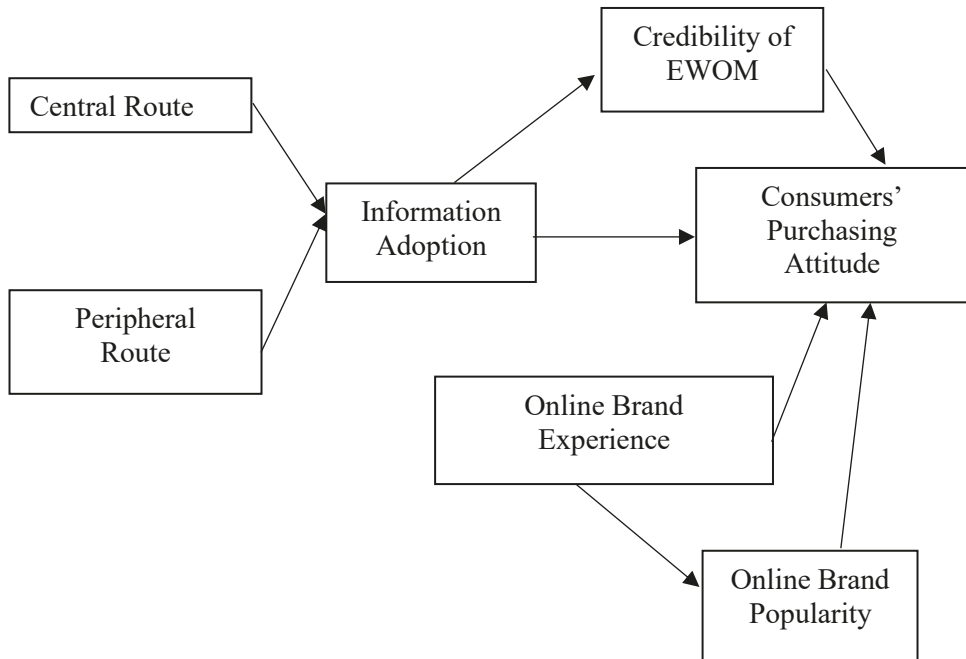
This study has investigated how consumers' acceptance of information is affected by both central and peripheral routes. The "Elaboration Continuum," which runs from a low level to a high level of elaboration, serves as the foundation for the ELM model (Filiari and McLeay, 2014; Petty et al., 1983). This elaboration continuum is divided by Petty et al. (1983) into a central route and a peripheral route that oversee affecting changes in consumer attitudes. The central route, which is willing to transmit information logically by investing time and quality of information, is one that consumers can choose. Due to their lack of motivation or willingness to comprehend information, individuals may potentially choose to go in peripheral route as well. Here they use information produced by the shortcuts process and assess the reliability of the information's source before making a choice (Petty et al., 1983).

Online consumer purchase intent is currently expanding quickly and surpassing the conventional purchasing method (Ha and Perks, 2005; Turban et al., 2017). Due to this circumstance, online retailers are entering the market quickly with fresh brand experiences for their clients, developing through creative web technology and online brand familiarity (Brakus et al., 2009; Park and Stoel, 2005). Experience is a display of a specific topic area with a relatively high degree of familiarity that is acquired by exposure (Braunsberger and Munch, 1998). Consumers' information search, e-WOM, and product usage, for instance, would be regarded as their experience if they had previously purchased products online. Thus, consumers' brand experience relates to their awareness of a brand as well as their responses to that brand through cognitions, behavioural responses, and familiarity (Brakus et al., 2009; Zarantonello and Schmitt, 2010). More significant than the qualities and advantages of a product is experience with the brand (Erdem and Swait, 2004; Ghodeswar, 2008). Brand familiarity, on the other hand, is defined as the length of time a consumer spent processing information about the brand (Baker et al., 1986). According to Chen and Wells (1999), consumers spend less time shopping for a familiar brand than one that is new. Compared to an unfamiliar brand, consumers are more eager to examine the websites in-depth of a well-known brand (Iglesias et al., 2011). According to the literature currently available, brand experience online is related to brand

familiarity online and affects consumer online purchasing behaviour (Kenny and Marshall, 2000; Reichheld and Schefter, 2000).

Based on the above discussion, this study adopts following model as the conceptual framework.

Conceptual Framework



7. Methodology

For this study, the quantitative research methodology was adopted. For investigating and gathering information like E-WOM, social media advertising, increased accessibility to information, and consumer purchasing behaviour, a thorough survey questionnaire was used. The first section of the survey asked questions to assess how much time people spent each day on social media. Participants' demographic information, including gender, age, and educational attainment, was also recorded in this section. In finding out what consumers thought of the study's main constructs, the questionnaire's last component was

designed. The basic data were derived by using a five-point Likert scale, with the values ranging from strongly disagree (1) to strongly agree (5).

Population for this study included the students of Bangladesh University of Professionals (BUP). Stratified sampling technique was used then to select sample from this population. Total 130 participants were selected as sample size. In making the sample representative, 8 undergraduate students (2 students from each of the four undergraduate batches) from each of the 16 departments of the university were chosen.

8. Result

The result section has been divided into four parts, to focus more specifically on the findings of the study.

8.1 Clicking Tendency

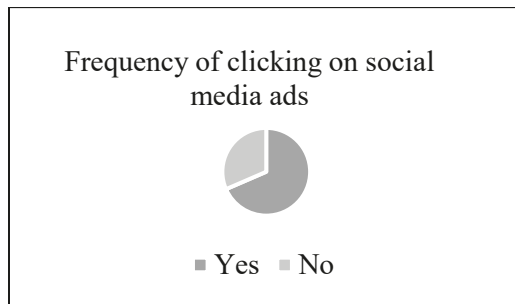


Figure 1

Figure 1 shows the clicking frequency of the respondents, while it has been found that 69% of the respondents frequently click on social media ads for various purposes.

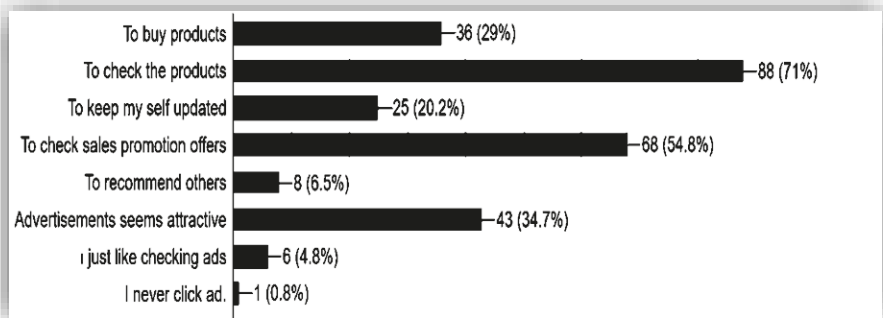


Figure 2

Figure 2 shows various reasons behind clicking on social media advertisements. The results indicate that most of the respondents initially click to check products or promotional offers. Noticeable thing is a significant number of users (34.7%) click because social media advertisements seem attractive to them.

8.2 Brand Familiarity and E-WOM

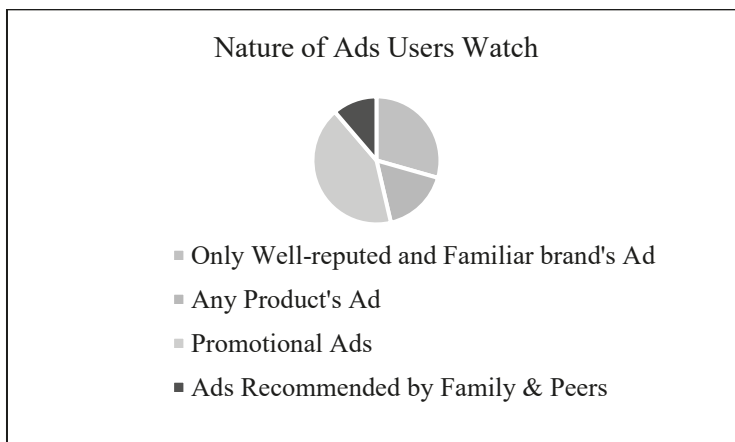


Figure 3

Figure 3 has revealed the reasons behind clicking on social media ads, which suggests that potential consumers tend to rely on familiar brand's ad (35%), but they check on promotional ads mostly (50%) in the initial stage.



Figure 4

Figure 4 demonstrates an interesting point. Though buyers watch all sorts of ads, while purchasing, they mostly depend on brand familiarity and E-WOM. As the graph shows, 57% rely on familiar and trustworthy brands for online purchasing, while 27% depend on E-WOM from friends and family members.

8.3 Influence of Social Media Ads in Online Purchasing Attitude

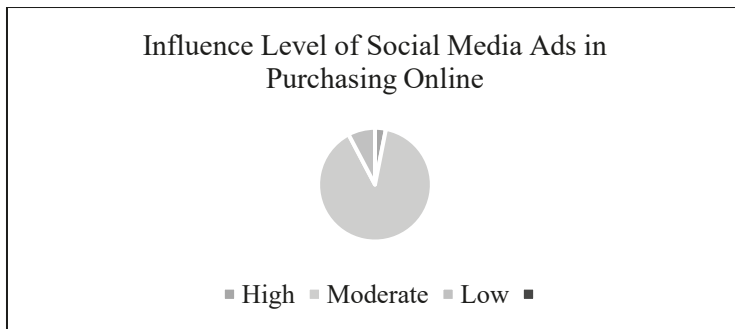


Figure 5

Figure 5 reveals how much the potential purchasers get influenced by social media advertisements. Findings suggest that the influence level stands at moderate level (89%), meaning they do not always get tempted or influenced by those ads, but often they are influenced by the ads.

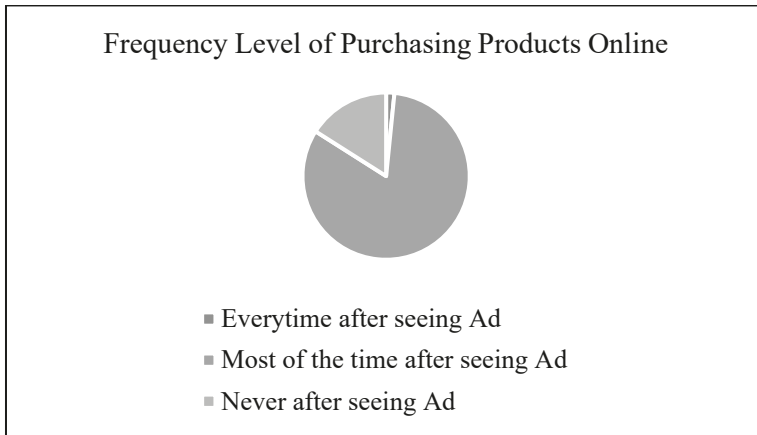


Figure 6

Figure 6 suggests the frequency level of purchasing products online after experience social media advertisements. Findings show that although the respondents do not purchase products always after seeing the ad, majority of them (82%) purchase products most of the time after seeing the ad in social media.

8.4 Overall Attitude towards Social Media Advertising and Online Purchasing Attitude

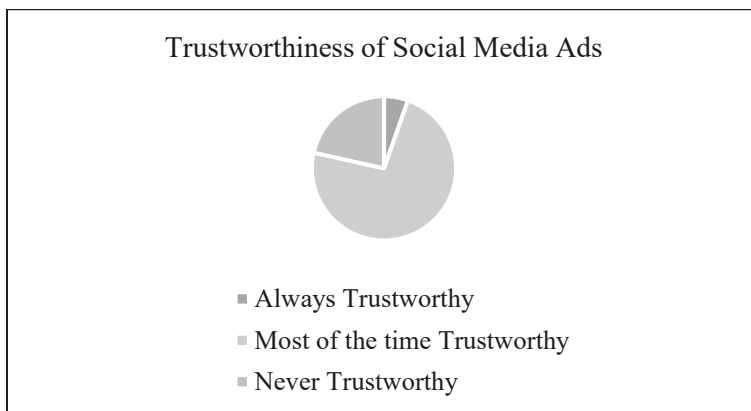


Figure 7

Figure 7 represents what the respondents perceive about the trustworthiness of social media ads. 22% of them said that social media ads promote fraudulency and are never trustworthy. 5% said that they can always put trust on social media ads, while the majority (73%) said that although ads are not always trustable, they can put their trust on social media ads most of the time.

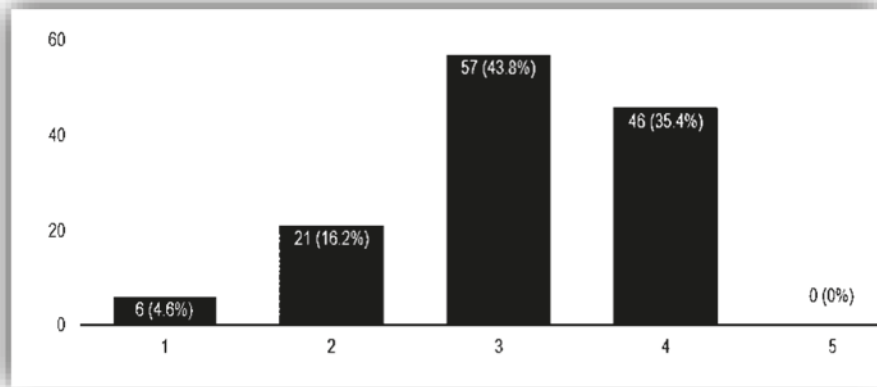


Figure 8

Figure 8 reveals the overall satisfaction level of the respondents regarding online purchasing after experiencing advertisements in social media. In a scale out of 5 (1= Extremely dissatisfied, 2= Dissatisfied, 3= Moderately satisfied, 4= Satisfied, 5= Extremely satisfied), nearly 80% of the respondents said that they are either satisfied or moderately satisfied with their experience in online purchasing through social media advertisements.

9. Discussion

Numerous notable literary works have looked at how people around the world shop online. However, there were still gaps related to the knowledge of Bangladeshi university students' e-consumer purchasing behaviors. To close the gaps, an analysis based on the created conceptual model was used in this study. Additionally, antecedents including the E-WOM, social media advertisements, and higher information accessibility were used to analyze consumers' attitudes toward online purchases.

Findings of this study suggest that online shopping has been an enjoyable experience and greatly influenced purchasing attitude of a significant number of

consumers (57.7%). A similar research has also demonstrated the beneficial effects of social media advertising (Rasool, 2015). A noticeable change in customer purchasing habits has occurred because of social media's increased effectiveness. However, this study showed that the Millennials are mostly comfortable with online purchasing. The results of the current study also support Mhlanga and Tichaawa's (2017) assertions that customers' experiences and purchase decisions may vary depending on their gender and age group in response to social media influence. Findings of this study reveal that women are more satisfied (56%) with online shopping experience than men.

E-WOM has also been regarded as one of the key influencing variables in customers' purchasing behavior, sensing the worldwide trends of competition. Due to the quick development of technology and the abundance of social media platforms, potential customers can be readily targeted based on their knowledge of the brand and the product at the outset (Tran, 2014). After all, consumer ratings and recommendations on social media have a significant impact on travelers. The research findings concur Court et al. (2009) and Sheenan (2010)'s claimed that technology plays a significant role in how modern customers gather information before making purchases. Additionally, testimonials and referrals from friends and family help customers develop trust in E-WOM. Similar findings have been found in this study, as 43% of the respondents said they depend on the reviews and word of mouth from friends and family.

As described in the conceptual framework, online brand familiarity and experience have an impact in purchaser's buying attitude. This study findings concur with this, as the study discovered substantial differences between buyers' clicking and buying behavior. While they may click on random site advertisements to check out convenient special deals, when purchasing a product, most of them opt for reputable and well-known sites.

When asked why they prefer to purchase online, most respondents cited two reasons: saving time and avoiding traffic jams on the highways. Aside from these factors, the convenience of online shopping and the range of money transactions available through Mobile Financial Service (MFS) are other factors in their decision to shop online. In terms of satisfaction, most of them are moderately satisfied. Nearly 80% of those polled claimed that online shopping has met their needs and that they are satisfied in some way.

This study also found that peripheral route was more influential than the central route while choosing for online shopping, as E-WOM played a vital role in shaping up consumers' attitude. Word-of-Mouth from friends and family often shaped their perceptions and choice regarding online purchasing.

10. Conclusion & Recommendation

Online purchasing has no more been found to be only a luxury, rather an increasing requirement among consumers, particularly young ones who are primarily social media savvy. Unbearable traffic congestion, the rise of MFS, various cashback offers on online payments, and other factors are encouraging young people to shop online. They search for various products online, and social media platforms such as Facebook, Instagram, and Youtube use Artificial Intelligence (AI) to offer similar product ads on their social media timelines. Young university students are impacted by social media marketing and maintain a favorable attitude toward them. Other variables that may lead to low response include mistrust of social media marketing, the irrelevant nature of the advertised goods or services, and the fear of being a victim of fraud, according to the study. This supported previous findings that stated that advertising alone cannot lead to purchase; rather, it must be combined with other considerations. As a result, the usage of social media should not be considered as the answer to media concerns relating to advertising communication, but rather as a complement to existing advertising communication tactics. The link between customer attitude and consumer behavior is a worldwide phenomenon. This study looked at the value of advertising and marketing, buyer attitudes, and consumer behavior. Because of the link between advertising and marketing value and customer attitude, advertisers should take a unique approach to deal with success. Advertisers should focus on advertising values to obtain successful and positive responses from young consumers by utilizing the above-mentioned belief components. As a result, the good value will contribute to a favorable mood, resulting in beneficial clicks that lead to purchases. Advertisers should also keep in mind that customer perceptions of social media marketing and brands are strongly linked to purchase intent.

The research, however, is not without limitation. Other than Bangladesh University of Professionals, this study could not cover any other university. Further research might be conducted using samples from different universities, which would help to better understand the total online purchase pattern of university students and give a more comprehensive picture.

References

- Afrin, S. 2021, 9 June. Facebook users in the country have increased to about one crore. *Prothom Alo*. Retrieved from <https://tinyurl.com/bddw3p3n>
- Alalwan, A. A. 2018. Investigating the impact of social media advertising features on customer purchase intention. *International Journal of Information Management*, 42. pp. 65-77.
- Arndt, J. 1967. Role of product-related conversations in the diffusion of a new product. *Journal of Marketing Research*, 4(3). pp. 291-295.
- Arora, T. & Agarwal, B. 2019. Empirical study on perceived value and attitude of millennials towards social media advertising: a structural equation modelling approach. *Vision*, 23(1). pp. 56-69.
- Arora, T., Kumar, A., & Agarwal, B. 2020. Impact of social media advertising on millennials buying behaviour. *International Journal of Intelligence Enterprise*, 7(4). pp. 481-500.
- Baker, W., Hutchinson, J., Moore, D. & Nedungadi, P. 1986. Brand familiarity and advertising: effects on the evoked set and brand preference, in Lutz, R.J. (Ed.), *Advances in Consumer Research*. Vol. 13, Association for Consumer Research, Provo, UT, pp. 146-147.
- Bilal, G., Ahmed, M. A. & Shahzad, M. N. 2014. Role of Social Media and Social Networks in Consumer Decision Making: A Case of the Garment Sector. *International Journal of Multidisciplinary Sciences and Engineering*, 5(3).
- Brakus, J.J., Schmitt, B.H. and Zarantonello, L. 2009. Brand experience: what is it? How is it measured? Does it affect loyalty? *Journal of Marketing*, 73(3), pp. 52-68.
- Braunsberger, K. and Munch, J.M. 1998. Source expertise versus experience effects in hospital advertising, *Journal of Services Marketing*, 12(1), pp. 23-38.

- Bronner, F. & Hoog, R. (2010). Consumer-generated versus marketer-generated websites in consumer decision making. *International Journal of Market Research*, 52(2). pp. 231-248.
- Bunker, M. P., Rajendran, K. N., Corbin, S. B., & Pearce, C. 2013. Understanding ‘likers’ on Facebook: differences between customer and non-customer situations. *International Journal of Business Information Systems*, 12(2). pp. 163-176.
- Butler, P. & Peppard, J. 1998. Consumer purchasing on the Internet: Processes and prospects. *European Management Journal*, 16(5). pp. 600-610.
- Chen, Q. and Wells, W.D. (1999). Attitude toward the site. *Journal of Advertising Research*, 39(5), pp. 27-38.
- Cheung, C. M. & Thadani, D. R. 2012. The impact of electronic word-of-mouth communication: a literature analysis and integrative model, *Decision Support Systems*, 54(1), pp. 461-470.
- Chung, J. Y. & Buhalis, D. 2008. Information needs in online social networks, information sector in Greece. *Journal of Hospitality and Tourism Research*, 27(4). pp. 375-401.
- Court, D., Elzinga, D., Mulder, S. & Vetvik, O. J. 2009, June 01. The consumer decision journey. McKinsey Quarterly. Retrieved from <https://www.mckinsey.com/capabilities/growth-marketing-and-sales/our-insights/the-consumer-decision-journey>
- Du Plessis, P. J., Rousseau, G. G., & Blem, N. H. 1990. *Consumer Behaviour: A South African Perspective*. Southern Book Publishers.
- Edelman, D. C. 2010. Four ways to get more value from digital marketing. *McKinsey Quarterly*. Retrieved from <https://www.mckinsey.com/capabilities/growth-marketing-and-sales/our-insights/four-ways-to-get-more-value-from-digital-marketing>
- Erdem, T. & Swait, J. 2004. Brand credibility, brand consideration, and choice. *Journal of Consumer Research*, 31(1), pp. 191-198.

- Filieri, R. & McLeay, F. 2014. E-WOM and accommodation: an analysis of the factors that influence travelers' adoption of information from online reviews. *Journal of Travel Research*, 53(1), pp. 44-57.
- Ghodeswar, B.M. 2008. Building brand identity in competitive markets: a conceptual model. *Journal of Product & Brand Management*, 17(1), pp. 4-12.
- Ha, H.Y. & Perks, H. 2005. Effects of consumer perceptions of brand experience on the web: brand familiarity, satisfaction and brand trust. *Journal of Consumer Behaviour*, 4(6), pp. 438-452.
- Haida, A. & Rahim, H. L. 2015. Social media advertising value: a study on consumers' perception. *Technology*, 1(1). pp. 1-8.
- Hamel, G. & Sampler, J. 1998. The e-corporation (online e-commerce building a new industrial order). *Fortune*, December (7).
- Hamouda, M. 2018. Understanding social media advertising effect on consumers' responses: an empirical investigation of tourism advertising on Facebook. *Journal of Enterprise Information Management*, 31(3). pp. 426-445.
- Hanaysha, J. 2016. The Importance of Social Media Advertisements in Enhancing Brand Equity: A Study on Fast Food Restaurant Industry in Malaysia. *International Journal of Innovation, Management and Technology*, 7(2). pp. 46-51.
- Henning-Thurau, T., Gwinner, K. P., Walsh, G. & Gremler, D. D. 2004. Electronic word-of-mouth via consumer-opinion platforms: what motivates consumers to articulate themselves on the Internet? *Journal of Interactive Marketing*, 18(1). pp. 38-52.
- Horner, S., & Swarbrooke, J. 2016. *Consumer Behaviour in Tourism*, Routledge.
- Iglesias, O., Singh, J.J. & Batista-Foguet, J.M. 2011. The role of brand experience and affective commitment in determining brand loyalty. *Journal of Brand Management*, 18(8), pp. 570-582.

- Jiang, Z., Chan, J., Tan, B. C., & Chua, W. S. 2010. Effects of interactivity on website involvement and purchase intention. *Journal of the Association for Information Systems*, 11(1). pp. 34-59.
- Jones, B. 2010. Entrepreneurial marketing and the Web 2.0 interface. *Journal of Research in Marketing and Entrepreneurship*, 12(2), pp. 143-152.
- Kamboj, S., Sarmah, B., Gupta, S., & Dwivedi, Y. 2018. Examining branding co-creation in brand communities on social media: Applying the paradigm of Stimulus-Organism response. *International Journal of Information Management*, 39(April). pp. 169-185.
- Kapoor, K. K., Tamilmani, K., Rana, N. P., Patil, P., Dwivedi, Y. K., & Nerur, S. 2017. Advances in social media research: Past, present and future. *Information Systems Frontiers*, pp. 1–28.
- Kenny, D. & Marshall, J.F. 2000. Contextual marketing. *Harvard Business Review*, 78(6), pp. 119-125.
- Kim, N., & Kim, W. 2018. Do your social media lead you to make social deal purchases? Consumer-generated social referrals for sales via social commerce. *International Journal of Information Management*, 39(April), pp. 38–48.
- Kimmel, A. J. & Kitchen, P. J. 2014. WOM and social media: presaging future directions for research and practice. *Journal of Marketing Communications*, 20 (1-2). pp. 5-20.
- Kumar, J., Konar, R., & Balasubramaniam, K. 2020. The Impact of Social Media on Consumers' Purchasing Behaviour in Malaysian Restaurants. *Journal of Spatial and Organizational Dynamics*, 8(3). pp. 197-216.
- Lee, K., Conklin, M., Bordi, P., & Cranage, D. 2016. Restaurants' healthy eating initiatives for children increase parents' perception of CSR, empowerment, and visit intentions. *International Journal of Hospitality Management*, 59, pp. 60-71.

- Lee, J. & Hong, I. B. 2016. Predicting positive user responses to social media advertising: the roles of emotional appeal, informativeness, and creativity. *International Journal of Information Management*, 36(3). pp. 360-373.
- Lin, C. A., & Kim, T. 2016. Predicting user response to sponsored advertising on social media via the technology acceptance model. *Computers in Human Behavior*, 64(November), pp. 710–718.
- Martins, J., Costa, C., Oliviera, T., Goncalves, R., & Branco, F. 2019. How smartphone advertising influences consumers' purchase intention. *Journal of Business Research*, 94(1). pp. 378-387.
- Mhlanga, O. & Tichaawa, T. M. 2017. Influence of social media on customer experiences in restaurants: A South African study. *TOURISM*, 65(1). pp. 45-60.
- Nabity-Grover, T., Cheung, C. M. K. & Thatcher, J. B. 2020. Inside out and outside in: How the COVID-19 pandemic affects self-disclosure on social media. *International Journal of Information Management*, 55.
- Okazaki, S. & Taylor, C. R. 2013. Social media and international advertising: theoretical challenges and future directions. *International Marketing Review*, 30(1). pp. 56-71.
- Okumus, B. & Bilgihan, A. 2014. Proposing a model to test smartphone users' intention to use smart applications when ordering food in restaurants. *Journal of Hospitality Tourism Technology*, 5(1). pp. 31-49.
- Orzan, G., Iconaru, C., Popescu, I. C., Orzan, M. & Macovei, O. I. 2013. PLS-based SEM analysis of apparel online buying behaviour: the importance of EWOM. *Industria Textilă*, 64(6). pp. 362-367.
- Park, J. and Stoel, L. 2005. Effect of brand familiarity, experience and information on online apparel purchase, *International Journal of Retail & Distribution Management*, 33(2), pp. 148-160.

- Petty, R.E., Cacioppo, J.T. and Schumann, D. 1983. Central and peripheral routes to advertising effectiveness: the moderating role of involvement, *Journal of Consumer Research*, 10(2), pp. 135-146.
- Popescu, D. I., Popa, I., Cicea, C. & Iordănescu, M. 2013. The expansion potential of using sales promotion techniques in the Romanian garments industry. *Industria Textilă*, 64(5). pp. 293-300.
- Porter, M. E. 2001. Strategy and the internet. *Harvard Business Review*, 79(3), pp. 63-78.
- Prasath, P. & Yoganathen, A. 2018. Influence of Social Media Marketing on Consumer Buying Decision Making Process. *SLIS Student Research Journal*.
- Rahman, M. A., Islam, M. A., Esha, B. H., Sultana, N., & Chakravorty, S. 2018. Consumer buying behaviour towards online shopping: An empirical study on Dhaka city, Bangladesh. *Cogent Business and Management*.
- Rahman, M. S. & Mannan, M. 2018. Consumer online purchase behaviour of local fashion clothing brands: Information adoption, e-WOM, online brand familiarity and online brand experience. *Journal of Fashion Marketing and Management*, 22(3). pp. 404-419.
- Rasool, M. G. 2015. Consumer's behaviour and effectiveness of social media. *Global Journal of Management Business Research*, 14(8). pp. 57-62.
- Rathore, A. K., Ilavarasan, P. V., & Dwivedi, Y. K. 2016. Social media content and product co-creation: an emerging paradigm. *Journal of Enterprise Information Management*, 29(1). pp. 7-18.
- Regelson, M. & Fain, D. 2006. Predicting click-through rate using keyword clusters. *Proceedings of the second workshop on sponsored search actions*, 96(23). pp. 1-6.
- Reichheld, F.F. & Scheffer, P. 2000. E-loyalty: your secret weapon on the web. *Harvard Business Review*, 78(4), pp. 105-113.
- Reid, R. D. & Bojanic, D. C. 2009. *Hospitality Marketing Management* (5th ed.). John Wiley and Sons.

- Reyes-Menendez, A., Saura, J. R. & Filipe, F. 2019. The importance of behavioural data to identify online fake reviews for tourism businesses: A systematic review. *PeerJ Computer Science*, 5.
- Saxena, A. & Khanna, U. 2013. Advertising on social network sites: a structural equation modelling approach. *Vision*, 17(1). pp. 17-25.
- Shi, X. & Liao, Z. 2015. The impact of social media on consumer involvement in e-markets. In *Academy of Management Proceedings*, 2015(1). Academy of Management.
- Sigala, M. 2003. Developing and benchmarking internet marketing strategies in the hotel sector in Greece. *Journal of Hospitality Tourism Research*, 27(4). pp. 375-401.
- Sheehan, B. 2010. *Basics Marketing 02: Online Marketing*. AVA Publishing.
- Sotelo, E. N. 2017. Social and cultural implications of the new communications technologies: its human rights education challenges in the current century. *Rights and Science: R&S*, pp. 81-100.
- Sundar, S. S., Bellur, S., Oh, J., Xu, Q., & Jia, H. 2014. User experience of on-screen interaction techniques: an experimental investigation of clicking, sliding, zooming, hovering, dragging, and swiping. *Human-Computer Interaction*, 29(2). pp. 109-152.
- Štefko, R.; Bačák, R.; Fedorko, I. 2014. Facebook content analysis of banks operating on Slovak market. *Polish Journal of Management Studies*, 10(1).
- Taha, V. A., Pencarelli, T., Škerháčková, V., Fedorko, R., & Košíková, M. 2021. The Use of Social Media and Its Impact on Shopping Behavior of Slovak and Italian Consumers during COVID-19 pandemic. *Sustainability*, 13.
- Turban, E., Outland, J., King, D., Lee, J.K., Liang, T.P. & Turban, D.C. 2017. *Electronic Commerce 2018: A Managerial and Social Networks Perspective*, Springer.

- Ulusu, Y. 2010. Determinant factors of time spent on Facebook: Brand community engagement and usage types. *Journal of Yasar University*, 18(5). pp. 2949-2957.
- Wang, Y. & Sun, S. 2010. Assessing beliefs, attitudes, and behavioural responses toward online advertising in three countries. *International Business Review*, 19(4). pp. 333-344.
- Ward, P., Davis, B. J., & Wright, H. 1998. The diffusion of interactive technology at the customer interface. *International Journal of Services Technology and Management*, 1(1). pp. 58-82.
- Weaver, P., Jansen, L., Van Grootveld, G., Van Spiegel, E., & Vergragt, P. 2017. *Sustainable Technology Development*, Routledge.
- Vermeulen, I. E. & Seegers, D. 2009. Tried and tested: The impact of online hotel reviews on consumer consideration. *Tourism Management*, 30(1). pp. 123-127.
- Vollmer, C. & Precourt, G. 2008. *Always On: Advertising, Marketing and Media in an Era of Consumer Control*. McGraw Hill.
- Voramontri, D. & Klieb, L. 2018. Impact of Social Media on Consumer Behaviour. *International Journal of Information and Decision Sciences*, 10.
- Yan, Q., Wu, S., Wang, L., Wu, P., Chen, H. & Wei, G. 2016. E-WOM from e-commerce websites and social media: which will consumers adopt? *Electronic Commerce Research and Applications*, 17, pp. 62-73.
- Zarantonello, L. & Schmitt, B.H. 2010. Using the brand experience scale to profile consumers and predict consumer behaviour, *Journal of Brand Management*, 17(7), pp. 532-540.

- Zhu, Y. Q., & Chen, H. G. 2015. Social media and human need satisfaction: Implications for social media marketing. *Business Horizons*, 58(3), pp. 335–345.

An Exploration of the Mechanism for Adapting to Flood Induced Vulnerabilities in Gaibandha, Bangladesh

63

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Abstract

The study explores the flood-induced vulnerabilities and attempts to explain the mechanism for dealing with them in northern Bangladesh. The study adopted both quantitative and qualitative methods to explore specific objectives. For the quantitative method, a structured questionnaire was administered to randomly selected 80 respondents from selected two villages in Sundarganj Upazila, part of Gaibandha district in 2019 from August 1 to September 30. Regarding the qualitative method, nine in-depth interviews were conducted with key informants. The study found that the local people are experiencing many problems regarding their livelihoods, livestock, agricultural production, infrastructure, and communications. Early preparation and experiences guided the respondents to successfully tackle and reduce the damage caused by flood. This study recommends rehabilitating abandoned channels through extensive annual dredging and re-excavation of rivers and canals, which will enhance the river water-carrying capacity to curtail recurring floods in the north of Bangladesh. Finally, people need to be trained and conscious about floods so that they can functionally adapt to flood situation with the aid of other organizations.

Key Words: Climate Change, Flood, Adaptation, Vulnerability, Sundarganj, Gaibandha District.

1. Introduction

Flooding is regarded as the number one cause of losses from natural events worldwide, and no region is safe from being flooded (Kron, 2005). Bangladesh,

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due to its geography, is prone to many kinds of natural disasters, including floods, droughts, tornadoes, river bank erosion, earthquakes, and water logging (Rahman and Islam, 2013; Saha and Barman, 2015). Catastrophic floods of 1988, 1998, 2004, and 2007 seriously affected Bangladesh, which resulted in the inundation of nearly two-thirds of the country's area, causing devastating effects on people, infrastructure, and resources (Azad, Hossain and Nasreen, 2013; Nasreen, Azad and Zahid, 2017; Pudyastuti and Nugraha, 2018).

The losses of life, destructions of property, and damages of agricultural crops, caused by floods all exacerbate poverty, preventing people from doing their regular activities (Tasneem and Shindaini, 2013; Barman and Islam, 2020). Even many poor and destitute people remain unemployed during and after serious natural calamities (CARE, 2011). Both men and women encountered various challenges, which were caused especially by widespread flooding. Evidence shows that from 1954 to 2017, Bangladesh experienced at least 58 major floods while 20,039 people died, and also millions of people were affected owing to catastrophic floods throughout the last 47 years (Relief MODMA, 2014). In the country's northern regions, people suffer severe economic, social, physical, agricultural, and psychological vulnerabilities (Rahman, 2012; Azad, Hossain and Nasreen, 2013; FAO, 2021). There are several Governments (GOs) and Non-government organizations (NGOs) working in the study areas, and they should come forward to help the flood-affected people and extend their help in different phases by taking numerous measures as needed for the adaptation of the community.

Therefore, the general objective of the study is set to explore the adaptation strategies of people living in the *Gaibandha* district, Bangladesh, when vulnerabilities emerge. Again, we set few specific objectives; to find the flood induced vulnerabilities among the people living in the study area; to explain the flood adaptation process involving preparation, response, mitigation, and recovery. Finally, some evidence-based policies for reducing respondents' flood vulnerabilities are suggested.

2. Problem Statement

Since Bangladesh lies in the largest delta in the world and at the mouth of the Ganges, Brahmaputra, and Meghna rivers, the risk of floods is greatly multiplied (Islam, 2016; Bocanegra, 2021). In particular, floods during the monsoon season force people to adjust to a riskier lifestyle year after year. Furthermore, excessive

rainfall and rivers connected to India cause alarming floods in northern districts like Kurigram and *Gaibandha*. When the water of the river Jamuna overflows, the chances of severe floods increase and pose a serious threat to the residents of the region.

This is exactly the reason why floods in *Gaibandha* have become a regular occurrence in the northern part of Bangladesh. Approximately 21 districts of northern, north-eastern, and south-eastern Bangladesh are mostly affected due to the continuation of week-long monsoon rains in the upstream regions and throughout the country (Bangladesh Red Crescent Society [BRCS], 2019). In particular, the flood situation worsens hundreds of thousands of people's livelihoods, leads to food and drinking water shortages, and triggers widespread waterborne diseases (International Federation of Red Cross and Red Crescent Societies [IFRCS], 2020). For instance, the floods in 1954 caused extensive damage to the *Gaibandha* region, and the entire town of *Gaibandha* was under a few feet of water. Massive floods hit the area again in 1974 and 1978, and people witnessed an extensive loss of life, property, and crops. The lack of food led to famine throughout the country. In the 1998 flood, the Brahmaputra defense dam, the switch gate of *Rasulpur*, was broken by strong waves of the flood, which drowned the entire municipal area of *Gaibandha* (Bangladesh National Portal, 2021). A few studies observed that flooding in northern Bangladesh exacerbates the people's vulnerabilities. The people of *Gaibandha* suffered the worst floods in recent years, ending in shortages of drinking water, and loss of life and resources (Azad, Hossain and Nasreen, 2013). Moreover, it is evident that the collapse of a dam located near the district caused devastating floods at five Upazilas in the district (The Daily Dhaka Tribune, 2019). About 4 lakh people were suddenly flooded, and the district's railway communications with other northern districts were closed for several days. A good number of educational institutions and thousands of homes in the district were submerged for a couple of weeks. The inhabitants of the area seriously suffered from the scarcity of food and drinking water, besides hygienic sanitation was endangered (The Daily Dhaka Tribune, 2019). A few years ago, the 2019 floods inundated at least 70,000 hectares of paddy and vegetable fields, affecting both farmers and consumers, mainly in the *Gaibandha* district (The Daily Star, 2019). It is important to mention that very few academic studies have been conducted on the vulnerabilities of the flood affected people.

3. Literature Review

Some research has been published on examining people's vulnerabilities and exploring their adaptive capacities in the event of natural hazards, such as floods. Some scholars reviewed a few papers which shed light on flood disaster management in some Asian nations such as Bangladesh, China, India, and Pakistan. They explored the pre and post-disaster risk programs in tackling flood hazards, and explored emergency response and recovery, flood mitigation, and management strategies (Islam *et al.*, 2016). Another study explored that the vulnerabilities and encountered problems, especially by the women in the flood affected places of northern Bangladesh. They identified that poor and disadvantaged women were more vulnerable than men when floods occurred in Sirajganj District, the northern part of Bangladesh (Azad, Hossain and Nasreen, 2013).

Mishra and Mishra (2010) examined vulnerability and adaptation analysis in flood-affected areas of Orissa, they found that a number of factors need to be integrated on climate policy, which will have an adaptive solution in a sustainable way. The factors include the sequencing of adaptation options adapted by the people responding to a particular event. They emphasized on coping mechanisms of the agricultural households during the flood period (Mishra and Mishra, 2010).

A study found that poor people in the rural areas of Bangladesh, particularly in the Goalanda Upazila, part of the Rajbari district, lose their jobs during floods. They showed that income levels fall, it means people do not have the ability to prepare sufficiently or respond to disasters when floods occur (Parvin *et al.*, 2016). In recent work, it is noted that floods worsen people's lives in the char villages of Bangladesh. They identified a few core drivers of flood vulnerabilities which were fragile social network, insufficient food, water and lack of modern health facilities. The study revealed that such people were forced to take on high-interest loans from various organizations to make ends meet in the wake of a flood (Hossain, Sohel and Ryakitimbo, 2020). From the study by Emran (2019), it is argued that floods caused enormous damage to lives, crops, animals and in turn, the national economy was gravely affected. The practices of seed storage, collecting vegetables, and guarding livestock and poultry were all seriously flawed as they were not enough to help people during flood events (Emran, 2019).

4. National Capacity Building on Climate Change (NCBCC) Framework

The following framework regarding ‘National Capacity Building on Climate Change’ proposed by Huq and Ayers in 2008 and which was adopted in ‘Mainstreaming climate change adaptation into development in Bangladesh’ by Ayers, *et al.*, 2014 and the researchers of the present study also evaluated the framework for its suitability in attaining the objectives of the present study. The framework details ‘Four Steps’ which involve awareness raising, targeted information, pilot activities, and mainstreaming for enhancing knowledge and skills to effectively tackle climate change issues nationwide. The researchers adopted ‘Step 1’ of the framework, which shed light on ‘raising awareness and building scientific capacity’ for successfully tackling any natural hazards such as floods. As the study focused on the exploration of the mechanism of adaptation to flood-induced vulnerabilities in Gaibandha, Bangladesh, the present research highlighted the first slice of the framework. The framework's first step critically addressed the people's existing capacities in tackling any natural hazards, such as floods. It, further, facilitated the enhancement of people’s survival strategies to cope with any hazards coming ahead successfully.

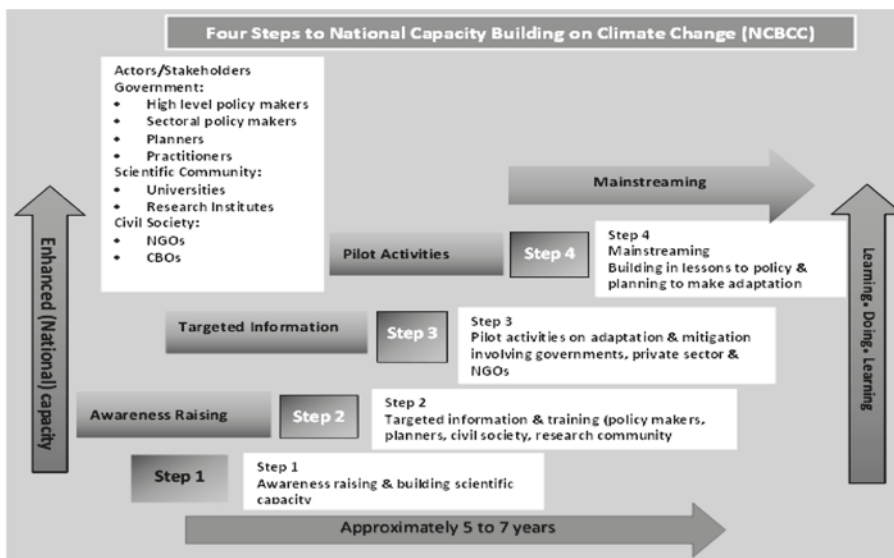


Figure 1: Framework on National Capacity Building on Climate Change (NCBCC)

(Source: (Huq and Ayers, 2008)

5. The Conceptual Framework

In order to address the research objectives, we have explained the NCBCC framework. We have constructed the conceptual framework illustrated below by investigating ‘Step-1’ of the NCBCC framework. The conceptual framework consists of four major concepts, which are Mitigation, Preparedness, Response, and Recovery. These are explained in more detail below.

6. Mitigation

Mitigation sheds light on long-term measures for reducing or eliminating risk, such as evacuation, sanctions against those who refuse to obey the regulations, and communication of risks to the public (Tasneem and Shindaini, 2013; Sena and Kifle, 2016). The structural measures of the mitigation phase largely use technological solutions to prevent flood disasters. For example, in Gaibandha, the perceived probability of flood influenced households to take structural mitigation measures (Mondal, Murayama and Nishikizawa, 2021).

7. Preparedness

Preparedness highlights the enhancement of abilities to prevent, protect against, mitigate, and respond to, the effects of potential natural disasters, including better communication strategies, practical training, improved warning signals, disaster supplies, and equipments (Asian Disaster Preparedness Center, 2009). For example, in northern Bangladesh, by getting real information on time, vulnerable and affected people can save their lives and properties with the support staff of GOs and NGOs concerning disaster-related activities in the diverse territory of Bangladesh (Hossain, 2020).

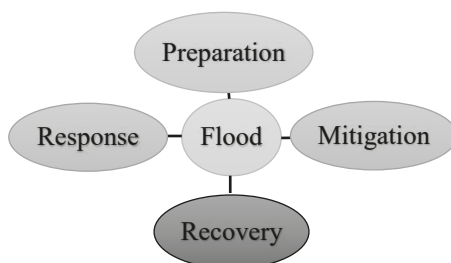


Figure 2: Conceptual framework of flood management
(Source: Framework devised by J. Ayers *et al.*, 2014)

8. Response

This phase of flood management focuses on mobilizing the necessary emergency tools, and services required in the disaster affected area. The core emergency services are given priority, and thus firefighters, police, and ambulance crews play significant roles during this phase. The combination of structure, doctrine, process, and agility with creativity, improvisation, and adaptability are given a lot of emphasis in responding to natural hazards (Zhou, Wang and Wang, 2016).

9. Recovery

This phase involves rebuilding destroyed property, re-employment, and the repair of other essential infrastructure (U.S. Department of Homeland Security, 2014). The Gaibandha model suggests such intervention to the resilience of Gaibandha. These are; strengthening people with disabilities and their representative groups; advocating with the local government; building accessible infrastructure; strengthening household-level disaster risk awareness and preparedness; promoting and supporting sustainable, resilient livelihoods (Rothe, Brown and Neuschäfer, 2018).

10. Methodology of the Study

10.1 Research Design

The study employed a mixed method approach to answer the questions and attain the objectives. This strategy also helped to triangulate the data and the analysis process. The qualitative method enabled us to collect more in-depth information about flood vulnerability in the study area. We prepared an interview guide for conducting interviews and Focus Group Discussions (FGDs). Besides, a structured questionnaire was constructed for face-to-face interviews. A review of the secondary data helped us to consolidate the study rationale's logical underpinnings. A pretest session was administered using an interview guide and structured questionnaire with people not part of the respondents' sample.

10.2 Selection of Study Area and informants

We have applied various sampling procedures to select the study area and respondents. Employing purposive sampling, we selected Sundarganj Upazila, which is located in Gaibandha district and part of *Rangpur* division. We chose this Upazila for a couple of reasons, for instance, the area is considered very

flood prone, and the Upazila is near where the researchers currently live. So, it was convenient for collecting data relevant to the study objectives. Referring to the second stage, applying simple random sampling procedures, the present study selected two villages from *Sundarganj* Upazila.

10.3 Research Informants

Based on simple random sampling, we chose 80 respondents consisting of big, medium, small and marginal farmers – these designations refer to how much land they possessed. We chose informants from all clusters of farmers to get as much equal representation as possible of the population. This helped us to draw a conclusion which reflected the views of all the people and understand their experiences while living in the study area. In the process, we selected 40 respondents proportionately from each village.

10.4 Methods and Procedure

10.4.1 Mixed Methods: Structured Questionnaire and In-depth Interview

We applied a mixed method research strategy to collect and analyze the data. As part of the quantitative method, we prepared a structured questionnaire that surveyed selected respondents randomly. We conducted face-to-face interviews by applying the structured questionnaire. The principal researcher conducted these interviews after receiving oral consent from the sample respondents. In order to present the quantitative data, we used SPSS16 for descriptive analysis. We also prepared an interview guide to conduct in-depth interviews with nine informants in the study area, and they were selected based on where they live and their experiences. We collected the data from August 1 to September 30 in 2019. Finally, we used thematic analysis to analyze and present the qualitative data.

10.5 Ethical Considerations

We obtained oral consent from the informants before conducting face-to-face and in-depth interviews. Additionally, we clearly articulated to the respondents the purpose of our study to ensure voluntary participation in this research. Questions were also repeated whenever required, and examples were added for clarification.

10.6 Limitations

Due to budget and time constraints, we selected 80 respondents for structured interviews and 9 other people for in-depth interviews. It emerged that the amount of collected information from respondents might not be sufficient to draw a definitive conclusion. However, the findings will truly guide us in taking the proper steps to reduce flood-related vulnerabilities among the inhabitants of the study area.

11. Results and Discussion

11.1 Socio-Demographic Characteristics of the Respondents

The socio-demographic characteristics of the respondents according to age, gender, marital status, education level, income, location, etc., provide a comprehensive picture of each respondent. These features, moreover, illustrate some of the outcomes that are applied for describing a starting point for any research. The socio-demographic details of the respondents (see Table 1) revealed that most people are male (68.8%) while the rest are female (31.2%).

In terms of age, we found that most participants were in the 30-39 cohort, which accounted for 33.8%, followed by the age ranges: '20 to 29', '40 to 49', '50 to 59', '60 and above' and '10 to 19' years. These accounted for 31.3%, 18.8%, 11.3%, 3.8%, and 1.3%, respectively. The table revealed that most of the respondents are illiterate and amounting to 52.5% of the sample, while 26.2% of respondents passed some primary school level of education. It, moreover showed that only 1.3% of respondents have a graduate degree, and 3.8% of respondents had attained higher secondary school. The rest of the respondents (16.2%) had achieved a secondary level of education. Regarding profession, we observed that farmers are the predominant group at 44%, while 8% of respondents are involved with business and the rest are engaged in other activities, but they did not state what these were. When we asked about their level of income, 37.7% of respondents replied their monthly income is below 1000 BDT. We did not find that anyone's income above 5000BDT, meaning that most incomes were minimum at best, which was fairly widespread. It is also observed that the second highest number of respondents (21.3%) had incomes between 3000 and 3900 BDT, while 18.8% of respondents' monthly income was between 1000 and 1900 BDT. The remaining of the respondents' income ranged from 2000 to 2900 BDT.

Table 1: Information concerning the respondents

Characteristics		N (Number)	% (Percentage)
Gender	Male	55	68.8
	Female	25	31.2
		N=80	N=100
Age (year)	10-19	1	1.3
	20-29	25	31.3
	30-39	27	33.8
	40-49	15	18.8
	50-59	9	11.3
	60+	3	3.8
		N=80	100%
Education	Illiterate	42	52.5
	Primary	21	26.2
	Secondary	13	16.2
	H. Secondary	3	3.8
	Honors/BA/BSS	1	1.3
		N=80	100%
Village	Chandipur	40	50
	South Rajibpur	40	50
		N=80	100%
Profession	Business	8	10
	Farmer	44	55
	Other	28	35
		N=80	100%
Monthly Income	Less than 1000 TK	30	37.6
	1000-1900 TK	15	18.8
	2000-3900 TK	8	10
	4000-4900 TK	17	21.3
	5000+ TK	10	12.5
		N=80	100%

(Source: Field survey, 2019)

11.2 Flood Induced Vulnerabilities

11.2.1 Impact on Public Life

The study examined the ‘first step’ of the theoretical framework and explored the specific objectives following the conceptual framework. The framework highlighted that investigating mitigation, preparedness, response, and recovery strategies among the informants could be brilliant ways to answer the research objectives. The study demonstrated that floods cause mass losses of properties and lives, including social and economic spheres. On this issue, one in-depth interviewee remarked:

My name is Shahidul Islam, living in Chandipur village. I am one of the permanent residents of this area. I observed many floods occurring in my locality since time immemorial. I suppose flood hazards are mainly caused by natural events; thus, we do not have any impact on the hazardous event. However, I must state that the number and velocity of floods have increased now-a-days due to the construction of some dams in the midpoint of a few major rivers (A 48-year-old male, own translation, Chandipur).

Figure 3 below depicts respondents’ perceptions on the level of vulnerability caused by floods in the study area. About 50% of people opined that they experience very high levels of vulnerability due to flood, meaning that they are essentially trapped when the flood occurs in their locality, while 20% of respondents experience high levels of vulnerability if the natural hazard occurs where they live. Concerning this issue, Md. Yusuf Alias explained the situation:

I have been living in the area for about 30 years, just after migrating from the neighboring village. We are seriously helpless in front of any flood events. We usually lose our earning sources during the period and cannot afford to buy necessary food and other stuffs on a daily basis. Apart from this, we lose our domestic animals during this period, as we cannot manage proper accommodation during the flood period when every house goes under water (A 54-year-old male, own translation, South Rajibpur).

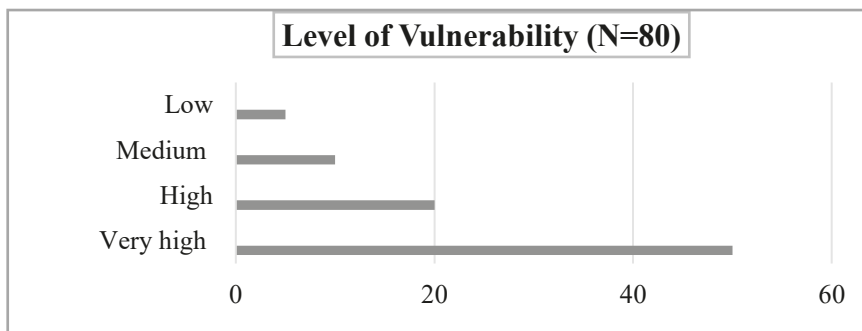


Figure 3: Levels of socio-economic vulnerability caused by floods
(Source: Field survey, 2019)

11.3 Impact on Agro-Production System

The results revealed the effect of floods on agricultural production in the study area. We found that crops such as *rabi* crop, *kharif* crop, were most affected by the floods, and this claim was supported by 41.3% of respondents. About 35% of respondents stated that floods cause livestock deaths, which happened due to lack of food and shelter during the natural hazards period. Following this, various waterborne diseases are spread by floods, a topic noted by 35% of respondents. Floods, moreover, obstructed the production of food, according to 8.8% of respondents. In this regard one in-depth interviewee added her comments:

My name is Sumita Das, 64 years old. I am one of the elderly residents of this village. Most of the people lost their seasonal crops in the last year's flood that affected all the residents living here. I produced a paddy at about 4 acres of land which I was about to harvest; however, I could not get them to my house. It happened when a devastating flood drowned everything, such as seasonal crops, paddy field and wheat. I could not do anything except looking at the damage done to those crops that we worked hard to produce (A 64-year-old female, own translation, Chandipur).

11.4 Impact on Communication System

Recent studies showed that the 2019 flood damaged roads, highways, railway bridges and road bridges, and this has been confirmed by what the present study found. About 58% of the respondents reported that a significant number of roads were damaged due to the recent flood in the locality. The railway line has equally been damaged due to natural hazards, as corroborated by 18% of respondents. The damage to the two communication systems further led to virtually no communication from the affected area to other places. Additionally, hundreds of thousands of people were cut off from electricity due to heavy storms and torrential rains, but this experience was nothing new. About 12% of respondents said that the entire transportation system were endangered due to the flooding hazard. Furthermore, 8% of respondents stated that their electricity had been cut off due to power outages, which further led to incidents such as theft of essentials in many areas caused by the lack of mobile phone recharge facilities. The closure of roads, railways and inability to drive vehicles has resulted in dire consequences for the people who cannot get access to food and medicine. This devastating flood destroyed everything as stated in the survey discussion. One in-depth interviewee reflected on this:

One of the areas' major roads were damaged during last year's flood. Again, the road was drowned for about ten days, and thus her village was cut off from the town, located 3 kilometers away from the area. In addition, many electricity polls had fallen down in the field resulting in disconnected electricity for about seven days. During this period, they seriously suffered from basic needs and our regular livelihoods were disrupted. Only dredging and re-excavation of rivers and canals can improve the river's water-carrying capacity (A 59-year-old female, own translation, South Rajibpur).

11.5 Impact on Housing and Infrastructure

The study also revealed that the floods seriously affected the infrastructure and housing patterns of the study area. About 38% of respondents stated that floods either washed away their houses or people's living quarters. They also opined that sometimes floods destroyed their house at some point or flooded their houses. Flooding forced them to take shelter at other people's homes, as stated by 25% of respondents, and some relocated to other places in order to survive. There was a huge problem finding public shelter facilities when floods occurred, as stated by about 8% of respondents. Building collapse is typical of the damage

caused by flood, as noted by about 5% of respondents. About 25% said that river erosion took place due to flood which results in lack of food for livestock, particularly for cows and goats. Here, an interviewee shared his experience;

They were frustrated, anxious about every day's existence. He was sleeping and his mother alarmed demonstrating that the water body was rising very rapidly. The electricity was cut off because of lightning, again the heavy raining, storms with speedy wind created fear in everyone. They were a little bit lucky because of having a primary school near their house. After 4 days of staying there, when they back home, was completely ruined, the drinking tube wells were overflowing, and relief from NGOs, Union Parishad and various communities starting distributing food and other reliefs. Many times, he informed UP chairman and members of the Union Parishad that the rivers and canals nearest his village should be re-excavated for reducing the damage caused by flood. However, they didn't listen to our advice. (A 62-year-old male, own translation, Chandipur).

11.6 Flood Adaptation Process and Coping Mechanism

11.6.1 Flood Preparation

The findings demonstrated that most of the respondents are quite vulnerable and insecure in terms of preparing for any disaster. Those who responded as being prepared to face the flood pre-prepared 33.85% and ability (earning capacity 23.75%), some specialized training (12.5%), habits, requirements (15%), and timely direction (7.75%). In addition, they made more comments about building in uplands, choosing where to put a house, etc. When the roads are submerged, the experience of navigating boats, rafts and on foot gives them enough work. An in-depth interviewee, Fazlul Akanda, made the following statement:

I am 63 years old and a farmer, took some special precautions to survive with the flood coming ahead. I understand flood takes place every year in the village, which encouraged me to take special training to better cope with any hazardous event, such as flood. I learnt how to swim in the flooded water and assisted other members of my family to learn the skills. I set up some plans to relocate my family members and other domestic animals to my relatives living near the village where flooding is less frequent. I believe these skills

and techniques will help me to reduce the impact of flood (A 63-year-old male, own translation, South Rajibpur).

One of the informants explained his flood coping strategy which has lasted for 20 years:

As a farmer, he cultivates a few acres of lands which he got from his late father. He produces agricultural crops including vegetables. Even he has a plan to sell his livestock and poultry as part of flood preparation. So, if the flood comes with its devastating nature as always, he can face with his resources. Additionally, one NGOs' officers have agreed to provide him loan in time of crisis (A 52-year-old male, own translation, Chandipur).

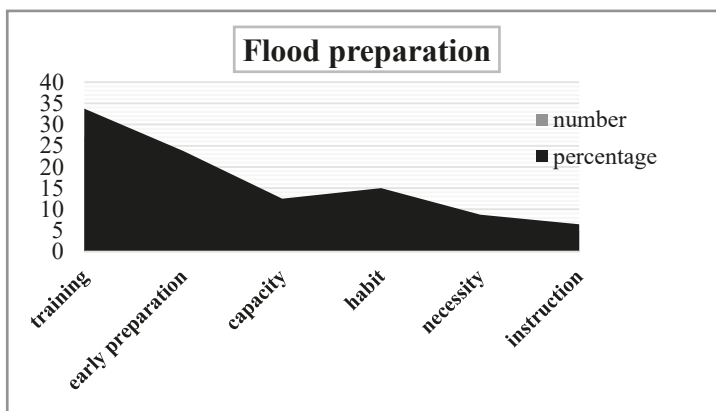


Figure 4: Preparation for Flood in the study area

(Source: Field Survey, 2019)

11.7 Flood Relief and Other Assistance

The findings demonstrated that 24% of respondents received dry food. The second highest respondents accounted for 21% who received cash after the flood in the study area. The other forms of relief were drinking water, essential medicines, domestic animals (cattle, goats), making house, which accounted for 17%, 11%, 8% and 7%, respectively. In this regard, an in-depth interviewee described how she adapted to floods:

I am Laxmi Rani, age 45, a permanent resident of the village. We are six members in my family, consisting of four children and my husband. We received relief support from the Union Parishad after the flood affected my village. One day I went to the Union Parishad office for some emergency support, and then the member of the village provided us with 5 kg rice, 1 kg wheat and 1 kg dahl. We, moreover, got some regular medicines called Paracetamol, Napa, and a few bags of or saline for the emergency period. I would like to also mention that we were given one bundle of tin and two bamboos for reconstructing the house we lost in the last flood. To better help flood affected people, I think the government could play a significant role in providing sufficient relief to needy people. The Union Parishad chairman and members of the local government can rightly list the names of the needy people who required distributed relief goods (A 45-year-old female, own translation, Chandipur).

11.8 Planting and Practice of Flood Protection Crops

Regarding the growing of flood-resistant crops, most respondents (77.5%) answered 'Yes', while only 22.5% of respondents said 'No'. We observed that people who grew flood-resistant crops at a very high level accounted for 65%, as the elderly have been seriously struggling with such devastating floods almost every year. As a result, the respondents have been informed by their previous experiences in cultivating flood-resistant crops. However, some farmers (3.75%) intended to give less importance to planting and cultivating flood control crops.

11.9 Sources of Livelihood

Most of the respondents (36.25%) replied they had changed their livelihoods and currently have been working as day laborers, followed by rickshaw pullers and migration accounting for 26.26% and 12.5%, respectively. Some respondents (10%) said that they have worked in small trading and shop-keeping jobs and had received loans from others. The floods have forced 12.5% of the population to relocate and some have sold much of their material possessions to get food during the crisis, in addition to changing jobs. An in-depth interviewee reported on this matter:

Md. Anwar Pramanik, working as rickshaw puller at his local town and he produced seasonal crops in the agricultural field leasing few

acres of land from the landowners. But he lost everything in the last flood, as everything went down in the flood water. Thus, he was forced to change my earlier profession from farmer to day laborer. Such situation is common, many people have also changed their professions, and some of them now involving in shop keeping or other daily laborer jobs. In a nutshell, floods have ruined people's living standards in many ways (A 38-year-old male, own translation, Chandipur).

12. Conclusion and Recommendations

Floods have become a catastrophic natural event in people's lives in the northern region of Bangladesh, particularly *Gaibandha* district. They have introduced miserable conditions for inhabitants there. Floods often cause extensive damage to agricultural infrastructure and domestic animals, including loss of human and animal life. Roads, transportation, and communications are equally affected if not destroyed by floods. Floods force masses of people to relocate, while uncertainty in pursuit of better lives has always haunted them. It is observed that very few people can recover from the damage that is caused by a major flood, as most people work in agriculture. Evidence revealed that people neither blame the climate for, which they cannot do anything about, as these natural disasters happen year after year. However, people ponder that the government can do things to improve their current situation, such as flood control systems, and simply manage the river systems better.

People also believe they can successfully tackle the hazardous events, but things go beyond control when the water levels of the rivers in the region rise and nothing can be done about it. The floods of 2016 and 2019 are real examples of this kind of misery. The existing adaptation process to floods demonstrates that people with prior experience have the skills to prepare themselves. Most of those who refused to take certain shelter during the floods were concerned about being able to recover from such events. The respondents sought assistance from the relevant ministry of the government of Bangladesh, civil society, and other non-governmental organizations to rebuild their livelihoods and lives in a better way. Good and effective decisions and implementation of those policies will go a long way to helping inhabitants have a more secure future. In doing so, the people will be able to control floods effectively and reduce the endemic loss of life and property.

The research suggests evidence-based recommendations (extracted from the in-depth interview), which are stated below:

- The current adaptation process used by respondents should be enhanced by ensuring that they receive the right training or education.
- Agriculture needs to be prioritized to improve affected people's resilience since it is their main source of income.
- Local government officials should focus on building new riverbank dams and/or other infrastructure to control conditions that trigger damage caused by floods.
- Emergency shelters must be built near hazardous areas to protect vulnerable people.
- An emergency fund should be set up to disburse payments to affected people when floods occur.
- The Government of Bangladesh (GoB) and NGOs should work together to secure people's livelihoods and in fact improve their existing skills.
- The relevant officials should work with local people to formulate meaningful policies and procedures for better tackling of floods when they are imminent.

References

- Asian Disaster Preparedness Center (2009) 'Manual on Flood Preparedness Program for Provincial and District Level Authorities in the Lower Mekong Basin Countries', p. 104.
- Azad, A. K., Hossain, K. M. and Nasreen, M. (2013) 'Flood-induced vulnerabilities and problems encountered by women in northern Bangladesh', *International Journal of Disaster Risk Science*, 4(4), pp. 190–199. doi: 10.1007/s13753-013-0020-z.

- Bangladesh National Portal (2021) *Geographical location - Gaibandha District*. Available at: <http://www.gaibandha.gov.bd/site/page/2cf93d80-18fd-11e7-9461-286ed488c766/> (Accessed: 30 April 2021).
- Bangladesh Red Crescent Society (BRCS) (2019) *Bangladesh: Monsoon Flood 2019 Situation Report 4 (17 July 2019)*.
- Barman, R. P. and Islam, M. (2020) 'Root Causes and Consequences of Extreme Poverty in Northern Bangladesh', *ABC Research Alert*, 8(3), pp. 139–146. doi: 10.18034/ABCRA.V8I3.497.
- Bocanegra, R. A. (2021) 'Assessing the risk of vehicle instability due to flooding', (June), pp. 1–15. doi: 10.1111/jfr3.12738.
- CARE (2011) *Poverty causes disasters and disasters cause poverty*.
- Emran, S. (2019) 'Vulnerability and Coping Strategies of Floods in Bangladesh Agriculture Vulnerability and Coping Strategies of Floods in Bangladesh Agriculture', (July).
- FAO (2021) *The impact of disasters and crises on agriculture and food security: 2021, The impact of disasters and crises on agriculture and food security: 2021*. doi: 10.4060/cb3673en.
- Hossain, B. (2020) 'Role of organizations in preparedness and emergency response to flood disaster in', *Geoenvironmental Disasters*, 7(33). doi: <https://doi.org/10.1186/s40677-020-00167-7>.
- Hossain, B., Sohel, M. S. and Ryakitimbo, C. M. (2020) 'Climate change induced extreme flood disaster in Bangladesh: Implications on people's livelihoods in the Char Village and their coping mechanisms', *Progress in Disaster Science*, 6, p. 100079. doi: 10.1016/j.pdisas.2020.100079.
- Huq, S., and Ayers, J. (2008) 'Streamlining adaptation to climate change into development projects at the national and local level. In European Parliament (Ed.)', *Financing climate change policies in developing countries*, (52–68). Brussels: European Parliament.

- International Federation of Red Cross and Red Crescent Societies (IFRCs) (2020) *Bangladesh: Monsoon Floods - Information Bulletin*. Available at: <https://reliefweb.int/report/bangladesh/bangladesh-monsoon-floods-information-bulletin-0>.
- Islam, R. *et al.* (2016) 'A review on mechanism of flood disaster management in Asia', *International Review of Management and Marketing*, 6(1), pp. 29–52.
- Islam, S. N. (2016) 'Deltaic floodplains development and wetland ecosystems management in the Ganges–Brahmaputra–Meghna Rivers Delta in Bangladesh', *Sustainable Water Resources Management*, 2(3), pp. 237–256. doi: 10.1007/s40899-016-0047-6.
- Kron, W. (2005) 'Flood Risk = Hazard • Values • Vulnerability', *Water International*, 30(1), pp. 58–68. doi: 10.1080/02508060508691837.
- Mishra, S. K. and Mishra, N. (2010) 'Vulnerability and Adaptation Analysis in Flood Affected Areas of Orissa', *Social Change*, 40(2), pp. 175–193. doi: 10.1177/004908571004000205.
- Mondal, M. S. H., Murayama, T. and Nishikizawa, S. (2021) 'Examining the determinants of flood risk mitigation measures at the household level in Bangladesh', *International Journal of Disaster Risk Reduction*, 64, p. 102492. doi: <https://doi.org/10.1016/j.ijdrr.2021.102492>.
- Nasreen, M., Azad, A. K. and Zahid, D. (2017) 'Global and National Policies on Food Security a review of post-2015 policies', (March 2019).
- Parvin, G. A. *et al.* (2016) 'Flood in a changing climate: The impact on livelihood and how the rural poor cope in Bangladesh', *Climate*, 4(4). doi: 10.3390/cli4040060.
- Pudyastuti, P. S. and Nugraha, N. A. (2018) 'Climate change risks to infrastructures: A general perspective', *AIP Conference Proceedings*, 1977(June). doi: 10.1063/1.5043000.

- Rahman, M. M. (2012) ‘Natural Hazard and Human induced Hazard : A Discourse of Disaster and Social Natural Hazard and Human induced Hazard : A Discourse of Disaster and Social Vulnerability Analysis’, (January).
- Rahman, M. M. and Islam, Z. (2013) ‘Human-environment relations in disaster analysis: An anthropological analysis’, *Journal of Sociology*, 5(2), pp. 5–21.
- Relief MODMA (2014) *Disaster Report: Department of Disaster Management*.
- Rothe, M., Brown, D. and Neuschäfer, O. (2018) *SAVING LIVES AND LEAVING NO ONE The Gaibandha Model for disability-inclusive disaster risk reduction*.
- Saha, C. and Barman, R. P. (2015) ‘Drought and Livelihoods : Understanding the Impacts on Dryland Smallholders ’ and their Adaptation Challenges in Northern Bangladesh’, (September).
- Sena, L. and Kifle, M. (2016) ‘Disaster Prevention and Preparedness’, *Ethiopia Public Health Training Initiative*, 1(November), pp. 1–180. Available at: https://www.cartercenter.org/resources/pdfs/health/ephti/library/lecture_notes/health_extension_trainees/disasterpreventionpreparedness.pdf.
- Tasneem, S. and Shindaini, A. J. M. (2013) ‘The Effects of Climate Change on Agriculture and Poverty in Coastal Bangladesh’, *Journal of Environment and Earth Science*, 3(6).
- The Daily Dhaka Tribune (2019) ‘Gaibandha hit the worst by floods | Dhaka Tribune’. Available at: <https://www.dhakatribune.com/bangladesh/nation/2019/07/19/gaibandha-worst-hit-by-floods> Accessed: 30 March 2021).
- The Daily Star (2019) ‘Bangladesh Flood wreaks havoc on croplands | Daily Star’. Available at: <https://www.thedailystar.net/frontpage/bangladesh-flood-wreaks-havoc-croplands-1774468> (Accessed: 30 March 2021).

- U.S. Department of Homeland Security (2014) 'National Disaster Recovery Framework', *National Response and Disaster Recovery Frameworks*, (September), pp. 55–134. doi: 10.4324/9781315714462-15.
- Zhou, H., Wang, X. and Wang, J. (2016) 'A way to sustainability: Perspective of resilience and adaptation to disaster', *Sustainability (Switzerland)*, 8(8), pp. 1–14. doi: 10.3390/su8080737.

Impact of Better Sleep on Academic Grades: A Study on the Students of University of Dhaka 85

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Abstract

Academic success is crucial for young people's successful social development. Students who perform well in academics are better prepared to transition into adulthood and achieve economic and occupational success. On a different note, the ability to sleep allows the body and mind to rejuvenate and recharge. The brain cannot operate properly if a person does not get enough sleep, which can cause difficulties with daily tasks, which may include performance in academics. This study attempted to determine the effect of sleep quality on the academic performance of current students at the University of Dhaka. The study stems from the question, does the quality of sleep affect the grades of a student? A sample of 149 Dhaka University students was taken for research purposes consisting of students from multiple disciplines and academic years. The result shows that overall sleep quality and academic performance have a positive and significant relationship with the students of the University of Dhaka. Here, gender plays an important role. For female students, the effect of sleep quality on academic performance has been found to be highly significant, whereas for male students, it is highly insignificant. In the case of students residing in university halls, the effect of sleep on academic performance was found to be insignificant.

Key Words: Sleep Quality, Sleep Duration, PSQI, CGPA, University of Dhaka.

1. Introduction

The distinction between duration and quality of sleep helps to explain why it is uncommon to find population data from the same source for both sleep duration and quality. As a result, little has been learned about how sleep duration and

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quality work together or interact to affect health. Even when data on both aspects of sleep are available, it is unusual to see them considered together because the conceptual division of sleep into quality and duration seems to be so well-established.

When we consider their interconnectedness, the importance of understanding the relationship between sleep duration and quality increases. People with short and long sleep durations are also those most likely to report sleep disturbances, implying the shorter or the longer the duration of sleep than the threshold, the higher the disturbances and poorer the sleep quality; that produces a U-shaped relation between the duration of sleep and sleep quality. Many literatures have shown similar U-shaped associations between sleep duration and health risks, which can also be found in the relationship between sleep duration and poor sleep quality. It is likely that the extremes (low: <6 hours, high: >9 hours) of sleep duration capture poor sleep quality rather than objectively short or long durations and that poor sleep quality is at least partially to blame for many of the U-shaped associations between sleep duration and health risks.

Sleep provides an essential function for memory consolidation (allowing us to remember what has been studied), which is critical for successful academic performance. Previously, the prevalence of poor sleep quality was found very high among Bangladeshi university students. Being female, having less sleep a night, and spending more than an hour using social media before sleep were independent predictors of poor sleep quality (Md. Sabbir Ahmed, Hasan, Sen, Yunus, & Griffiths, 2020). It is an established narrative that memory processing and learning are enhanced by adequate, high-quality sleep of the duration. It aids memory processing, executive cognitive functioning and concentration. The academic performance of university students suffers because of poorer sleep quality (Rafi, et al., 2021).

This study attempts to find the effect of sleep quality on the academic performance of the current students at the University of Dhaka using primary data extracted from the responses of a structured questionnaire and it uses the current CGPA of the current students to explain the dependent variable of the study, that is academic performance. Cumulative Grade Point Average or CGPA is an academic grading system to measure and record a student's progress and ability against predetermined cross-curricular and content-specific standards. To quantify students' sleep quality, the explanatory variable of this study, the study uses the Pittsburgh Sleep Quality Index (PSQI).

In accordance with the established narrative in several literatures, this study expects that students having a better quality of sleep will show great academic performance. The research hypothesis is, therefore, whether students who exhibit low scores according to the PSQI index (high scores indicate worse sleep quality) tend to have higher CGPA.

2. Literature Review

Sleep is an essential aspect of overall health and well-being, and it has been widely recognized that sleep plays a critical role in cognitive functioning and academic performance. Several studies have investigated the relationship between sleep and academic performance, specifically the impact of sleep on cumulative grade point average (CGPA).

One study conducted by Gaultney (2010) investigated the relationship between sleep patterns and academic performance in college students. The study found that students who reported poor sleep quality and shorter sleep duration had lower GPAs and were more likely to drop out of college than those who reported better sleep quality and longer sleep duration.

Another study by Edens and M.Kellah (2016) reported that college students are sleeping less during the week than reported a few years ago. Lack of sleep among college students has been identified as one of the top three health-related impediments to academic performance by the American College Health Association's National College Health Assessment survey, and it is associated with lower grades, incompleteness of courses, as well as negative moods. This research examines the underlying dynamics of lack of sleep on academic motivation, a key predictor of academic performance.

A study done by Tsai LL and Li SP (2004) found gender differences were found in several sleep variables and those were mostly not dependent on weekday/weekend differences. The female students went to bed and rose earlier and had longer sleep latency, more awakenings, and poorer sleep quality than the male. Gender differences were also shown in the relationship between sleep quality and other sleep variables. The correlation between sleep quality and rise time, time in bed, and sleep efficiency was stronger in men than in women. In contrast, grade differences were mostly dependent on weekday/weekend differences.

A study by S.Hershner (2014) showed daytime sleepiness, sleep deprivation, and irregular sleep schedules are highly prevalent among college students, as 50% report daytime sleepiness and 70% attain insufficient sleep. The consequences of sleep deprivation and daytime sleepiness are especially problematic to college students and can result in lower grade point averages, increased risk of academic failure, compromised learning, impaired mood, and increased risk of motor vehicle accidents.

Findings by Creswell JD (2023) showed that greater early-term total nightly sleep duration predicted higher end-of-term GPA. This effect persisted even after controlling previous-term GPA and daytime sleep. Specifically, every additional hour of average nightly sleep duration early in the semester was associated with an 0.07 increase in end-of-term GPA. Sensitivity analyses using sleep thresholds also showed that sleeping less than 6 h each night was a period where sleep shifted from helpful to harmful for end-of-term GPA, relative to previous-term GPA.

Similarly Results from Chen WL (2019) suggest that chronic sleep deprivation is associated with lower GPA. Students who experienced sleep deprivation from their freshman to senior years had a lower chance of graduation than students who were not sleep deprived. Furthermore, sleep deprivation during students' senior year was found to be more consequential for college graduation than sleep deprivation during their freshman year. Findings suggest that the ramifications of chronic sleep deprivation extend beyond short-term GPA; sleep deprivation predicts the likelihood of obtaining a college degree.

In contrast, a study published in the Journal of American College Health in 2017 (Haile YG, 2017) found no significant association between sleep duration and academic performance among college students. However, the study found that students who reported feeling more rested in the morning had higher GPAs.

A meta-analysis of Musshafen LA (2021) revealed that sleep duration ($r = 0.03$; 95%CI -0.027, 0.087; $p = 0.087$) and sleep quality ($r = 0.089$; 95%CI 0.027, 0.151; $p = 0.005$) had negligible correlations with academic performance. Results of this review, clearly indicate that there is still insufficient evidence to enable us to make a judgment as to whether sleep can have an impact on the academic performance of students.

Overall, the literature suggests a strong relationship between sleep and academic performance, particularly CGPA. Students who get better quality sleep and longer sleep duration tend to perform better academically than those who do not. As such, it is essential for students to prioritize sleep as part of their overall approach to academic success.

3. Research Methodology

The cross-sectional study aiming to find the relationship between students' sleep quality and their academic performance was conducted using primary data obtained from University of Dhaka, Bangladesh. A survey questionnaire was electronically circulated among the current students of the university. A total of 149 responses were collected conveniently for collecting survey between the timeframe 1 February 2023 and 12, February 2023. Students participating in the survey were informed about the objective of the study and a written consent was obtained from them. To ensure maximum participation, students' identities were kept completely anonymous.

The questionnaire was fundamentally constructed based on the **Pittsburgh Sleep Quality Index (PSQI)** which is a sophisticated and standardized instrument that evaluates the quality of sleep and disturbances over 1-month interval in adults. The questionnaire also included some relevant questions such as age, gender, residency, academic year, physical and psychological issues to dive deeper into the qualitative aspect of the analysis. The questionnaire can be found in Appendix B. The sample includes students from 21 different departments of University of Dhaka where 18.12% of the participants stated that they were residing at university affiliated halls. Age of the respondents ranged from 18 to 26. The participants consisted of 91 female students (61.07%) and 58 male students (38.92%). Of the 149 students who participated in the study, 4.03% students were in 1st year, 17.35% in 2nd year, 63.09% in 3rd year, 10.73% in 4th year and 4.7% were in masters.

The quality of sleep, which is the independent variable, was assessed using the PSQI which ranges from 0 to 21 with lower score being associated with higher sleep quality and vice versa. The PSQI is primarily intended to measure sleep quality and to identify good and bad sleepers without providing an accurate clinical diagnosis. However, responses to certain questions and certain components can guide clinicians toward areas for further investigation. The PSQI as a measure of sleep quality has been proved reliable and valid as it shows

high internal consistency, high test-retest validity and correlates with other measures of sleep quality (Buysse DJ, Reynolds CF 3rd, Monk TH, Berman SR, Kupfer DJ, 1989). The global score is transparent, i.e., it conveys information about the severity of the subject's problem and the number of problems presented through a single simple measure which have greater significance and can lead to different prospects of research in the future. The PSQI gives an overall value of the sleep quality through evaluating sleep in 7 distinct components. These components are scored using individuals' responses on 10 different questions where some of the questions have sub-questions under them. Questions 1 to 4 are about bedtime, sleep latency, wakeup time and the total hours of actual sleep during the last month. The other questions consider different factors that may cause sleep disturbance-physical discomfort, bad dreams, stress related to examinations or other reasons-and also the consequences of such disturbance such as use of sleep medications, daytime dysfunction, hampered productivity. The current CGPA of students was documented as the key variable in order to assess their academic performance. The CGPA as a dependent variable was used in accordance with the grading system of University of Dhaka.

There's high prevalence of poor sleep quality among Bangladeshi university students. (Md. Sabbir Ahmed, Hasan, Sen, Yunus, & Griffiths, 2020) Sleep is considered to be an important determinant of a student's academic performance. A study examining the relationship between sleep quality and academic performance found that students who reported better sleep quality and longer sleep duration had higher CGPAs than those who reported poor sleep quality and shorter sleep duration. (Pilcher JJ, Walters AS, 1997) Several studies have also found sleep quality to be highly correlated with academic performance. In light of such evidence, this particular study expects to find a positive relationship between sleep quality and academic performance in the students of the University of Dhaka. The research hypothesis is, therefore, whether students who exhibit low scores according to the PSQI index (high scores show worse sleep quality) tend to have higher CGPA.

The data collected from the primary survey was imported to Microsoft Excel 2016 for the calculation of sleep quality; PSQI, the dataset involving PSQI, CGPA and other relevant information of control variables were then imported onto STATA (version 14.2) and 4 regressions were run to assess the relationship with CGPA serving as the dependent and PSQI serving as the independent

variable. The description of the data used in the regression models and the sources are reported in Table 1 in the appendix.

- a) Gender is an important factor when assessing sleep quality as male and female tend to differ in terms of sleeping habit with females having worse sleep quality compared to male. (Ling-Ling Tsai, Sheng-Ping L, 2004) To take into account the differences in sleep quality due to gender, we have introduced gender as a control variable. The linear regression model is:

$$cgpa = \beta_0 + \beta_1psqi + \beta_2gender + \varepsilon \quad (1)$$

Here *cgpa* is the dependent variable, *psqi* is the independent variable and *gender* is the control variable. β_0 is the intercept coefficient, β_1 is the coefficient for the *psqi* variable, β_2 is the coefficient for the gender dummy. *gender*=1 if female and 0 if male.

- b) Residency at University halls is likely to have an impact on sleep quality for various reasons ranging from academic stress, roommates having different sleep schedule and habit, adjustment problems in a new environment, exposure to noises and late night social activities. Sari, H. Y., & Üner, S. (2018) found that students living in residence halls of university tend to have poor sleep quality. Another regression was run using residency as a control variable, to see whether it has any significance in describing the students' academic performance due to differences in sleep quality. The linear regression model in this case:

$$cgpa = \alpha_0 + \alpha_1psqi + \alpha_2residency + \varepsilon \quad (2)$$

Here *cgpa* is the dependent variable, *psqi* is the independent variable and *residency* is the control variable. α_0 is the intercept coefficient, α_1 is the coefficient for the *psqi* variable, α_2 is the coefficient for the residency dummy. *residency* =1 if the student is a resident of university hall and 0 if non-resident.

In order to analyze the effect of quality of sleep on academic performance on male and female students in a broader light, two simple regressions were run considering the dataset for female and male students separately.

- c) The following regression of CGPA and PSQI is done considering only the responses of female students, 91 observations.

$$cgpa = \gamma_0 + \gamma_1 psqi + \varepsilon \quad (3)$$

Here, *cgpa* is the dependent variable, *psqi* is the independent variable. γ_0 is the intercept coefficient and γ_1 is the coefficient for the *psqi*.

- d) The 4th regression of CGPA on PSQI is done only considering 58 responses from the male students.

$$cgpa = \delta_0 + \delta_1 psqi + \varepsilon \quad (4)$$

Here, *cgpa* is the dependent variable, *psqi* is the independent variable. δ_0 is the intercept coefficient and δ_1 is the coefficient for the *psqi*.

We expect a significant association of sleep quality with academic performance in each of the regressions taking into account the control variables and potential biases may have been caused by the sample size and pattern. Therefore, PSQI has to be inversely related to CGPA as higher PSQI scores indicate poor sleep quality to support our research hypothesis.

4. Data Analysis

4.1 Descriptive Analysis

According to the global standard, people receiving a score of 0 to 4 in PSQI are good sleepers and of 5 to 21 are poor sleepers. The summary statistics shows that the mean PSQI global score received by the 149 respondents was 7.899 with a standard deviation of 3.168 which confirmed that at least half of the respondents are 'poor sleeper' with PSQI score above 7.899 along with a maximum score of 19 out of 21. The minimum score recorded for the participants stand at 3. The mean CGPA of the participants in the survey stands at 3.515, with a standard deviation of 0.354. The minimum and maximum reported CGPA were 1.75 and 4 respectively. Table 2 gives the summary statistic of PSQI (sleep quality) and academic performance (CGPA) and also the summary statistics of these indicators for male, female, resident and non-resident students.

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
PSQI	149	7.899	3.168	3	19
CGPA	149	3.515	.354	1.75	4
PSQI of female students	91	8.066	3.336	3	19
CGPA of female students	91	3.563	.327	2.1	4
PSQI of male students	58	7.638	2.894	3	14
CGPA of male students	58	3.44	.385	1.75	3.94
PSQI of hall residents	29	7.621	3.53	3	16
CGPA of hall residents	29	3.466	.363	2.67	3.94
PSQI of non-residents	120	7.967	3.087	3	19
CGPA of non-residents	120	3.527	.353	1.75	4

The summary statistics that are the percentages of student responses to each of the options of the questions that evaluate sleep disturbance are given below in Table 3. These are responses for question 5 (5b to 5i), 6 and 7.

Table 2: Summary Statistics

	Not during the past month	Less than once a week	Once or twice a week	Three or more times a week
had trouble sleeping because you had stress/anxiety/depression associated with academics	24.83	23.49	28.86	22.82
had trouble sleeping because you had stress/anxiety/depression associated with other factors	34.23	20.13	27.52	18.12
had trouble sleeping because you wake up in the middle of the night or early morning	46.31	24.16	18.12	11.41
had trouble sleeping because you have to get up to use the bathroom	51.01	25.50	14.09	9.40
had trouble sleeping because you cannot breathe comfortably	68.46	20.81	6.04	4.70
had trouble sleeping because you cough or snore loudly	72.48	14.77	9.40	3.36
had trouble sleeping because you feel too cold/hot	40.94	30.87	22.15	6.04
had trouble sleeping because you have bad dreams	69.13	19.46	9.40	2.01
have taken medicine to help you sleep (prescribed or “over the counter”)	86.58	4.70	4.70	4.03
had trouble staying awake while driving, eating meals, or engaging in social activity	40.27	23.49	24.16	12.08

In response to question number 9, where the participants were asked to rate their sleep quality, 54.4% of the respondents reported having a fairly good quality of sleep overall during the month before the study was conducted. 26.8% reported their sleep quality as fairly bad, and 6.7% reported their quality of sleep as very bad. 12.1% reported having a very good quality of sleep during the time frame. The responses are illustrated in figure 1 in the appendix.

In response to question number 10 where participants were asked whether they have a bed partner or roommate, 62.4% reported not having a bed partner or roommate. 28.2% had a partner in the same bed and 8.7% reported having a partner in the same room. Of the 93 participants who reported having a roommate or a bed partner, we requested them to ask their roommate whether the participants had loud snoring in the month before the survey, 78.1% reported negative. 11% reported less than once a week, 6.8% reported three or more times a week and only 4.1% reported snoring once or twice a week. Furthermore, 68.6% of this group of people reported not having episodes of disorientation or confusion during sleep in the time frame. 18.6% reported less than once a week, 8.6% reported once or twice a week, and lastly, 4.3% reported three or more times a week. 56.3% of the participants reported not having restlessness or problems associated with their roommate's sleep schedule/study schedule, 19.7% reported less than once a week, 9.9% reported once or twice a week, 14.1% reported three or more times a week during the time frame.

4.2 Econometric Analysis

Table 4 reports the results of the first regression where CGPA is the dependent variable and PSQI is the independent variable. The model also includes Gender as a control variable. Results show that the coefficient of the PSQI is negative, -0.016 which is consistent with our expectation as lower PSQI scores (better sleep quality) were supposed to be related with higher CGPAs, the indicator for academic performance. So, holding gender constant, a unit increase in PSQI score or worsening of sleep quality causes the CGPA to fall by 0.016 unit. The p-value of PSQI is 0.071 or 7.1% which is significant at 10% level of significance. In light of the possible bias that may have been caused by sample size and pattern, we have chosen the level of significance to be 10% to better fit the context of our research. (Neyman & Pearson 1928, Fisher 1925). The 95% confidence interval for PSQI is [-0.034, 0.001] indicating that we can be 95% confident that the true population parameter for PSQI falls within this range if we were to repeat our experiment many times. The intercept coefficient is 3.566 indicating the average CGPA of male students; the base category. Coefficient of

the gender dummy shows how much the CGPA of female students vary from their male counterpart. As is evident from the table, holding sleep quality constant, the CGPA of female students is, on average, 0.13 units higher than the male students. Both gender ($p=0.028$) and intercept ($p<0.01$) are statistically significant. The R-squared value is 0.050 or 5%, indicating that PSQI (sleep quality) and gender explains 5% of the variability in CGPA. The F-test has a p-value of 0.023 which indicates that the model as a whole is a significant predictor of CGPA at the 0.05 level. In addition to these statistics the table also reports the mean and standard deviation of the dependent variable, CGPA.

Table 3: Linear regression (1): Regression of CGPA on PSQI and Gender

Cgpa	Coef.	St.Err.	t-value	p-value	95% Conf	Interval	Sig
psqi	-.016	.009	-1.82	.071	-.034	.001	*
gender	.13	.059	2.22	.028	.014	.246	**
Constant	3.566	.083	43.08	0	3.403	3.73	***
Mean dependent var		3.515	SD dependent var			0.354	
R-squared		0.050	Number of obs			149	
F-test		3.866	Prob > F			0.023	
*** $p<0.01$, ** $p<0.05$, * $p<0.1$							

The following table; 5, reports the results of regression (2) where in addition to PSQI, residency at the university halls have been introduced as an independent variable. The coefficient of PSQI is -0.016 ($p=0.092<0.1$) indicating that holding residency constant, 1 unit increase in PSQI reduces CGPA by 0.016 unit and this result is considered to be significant at 10% level of significance. The 95% confidence interval for PSQI is [-0.034, 0.003] indicating that we can be 95% confident that the true population parameter for PSQI falls within this range if we were to repeat our experiment many times. The intercept coefficient is 3.651($p<0.01$) which is the average CGPA of students who are not residing at university halls. The coefficient of the residency variable, -0.067, shows that, holding sleep quality constant, on average, the CGPA of resident students is 0.067 units lower than those who are non-residents. However, this result is highly

insignificant ($p=0.363$) indicating that residency have no significant effect on CGPA and CGPA of residents and non-residents do not significantly differ. Consequently, the F-test value is 1.787 with a p value of 0.171 which is insignificant and indicates that the model is not a good predictor of CGPA. The R-squared is 0.024 meaning only 2.4% of the variations in CGPA are explained by PSQI and residency.

Table 4: Linear regression (2): Regression of CGPA on PSQI and Residency

Cgpa	Coef.	t.Err.	t-value	p-value	95% Conf	Interval	Sig
psqi	-.016	.009	-1.69	.092	-.034	.003	*
residency	-.067	.073	-0.91	.363	-.211	.078	
Constant	3.651	.08	45.80	0	3.493	3.808	***
Mean dependent var		3.515	SD dependent var			0.354	
R-squared		0.024	Number of obs			149	
F-test		1.787	Prob > F			0.171	
*** $p<0.01$, ** $p<0.05$, * $p<0.1$							

Table 6 reports the results of the regression that was run considering only the responses of female students. The coefficient of PSQI is -0.021 meaning a unit increase in PSQI score, on average, causes the CGPA of female students to decrease by 0.021unit. The intercept term is 3.733 which is the average CGPA of female students is they had a PSQI score equivalent to 0; a perfect sleep quality. The p-values of intercept ($p<0.01$) and slope coefficient ($p=0.04 <0.05$) are statistically significant. The mean CGPA of 91 female students is 3.563 and standard deviation is 0.327. R-squared value is about 4.6% indicating that PSQI explains 4.6% of the variability in the CGPA of female students. F-test value; 0.040 is also highly significant, an indicator that this model is a significant predictor of CGPA of female students.

Table 5: Linear regression (3): Regression of CGPA on PSQI for female students

Cgpa_f	Coef.	t.Err.	t-value	p-value	95% Conf	Interval	Sig
psqi_f	-.021	.01	-2.08	.04	-.041	-.001	**
Constant	3.733	.088	42.19	0	3.558	3.909	***
Mean dependent var		3.563	SD dependent var			0.327	
R-squared		0.046	Number of obs			91	
F-test		4.327	Prob > F			0.040	
*** p<0.01, ** p<0.05, * p<0.1							

In contrast to the preceding analysis, the regression model considering only the 58 responses male students show that the model is highly insignificant as a predictor of CGPA of male students. The PSQI coefficient is -0.007 with a p-value=0.706. A unit increase in PSQI score causes the CGPA to fall by 0.007 for male students and this result is highly insignificant. Consequently, the R-squared value is very small, only 0.003 or 0.3% indicating only 0.3% of the variability in the CGPA of male students can be explained by CGPA.

Table 6: Linear regression (4): Regression of CGPA on PSQI for male students.

cgpa_m	Coef.	t.Err.	t-value	p-value	95% Conf	Interval	Sig
psqi_m	-.007	.018	-0.38	.706	-.042	.029	
Constant	3.492	.145	24.13	0	3.202	3.782	***
Mean dependent var		3.440	SD dependent var			0.385	
R-squared		0.003	Number of obs			58	
F-test		0.144	Prob > F			0.706	
*** p<0.01, ** p<0.05, * p<0.1							

The research may possess a selective bias as the majority respondents belong to a certain academic year.

Moreover, it may appear that the participants who responded to the survey have better performance in general in academics despite having an overall poor sleep quality. Thus the main limitation of this study is the sample size of data. The study could provide better result and more accurate results if there was a chance to include more students from different academic years and different departments of the university.

5. Conclusion

In light of the evidence unveiled through our research, a profound correlation emerges, highlighting an often-underestimated element that holds enormous potential for influencing university students' academic success: sleep. Previously, a small number of studies demonstrated that the effects of sleep duration and quality on health outcomes are not merely additive, which supports the argument for taking into account both aspects of sleep whenever practical. In summary the results show that overall sleep quality and academic performance have a positive and significant relationship (Coefficient = -0.016, p-value= 0.071); and gender (p-value = 0.028) plays an important role in this regard.

For female students, the effect of sleep quality on academic performance is highly significant (Coefficient= -0.021, p-value=0.04) and for male students, it's highly insignificant (Coefficient= -0.07, p-value= 0.706). A study by Patricia Stenuit and Myriam Kerkhofs (2008) shows that sleep restriction significantly decreased the speed of execution, particularly in young women, without affecting the accuracy of their memory test answers. This effect was the most significant on reaction times in simple tests.

In the case of students residing in the university hall, holding the effect of sleep on academic performance constant, the residence dummy (Coefficient= -0.067, p-value=0.363) was found to be insignificant. Previous studies on this suggest that living on campus can lead to lower sleep quality, especially in first-year students, a study done by L Foulkes (2019) shows that fundamental aspects of moving to university, including living with peers and adapting to a new academic schedule, may increase the risk of students' poor sleep quality. With R-squared values ranging from 0.024 to 0.050, the models, taken collectively, only partially account for the variation in CGPA.

The scope for future research on sleep and cognitive function may include the examination of additional elements that may influence academic performance, such as mental stress, and course workload. Studying the effects of sleep therapies, including sleep extension or focused sleep stage alteration, may also lead to useful applications for improving cognitive performance. To fully comprehend this complex link, longitudinal studies exploring the long-term impacts of sleep on cognitive function across various age groups and communities would be beneficial.

We set out on a quest to understand the true connection between good sleep and academic achievement since in the world of academic endeavors, sleep is frequently viewed as a luxury that may be sacrificed. We discovered remarkable facts when we dug deeper into our research, looking into the lives of students who were juggling tight schedules and routinely giving up sleep in favor of productivity. It soon became clear that their drive for academic achievement depended heavily on sleep, which was not simply a trivial facet of their life but also profound and indispensable. So like a brilliant thread running through the fabric of our studies, the association was apparent. Those who adopted healthier sleep habits received higher marks and displayed enhanced cognitive functions. As we conclude our research, it is encouraged that students, parents, and educators must create an environment prioritizes sleep, where late-night cram sessions are replaced by healthy bedtime routines, and the pursuit of knowledge rather than being the only priority is balanced with taking care of both mental and physical health.

References

- Buysse DJ, Reynolds CF 3rd, Monk TH, Berman SR, Kupfer DJ. (1989). The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. *Psychiatry Res.* doi:10.1016/0165-1781(89)90047-4.
- Chen WL, C. J. (2019 , June). Sleep deprivation and the development of leadership and need for cognition during the college years. *J Adolesc.* doi:10.1016/j.adolescence.2019.04.003.
- Creswell JD, T. M. (2023, February). Nightly sleep duration predicts grade point average in the first year of college. *Proc Natl Acad Sci U S A.*

- Edens, Kellah M. (2016). The Relationship of University Students' Sleep Habits and Academic Motivation. 14.
- Gaultney, J. F. (2010). The prevalence of sleep disorders in college students: impact on academic performance. *J Am Coll Health*. doi:10.1080/07448481.2010.483708.
- Haile YG, A. S. (2017). Insomnia and Its Temporal Association with Academic Performance among University Students: A Cross-Sectional Study. *Biomed Res Int*. doi:10.1155/2017/2542367.
- L Foulkes, D. M. (2019). A bad night's sleep on campus: an interview study of first-year university students with poor sleep quality. *Sleep health*. doi:https://doi.org/10.1016/J.SLEH.2019.01.003.
- Md. Sabbir Ahmed, S. K. (2020). Factors affecting Sleep quality Among the University Students in Bangladesh: A Cross-Sectional Structured Interview Study.
- Musshafen LA, T. R.-G. (2021, July). Associations between sleep and academic performance in US adolescents: a systematic review and meta-analysis. *Sleep Med*. doi:10.1016/j.sleep.2021.04.015.
- Patricia Stenuit, Myriam Kerkhofs. (2008). Effects of sleep restriction on cognition in women. *Biological Psychology*. doi:https://doi.org/10.1016/j.biopsycho.2007.09.011.
- Pilcher JJ, Walters AS. (1997). How sleep deprivation affects psychological variables related to college students' cognitive performance. *J Am Coll Health*. doi:10.1080/07448489709595597.
- Rafi, U. &. (2021). Effect of sleep quality on academic performance of undergraduate University level students. *Journal of Shifa Tameer-e-Millat University*.
- S.Hershner, R. C. (2014). Causes and consequences of sleepiness among college students. *Nature and Science of Sleep*, 73-84.

Tsai LL, Li SP. (2004). Sleep patterns in college students: gender and grade differences. *J Psychosom Res.* doi:10.1016/S0022-3999(03)00507-5

Impact of Budgetary Control System on Budgetary Performance of Managers: Evidence from Bangladesh

103

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Abstract

This paper strives to investigate the impact of the budgetary system configured by budgetary participation, budgetary goal difficulty, budgetary variance analysis, budgetary performance evaluation, and budgetary reforecasting on managers' budget performance. Responses were collected from 188 managers from different manufacturing firms in Bangladesh through a pretested questionnaire. The managers were responsible for forecasting, preparing, monitoring, and analyzing the variance of budgets. Collected responses were analyzed using multiple regression techniques. The results show that budgetary participation, budgetary variance analysis, budgetary performance evaluation, and budgetary reforecasts have significant positive effects on the budgetary performance of managers. Budgetary goal difficulty has a non-significant negative influence on the budgetary performance of managers. The study findings will help top managers construct a budget system with appropriate budgetary variables that can enhance the budget performance of managers to achieve the financial goals of their firms.

Key Words: Budget; Rolling Forecast; Budgetary Control; Budgetary Performance

1. Introduction

1.1 Background of the Study

A budget is a quantitative expression of a management plan for a defined period (Bhimani et al., 2008) that includes forecast revenues and expenses, assets, liabilities, and cash inflows and outflows (CIMA Official Terminology, 2005). The top managers of a company identify the financial objectives, such as sales, expenses, profit and the strategic objectives, like capturing a particular market share or cost leadership (Sponem and Lambert, 2015). They translate those objectives into periodic operational goals. To achieve those goals, they authorize

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the respective unit (Revenue Centre, Cost Center or Investment Center) manager with financial resources and also project certain financial resources in return.

Therefore, primarily budgets reflect planned inflows and outflows of financial resources to each company's unit to achieve its desired financial and strategic objectives.

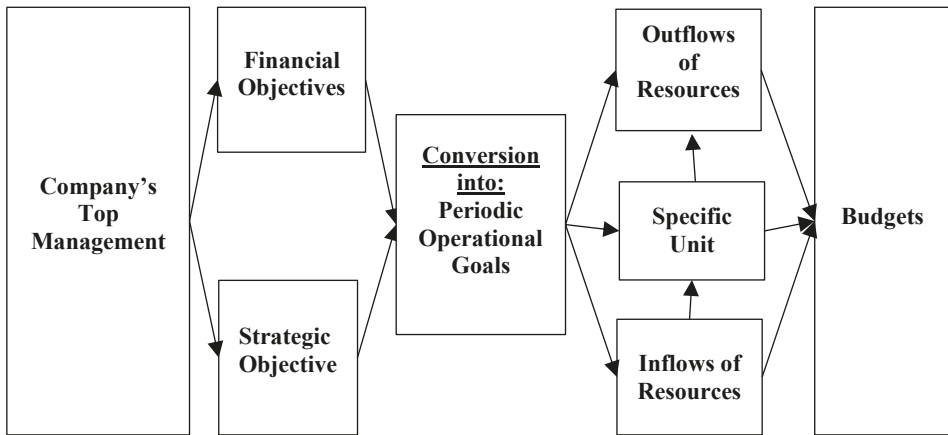


Figure. 1: Understanding Budgets

The budgetary system communicates those goals to different unit managers of the company and ensures coordination among the various units to work as a whole together (Churchill, 1984). In the implementation stage, the data in an operational budget is used as a benchmark to compare with the unit's actual results (Barret and Fraser, 1977). The budget report, which presents the comparison between actual results with planned targets, is known as budgetary control (Weygandt et al., 2015). Top managers propose corrective measures to deal with unfavorable variances, if any, between actual performance and performance planned throughout the budgetary period. In the feedback stage, responsible managers are evaluated based on budget performance (Sponem and Lambert, 2015).

The budgetary system is a dominant management accounting control mechanism in most companies worldwide with the vital functions of planning, controlling, and evaluating managerial performance (Henttu-Aho and Jarvinena, 2013).

Many issues underlie the budgetary system and concern managers, such as: Should a budget be prepared primarily by managers at the operational level or top level? What should be the level of influence of the budgetary managers in determining budget goals? How firm should a budget be in terms of the achievability of its goals? How much importance should top-level managers give to compute variance between budgeted figures and actual figures? Should the budgeted figures remain fixed for a year, or should there be many forecasts throughout the year? To what extent should top managers evaluate managerial performance based on achieved budget targets? (Atkinson, et al., 2014; Churchill, 1984). In response to the above issues, behavioral theorists suggest a high of a degree of budgetary participation (BP), a challenging level of budgetary goal difficulty (BGD), high emphasis on budgetary variance analysis (BVA), rolling forecasts (BRF) in changing market environment and increased emphasis on budget-based evaluation (BPE) to ensure higher unit performance (Locke & Latham, 2006; McClelland, 1961; Robbins & Judge, 2018). These budgetary characteristics vary from company to company and budgetary variables are configured to the unique budgetary system of the respective company (Sponem and Lambert, 2015).

Although there is wide use of the budgetary control system, practitioners focus on four problems: (1) time consumption and cost; (2) inaccurate estimates because of frequent and rapid changes in the market environment; (3) budgetary slack created by evaluating performance using the budget. (4) unhealthy competition among departments caused by budgetary targets, which makes the firm worse off (Arnolds & Artz, 2017; Horngren et al., 2009; Hope & Fraser, 1997). Some empirical studies prove that the budgetary system that creates dysfunctional behavior is unsatisfactory (Radu, 2011); others mention budgets as "shredden" (Jensen 2001), very traditional, or destructive (Wallander, 1999), and so budgets should be discarded. They come up with a beyond budgeting alternative (Henttu-Aho and Jarvinena, 2013; Hope and Fraser, 2003). Still, the budgetary system is quite relevant and continues to be used by most companies worldwide (Libby and Lindsay, 2010).

1.2 Problem Statement

Budgetary researchers have exerted effort to find the causes of limitations and dissatisfaction with the budgetary system. They have studied the effect of various budgetary constructs, such as budgetary participation, budgetary goal difficulty, budgetary variance analysis, budgetary reforecasts, and budgetary performance evaluation on managerial performance. The significance of budgetary research

is to help the top management incorporate the budgetary variables that positively affect performance and avoid the variables with negative effects. But their findings are conflicting and inconclusive (Derfuss, 2009; Hartman, 2000 & Sponem and Lambrt, 2015). We have identified some aspects of budgetary research that should be addressed. First, most researchers have failed to relate budgetary variables (independent variables) with appropriate outcome variables and the budgetary performance of managers, which is the ultimate goal of an organization. Agency theory seeks to ensure that the budgetary system should achieve the company's financial and strategic objectives (Namazi, 2013). They have measured managerial performance by using a scale developed by Mahoney et al. (1963) that focuses on eight performance dimensions of a manager, namely: planning, investigating, coordinating, evaluating, supervising, staffing, negotiating and representing. Thus they have identified performance from a manager's individual perspective instead of the organization's: what a manager is assigned to achieve in terms of financial and strategic goals such as profitability, sales growth and cost-effectiveness given as periodic targets in the budgets. Next, most studies have investigated one budgetary variable ignoring others, although the budgetary system is a configuration of design and use of characteristics (Sponem and Lambert, 2015), such as budgetary participation, budgetary goal difficulty, budgetary variance analysis, budgetary performance evaluation, and budgetary reforecasts that vary among organizations. Then, very few studies have been conducted in developing countries (Derfuss, 2009). So far as we know, there has been no study on budgetary systems of corporates in Bangladesh.

1.3 Research Objectives

Therefore, the objective of the present study is to investigate the impact of the budgetary system represented by budgetary variables, such as budgetary participation, budgetary goal difficulty, budgetary reforecasts, budgetary variance analysis and budgetary performance evaluation on budgetary performance of managers.

1.4 Rationale of the Study

The findings of the study: (1) provide a better picture of the effectiveness of the budgetary system as a management accounting control tool by building a robust relationship between budgetary control systems and organizational end goals. Hence, the study undertakes five budgetary constructs as predicted variables and

budgetary performance of managers as an outcome variable; (2) facilitate top management formulating the budget system that will lead managers to be congruent with the organization's ultimate financial and strategic goals; (3) show the practical implications of agency theory through budgetary control systems; and (4) make a decisive contribution to budgetary research literature in the context of Bangladesh.

2 Literature Review and Development Hypotheses

2.1 Budgetary Participation and Budgetary Performance of Managers

Robbins & Judge (2018) have defined participation as “A process in which subordinates share a significant degree of decision-making power with their immediate superiors” Budget participation is an important aspect of the budgetary system (Hartman, 2000) introduced in 1930 against imposed budgets (Becker & Green, 1962) in budgetary planning. Participative budgeting is a joint decision-making process where all relevant parties accept the budget targets that have a future effect on the performance evaluation of those making them (Becker & Green, 1962). Lee & Wei (2011), in their Chinese study, found increased team outcome due to participation in setting goals. Participation enables employees to share critical information regarding their jobs that enhance their performance (Atkinson, et al., 2014). Argyris (1955), an early researcher, cited many executives, consultants and research scientists in agreement that the positive effect of employees' participation in formulating budget on their attitudes led to better performance. Becker and Green (1962) stated that, by 1930, business circles talked against imposed budgets because these created dissatisfaction among employees, so they proposed participation in budgeting that would lead to higher morale and better initiatives. They agreed that participation was a useful technique to increase employee performance. Participation is a widely recommended managerial style to enhance performance, but in reality, this is not a universally held viewpoint (Brownell, 1982b). Argyris (1952), perhaps one of the most cited early researchers on budgeting, identified that acceptance of budgetary goals through participation is key to managers' better performance. By contrast, Stedry (1960) reported that an imposed budget led to higher productivity than a participatory one.

Bass & Leavitt (1963) conducted three separate experiments on managers and supervisors in US companies and concluded that there was a strong positive association between participative planning and job performance. They found higher productivity where supervisors acted on plans set by themselves. In their

experimental study, they found that participation in budgeting had a significant positive effect on productivity and morale. Bryan and Locke (1967) reported a negative correlation between budgetary participation and managerial performance. In their study, they observed that non-participating groups outperformed over-participating groups. Participation had a positive impact on employee performance in highly uncertain situations but hindered performance in low-uncertainty ones (Govindarajan, 1986). Onsi (1973) undertook research on seven large multinational corporations with major divisions in Upstate New York and reported that imposed budgets created job pressure to meet the budget goals that led to building up budgetary slack to make the goals attainable. So, he suggested that budgetary participation would reduce padding budgets and enhance output. Milani (1975) reported a weak relationship between budgetary participation on performance. Budget participation is a way to exchange information that is useful for employees to obtain a clearer understanding of their goals, which ensures their performance (Hopwood, 1976).

One of the most cited pieces of research in the literature on budgetary research, Kenis (1979) conducted a study on managers and controllers with budget responsibilities in New Jersey and found a significant positive effect through participation on managers' performance. Brownell (1981) is the researcher, perhaps, with the highest number of articles on budget. In his lab experimental study, Brownell (1981) found an insignificant positive effect of budget participation on job performance. But he found a significant effect among employees who felt that they had the ability to direct their success. In the field study to verify his previous lab experiment, Brownell (1982b) administered a survey among 48 mid-level managers in big manufacturing companies in the USA and reported that participation in the budgetary process had a strong positive effect on employee performance. He also found that the internal locus of control strengthened the effect. Brownell (1982a), in his literature review, showed that the associations between participation and performance were conflicted due to various contextual factors. Brownell (1983) found that participation had a significant positive association between participation and performance under considerate leaders, but he found no such association under traditional, top-down leadership. Brownell (1985) used two distinct functional areas as contextual variables and found that budget participation was negatively associated with marketing departments' performance and positively associated with R & D departments, but the results were not significant. Almost consistent with his previous studies, this showed differences in the effects of budget participation on the two functions differed significantly in terms of the

complexity of the environments they faced. Brownell and McInnes (1986) studied the effect of participation on performance through motivation and found it insignificant, but he also found a direct significant positive effect of participation on performance. He argued that this positive effect might be due to budgetary slack built in by participants to attain their budgetary goals. Merchant (1985) reported that participation reduced managers' propensity to create slack by reducing employees' defensiveness.

Chenhall and Brownell (1988) reported a weak positive association between participation and performance under zero-order correlation but found this to be negative through the indirect effect of role ambiguity. Brownell & Dunk (1991) reported a positive relationship between budgetary participation and job performance under low or high task uncertainty. Chenhall & Brownell (1988) found that budget participation had a significant correlation with performance (i.e., significant at .10 not significant at .05). Mia (1989) reported that participation positively affected managerial performance while job difficulty was greater, but participation was less effective when job difficulty was low. He argued that participation enabled managers to clearly understand their job by exchanging information regarding the task, thereby improving managerial performance. Dunk (1989), who conducted his survey on production managers of consumer goods manufacturing products located in Britain, found the opposite result to Brownell (1982) (Brownell & Hirst, 1986), to wit that participation had no significant positive effect on performance. He undertook similar measurements as those taken by Brownell. Dunk (1989) reported that budget participation influenced managerial performance positively, but the influence was insignificant. His study was based on managers of manufacturing companies in the UK. Surprisingly, Dunk (1993) reported a significant positive association between participation and performance of managers randomly selected from manufacturing companies in Sydney, Australia.

Govindarajan (1986) reported a significant effect of budgetary participation on managerial performance under high task uncertainty. Chenhall & Brownell (1988) found that participation had a marginally positive effect on job performance but positively affected it by reducing role ambiguity regarding the budget role, methods to achieve the role, and the consequence of role performance. He also argued that participation has no theoretical relationship between participation & performance. Mia (1988) found that the relationship between participation and managerial performance was dependent on employees' internal characteristics. In this study of managers of profit centers in a large Australian firm, he found that participation was affected positively.

Managers held favorable attitudes and high motivation. In contrast, a non-participation budgetary style that went with employee attitude and motivation achieved better managerial performance. Dunk (1990) reported in a study on UK managers that the association between participation in budget setting processes and managerial performance was significantly positive. He also argued that participation might facilitate superior managers to access subordinate managers' information. Dunk (1993) conducted a study on managers of manufacturing companies in Sydney and found a strong positive correlation between budget participation and job performance. Budgetary research was also extended from industrialized countries such as USA, UK and Australia, etc., to an industrializing country, namely Mexico.

Frucot and Shearon (1991) conducted a study on Mexican managers where they found that budgetary participation was negatively correlated with overall managerial performance. Orpen (1992), in his study on Australian managers, found that participation relatively increased performance in case of a more difficult job than an easy or routine one. Lau et al. (1995) reported a strong and significant negative effect of budget participation on managerial performance among Singaporean manufacturing company managers. Nouri (1994) conducted a study on American corporation managers and reported a strong positive association between participation and job performance. He also argued that participation increased job support in terms of adequately budgeted resources to fulfill the requirements of the job and created job commitment. As such, we propose the following hypothesis:

Hypothesis 1 (H1): *There is a positive association between budgetary participation and the budgetary performance of managers.*

2.2 Budget Goals Difficulty and Budgetary Performance of Managers

Budgetary goals are a vital component of managerial accounting control in every firm (Luft & Shields, 2003). Goal-Setting Theory suggests that difficult but attainable targets increase performance. (Robbins & Judge, 2018; Locke, 1968). McClelland's Theory of Needs also confirms that challenging targets impress high achievers to perform better (Robbins & Judge, 2018; McClelland, 1961). Arnold & Artz (2017), in their study on corporate managers in the largest German firms, found that difficult goals had a positive effect on firm performance. Researchers used the concept of "budget goals difficulty" or "budget goals tightness" or "tightness of budget goals" interchangeably to mean budget targets that were perceived to require serious effort and efficiency in the

achievement of the goals (Simons, 1988). Locke and Bryan argued that more challenging goals motivated supervisors to perform better. Budgetary goal difficulty is a powerful motivator for achievers (Hopstede & Hendrik, 1967). They argued that there should be a difference between budgetary standards and performance expected and used to coordinate budgets as an accounting system. One of the earliest studies was an experimental study done by Stedry (1960), who found that an employee's performance was better where budget goals were tighter or higher. In their experimental study, Locke and Bryan (1966) found that specific, challenging goals increased performance levels more than when supervisors were asked to do their best. Hopstede and Hendrik (1967) proposed budget goal difficulty as an influential variable to the budgetary construct for better employee performance. As the need for achievement is a powerful motivator, he argued that budgetary standard would function as a standard for success if the standard was too high that there was a real risk to attainment. Kenis (1979) found that there was no association between budgetary goal difficulty and employee performance. Simon (1988), in his study on managers of Canadian firms, reported a significant positive association between tight budget goals and firms' return on investment (ROI). He proved that tight budget goals were an appropriate remedy to deal with managers' building of budget slack by measuring performance in terms of ROI instead of taking an individual's managerial performance as a measurement. He meant budget slack as "the outcome of setting easily attainable budget goals so that individuals receive organizational rewards for performance below the level that would be expected if goals were tightly set". Hirst and Lowy (1990), in a study on managers of a corporation, found that budget goal difficulty alone had a negative effect on budgetary performance. He also reported no association between budget goal difficulty and overall job performance. Lau, et al. (1995) reported an insignificant effect of budgetary goal difficulty on job performance in Singaporean manufacturing companies' managers. Therefore, we propose the following hypothesis:

Hypothesis 2 (H2): *There is a positive relationship between budgetary goal difficulty and the budgetary performance of managers.*

2.3 Budgetary Emphasis (Budgetary Variance Analysis and Budgetary Performance Evaluation) and Budgetary Performance of Managers

Sandalgaard & Nielsen (2018) reported a positive effect of budgetary emphasis on the performance of firms. Budget emphasis, also known as budgetary control, means strong monitoring of and guidance towards achieving the budgetary

targets set by top managers and the performance of responsible managers is measured by targets set in the budgets (Van der Stede, 2001). Budget emphasis can be divided into two variables: budget variance analysis in the implementation stage of budget and budget-based performance evaluation of respective managers in the feedback stage of the budgetary system (Sponem and Lambert, 2015). Budgetary variance analysis looks at comparing the actual performance of budgetary goals with forecasted goals, and suggests top managers take corrective action thereby (Emsley, 2001). Unit managerial performance is evaluated based on the variance report in the budgetary system (Kenis, 1979; Sponem and Lambert, 2015). They also found that there was a positive effect of budgetary variance analysis and budgetary performance evaluation on budgetary performance of managers and the result was significant.

The debate regarding the budgetary system started when corporates adopted the budget as a style to evaluate managerial performance. Hopwood (1972) was one of the earliest researchers who conducted his study on supervisors in one manufacturing department of a major Chicago-based firm. He argued that heavy budget emphasis was dysfunctional in falsifying accounting records and detrimental to its managerial performance and long-term interest. Otley (1978) reproduced Hopwood's study and reported no significant relationship of the budgetary style of evaluating managers' and employees' dysfunctional attitudes. He suggested that a higher budget emphasis was useful for better performance. Brownell (1982) reported a weak positive effect of high budget emphasis on job performance (that is, the impact is significant at p less than .10). Brownell (1985) found no significant association with budget emphasis, specifically reliance on accounting information and managerial performance. He suggested that budget emphasis is not appropriate in marketing and R&D departments. Brownell and Hirst (1986) reported that there is no significant relationship between high budget emphasis and job performance. But there is a weak negative relationship with managerial performance. Merchant (1985) argued that high budget emphasis led employees to create slack to respond to the concern not to incur budget overruns. Hirst (1987) found a negative but non-significant effect of the budget emphasis on managerial performance in non-manufacturing firms. Dunk (1989) found a weak negative relationship between budget emphasis and managerial performance. Hirst and Lowy (1990) found that association between budget emphasis and budget performance is significantly negative. He also found no association between budget emphasis and the firm's overall performance. Lau et al. (1995) reported that budget emphasis negatively affects

the managerial performance of Singaporean firms. So, we propose the following hypotheses:

Hypothesis 3 (H3): *There is a positive relationship between budget variance analysis and the budgetary performance of managers.*

Hypothesis 4 (H4): *There is a positive relationship between budgetary performance evaluation and the budgetary performance of managers.*

2.4 Budget Re-forecasts (Rolling Budgets) and Budgetary Performance of Managers

In response to budget criticism that budgets are unable to forecast changing market reality (Hope and Fraser, 2003), another budgeting characteristic that emerges that has attracted the interest of researchers is ‘budget re-forecast’ - defined as the existence of a re-forecast during the year - when firms want to combine the advantages of a rigidly set budget with frequent re-forecast (Sponem and Lambert, 2015) to cope with environmental volatility. The rolling budget is prepared for 12 months, and after 3 months, a re-forecast happens, and the budget is prepared for another 12 months. Thus, an additional quarter is added at the end of each quarter (Churchill, 1984). Ekholm and Wallin (2000) argue that companies improved their budgets with frequent forecasts to enhance operational targets and budgetary performance. Budget re-forecast has a positive association with improved operational planning and budgeting performance (Hansen and Stede, 2004). Budgetary re-forecast captures the changing business environment to ensure better financial performance of a business organization. Budgetary re-forecast has a positive influence on budgets (Sponem and Lambert, 2015). So, we propose the hypothesis below:

Hypothesis 5 (H5): *The effect of budget re-forecast on the budgetary performance of managers is positive.*

3. Conceptual Framework

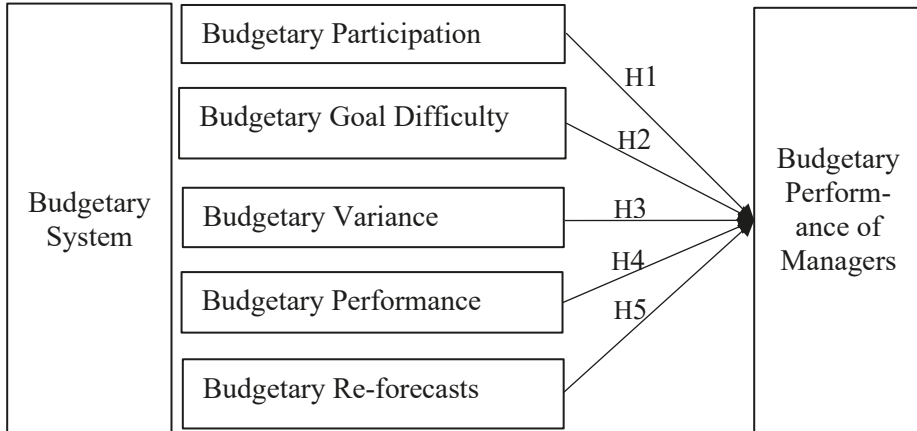


Figure. 2: Conceptual Framework of the Research

4. Research Methodology

4.1 Sample

The study's target population was managers in production, marketing and finance who have budget responsibility for cost, revenue and investment centers. A questionnaire was prepared and tested with professionals and academics to clarify the questions in the survey, increasing understandability and reducing ambiguity (Sponem and Lambert, 2015). Proper adjustments were made in response to the feedback from the testers. The questionnaire was pre-tested with 30 participants from target populations to ensure appropriateness, clarity and understandability (Perneger, et al., 2015). After due modification of some words for better understanding, the questionnaire was converted into a google doc. questionnaire format. The questionnaire was uploaded into google drive with our email links. We sent approximately one thousand questionnaires to production managers, marketing managers and finance managers in various manufacturing companies. We received 192 responses and, so, the response rate was 19.2%. On scrutiny, we found 4 responses incomplete and 188 responses complete. Table 1 below displays the descriptive sample statistics.

Table 1: Sample Descriptive Statistics
Organizations: Manufacturing Companies

Respondents: Managers	Number of Responses	% of Total Responses	Sex		Age		Duration in position	
Finance	72	38.3%	Female	7.4%	Upto 30	7.4%	Lowest	2yrs
Accounts	69	36.7%	Male	92.6%	30-40	30.9%	Highest	12yrs
Marketing	47	25%	Total	100%	41-50	46.3%	Average	4.5yrs
Total	188	100%			Above 50	15.4%		

4.2 Variable Measurements

Table 2: Descriptions of the measurement items

Variables	Number of Questions	Reference
Budgetary Participation (BP): To measure operational managers' influence on budgets	Four questions with a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5)	Milani (1975); Sponem & Lambert (2015)
Budgetary Goal Difficulty (BGD): To measure the likelihood of a budget manager meeting the budget targets set.	Two questions with a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5)	Van der Stede (2001); Sponem & Lambert (2015)
Budgetary Variance Analysis (BVA)	Three questions with a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5)	Van der Stede (2000); Sponem & Lambert (2015)
Budgetary Reforecasts (BRF): To gauge the frequency of forecasting.	Two questions with a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5)	Van der Stede (2001); Sponem and Lamber (2015)
Budgetary Performance Evaluation (BPE): To measure the extent superiors rely on budgets to evaluate the performance of operational managers and rewarding them.	Six questions with a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5)	Van der Stede (2001); Sponem and Lambert (2015)

<p>Budgetary Performance of Managers (BPM): To measure the managers' budgetary performance in their respective units.</p>	<p>A five-point Likert scale is used in three questions ranging from very low (1) to very high (5)</p>	<p>Hansen and Stede, 2004 (Modified)</p>
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Note: The items of the survey questionnaire were slightly modified to make them clear and understandable.

4.3 Control Variables

Hansen and Stede (2004) argue that budgets are used for various reasons (such as planning of a firm's operations, evaluation of managers' performance and formation of strategy). The performance of different purposes of budgets is also related to relatively different budgetary characteristics. He (2004) finds that the budget uses affect budgetary performance of managers. According to Sponem and Lambert (2015), a budget can be focused on playing a managerial role (evaluating managers, incentivizing them, defining responsibilities and contractualizing commitment); a strategic role (implementing strategy, forecasting financial needs, and coordinating business activities); an administrative role (authorizing spending and allocating resources); and communication of financial projection to external stakeholders (shareholders and creditors). This study measured four focus roles of budgets and found the fourth role, communication to external stakeholders, insignificant because of low factor loadings. So, the study adopted three main reasons-to-budget, such as Managerial Budget (MB), Strategic Budget (SB), and Administrative Budget (AB) as control variables. The control variables have been duely measured on a five-point Likert scale (Sponem & Lambert, 2015).

4.4 Model Specification

The study primarily attempts to examine the effect of budgetary systems on budgetary performance of managers; essentially, this study specifies the following linear model:

$$\begin{aligned}
 & \textit{Budgetary Performance of Managers} \\
 & = C + \textit{Budgetary System} + \textit{Budgeting Purpose} + \\
 & \epsilon \quad (1)
 \end{aligned}$$

Where, budgetary performance of managers (BPM) represents the dependent variable. C represents a constant term, budgeting purpose is proxied by (MB), (SB), and (AB) that are the control-level determinants, and ϵ is the error term. Budgetary System indicates the explanatory variables.

This study uses five alternative variables to represent a budgetary system, namely: individual independent variables in each of the alternative models.

$$BPM = C + BP + MB + SB + AB + \epsilon \quad (2)$$

BP is Budgetary Participation.

$$BPM = C + BGD + MB + SB + AB + \epsilon \quad (3)$$

BGD is Budgetary Goal Difficulty.

$$BPM = C + BVA + MB + SB + AB + \epsilon \quad (4)$$

BVA is Budgetary Variance Analysis.

$$BPM = C + BRF + MB + SB + AB + \epsilon \quad (5)$$

BRF is the Budgetary forecast.

$$BPM = C + BPE + MB + SB + AB + \epsilon \quad (6)$$

BPE is Budgetary Performance Evaluation.

5. Discussion and Findings

5.1 Reliability and Validity

This study used the PCA (Principal Component Analysis). The PCA ensures that the constructs are fundamental and irrelevant items are excluded. The PCA exhibit in Table 4 indicates six factors for the 18 items. A cut-off of 0.50 in the PCA ensures the questionnaire is reliable (absolute value should be deleted less than 0.50). One item of Budgetary Participation (BP2) was not included because of having a value of less than 0.50. BP2 was excluded as PCA suggested as such. The authors calculated Cronbach's alpha (Cronbach, 1951) and presented the summary statistics through Table 3. “The rule of thumb for Cronbach's alpha is 0.70 (Hair, Black, Babin, & Anderson, 2010; Nunnally, 1978)”. In addition, the overall alpha for the 18 items was calculated by the authors and found to be 0.85 shown in Table 3. In this study, each item's alpha values calculated by the authors

were advanced (more than 70%) than the spotted rule of thumb, consequently demonstrating good interior reliability for this study.

Table 3: Summary statistics of the questionnaire survey

Constructs	No. of items	MEAN	SD	Alpha
BP	3	3.528	0.648	0.781
BGD	2	2.910	0.569	0.735
BVA	3	3.640	0.633	0.747
BRF	2	3.312	0.630	0.728
BPE	5	3.259	0.499	0.713
BPM	3	3.460	0.581	0.766

Notes: SD, standard deviation; Alpha, Cronbach's alpha; overall alpha = 0.847

Table 4: Result of principal component analysis

	BP	BGD	BVA	BRF	BPE	BPM
BP1	0.666					
BP3	0.797					
BP4	0.712					
BGD1		0.785				
BGD2		0.761				
BVA1			0.684			
BVA2			0.566			
BVA3			0.575			
BRF1				0.662		
BRF2				0.514		
BPE1					0.796	
BPE2					0.721	
BPE3					0.687	
BPE4					0.665	
BPE5					0.627	
BPM1						0.645
BPM2						0.766
BPM3						0.679
Eigenvalue	5.755	1.914	1.370	1.163	1.096	1.010
Variance explained (%)	31.975	10.631	7.609	6.463	6.090	5.612

Source: Authors' calculation

Table 5 shows the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity. Before extracting the factors of any study, several tests should be performed by the authors to judge the respondent figures' suitability for factor study. These trials comprise Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (Henry F Kaiser, 1970; Henry F Kaiser & Rice, 1974) and Bartlett's Test of Sphericity (Bartlett, 1950). The KMO guide ranges from 0 to 1, with 0.50 considered suitable for factor analysis (Joseph F Hair, Rolph E Anderson, Ronald L Tatham, & William C Black, 1995; Tabachnick, Fidell, & Ullman, 2007). Bartlett's Test of Sphericity is significant ($p < .05$) for factor analysis to be fit (Joseph F Hair et al., 1995; Tabachnick et al., 2007). Thus, this study employed these appropriate tests and depicted these in Table 4 for better understanding. Based on findings in Table 5, it can be perceived that the value of KMO and Bartlett's Test obtained for this study construct is 0.846, with a significant value of 0.000. Therefore, this study clearly met the necessary requirements of KMO greater than 0.5 (>0.5) and significance under 0.05 (<0.05)."

Table 5: KMO and Bartlett's Test

KMO and Bartlett's Test		
"KMO Measure of Sampling Adequacy"		0.846
"Bartlett's Test of Sphericity"	Approx. Chi-Square	1198.550
	df	153
	Sig.	0.000

Source: "Authors' calculation"

5.2 Variable Correlation Matrix

Table 6 is the representation of the correlation estimation between the study variables. Correlation estimations between the study variables are not very high, which suggests that the question of multicollinearity problems does not undermine our generating outcome in the final regression analysis section. Furthermore, Gujarati (2007) and Kennedy (2003) designate a rule of thumb that multicollinearity is a serious problem if the estimated correlation coefficient between the independent variables is above 0.80, which is not the case in this study.

Table 6: Correlation matrix of variables

	BP	BGD	BVA	BRF	BPE	BPM
BP	1					
BGD	-0.12	1				
BVA	.57**	-0.14	1			
BRF	.45**	0.01	.57**	1		
BPE	.30**	0.02	.43**	.36**	1	
BPM	.53**	-0.12	.57**	.41**	.37**	1
**. Correlation is significant at the 0.01 level (2-tailed).						

Source: Authors' calculation

5.3 Checking of Methodological Error

Common method bias denotes methodological errors of measurement. For example, shared measurement scales (e.g., Likert 5-point scales) may lead to common methodology bias for all survey queries. Podsakoff, MacKenzie, Lee, and Podsakoff (2003) performed their research study and drafted a few statistical suppositions for the measurement items to common method bias, each of which actions comes with pros and cons for the respective study. Thus, following them, this study uses Harman's single factor test approach, which is the one chiefly performed in research of this kind. This study runs unrotated factor analysis using 18 items loading on one factor to test this common method bias. The average variance explained by the single factor for this study is only 31.88% (well below the recommended cut-off point of 50%). Thus, common method bias has no influence on this study.

5.4 Regression Analysis

The outcomes of the multiple regression analysis were arrived at by the authors by taking several steps and are shown in Table 7. This confirms the outcomes with regression coefficients, standard errors, probability values (P-values) and remarks (e.g., see Table 7) related to hypothesis testing. Generally, the outcome confirms that all selected variables (BP, BVA, BRF, BPE) have a significantly positive effect on managerial performance (BPM) except budgetary goal difficulty (BGD) in Bangladesh. This study also considers budgeting-purpose

variables to control the impact of the budgetary system on the budgetary performance of managers.

In Table 7, the coefficient of Budgetary Participation (BP) is (0.404), which is positive and significant at less than a 0.1% ($p < 0.001$) level of significance. Therefore, the budgetary performance of managers (BPM) has been increased by budgetary participation (BP). It implies that the budgetary performance of managers is positively and significantly influenced by budgetary participation. Furthermore, it is clearly consistent with our hypothesized expectations; thus, this finding evidently supports the first hypothesis (H1) of this study. A similar finding is also found by Hopwood (1976) and Kenis (1979) but Milani (1975) found the opposite result. But the coefficient of the budgetary goal difficulty (BGD) is not significant across our study. Therefore, evidently and statistically it is not consistent with our hypothesized expectations for this study; thus, this finding figured in Table 7 does not support the second hypothesis (H2) of this study. But Simon (1988) found a positive relationship with managers' performance (BPM) while Kenis (1979) and Hirst and Lowy (1990) found a negative coefficient.

Likewise, the coefficient of the Budgetary Variance Analysis (BVA) is (0.496) (e.g., Table 7), which is positively influenced and statistically significant at less than a 0.1% ($p < 0.001$). Therefore, the budgetary performance of managers (BPM) has been increased by budgetary variance analysis. It implies that the budgetary performance of managers is positively influenced by the budgetary system with variance analysis characteristics. It is further found as consistent with our hypothesized expectations; thus, this finding figured in Table 7 supports the third hypothesis (H3) of this study. A similar finding is also found by Kenis (1979), but Hopwood (1972) found the opposite result. Further, the coefficient of the Budgetary Performance Evaluation (BPE) is (0.184) (e.g., Table 7), which is also positively influenced and statistically significant at less than 5% ($p < 0.05$) level of significance. Therefore, the budgetary performance of managers (BPM) has been improved by budgetary performance evaluation. It implies that budgetary performance of managers positively supports budgetary performance evaluation in this study. It is again consistent with our hypothesized expectations; thus, this finding evidently supports the fourth hypothesis (H4) of this study. A similar finding is also found by Kenis (1979), but Hopwood (1972) found the opposite result.

Finally, the coefficient of the Budgetary Reforecasts (BRF) is (0.254), which is significantly positive at less than a 1% ($p < 0.01$) level of significance. Therefore,

the budgetary performance of managers (BPM) has been increased by budgetary re-forecasts. It implies that many budgetary forecasts positively influence the budgetary performance of managers. It is further clearly consistent with our hypothesized expectation; thus, this finding generated from the author's calculation supports the fifth hypothesis (H5) of this study.

Table 7: Determinants of Budgetary Performance of Managers (BPM)

Variables	BPM	BPM	BPM	BPM	BPM
	(1)	(2)	(3)	(4)	(5)
Constant	0.395*** (0.217)	0.414*** (0.277)	0.113*** (0.224)	0.694*** (0.225)	0.734*** (0.253)
BP	0.404** (0.063)				
BGD		-0.075 (0.067)			
BVA			0.496*** (0.065)		
BRF				0.254** (0.067)	
BBE					0.184* (0.086)
<i>Budgeting- purpose variables</i>					
MB	0.205** (0.048)	0.255** (0.052)	0.247*** (0.047)	0.226** (0.051)	0.186* (0.054)
SB	-0.001 (0.047)	0.068 (0.051)	-0.055 (0.046)	0.035 (0.050)	0.089 (0.050)
AB	0.148+ (0.048)	0.274* (0.050)	0.095 (0.047)	0.194* (0.050)	0.215* (0.051)
F- statistics	24.589***	14.215***	29.488***	17.774***	15.821***
SE of the Estimate	0.47384	0.51304	0.45821	0.49852	0.50633
Regression mean square	5.521 ^{df 4}	3.742 ^{df 4}	6.191 ^{df 4}	4.417 ^{df 4}	4.056 ^{df 4}

Residual	0.225	0.263	0.210	0.249	0.256
Multiple R	59%	49%	63%	53%	51%
R Square	35%	24%	40%	28%	27%
Ad. R Square	33%	22%	38%	26%	25%
Observations	188	188	188	188	188
“The standard error in parenthesis. ***p < 0.001, **p < 0.01, *p < 0.05, +p<0.10”					

Note: The dependent variable is (BPM) in all models, where higher values of (BPM) represent the higher budgetary performance of managers and vice versa. The table represents the regression output from the multiple regression analysis of the budgetary system and the budgetary performance of managers. The budgetary system is captured by the five proxies, namely: Budgetary Participation (BP), Budgetary Goal Difficulty (BGD), Budgetary Variance Analysis (BVA), Budgetary Reforecasts (BRF), Budgetary Performance Evaluation (BPE). Budgeting-purpose variables (MB, SB, AB) are used as control variables.

Table 8 summarizes the hypothesis testing. It represents that this study supports the H1, H3, H4 and H5 hypotheses, but H2 is not supported because of insignificant coefficients.

Table 8: Hypothesis testing at a glance.

Hypothesis	Standardized coefficient	Remark
H1: Budgetary Participation → Budgetary performance of managers	0.404*** (0.063)	Supported
H2: Budgetary Goal Difficulty → Budgetary performance of managers	-0.075 (0.067)	Not Supported
H3: Budgetary Variance Analysis → Budgetary performance of managers	0.496*** (0.065)	Supported
H4: Budgetary Reforecasts → Budgetary performance of managers	0.254** (0.067)	Supported
H5: Budgetary Performance Evaluation → Budgetary performance of managers	0.184* (0.086)	Supported
The standard error is in parenthesis. ***p < 0.001, **p < 0.01, *p < 0.05.		

5.5 Robustness Check: Two Stage Least Square (2SLS)

In this section, this study uses the two-stage least square (2SLS) model (e.g., Table 9) to check further the robustness of our key findings for better understanding. The instrumental variable (IV) estimator uses the instrument variables to find a consistent estimator of the novel explanatory variable's coefficient. The 2SLS estimator is an IV estimator that forms the optimal mixture of IVs when more than one IV is available. Econometric texts that discuss the IV estimator for the errors in variable problems typically focus on bivariate or multiple regression. One or more explanatory variables are measured with error, and a single indicator is available for each explanatory variable (e.g., Johnston (1984)). In equation (1), we use all (BP), (BGD), (BVA), (BRF) and (BPE) as the predictors and (MB), (SB) and (AB) are instrumental, and (BPM) is the dependent variable. Table 9 shows that the proxies of budgetary systems (BP, BVA, BRF, and BPE) are highly significant, but (BGD) is not significant. Thus, the findings, found by the authors, of 2SLS in Table 9 verify that the main findings shown in Table 7 are consistent.

Table 9: Determinants of Managerial Performance (BPM)

Variables	BPM (1)	BPM (2)	BPM (3)	BPM (4)	BPM (5)
Constant	0.718 ⁺ (0.399)	8.066 ^{***} (1.969)	0.044 ^{***} (0.345)	0.726 (0.453)	-0.059 (0.593)
BP	0.867^{***} (0.112)				
BGD		-1.552 (0.676)			
BVA			0.724^{***} (0.094)		
BRF				0.895^{***} (0.136)	
BBE					0.928^{***} (0.181)
Control variables	Yes	Yes	Yes	Yes	Yes
F- statistics	47.775 ^{***}	5.476 [*]	49.439 ^{***}	36.755 ^{***}	35.479 ^{***}

SE of the Estimate	0.529	1.010	0.484	0.597	0.629
Regression mean square	13.369 ^{df4}	5.586 ^{df4}	11.584 ^{df4}	13.090 ^{df4}	14.015 ^{df4}
Residual	0.280	1.020	0.234	0.356	0.395
Multiple R	45%	17%	46%	41%	40%
R Square	20%	3%	21%	17%	16%
Ad. R Square	20%	2%	20%	16%	15%
Instruments	3	3	3	3	3
Observations	188	188	188	188	188
The standard error in parenthesis. ***p < 0.001, **p < 0.01, *p < 0.05, +p < 0.10					

Note: The dependent variable is (BPM) in all models, where higher values of (BPM) demonstrate the higher budgetary performance of managers and vice versa. The table represents the regression output from the two-stage least square (2SLS) analysis of the budgetary systems and the budgetary performance of managers. The budgetary system is captured by the five proxies, namely Budgetary Participation (BP), Budgetary Goal Difficulty (BGD), Budgetary Variance Analysis (BVA), Budgetary Reforecasts (BRF) and Budgetary Performance Evaluation (BPE). Budgeting-purpose variables (MB, SB, AB) are used as control variables.

5.6 Alternative Model-Check: the single model with all variables

This study evidently finds a positive and significant impact of the budgetary system on budgetary performance of managers (e.g., see Table 7 for the main findings and also Table 9 for the robustness check). This study uses a single equation (e.g., see equation 8) with all the main independent variables at a time (by a single model) and performs multiple regression analysis. This equation (8) is performed to check the effect of budgetary systems (BP, BGD, BVA, BRF and BPE) on budgetary performance of managers (BPM) with a single model. But Table 6 shows five different models in the analysis. Tables 10, 11 and 12 represent the regression analysis's empirical result when all variables are considered in a single model. Table 12 shows that the estimated regression model is obviously reflected by the equation (8):

$$BPM = 8.690 + (0.225) BP + (-0.054) BGD + (0.286) BVA + (0.065) BRF + (0.153) BPE + \varepsilon \dots \dots (7)$$

Table 10 reports R squared's value, which measures the proportion of the variation in the dependent variable explained by the model. R squared is the most common measure of how well a regression model fits the data. Thus, as shown below, the value of the R square is 0.412, which means that 41% of the variation in the managerial performance (BPM) is explained by the independent variables (BP, BGD, BVA, BRF, and BPE). Therefore, the model fits moderately well. Moreover, Table 11 reports significant F statistics that present the predictors, degree of freedom and the sum of the regression.

Accordingly, Table 12 reports that the budgetary performance of managers (BPM) has been improved by the budgetary system (BP, BVA, and BPE) because (BP), (BVA), and (BPE) are significant and positive. But (BRF) is positive with an insignificant coefficient in this model (e.g., equation 8). Surprisingly, further, the (BGD) is insignificant in this model too. Since most of them are consistent with our main finding of Table 7, this study finds a positive and significant relationship between the budgetary system and budgetary performance of managers.

Table 12 also represents collinearity statistics. We use the Variance Inflation Factor (VIF) to check the multicollinearity issues. There is no formal VIF value for defining the presence of multicollinearity. Some studies argue that a $VIF < 10$ is acceptable (J. F. Hair, R. E. Anderson, R. L. Tatham, & W. C. Black, 1995), but others say that the limit value is 5 (Ringle, Wende, & Becker, 2015). Thus, based on this, this model does not have multicollinearity issues."

Table 10: Model Summary

R	R Square	Adjusted R Square	SE of the Estimate
.642 ^a	0.412	0.396	0.45140
a. Predictors: (Constant), BPE, BGD, BP, BRF, BVA			

Source: Authors' calculation

Table 11: ANOVA ^a

	Sum of Squares	df	Mean Square	F	Sig.
Regression	26.109	5	5.222	25.627	.000 ^b
Residual	37.288	183	0.204		
Total	63.397	188			
a. Dependent Variable: BPM					
b. Predictors: (Constant), BPE, BGD, BP, BRF, BVA					

Source: Authors' calculation

Table 12: Coefficients ^a

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIP
(Constant)	0.995	0.317		3.138	0.002**		
BP	0.247	0.064	0.275	3.881	0.000***	0.638	1.567
BGD	-0.054	0.059	-0.053	-0.921	0.358	0.957	1.045
BVA	0.286	0.073	0.312	3.891	0.000***	0.501	1.995
BRF	0.065	0.066	0.070	0.983	0.327	0.631	1.585
BPE	0.153	0.074	0.131	2.049	0.042*	0.784	1.275
a. Dependent Variable: BPM. ***p < 0.001, **p < 0.01, *p < 0.05.							

Source: Authors' calculation

6. Conclusion

6.1 Implications of Findings

This study investigates the impact of the budgetary system on the budget performance of managers. The budgetary control system constitutes budgetary

characteristics, such as budgetary participation, budgetary goals difficulty, budgetary variance analysis, budgetary performance evaluation, and budgetary reforecasts. It configures with those variables in such a way that the budgetary system of one company is different from others. As the budgetary system is unable to achieve the desired level of managerial performance, empirical studies are being conducted on the effect of its elements and on the job performance of managers. But the findings are conflicting. This study focuses on the budgetary performance of managers (Hansen and Stede, 2004) as an outcome variable capturing the ultimate goal of firms. Agency theory states that the budgetary system should achieve the company's financial and strategic objectives (Namazi, 2013). Therefore, investigating the relationship between budgetary variables and the budget performance of managers better explains the effectiveness of the budgetary system of firms. The study finds that budgetary participation, budgetary variance analysis, budgetary performance evaluation, and budgetary reforecasts have a significant positive effect on the budgetary performance of managers. The study findings are consistent with the theories of behavioral science, for example, theory Y, goal setting theory, and other empirical findings (Dorfuss, 2009). But the study finds no significant effect of budgetary goal difficulty on performance. This study provides a unique picture of budgetary research by measuring the effect of the budgetary system on the budgetary performance of managers that aligns with agency relationship. It is a new insight to academicians and practitioners. It is also a contribution to the budgetary research literature in the context of developing countries. The study also has theoretical implications for assessing the agency relationship in firms where the managers are goal-congruent-aligned with the financial and strategic goals of firms.

6.2 Recommendations

The findings of this study are beneficial to top managers in formulating their budgetary system by composing appropriate budget variables, which have a positive effect on the budget performance of managers. We recommend from the findings of the study that corporate top managers should enhance participation of respective managers in budget preparation, ensure budgetary variance analysis and performance evaluation to increase the budgetary performance of responsible managers. The corporate managers should also go for budgetary reforecasts over the year to determine accurate estimates because market reality changes over time.

6.3 Limitations and Future Research

Like any survey research, this study suffers limitations. The study is based on 188 responses but that may not be sufficient for an immeasurable number of the target population. Many contextual factors also moderate the relationships between predicted and outcome variables, such as company structure, operating environment, etc., but were not considered in the study. Further studies may incorporate interactive effects of the variables in the model while behavioral factors interact with each other and moderate the relationships. Future research may consider the contextual factors mentioned above.

References

- Argyris, C. H. R. I. S. (1952). *The Impact of Budget on People*, Ithaca, NY: The Controllershship Foundation. *Inc. Cornell University*.
- Argyris, C. (1955). Organizational leadership and participative management. *The Journal of Business*, 28(1), 1-7.
- Arnold, M. C. & Martin Artz, M. (2015). Target difficulty, target flexibility, and firm performance: Evidence from business units' targets. *Accounting, Organizations and Society*, 40, 61-77.
- Atkinson, A. A., Kaplan, R. S., Matsumura, E. M., Young, S. M., & Kumar, G. A. (2014). *MANAGEMENT ACCOUNTING-Information for Decision -Making and Strategy Execution: 6th Edition*, New Delhi, Dorling Kindersley (India) Pvt. Ltd.
- Barrett, M.E., Fraser III, L.B., (1977). Conflicting roles in budgeting for operations. *Harvard Business Review*, 55, 137–146.
- Bartlett, M. S. (1950). Tests of significance in factor analysis. *British journal of psychology*.
- Bass, B. M. & Leavitt, H. J. (1963). Some Experiments in Planning and Operating. *Management Science*, 9(4), 574-585.
- Becker, S. and Green, D. (1962). Budgeting and Employee Behavior. *The Journal of Business*, 35(4), 392-402.

- Bhimani, A., Horngren, C.T., Datar, S.M., Foster, G., 2008. Management and Cost Accounting. Financial Times Prentice Hall.
- Briers, M. and Hirst, M. (1990) The role of budgetary information in performance evaluation. *Accounting, Organizations and Society*, 15(4), pp. 373–398.
- Brownell, P. (1981). Participation in budgeting, locus of control and organizational effectiveness. *The Accounting Review*, 56(4), 844–860.
- Brownell, P. (1982a) A field study examination of budgetary participation and locus of control. *The Accounting Review*, 57(4), pp. 766–777.
- Brownell, P. (1982b). Participation in the budgeting process: when it works and when it doesn't. *Journal of Accounting Literature*, 1, pp. 124–153.
- Brownell, P. (1982c) The role of accounting data in performance evaluation, budgetary participation, and organizational effectiveness. *Journal of Accounting Research*, 20(1), 12–27.
- Brownell, P. (1983a) Leadership style, budgetary participation and managerial behavior. *Accounting, Organizations and Society*, 8(4), pp. 307–321.
- Brownell, P. (1983b) The motivational impact of management-by-exception in a budgetary context. *Journal of Accounting Research*, 21(2), pp. 456–472.
- Brownell, P. (1985) Budgetary systems and the control of functionally differentiated organizational activities. *Journal of Accounting Research*, 23(2), 502–512.
- Brownell, P. (1987) The role of accounting information, environment and management control in multi-national organizations. *Accounting and Finance*, 27(1), pp. 1–16.
- Brownell, P. and Dunk, A. S. (1991). Task uncertainty and its interaction with budgetary participation and budget emphasis: some methodological issues and empirical investigation. *Accounting, Organizations and Society*, 16(8), 693–703.

- Brownell, P. and Hirst, M. (1986) Reliance on accounting information, budgetary participation, and task uncertainty: test of a three-way interaction. *Journal of Accounting Research*, 24(2), 241–249.
- Brownell, P. and McInnes, M. (1986). Budgetary participation, motivation, and managerial performance. *The Accounting Review*, 61(4), 587–600.
- Bryan, J. F. & Locke, E. A. (1967). Goal setting as a means of increasing motivation. *Journal of Applied Psychology*, 51(3), 274-277.
- Chenhall, R. H. and Brownell, P. (1988) The effect of participative budgeting on job satisfaction and performance: role ambiguity as an intervening variable. *Accounting, Organizations and Society*, 13(3), 225–233.
- Churchill, N., (1984). Budget choice: planning vs. control, *Harvard Business Review*, 150-157.
- CIMA Official Terminology (2005). Control. Topic Gateway Series No. 36. www.cimaglobal.com. Accessed 10 March 2008.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297-334.
- Derfuss, K. (2009). The Relationship of Budgetary Participation and Reliance on Accounting Performance Measures with Individual-Level Consequent Variables: A Meta Analysis, *European Accounting Review*, 18:2, 203-239.
- Dunk, A. S. (1989) Budget emphasis, budgetary participation and managerial performance: a note, *Accounting, Organizations and Society*, 14(4), 321–324.
- Dunk, A. S. (1993a) The effect of budget emphasis and information asymmetry on the relation between budgetary participation and slack, *The Accounting Review*, 68(2), 400-410.
- Dunk, A. S. (1993b). The effects of job-related tension on managerial performance in participative budgetary settings, *Accounting, Organizations and Society*, 18(7/8), 575–585.

- Ekholm, B. & Wallin, J. (2000), Is the annual budget really dead?, *European Accounting Review*, 9(4), 519-539.
- Emsley, D. (2001) Budget-emphasis in performance evaluation and managers' job related tension: the moderating effect of information completeness, *The British Accounting Review*, 33(3), 399-419.
- Frucot, V., & Shearon, W., (1991). Budgetary participation, locus of control, and Mexican managerial performance and job satisfaction, *The Accounting Review*, 66, 80-99.
- Govindarajan, V. (1986). Impact of participation in the budgetary process on managerial attitudes and performance: universalistic and contingency perspectives, *Decision Sciences*, 17(4), 496-516.
- Gujarati, D. N. (2007). *Basic Econometrics*: Tata McGraw Hill Publishing Company Limited, New Delhi 110.
- Hair, J., Black, W., Babin, B., & Anderson, R. (2010). *Multivariate Data Analysis* (7th ed.): Pearson Education, New Delhi.
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1995). *Multivariate Data Analysis* (3rd ed.): New York: Macmillan.
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1995). *Multivariate data analysis with readings* (4th ed.): New Jersey: Prentice-Hall Inc.
- Hansen, S.C. & Van Der Stede, W.A., (2004). Multiple facets of budgeting: an exploratory analysis. *Management Accounting Research*, 15, 415-439.
- Hartmann, F. G. H. (2000). The appropriateness of RAPM: toward the further development of theory. *Accounting, Organizations and Society*, 25(4/5), 451-482.
- Henttu-Aho, T. & Järvinen, J., (2013). A field study of the emerging practice of beyond budgeting in industrial companies: an institutional perspective. *European Accounting Review*, 1-21.

- Hirst, M. K. (1987). Some further evidence on the effects of budget use and budget participation on managerial performance, *Australian Journal of Management*, 12(1), 49-56.
- Hirst, M. & Lowy, S. (1990). The linear additive and interactive effects of budgetary goal difficulty and feedback on performance, *Accounting, Organizations and Society*, 15, 425-436.
- Hofstede, G.H., (1967). *The Game of Budget Control, Technology and Democratic Society*, Van Gorcum & Company, Assen.
- Hope, J. & Fraser, R., (2003). *Beyond Budgeting: How Managers Can Break Free from the Annual Performance Trap*. Harvard Business Press.
- Hopwood, A.G. (1972). An empirical study of the role of accounting data in performance evaluation. *Journal of Accounting Research*, 10, 156–182.
- Hopwood, A. G. (1974) Leadership climate and the use of accounting data in performance evaluation, *The Accounting Review*, 49(3), pp. 485–495.
- Horngren, C.T., Sundem, G. L., Stratton, W. O., Burgstahler, D., & Schatzberg, J.,(2009).
- Introduction to Management Accounting, 14th Edition, New Delhi, Shree Maitrey Printech. Pvt. Ltd.
- Jensen, M., (2001). Corporate budgeting is broken—let’s fix it. *Harvard Business Review*, 95–101.
- Johnston, J. (1984). *Econometric methods.*: McGraw-Hil.
- Kenis, I. (1979). Effects of budgetary goal characteristics on managerial attitudes and performance, *The Accounting Review*, 54, 707–721.
- Kaiser, H. F. (1970). A second generation little jiffy. *Psychometrika*, 35(4), 401-415.
- Kaiser, H. F., & Rice, J. (1974). Little jiffy, mark IV. *Educational, psychological measurement*, 34(1), 111-117.

- Kennedy, P. (2003). *A guide to econometrics*: MIT press.
- Lau, C. M., Low, L. C. & Eggleton, I. R. C. (1995) The impact of reliance on accounting performance measures on job-related tension and managerial performance: additional evidence, *Accounting, Organizations and Society*, 20(5), 359–381.
- Lee, J. & Wei, F. (2011). The mediating effect of psychological empowerment on the relationship between participative goal setting and team outcomes – a study in China, *The International Journal of Human Resource Management*, 22(2), 279-295.
- Libby, T. & Lindsay, M. M. (2010). Beyond budgeting or budgeting reconsidered? A survey of North-American budgeting practice. *Management Accounting Research*, 21, 56-75.
- Locke, E. A. (1966). Relationship of task success to task liking: A replication, *Psychological Reports*, American Insritutes for Research, Warbington Office , 18, pp. 552-554.
- Locke, E. A. (1966). Relationship of task success to task liking: A replication, *Psychological Reports*, American Insritutes for Research, Warbington Office , 18, pp. 552-554.
- Locke, E. A. (1966). Relationship of task success to task liking: A replication, *Psychological Reports*, American Insritutes for Research, Warbington Office , 18, pp. 552-554.
- Mahoney, T. A., Jerdee, T. H. & Carroll, S. J. (1963). *Development of Managerial Performance: A Research Approach*, South-Western Publishing Company.
- McClelland, D. C. (1961). *The Achieving Society*. Princeton, NJ: Van Nostrand.
- Merchant, K., (1985). Budgeting and the propensity to create budgetary slack. *Accounting, Organizations and Society*, 10, 201–210.
- Merchant, K. A., (1998). *Modern Management Control Systems: Text and Cases*, New York: Prentice-Hall.

- Mia, L. (1989). The impact of participation in budgeting and job difficulty on managerial performance and work motivation: a research note, *Accounting, Organizations and Society*, 14(4), 347–357.
- Milani, K., (1975). The relationship of participation in budget-setting to industrial supervisor performance and attitudes: a field study. *Accounting Review*, 50, 274–284.
- Namazi, M. (2013). Role of the agency theory in implementing management's control. *Journal of Accounting and Taxation*. 5(2), 38-47.
- Nouri, H. (1994). Using organizational commitment and job involvement to predict budgetary slack: A research Note, *Accounting, Organizations and Society*, 19(3), 289-295.
- Nunnally, J. (1978). *Psychometric Theory*: McGraw-Hill, New York, NY.
- Onsi, M. (1973). Factor Analysis of Behavioral Variables Affecting Budgetary, *The Accounting Review*, 48 (3), 535-548.
- Orpen, C. (1992). Job difficulty as a moderator of the effects of budgetary participation on employee performance, *Journal of Social Psychology*, 132(5), 695–696.
- Otley, D. (1978). Budget use and managerial performance, *Journal of Accounting Research*, 16, 122–149.
- Perneger, T.V., Courvoisier, D.S., & Hudelson, P.M. (2015). Sample size for pre-tests of questionnaires. *Qual Life Res* 24, 147–151. <https://doi.org/10.1007/s11136-014-0752-2>
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of applied psychology*, 88(5), 879.
- Radu, M. (2011). The budgetary process - reason for dissatisfaction, *Annals of the University of Petroșani, Economics*, 11(4), 255-262.

- Ringle, C. M., Wende, S., & Becker, J.-M. (2015). SmartPLS 3. *Boenningstedt: SmartPLS GmbH*.
- Robbins, S. P., & Judge, T. A. (2018). *Essentials of Organizational Behavior*, 14th Edition, Pearson Education Limited, England.
- Sandalgaard, N. & Nielsen, C. (2018), "Budget emphasis in small and medium-sized enterprises: evidence from Denmark", *Journal of Applied Accounting Research*, Vol. 19 No. 3, pp. 351-364. <https://doi.org/10.1108/JAAR-08-2016-0087>.
- Simons, R., (1988). Analysis of the organizational characteristics related to tight budget goals, *Contemporary Accounting Research*, 4, 267–283.
- Sponem, S. & Lambert, C., (2015). Exploring differences in budget characteristics, roles and satisfaction: A configurational approach, *Management Accounting Research*, 30, 47-61.
- Stedry, A. C. & Kay, E., (1966). The Effects of Goal Difficulty on Performance: A Field Experiment, *Behavioral Science*, 459-470.
- Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2007). *Using multivariate statistics* (Vol. 5): Pearson Boston, MA.
- Ven der Stede, W. A. (2001). Measuring ‘tight budgetary control, *Management Accounting Research*, 12, 119–137.
- Wallender, J. (1999). Budgeting-an unnecessary evil. *Scandinavian Journal of Management*, 15(4), 405-421.
- Weygandt, J. J. , Kieso, D. & Kimmel, P. D. (2015), *Accounting Principles*, 12th Edition, Willy Publications, Newyork.

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