ANALYSIS OF THE DETERMINANTS AND DISTRIBUTIONAL EFFECTS OF PUBLIC EDUCATION EXPENDITURES IN BANGLADESH

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A Dissertation Submitted in Partial
Fulfillment of the Requirements for the Degree of
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ABSTRACT

Title of Dissertation	ANALYSIS OF THE DETERMINANTS AND DISTRIBUTIONAL EFFECTS OF PUBLIC EDUCATION EXPENDITURES IN BANGLADESH
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This study is based on the well-known theories of public policy analysis, economics, and public finance and empirically explores and examines the determinants and income distributional effects of public expenditure on education in Bangladesh. It is postulated that multidimensional factors determine education expenditures. Economic-demographic, decision-making, political, and new institutionalism theories are therefore studied, along with the concept of education. This research identifies and computes education expenditure by types, along with levels of education as per the distribution of government budget and the education system of Bangladesh. The results disclosed that the previous year's expenditures primarily determine Bangladesh's education financing policy. The indirect tax also increases total education expenditure as a percentage of the GDP. This is in line what incrementalism theory and fiscal illusion or voting bias model suggests.

Furthermore, total population and government effectiveness were seen to have a positive impact on the types and levels of education expenditures. This implies that Bangladesh's government has considered only certain factors and has neglected to incorporate the importance of economic, governance, and educational determinants in allocating education expenditure. This study was supplemented by the Household Income and Expenditure Survey (HIES) data for measuring income inequality applying benefit incidence analysis. The aim was to determine whether public education expenditure reduces education inequality across the levels of education in Bangladesh and improves the distribution of educational expenditure across households.

In general, the findings and analysis of the data demonstrated that the effects of the public expenditure of income distribution on primary education are

pro-poor but secondary education is not pro-poor in terms of the distributional effects of public expenditure. The income share of the lowest income group has increased, whereas the income share of the highest income group has declined. Furthermore, overall inequality has been decreased as determined by the Gini coefficient, which has decreased to 0.3426 from 0.3982.

This paper recommends that in order to encourage equitable resource allocation, better policies, as well as supplementary budget in the education sector, are essential in Bangladesh. This can only be attained by investing more in primary and secondary education infrastructures, frequent checks of the effectiveness across levels of education, and notably framing sustainable public education policies. This research provides a guideline on how to comprehend the impacts of these factors and further offers solutions to reduce these effects in attempting to utilize the limited financial resources efficiently and effectively through supporting and targeting education programs and policies in Bangladesh.

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Any deficiencies are my sole responsibility.

Md Rashidul Islam Sheikh

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CHAPTER 1

INTRODUCTION

1.1 Significance of the Study

For any country, the determinants of public policy are vital for public policymakers as well as analysts since the determinants yield crucial information to pull off pleasing outcomes as well as being scrutinized regarding public policy perspectives. More specifically, the literature has already delivered the probable determinants irrespective of different sizes of governments in different countries. These types of research, in general, concentrate on the various single approaches that are supposed to be the driving force of overall government size.

The present research places the questions concerning the determinants of public education disbursements through suitable theoretical points of view, which are supposed to be trusted that and will produce insightful results. The results shall allow us to rigorously understand how the government and politics are operated for the configuration of public policy across countries with special reference to the public policy of education expenditures.

Taking these into consideration, research that analyzes as well as determines the aspects of social, economic, and partisan decisions along with distributional effects of income is thus significant. Furthermore, an examination or analysis of specific public policy implications in fact is further intuitive by nature. It has been theoretically proven that in the case of public policy aspects, government usually does not make

political choices considering various types of policy options, being inhibited by the environment, which is beyond their direct control. In addition, the government may not be in a position to have sovereignty in the case of policy procedure; rather, it is designed through particular background factors.

This study places weight over education policy as it is widely accepted that in the case of economic and human resource development, the role of education is universal. Education is not only advantageous to persons in general but also for the whole of society. For the person that receives education for future earnings, education helps or benefits him or her directly. From the aggregate level perspective, a well-educated work force is believe to improve the stock of human capital in the economy as well as increase the level of productivity (Sen, 1999). Additionally, subsidies to education promote the affirmative spillover effect over human resource investment. In fact, human capital is the connection that inserts the cause or impacts of economic-demographic deviations (Mincer, 1981). Analysis or examination of education policy is supposed to take part in the crucial function of promoting the best possible action of government towards the accomplishment of development goals. This is supported by Dye (1978), as he defined public policy as ‘‘what the government chooses to do or not to do’’ towards the implementation of its functions. This type of conventional definition encourages the government to utilize public policy to accomplishment the most pleasing outcomes.

One of the channels in public policy arises from fiscal policy, for example, the deviations in the regulations, tax structures, and spending, which can have both a direct and indirect effect on policy goals (Agénor, 2002). A substantial number of research have attempted to examine public expenditure using different types of

existing policy tools as it induced ample opportunity for research into how a government practically behaves in terms of policy performance. With the passage of time, public expenditure as a discipline has already become an emerging subject in the domain of public policies and has encouraged vast attention among governments across the globe.

After thorough evaluation of the literature, it was found that a substantial number of studies have already been focused on cross-country investigation. However, one must think in advance when conducting a study regarding the determinants as well as the effect of public expenses, whether the study is to be completed on a national or international level. Even though a cross-country investigation is notionally important, earlier researchers found that cross-country proof is uninformative in directing the determinants of policy objectives (Kraay, 2004). It is widely accepted that dissimilar governments encounter diverse policy problems that differ according to the socio-economic and political background of all nations. This leads to the necessity of an inclusive study agenda in order to look in-depth at a particular country. As a result, there is an essential requirement to do further country-based research on the fundamental determinants of the growth in education disbursement.

In Bangladesh, two important issues are concerned with education spending policy. First, in Bangladesh education disbursement has been increasing gradually from the beginning of independence on December 16, 1971. During 1980, and 2000 as well as 2016, the total government education disbursement in proportion to the GDP was 0.94, 2.13 and 1.54 percent, respectively. On the other hand, during the same periods the gross enrollment rate of tertiary education was 3.19 percent in 1980,

5.43 percent in 2000, and 17.33 percent in 2017; and in secondary education over the same period, the gross enrollment rate was 18.46 percent in 1980, 48 percent in 2000, and 68.98 percent in 2017. Primary education is rapidly growing in terms of the gross enrollment rate, which was 70.54 percent in 1980 and 111.09 percent in 2017 and currently is 114.23 percent. This upward movement in the enrollment rate and education disbursement budgets has made it crucial and thereby detailed examination of this phenomenon is required. In addition, it is considered that further understanding of the specific issues to make available that kind of analysis for political leaders along with policy-makers. Of importance is the immense crack in the understanding of the determinants of education disbursements in Bangladesh, which has occupied a lion's share of the budget during the past few decades. It can be exciting then to investigate the causes that have determined education disbursement over time in Bangladesh. Considering the above factors, this type of analysis is unavoidable. Therefore, this can be reasonably supportive in the dispute on whether there are policies that attempt to benefit the furthest level or that are agree on concerning what kind of expenses would favor the nation in terms of large amounts of benefits.

Secondly, Bangladesh has faced a problem of inequality from the very beginning of the country, including the distribution of public expenses; furthermore, in Bangladesh most of the poor people can only afford to have a comparatively low level and poor-quality education. In 1981, only 19.7 percent of the population could be counted literate, while in 1961 it was 17 percent, showing a marginal expansion of literacy within two decades, which supports the elitist view of education. As education has been elitist biased, it has created a serious imbalance in rural-urban areas of Bangladesh. The literacy rate in these areas was 17 and 35 percent in 1981.

Not only that, but also created discriminatory effect over women education. Literacy rate between female-male was 13.2 and 26 percent in 1981 which was further worst in rural areas that was only 11.2 percent of women literacy rate compared to its male counterparts (Planning Commission, 1995). This situation may lead to increased gaps between the rich and the poor that further leads to critical structural problems. Still there is discrimination between the poor and the non-poor in terms of secondary gross enrollment. Gross enrollment rate for poor was only 45 percent that was much lower than that of 76 percent enrollment rate of the non-poor (General Economics Division, 2015). The difficulty concerning the distribution of education disbursement across the levels of education in Bangladesh is furthermore taken into consideration in the present study. Therefore, this research attempts to examine education spending regarding whether it is distributed equally across levels of education as well as who gets what and what determines this distribution. In fact, what are the factors of consideration of the government in terms of allocating education disbursement across country and what influences the government regarding that allocation? These issues will also be discussed in this research.

This research is noteworthy as it identifies several weak points concerned with cross-country investigation and these will contribute to the literature *via* the country level investigation of Bangladesh. The socio-political background and limitations of a specific country produce a further perceptive on the investigation for this type of field research. This is of interest here, as Bangladesh has confronted diverse partisan economy constraints in the perspective of structural problems, for example of inequality, that are different across countries.

However, this research is significant as the application of confirmation based on up-to-date statistics produced bright scope to evaluate national expertise. Likewise, this research gives weight to the composition of public disbursement, which is an illustration of the real behavior patterns of the government with respect to educational policy formulation. This research will not only depend on time-series data but also applies yearly data to assess benefit incidence for the analysis in terms of the inequality among different household income groups regarding public education expenditure allotment in Bangladesh.

This research is also significant because the change of public education disbursement at different levels of education along with the distributive effects of income of different household groups in Bangladesh will provide an explanation of education policy as well as public expenditure policy.

In addition, this study contributes to the literature of education policy and the expenditure of education in Bangladesh across levels of education. Further, this study supports and adds to financial theoretical assumptions, which will be boosting the increase of public expenditure, particularly in the context of South Asia. Nevertheless, future research on the country context may be inspired by the outcomes of the present study as it examines in a nutshell public expenditure theory, the causes behind the increasing trend of public expenditure in Bangladesh, as well as who receives the benefits most in terms of quintiles and region, such as rural or urban areas. Furthermore, despite this fact, education policy gaps still exist, and inequality remains in Bangladesh.

1.2 Objectives of the Research

The main objectives of this study are to look at and analyze the dimensions and determinants as well as the impact of public education expenditure change on education policy in Bangladesh from 1980 to 2018. The specific objectives are given below.

1) To investigate the public expenditure trends and different education related to the development indicators of Bangladesh between the years 1980 and 2018
2) To examine the key determinants of public expenditure and different types of expenditure in Bangladesh
3) To analyze the determinants and institutional factors influencing public education expenditure across different levels of education in Bangladesh
4) To estimate and compare the income distributional effects and degree of inequality of public education expenditure across different income quintiles
5) To provide policy recommendations related to public spending on education in Bangladesh

1.3 Research Questions

1) How do economic-demographic, decision-making, political, and institutional factors influence public expenditure in Bangladesh?
2) How do economic-demographic, decision-making, political, and institutional factors affect public expenditure on education?
3) How does the effect of different factors vary across the levels of education in Bangladesh?

4) How do these factors affect the development expenditure of education in Bangladesh?
5) What are the distributional effects of public education expenditures across the levels of education among different income quintiles in Bangladesh?

1.4 Scope and Limitations of the Research

In spite of using many public policy elements in education policy, this research will focus merely on public expenditure since public expenditure increases the chance to explore the genuine performance or standpoint of the government in general. The investigation will focus on the determinants of education disbursements at a range of stages and levels, and the investigation will incorporate numeral determinants and institutional factors of public expenditure, which are very important to settle on the levels of education expenditure. In addition, supplementary and enhanced data will present a fresh look at exploring the promising linkages in the real expenditures.

This research will use time-series data analysis, which will indicate the changes in Bangladesh's policy-making during the last 39 years and during 2016 (BBS, 2019) for analyzing the distributional effect of public expenditure on education by each income quintile in the country. This research will focus on the yearly data of Bangladesh by examining the association between the explanatory and dependent variables in the specific period of 1980 to 2018. This will determine the significance of the study in relation to the public disbursement of education in the background of an emerging country such as Bangladesh in the South Asian region.

Despite the advantages in the use of current data, in comparison with past research, the time frame of the analysis in this research is imperfect in terms of the accessibility of the data. A study of Schwartz and Ter-minassian (2000) indicated the following: “Typically, these data are not fully available, especially in developing countries.” What exactly happens in the developing countries is not collecting data regularly or the storing capacity is not up to date. This was demonstrated by Buchmann (1996), who stated that data limitations prevent researchers from conducting empirical and quantitative research in poor countries. In addition, comprehensiveness along with the self-reliance in terms of the outcome of time-series examination decisively depends on the time frame. Even though degrees of freedom need to be justified perfectly, a further complete data set would make the outcomes stronger. Education indicator-related data will be collected from the Ministry of Education, the World Bank, the UNESCO Institute for Statistics, and different surveys conducted by the Bangladesh Bureau of Statistics, the Bangladesh Bureau of Educational Information and Statistics, along with institutional factors from the World Governance Indicators (WGI, 2018). In addition, though various types of independent variables are used in this research, there may be further important factors that remain.

Last, this study is confined to public education expenditure, which partially depicts the total public expenditures on education sector in Bangladesh. In many countries, private education expenditure is significant. As per the record of the World Bank regarding the private sector, education spending averages 25% in developing countries. There may be problem of missing data in terms of total expenditures on education in Bangladesh. As a result, this research can explain only the actual behavior of policy-makers and excludes privately-operated education.

1.5 Benefits of the Research

This kind of research has not yet been conducted in the context of Bangladesh or in terms of most developing countries. Of specific importance is the association between the determinants that change public expenditure on education as well as following the effects of these types of disbursements on income distribution. From the literature review, it was found that most studies have been conducted in the context of middle income or developed countries. Still, it is not extensively proven that the determinants listed in the public policy/public expenditure theories under this study affect public expenditure on education in the developing countries as these effected same way on developed countries, especially on OECD countries, where this type of study is frequently conducted to prove the claim of expenditure theories, some of which will be considered in this study. It is assumed that an increase in GDP, globalization, as well as inflation in economy raises public expenditure in the welfare sectors, for example education and health. The study shows (Yoon, 2009) that increases in the first two determinants reduce public expenditure on social sectors in developing countries, whereas Okafor and Eiya (2011) demonstrated that a rise in inflation also reduces public expenditure on the social sectors in Nigeria. These two observations, along with others, cause doubts regarding the applicability as well as the generalizability of the concerned theories regarding public expenditure in Bangladesh, as with other developing countries.

In addition, it is mentionable that being a country of South Asia, Bangladesh has a different socio-economic background as well as different characteristics from other developing countries, for example Thailand, Brazil, Argentina, Colombia,

Kenya, among others, where more or less the same studies have already been conducted but did not use any governance indicators. Therefore, it is not obvious whether public expenditure theories can be established in the context of Bangladesh. However, the findings obtained from this research should be beneficial as well as further add contributions to theory, along with policy practitioners, in the following ways.

First, after analyzing the trend of public expenditure along with its determinants in the country context, the findings will endorse the healthiness of the concerned public expenditure theory/public policy, as well as determine the ability of the Bangladeshi government in terms of policy formulations and policy implementations. Furthermore, the findings of this research may be able to explain the raise of public expenditures during the time frame in Bangladesh. As “the principle of one size fits all” is not applicable in terms of public finance theories, further study at the country level will be encouraged.

Secondly, BIA regarding income inequality distribution of income household groups/quintiles can help the government develop or create inclusive fiscal policy frameworks aiming at the betterment of each household’s income group, along with interventions in the education sector aiming to reduce income inequality, which may encourage other scholars in this domain; further, new inclusive knowledge is strongly expected from this study in terms of the public policy arena.

Thirdly, the understanding of this research can lead to generating further knowledge regarding the determinants of the actual behavior and ability of the government from the particular perspective of political economic anxiety or in terms of the environment.

Fourthly, this research may make a large contribution to the preparation of the Eighth five-year plan as well as the perspective plan of the Bangladesh government for achieving vision 2021 and vision 2041, which could be an effective hub and sources of information for equitable outcomes.

Finally, the policy suggestions in this research can be used in terms of providing improved recommendations for better distribution of educational expenditures as well as how the government can enhance its ability to formulate and implement a particular policy such as education expenditure.

1.6 Data Types and the Unit of Analysis

Both qualitative as well as quantitative analysis will be applied in this research. The purpose of qualitative analysis is to evaluate the content as well as characteristics of education policy formulation along with education disbursements in Bangladesh. Multiple linear regression analysis will be used in this research for the secondary data. Years will be the unit of analysis and BIA will also be applied where incidence analysis will be done for household income quintiles based on the yearly data of 2016.

1.7 Organization of the Study

In addition to chapter one, six more chapters—each containing specific heads will organize this research. Chapter 2 thoroughly reviews the literature concerning theory as well as empirical evidence along with the formulation of conceptual frameworks and hypotheses forming the baseline of this research. Chapter 3 covers the research methodology and explains the techniques which produce a precise

justification for the variable selection on which experimental analysis will be conducted.

Chapter 4 is a qualitative investigation of education “policy-making chemistry” in Bangladesh, which enables us to provide inclusive information and a foundation for the explanation regarding the key issues concerning education policy in Bangladesh, such as reforms of education as well as the characteristics of educational expenditure patterns, which will be further be explored there. Chapter 5 shows the empirical findings of the study from the specified models, specifically the potential determinants of education and levels of educational expenditures in Bangladesh. Conversely, Chapter 6 shows the empirical results of income distribution on public education, indicating the results of BIA in terms of the diverse trends of enrollments and expenditures; and finally, Chapter 7 is a summary of the results and contributions of this research, and a discussion of the policy implications of the findings of the research.

CHAPTER 2

LITERATURE REVIEW, AND THEORETICAL AND CONCEPTUAL FRAMEWORK

This study will thoroughly review the theoretical as well as the empirical findings with a view to exploring the theoretical underpinning in order to investigate the determinants of the escalation of public expenditure as well as across the levels of education and the distributional effects of income on the educational sector in Bangladesh. There are a good number of theories, such as finance and economic theories, that have already been used to explain, in different empirical studies why general expenditures, particularly education expenditures, continue to increase each year in all most all of the countries in the world. The present study will conduct a wide-ranging literature review by examining various publications—published papers, articles, government as well as international agencies reports and various evaluation report—in order to judge the earlier as well as the current trends or scenarios in an attempt to unearth the policy points of view for public expenditure regarding the education sector in Bangladesh.

As there is no theory of public disbursement (Domar, 1957), it will be helpful to review or discuss the various theories that determine the causes of public expenditure, predominantly the expenditure on public education, which will provide a clear idea in

order to build a framework for this research. Even though a large amount of literature has investigated the determinants of public expenditures, most of them look basically at the variables related to economic growth. This research will be based on the previous works to find out the research gaps not yet researched on public expenditure on education in the context of Bangladesh. Many people cannot deny the fact that education is the soul of life as well as the key to higher standards of living; therefore, the expenditure on education might advance economic development through encouraging human capital accumulation in the long run (Blankenau & Simpson, 2004; Glomm & Ravikumar, 2003). In the earlier phases study on public spending focused both on inclusive patterns of expenditures as well as on the specific purposes of expenditures such as educational expenditure, healthcare expenditure, defense, agriculture expenditure, etc. The exemplary papers of Wagner (1958), Peacock and Wiseman (1967), as well as Musgrave (1969) are considered key pieces of research at the initial stages in the public disbursement analysis domain. These scholars in their study explained in detail why public expenditure continues to increase. Recent research on public expenditure has mostly been focused on the specific purpose of expenses; for example these studies include the determinants and/or trends of public education expenditure in the United States during1950-1990 (Buracom, 2011; Fernandez & Rogerson, 1997 & 2003; Imana, 2017; Sagarik, 2013; Yin, 2003), as well as across countries (Hanushek, Eric A, Rivkin, 1997; Ram, 1995).

Education policy analysis may not be limited only to the determinants of economic affairs but also covers a substantial numbers of social and political factors (Cameron, 1978; J. Lee, 2008; Muller, 1987; North, 1985; Quade, 1982); Castles, 1989; Huber and Stephens, 2001. For a comprehensive view as well for obtaining

further details in order to understand education policy analysis, one needs to investigate further the multidimensional determinants of policy, because a sound policy must integrate social, political as well as other imperative determinants in order to offer additional understanding how policy is made (Sagarik, 2013).

This research will include important information and will provide a general idea of the conceptual issues before developing a model for analysis. For a researcher, it is important to review the theoretical linkages of policy determinants and educational expenditures, as these will provide important guidelines for analyzing the topic that a researcher is going to research. In order to find a suitable theoretical framework for this research, it is worth having a thorough review of some of the empirical evidence that will provide ideas about and clues to discussing the major concepts.

2.1 Trends of Public Expenditure on Education

The government deals the public sector economy in a conservative way and obtains economic objectives in the concerned sector, where four sub-heads are used by the government in general: the efficient distribution of resources, the steadiness of economic activity, the impartial allocation of income, as well as the promotion of economic development (Lee et al., 1970, p. 5). In today's modern (post-eighteenth century) as well as fast growing world, all governments by tradition use policies that ensure the specific goals in the public sector. The government's expenditure is the most important instrument that makes pace with the government, and it determines how actually a government behaves practically in analyzing public policy-making affairs. In addition, government expenditure is the determinant of the government's notion in terms of taking rigorous decisions or in the policy-making process.

The budget (annual financial statement) is the mirror of the government where politics is concerned, along with the philosophy (party politics) of the current government in power and the tool to review continuous programs and the allocation of resources according to executive suggestions, containing the provision of additional as well as subtractions of budgets, considering the case of the practical reputation of the goals of steadiness, distribution, and development. The purpose of this section is to have a synopsis of educational expenditure and the following section will deal with the simultaneous trend of education expenditure of different countries along with the expenditure of education in Bangladesh.

2.1.1 Definition of Public Expenditure

Though the terms- public expenditure or public spending it seems to be a simple concept, but it is quite difficult to comprehend in the real world because of its vastness as well as the applicability in the financial affairs of the state. In simple terms- public expenditure or public spending means the expenditure of the government, sourcing the resources from households and firms. In the real world, in order to understand the term is not so easy because of its complexities as faced by the government in dealing with different issues as well as analyzing the concept meaningfully. For that reason, it is essential to take into account the term's explanation cautiously when someone will analyze public expenditure, having the notion in mind that there is a huge political debate on this term.

Over the period of the 1970s and the second half of the 1980s, the political debate on the term public expenditure concerned the forecasts of governments going bankrupt (Rose & Peters, 1979), of pluralist stagnation (Beer, 1982), and there is also

a huge debate on the term fiscal crisis (O'Connor, 1973). These analyses raised the consciousness of both policymakers as well as the public in terms of emphasizing sophisticated devotion to the technique in which public disbursements are allotted and what determines those expenses.

The conception of public spending is unlike other political notions, as Mullard has stated: "a contestable terrain, to be occupied by changing and competing definitions, where those that seek to do the defining represent a vested interest and where those that gain the ascendency will also reflect a specific political ideology and therefore offer a specific series of public choices" (Mullard, 1993, p. 12).

The definitions of public spending are mostly predisposed toward either a macro or micro point of view of the formation of public disbursement. The macro point of view is inclined to make out public disbursement as cumulative in the national economic financial records, which are likely to impact the macro economy, containing issues of inflation, redundancy, as well as interest rates. On the other hand, the micro standpoint pinpoints individual expense programs and suggestions of fluctuations in disbursement and policy outputs (Mullard, 1993, p. 12).

It is indispensable for the micro approach to take into account what public spending surrounded by individual spending programs attempts to accomplish (Rose, 1984). In that case Mullard pointed out that, "it emphasizes the need to study individual expenditure programs and the factors which influence these programs, where the concern is to explain changes in an expenditure program in relation to the legislation and public policy that are enshrined within an expenditure budget. The micro or program approach is therefore concerned with both the inputs as expressed in public expenditure terms, and also the policy outputs, which indicate which

objectives have been achieved for certain levels of expenditure" (Mullard, 1993, p. 18).

In order to make decisions about public expenditure, a series of administrative processes is involved rather than any short-cut way to have comprehensive and sound decisions. Data are the major facts in analyzing public expenditure policy as it involves many other external factors. Therefore, taking into consideration the reality of expenditure, it is worth analyzing public expenditure dynamics in order to get a good understanding of public expenditure, not making decisions based only on political statements.

2.1.2 Education Expenditure: A Global Trend

From the very begging of the 1870s, total government spending has been increasing significantly in all of today's industrialized countries, though this increase has not been equal to that in all other countries; this is despite the fact that the development in public spending has been a common phenomenon despite institutional, geographic, as well as language barriers (Tanzi & Schuknecht, 2000, p. 3). The increasing importance of peoples' privilege in the welfare arena has resulted in and added to the change, and subsidies are estimated in societal disbursement (Sagarik, 2013). A study of the European Union exposed that welfare disbursement as a percentage of the GDP was more than twofold in 1960 and 1980, and increased to 20 percent from 10 percent of the GDP, and has continued to grow steadily subsequently (Tanzi & Schuknecht, 2000, p. 32). Statistics on public expenditure on education as well as health recommend that the actual per capita expenditure for education and health has gradually been escalating in emerging countries, which has

been supplemented by substantial developments in social indicators, which indicates that escalating disbursement for education might confirm that benefits are supposed to be distributed further equally whilst fast-tracking human development (Gupta et al., 1998).

The increasing trend on public education disbursement demands the need to analyze policy-making on education throughout the world and it is well perceived by the general people that the provision of public education is a crucial task of the government. It is significant to note that education has been repeatedly indicated to as the important provider to irrespective of economic development and equity and therefore to societal steadiness and democratic principles (Tanzi & Schuknecht, 2000, p. 33). Primary education provision has been the canon amongst today's industrialized countries since the inception of 20th century. In the beginning of the 1990s, public education expenditure topped 1 percent of the GDP, with France, Germany, as well as Japan indicating the highest disbursement levels (Tanzi & Schuknecht, 2000, p. 33). Ahead of World War II, public expenditure on education was approximately twofold and by 1960, secondary education up to a certain age was approximately universally obligatory and free in OECD countries and public disbursement had risen to 3.5 percent of the GDP (Tanzi & Schuknecht, 2000, p. 33). The following (Figure 2.1) shows the increasing trend of world education expenditure as the percentage of total GDP including current, capital, and transfers.

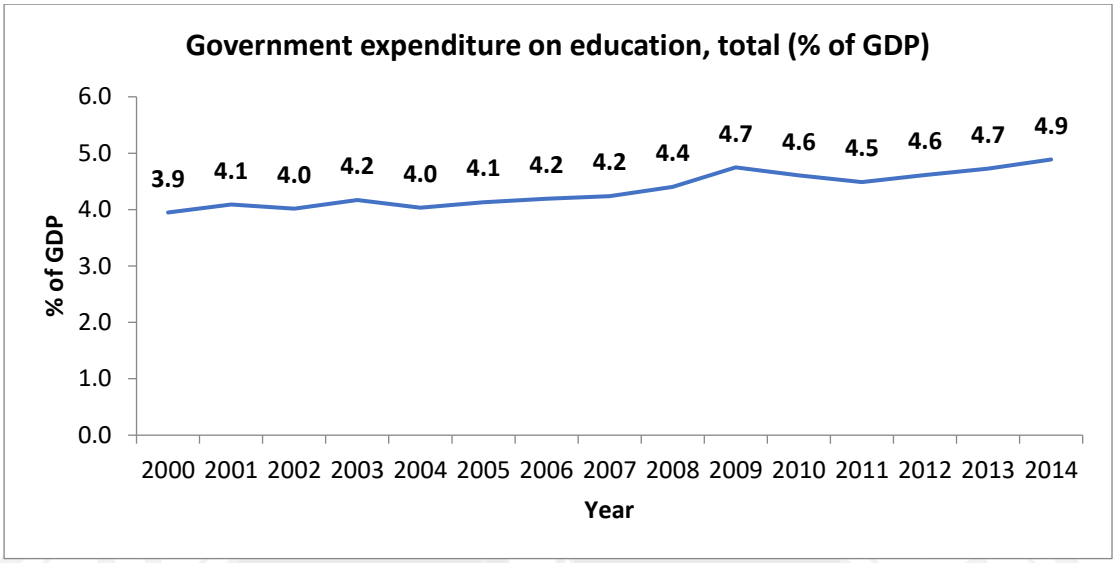


Figure 2. 1 World Education Expenditure as Percentage of GDP

Source: World Development Indicators, 2018.

The development of expenditure on education can make clear some of the disbursement increases in the past and can also echo increasing school enrollment specifically at higher levels of education. This correspondingly reflects the government's choice to make a growing amount of expenditure at all levels of education (Tanzi & Schuknecht, 2000, pp. 33-34). Since the inception of the 1930s, the years of schooling among the developed as well as developing countries in fact increased, and on an average the secondary enrollment rate exceeded 50 percent by 1960. Still today, in more countries, for example developed as well as emerging, secondary education is almost free and tertiary education is also subsidized to a greater extent, particularly by state funding. Consequently, education is an arena in which government regulations along with the funding of services have been flourishing. Conversely, the vital issue regarding the quality of education is also reported to be low in many counties (Tanzi & Schuknecht, 2000, pp. 34-35).

It can be observed from the literature that public disbursement of education by the "big government" states is correspondingly more than that of the small government states in the world. Though this variance does not seem; however, to have much of an effect on the country's indicators of educational development. In most countries, the literacy rate is approximately 100 percent. On the other, the secondary education enrollment rate is high in the medium-size country group, although the enrollment rate is almost universal in the other groups as well. The G-7 countries' education disbursement as a proportion of total government disbursement as well as the education disbursement as a proportion of GDP is presented in the following figure.

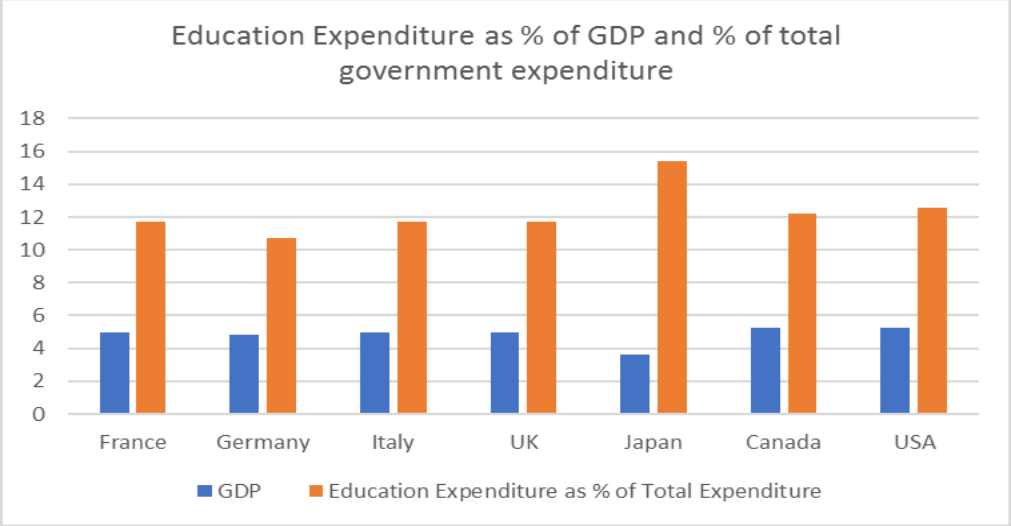


Figure 2. 2 G-7 Countries Expenditure of Education, 2011 in Dollars

Source: World Development Indicators, 2019.

The bar chart shows the G-7 countries' total educational disbursement as a proportion of GDP and the proportion of total disbursement of the governments. There is homogeneity in terms of education disbursement as a proportion of total

government disbursement (12% and 5%) except for Japan, which is sharply in advance in the education sector as it spends more on education compared to other countries in terms of total expenditure but spends less in terms of percentage of GDP, only 3.64 percent of the GDP, on education. The spending of Canada and the USA is roughly the same amount in terms of both GDP as well as percentage of total disbursement.

Conversely, in the South Asian context the education expenditure has fluctuated over time. The following figure, 2.3, shows the South Asian Association of Regional Cooperation countries' education expenditure. The figure also indicates that Bangladesh is spending less (1.54) as a percentage of GDP on education compared to its counterparts in this region, which is still a debatable issue, though Bangladesh has made substantial progress in different sectors such as health, communication and ICT, services, manufacturing, welfare, etc. within the last few decades. On the other, Bhutan is sharply advanced among the SAARC countries in terms of expenditure with a proportion of the GDP at 6.81 on education, though its economy is not as big as that of Bangladesh.

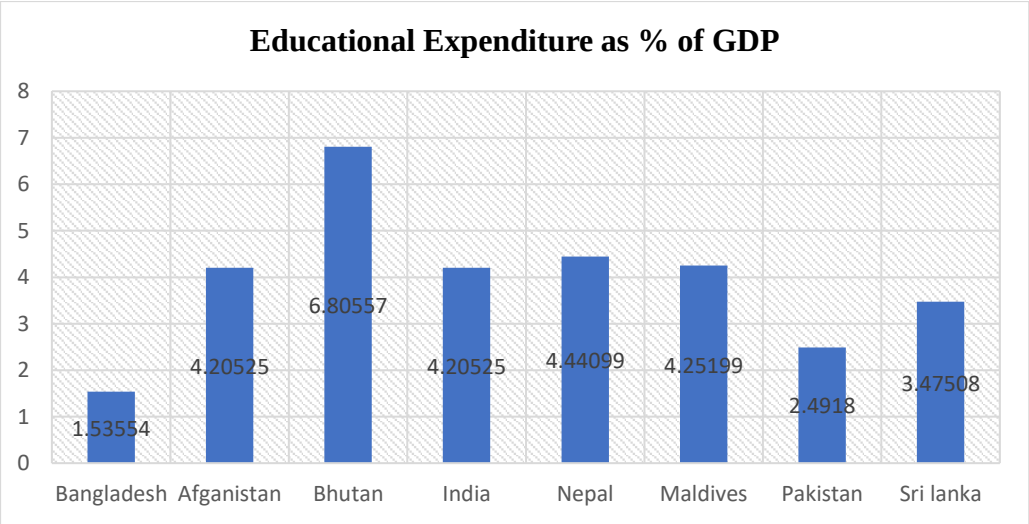


Figure 2. 3 Education Expenditure of SARRC Countries as a Proportion of GDP in 2016

Source: World Development Indicators, 2019.

2.2 Determinants of Public Education Expenditure: Theoretical Background

Public education expenditure analysis requires different dimensions in order to obtain a clear notion and therefore it is difficult to make differentiations among the subject matters of economics, politics, and social implications regarding the decisions of public expenditure. There is an inherited nexus between economics and politics and therefore in the real world, politics and economics move simultaneously.

Furthermore, for an integrative analysis, the social dimension is another factor that has an influence on public education expenditure. Consequently, this study will put more weight on the critical evaluation of the literature linked to the theories of public policy determinants, mainly those that engage with public spending and that are applicable to educational expenditure.

It is comprehensible from the literature that no single theory of public policy/public disbursement is sufficient to explain public expenditure and/or public education expenditure in the modern world. For that reason, a substantial number of theories are needed in order to cover the intended research, and which will provide a basis for a theoretical framework for the analysis of the determinants of public education disbursement of the study. Some of these theories are the economic-demographic/system theory, and social, political, as well as decision-making theory, to name a few.

2.2.1 Keynesian Counter-Cyclical Theory

It is well perceived that the trend of the economic movement of a country (also the world) is not a straightforward or upward movement all the time; rather it has an up and down trend, just like the wave of a river. Especially an economic bang or depression, which leads to economic ups and down, generates huge pressure on governments and or policymakers to create economic stabilization responding to the changing scenarios of the country while making policy. It is therefore worth mentioning that a theory that explains how public policy, such as education policy, may respond to the economic fluctuations is important and should be taken into account when making development policies.

This theory argues that the choice of distributing more or less public spending, which may be education disbursement, relies on the condition of the specific society, meaning any change in the economy that makes the government rearrange its public expense distribution. During the 1930s, at the time of Keynes general theory and throughout the Keynesian revolution, unevenly the world government initiated to observe economic steadiness as their major obligation (Mankiw, 2010). The general

theory of Keynes became stylish with leading research through Alvin Hansen, Abba Lerner, Lawrence Klein, as well as many more; and the theory offers an apparatus for economic steadiness, which is one more commanding reason for government interference (Tanzi & Schuknecht, 2000, p. 10). It is the custom of public policy to take steps to restore any variations or instabilities of an economy, for example economic growth or unemployment level, implying that the stages of public disbursement are determined by the conditions of the economy.

The underlying principle behind the Keynesian theory is that a boost in public expenditure, such as welfare disbursement, might encourage an increase in total demand and in that way inspire higher economic escalation and additional working opportunities (Buracom, 2011). Unemployment is another indicator of determining public expenditure and study supports that there is a strongly positive association with social expenditure, which implies that the government costs of different transfers are dependent on the labor market situation (Henrekson, 1988). In that case the government can take the leading role by introducing expansionary fiscal policy as well as tax cut policy. By escalating government disbursement, the government can inspire the extension of cumulative demand and economic escalation (Sagarik, 2013), and this will certainly take place because of greater money circulation in the economy along with the multiplier effect.

Keynes theory tries to explain the policymakers' or governments' decisions regarding plus or minus in terms of the budgetary allocation of expenditure, which is determined by the status of the concerned society; therefore, this theory explains the changes in the economy regarding the allocation of government education expenditure. Figure 2.4 explains how the economic conditions of a society affect the

government's decisions regarding the increasing or decreasing allocation of public education expenditure.

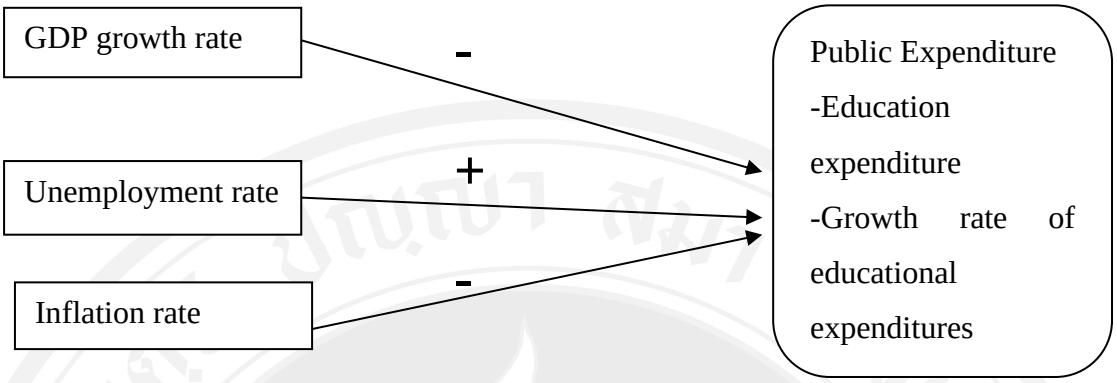


Figure 2. 4 Educational Expenditure and Keynesian Counter-Cyclical Theory

Now the major question in this research is whether the spending of education acts in opposition or is in support at routine intervals. Generally, societal expenditures are ups and down and consequently with the movement of economic consequences or situations (Busemeyer, 2007). For instance, the Bangladesh government can allot more funds in the financial year in which high job losses are beyond control as well as vice versa and allot fewer funds in the year in which economic escalation is lofty, as well as vice versa.

However, the correlation linking the public disbursement of education as well as the economic situation is likely to be more roundabout: usually monetary recessions do not to in a straight-line direction to the closing of educational institutions or the instructor remains out of services by force. However, if the effect of financial determinants concerning the disbursement of education continues to be roundabout as well as disseminated in characteristics, then the analyses of cross-sectional variation rise in significance in the framework of time-series study (Busemeyer, 2007).

2.2.2 Economic-Demographic Theory and Wagner's Law

A German sociologist, Adolf Wagner, was the pioneer of the theory called the "law of expanding public expenditure" in the past century. According to him, several causes are behind the increase of public expenditure, for example social costs and of course education spending over time. This theory argues that industrialization, urbanization, along with the increasing "thickness" of populations put pressure on government to increase the necessity for additional prerequisites of public amenities, such as medical centers, accommodations, transportation, and other infrastructure-related facilities (Buracom, 2011). Wagner further believed that increases in economic growth will have a spillover effect on the extension of several income-elastic demands, for example welfare expenditure, predominantly on education as well as income redistribution mechanisms.

Wagner's theory originated from traditional democratic systems theory, and it is expected that the partisan system pays heed to the demand arising from the environment. The output of public policy or public expenditure of political systems must be responsive to the needs of society or social forces. Therefore, this theory makes consideration of the idea concerning the environment or the elements to the definite structure are determined through some type of policies. David Easton defined a political system as a political system consisting of those exclusive as well as interconnected institutions and proceedings in a culture that constructs trustworthy provisions of morals that are compulsory on the public (Easton, 1965). In the political system, the environment means collection of all of the concepts that include the societal system, the economic system, as well as organic settings, which are

peripheral to the limits of the political system (Easton, 1965, p. 32). Figure 2.5 explains the apparatus of the systems model.

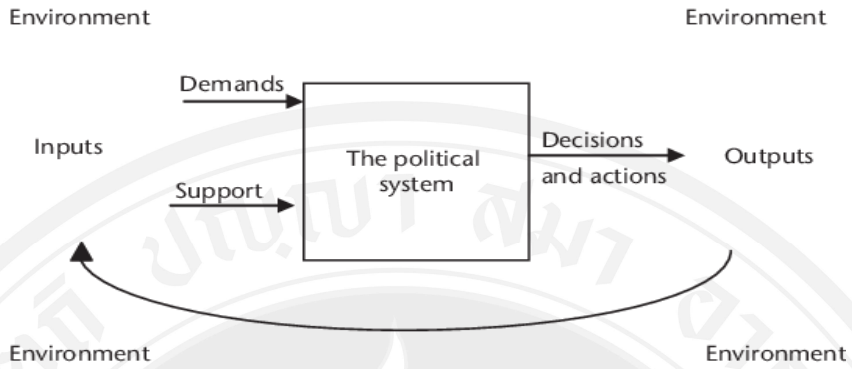


Figure 2. 5 Systems Model

Source: (Easton, 1965, p. 32)

According to Dye (1973), the concept of a system denotes a set of institutions and activities in society that function to transmute demands into authoritative decisions needing the support of the entire society. The concept of "system" additionally demonstrating that the system is to respond to the forces in its environments (Dye, 1978, p. 38). Consequently, as per the philosophy of the model, policymakers or governments should vigilantly concentrate on the circumstances, as the system model obviously has an effect on public policy. Any kinds of issues in this model should be taken under consideration at the time of analyzing any modifications in the public policy or in public expenditure on education. Furthermore, this systems model leads us to vigilant concern as well to profound contemplation of additional precise theories or models that investigate how specific factors in the model can modify or change the amount of public expenditure.

Wagner elucidated his replica of public spending boom to make it simpler and to exemplify modifications in the level of public disbursement. He further

demonstrates three key grounds for increasing government involvement (Wagner, 1958). However, Wagner believed that “natural monopolies” in the public sectors are perfectly managed. In one of his studies, Wagner cited the example of a railroad as a natural monopoly, and further discussed the private sector, indicating that this sector is incapable of collecting massive finances or carrying out that kind of natural monopoly effectively. This implies that the increase in the size of a populations would raise the further need for public services, which would obviously increase public spending, which could best be explained by Wagner’s law, as diagrammatically shown in the figure bellow.

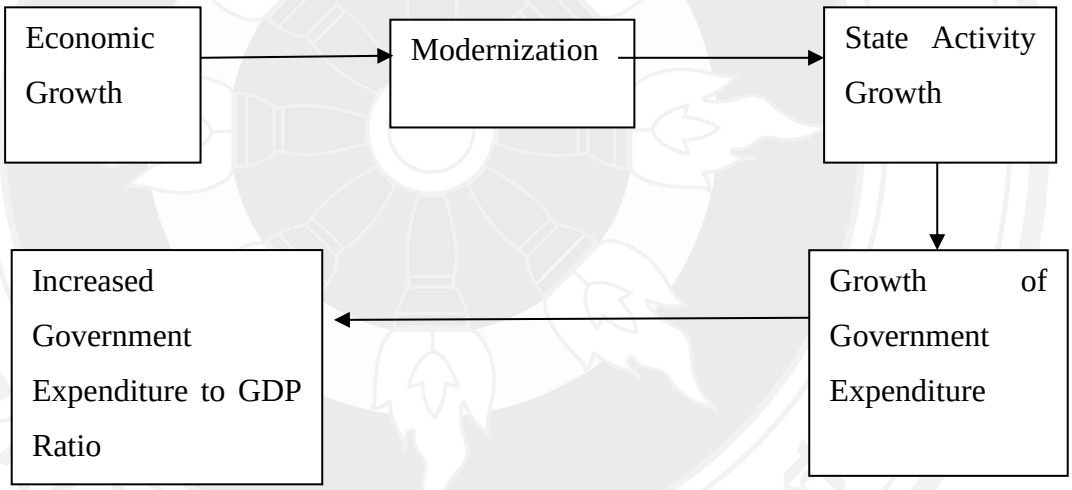


Figure 2. 6 Wagner's Law Model

Therefore, a logical agreement in the text that Wagner’s law must be interpreted as forecasting an increasing relative portion of public sector in the aggregate economy according to per capita real income grows.

Wagner believed that economic growth is accelerated by comparatively more public spending and is not a case of simple analysis, which explains the relationship

of both predictor variables. Indeed, there is more literature and there are more studies illuminating the economic demographic theory as well as its effects on the intensification of public expenditure, for example Al-Samarrai (2003); Dye (1978); Levitt & Joyce (1987); Lindert (2004) and Mzonde (2013), to name a few others. There are substantial numbers of determinants or factors involved in this theory, and few of them are as follows.

Table 2. 1 Economic-Demographic Theory and Wagner's Law and Extracted Variables

Theory	Extracted Variables
Economic-Demographic Theory and Wagner's Law	GDP, INF, POPULATION GROWTH, ENROLLMENT RATE, NUMBER OF SCHOOL AGE STUDENTS, URBANIZATION, INDUSTRIALIZATION, UNEMPLOYMENT RATE, TEACHER EMPLOYMENT ALL LEVELS, STUDENT TEACHER RATIO ALL LEVELS

2.2.3 Compensation Theory

Public disbursement regularly increases due to the pressure of international factors such as globalization. Compensation theory claims that globalization has an impact on public disbursement. This theory was originally established by international trade researchers, i.e. Garrett (2000); Garrett & Mitchell (2001); Rodrik (1998); Ubiergo (2007), who demonstrated that globalization has prolonged administrative interference in the financial system and therefore pressed the administration to increase social program-related disbursement. This theme of the theory was also

supported by Buracom (2011); Mzonde (2013); Yoon (2009), showing that social spending such as education expenditure is influenced by globalization. Compensation theory also claims that the countries involved in a free-market economy face stiff competition which results in weak domestic markets or companies suffering a lot in terms of losses in business sales. As a result, cheap commodities or goods are imported which further creates a price depression, difficulties in the foreign exchange market, job losses, and even businesses shutting down. In addition, this unsteadiness forces the government to not merely boost welfare disbursement in community sections that fall under backward positions, but to boost spending on education as well as employment generating guidance programs accordingly, so that the backward-working force may shift to other economic sectors from the declining one (Buracom, 2011).

Figure 2. 7 Education Expenditure and Compensation Theory

In this connection, the government does its best to compensate those that have lost work stemming from trade liberalization and this pressure pushes the government to increase financial distributions (Balcells Ventura, 2006; Rodrik, 1998; Yoon, 2009). Nevertheless, the main question is whether the government can compensate those that have lost their livelihoods. The same was postulated in past, that this is not the same scenario, as most of the government may not be in the position or have the capability or adequate funds to make easy reimbursement (Imana, 2017). In a typical

government, due to the effect of globalization, both social expenditure as well as taxes increases for the labor retrain governments by encouraging budget. However, unemployment repayment to laid-off employees and other forms of reimbursement are implemented and these boost public expenditure on the community sector and on education in particular (Mzonde, 2013). In addition, the number of school-age students has a positive effect on education spending.

Figure 2. 8 Education Expenditure and Incrementalism/Growth Theory

Furthermore, lawmakers are often confronted with diverse dimensions of political restrictions, which could lead policymakers to not be able to ascertain the actual social goals but also the calculation of expenses as well as benefits (Dye, 2005, p. 18). This could be the reason for assigning specialists sometimes to take support from them by the government regarding forthcoming policy-making trends (Etzioni, 1967, p. 386; Lindblom, 1959, p. 84).

2.2.4 Decision-Making Theory

Politics is always unpredictable, as it is closely associated with people's "pulse," and therefore in the domain of the public decision-making literature, the process, or the technique that politicians use is very technical as well as crucial in terms of its effect on the process of policy preparation interaction. It may say that the mechanisms of reaching a decision which is complicated at each stage into politics for

proceedings of policy procedure, it bears a vital job in shaping the policy output or outcome, especially in public expenditure. Therefore, it is essential to assess the most important process of decision-making styles, which have a tendency to affect public policies.

As a major variant of decision-making theory, incrementalism pinpoints the consequence of decision-making factors regarding public expenditure, which is founded on the "bounded rational model of decision-making theory" of Simon and Lindblom: "A decision is "organizationally" rational if it is slanting to the organization's goals; it is 'personally' rational if it is slanting to the individual's goals" (Simon, 1976, pp. 76-77). Therefore, the decision depends on the mechanisms of policymakers backed by politics. Therefore, as per the argument of the "rational decision-making model," in order to make rational decisions regarding public spending allotment, government need to have more information, for example, the demands as well as preferences of every section of people in that particular society, available options of each policy or program, and finally decision-makers need to choose the best program or policy options. In practice, taking rational decisions about public expenditure is almost impossible, especially in the instance of education disbursement in Bangladesh.

Furthermore, the incrementalism model is logically a decision-making procedure in the pluralist society, as claimed by Lindblom (Lindblom, 1959). Drastically different policies fall beyond the pale," cited by Quade (1982 p. 27). This model is very common among legislators as well as decision-makers since it is easier to create harmony regarding disagreements and no major or magnitude variations in the policies or programs of the *status quo*. According to this view of the incrementalism

model, policy design or making procedure has various forms of political chain relationships as well as steps, having no quick beginning or ending, and there is no specific margins, and policies are to be reformed incrementally over time with the current one (Quade, 1982, p. 27).

The philosophy of this model should be integrated in the policy-making agenda when we attempt to analyze public policy decisions, for example, decisions on education expenditure, as this model is assumed to be easier, and people naturally tend to like this model. For policymakers, the decision-making model is simple to follow as it requires little or an incremental adjustment of the existing policy or program.

However, rational decision-making in public expenditure hardly happens because the government or policymakers do not have the sufficient required time, information, or funds to explore each of the government's options as well as the consequences of each existing policy. Still the review of the policy process articulated by Lindblom is practical in comparation to that which appears to be implicit in much study (Quade, 1982).

Nevertheless, in actuality the public disbursement of education as characterized as incremental, and policymakers take the previous year's budget as a reference and change or fine-tune it with the present disbursement from that of the previous year's distribution. It does not add value to new budget but to fine-tuning from the previous one. In order to understand incremental model, it is important to have a basic framework of the incremental model, how it works in the case of educational expenditure that is slightly tailored from the previous year. The following

table depicts the concrete determinants that are extracted from the incremental theory. One-year lagged expenditure directly determines the current year's expenditure.

Table 2. 2 Public Education Expenditure Determinants Extracted from Decision-Making Theory

Scholars	**Determinants of Public Expenditure**
Lindblom	Existing Policies
Etzioni	Element of choice Both rational and incremental decision making

Incremental theory produces inefficiency of the government in terms of resource allocation, though as argued this theory is affiliated with less risk or major change. Education expenditure is less likely to be responsive to the changing needs and demands of the society. Nonetheless, policymakers are able to mitigate their inefficiency in terms of resource distribution by offering people greater participation in the budgetary process of the government.

In a study of Etzioni, it is contended that social decision-making includes an actor's choice and, it is shocking to inquiry to what degree social actors may come to a decision, what their route would be, as well as to what extent they are bound to go after a route set by authorities beyond their control (Etzioni, 1967, p. 385). In addition, Etzioni wished-for a third style of decision-making theory, called the "mixed scanning approach," while criticizing both the incremental as well as rational decision-making theory (Etzioni, 1967). This approach takes into consideration the environment, so it leads a more significant change than the incrementalism model than the rational model.

2.2.5 Public Choice Theory

This theory incorporates nonmarket decision-making grounded on the study of economic affairs, mainly the function of financial investigation in public policy-making (Dye, 2005, p. 24). Consequently, political factors are the crucial role player in the purview of this theory. It is grounded on neoclassic economic theory and hypothesizes that everyone, such as politician, bureaucrats, constituents, are all working for their self-interest, as well as for the greater interest of profit maximization, that is critical nature of people in developing country (Sagarik, 2013). Voters intend to gain more benefits from the government policy as well as from the government program, and accordingly politicians are also responsible for offering policies or assemble the demands of the people in order to obtain more votes in an election. This is the self-driven reciprocated collaboration between constituents as well as politicians that often shape public policy and public expenditure.

However, often in the literature and in many scholarly articles, it is treated as the subject area of political science other than political economy. But public choice deserves its individual choice or unique study discipline, which has already been produced a good number of frameworks and attempted to examine the theory. In view of having an in-depth knowledge or idea about public choice theory as well as public education expenditure, it is necessary to study more thoroughly the diverse public choice models, such as those following.

2.2.5.1 Median Voter Model

This is one of the essential variants among public choice models, which have already developed by a good number of scholars, e.g., Downs (1957); Meltzer, Allan

H and Richard (1983); Meltzer & Richard (1981); Peltzman (1980). As per the assumption of the model, it is assumed that the government in order to win votes, of course attempts to answer to the demands of the voters (Buracom, 2011). The main intention of this idea is to examine the growth about welfare spending in higher manufacturing countries and, following the ‘60s, education is included in the welfare expenditure in industrial countries and advanced thereby. This model further postulates that politicians are trying to be revenue maximizers and do work for their self-profit or gainers that also believe in other public choice models.

This model claims that the size of government diverges according to the proportion of mean income in terms of the income of the significant supporter and with the voting regulation or credentials for polling (Meltzer, Allan H and Richard, 1983). This differentiation regarding the volume of the government indeed must cover the expenditure of education. In the recent past, a similar logic was established by Peltzman (1980), claiming that the total increase could be recognized to the consolidation of vote-maximizing politicians and constituent demand driven income redistribution. Henrekson pointed out that this may be experienced by enumeration of the percentage of the mean pre-tax income as an independent variable (Henrekson, 1988). This implies that increasing the pre-tax income variable towards harmony signifies more smooth income distribution and therefore puts less pressure on governmental development; thereby, must be included in education expenditure.

Furthermore, this model may lead to a huge spreading out of public expenditure as well as fiscal crisis when a government is under pressure of public debt and runs into a severe budget deficit. Conversely, a large number of poor that are median voters may cause unproductive fiscal expansion. Study suggests an amicable way out

of such difficulty by discouraging legal restrictions to public disbursement growth, whereas government may have an inclination to spend more in order to obtain cheap popularity from the voters (Tanzi & Schuknecht, 2000, pp. 157-158).

2.2.5.2 Voting Bias Model

A supplementary significant distinction to public choice theory is the fiscal illusion model developed by a large number of scholars, e.g., James M Buchanan, (1975); James M Buchanan & Wagner (1977); Marshall (1991); Oates (1988). This model asserts that the government has choices for increasing the government's expenditure for big budgets that is said to be for meeting the need to satisfy the rising claim of the people (Buracom, 2011). In that case, the government should increase taxes which might disappoint other segments of the electorate, and then the government will try to accumulate more taxes that are less visible or that are difficult to understand by the general population. Since the government is responsive to the desires of the electorate, that is why it has to increase taxes in order to meet the mounting demand for public expenditure, such as education and with good policies offered by the government for the greater benefits of the electorate, with the hope of coming to power in re-election (Dye, 2005; Lindert, 2004; Musgrave & Musgrave, 1989). Consequently, in order to satisfy the electorate, often the government will try to disguise tax burdens mostly in indirect taxes and in that way run into fiscal deficits. This is the way or technique in which the government hides people's tax burden or that is less noticeable to the voters.

Conversely, the electorate are prone to undervalue the exact tax load as the load people observe is actually a misapprehension and not the real; for example see Mill (1848) and Mueller (1987). Indirect taxes, which are basically obligatory in the route

of marketplace dealings, are apparently less noticeable to people, and people may face difficulty in assessing the future actual tax burden where the government falls into a trap to money owing financing. There is the assumption that in order to increase educational expenditure, an easy means is to increase indirect taxes. This model also may explain in what manner foreign contribution or grants can affect public education disbursement. One study (2001) shows that the funding illusion is a proviso of how a country misapprehends the authentic charge of cash inflow or the expenditure trend near the inflow, meaning that a false grant impression arises in the condition of flawed information, thereby increasing government income and subsequently government education disbursement (McGillvray & Morrissey, 2001).

In a country like Bangladesh where the tax system is more complex, people may face greater difficulties in estimating their total fiscal load. Hypothetically, indirect taxes and future taxes both are a burden and treated as a fiscal illusion, which is regularly helpful apparatus for the government increasing public expenditure, which is also a mechanism to gain recognition by the mass.

2.2.5.3 Budget-Maximizing Bureaucrat Model

This model is variation of public choice theory can also explain the determinants of public expenditure such as education expenditure. However, growing public expenditure is not only responsible for the increasing demand of the voters, interest groups, and or legislators, but also for the demand of civil bureaucrats; this has been revealed by the writings of a good number of scholars; for example Borcherding (1977); Ferris & West (1999); Niskanen Jr (1971) think that civil servants look for a bigger budget, that could be used not only to present higher pay

and additional leisure time, but also can build a higher public status and supremacy for the government department (Buchanan & Tullock, 1977; Buracom, 2011).

Romer et al. established a model, “Political Resource Allocation,” where bureaucrats can induce voters to choose a larger amount of public disbursement compared to that of most supported by the median voter (Romer & Rosenthal, 1978). Mueller (1987) claimed that there is anticipated to be constructive alliance connecting the total size of the bureaucracy and the speediness at which the government grows. Mueller additionally concluded that “the bigger the bureaucracy is, the more difficult it is for outsiders to monitor its activity, and the more insiders there are who are working to increase the size of the bureaucracy” (Mueller, 1987, p. 138).

Under the purview of this theory, the intensity of public spending gradually goes beyond the requirements of the society, and therefore this model asserts that allocation of resource mechanisms is inefficient as well as being wasted, and this happens because of the pressure or from the demand of bureaucrats; or otherwise, there may be for the volume of bureaucracy. In the case of Bangladesh, public servants get more fringe benefits apart from salaries to a great extent in comparison to those that serve in the private sector, for example, health and medical services with minimum costs, travel allowances, dearness allowances, car facilities with a driver and fuel, loan facilities with minimum interests, etc. For that reason, the assumption is that more recruits in the education sector, such as teachers, officers, or bureaucrats, the huge expenditure on education in public sector.

2.2.5.4 Political Business Cycle Model

Across the globe, macroeconomics as well as politics are constantly interrelated and therefore have a profound impact on the political system or on

political parties in an election. The spotlight of the political business cycle is on to what extent politics affects public expenditure. A number of scholars, for example Alesima et al., 1992, and HIBBS, 1994, have claimed that the business cycle is created by the competition for votes amongst political parties and, the government could itself produce this political cycle. According to the claim of this model, the government and the political parties are silent to be self-fascinated as well as consequently their main concern is to be successful in a polling. As a result, public expenditure is typically utilized by the government or party in power as an apparatus to influence constituent support for the period of an election (Buracom, 2011). Political party in power increases government expenditure in different programs which directly benefits the general people before the election time for getting unconditional support to win in the election. In this case, education subsidies are one of the major types of expenditure that may directly motivate the decision of the voters.

Therefore, as Bangladesh has a parliamentary system of democratic country and elections are held in 5-year intervals, under this research it is essential to analyze the effects of election on public disbursement, basically education expenditure. This concept was argued by Kalecki in his study and according to his view, the government is supposed to under pressure from a capitalist group to maintain regulation in the work force because of the panic of joblessness (Kalecki, 1943). Consequently, the party in power must interfere by coming up with a unique policy that will help to ease the worst effects of an economic downturn to revive the support from the constituents. In addition, the purpose of the government is to have an election at the time of good macroeconomic conditions (Heckelman & Whaples,

1996), even though this idea is not flattering to the capitalist group, particularly for the period of an economic rise.

However, it is assumed that this model is responsible for inefficient resource allotment, as public spending is approachable supplementary to short-range voting because in the long-run, even a high-quality policy may have no shock over short-sighted constituents. Therefore, the incumbent government obtains benefits from the voters as they do not understand the consequences of the election-time inflation (Alesina & Sachs, 1988). This typically means that public spending, fiscal deficit, as well as money supply obviously increase in advance of an election, along with the factors affecting the election, affecting economic fluctuation, accordingly. In that case a good number of theorists have tried to explain this situation, for example Allen et al., (1986); Block (2002); HIBBS (1994); Snyder & Yackovlev (2000). Basically, this condition will happen like a cycle, which will repeat again with the passage of time.

Table 2. 3 Summation of the Public Choice/Political Theory's Determinants of Public Expenditure

Scholars/Writers	**Year (s)**	**Public Expenditure Determinants**
Meltzer, Allan H and Richard	1983	Median Voter Income of the Voter (Mean)
Peltzman	1980	Income Distribution driven by Voter Demand
Buchanan	1975	Indirect Tax Debt Financing (Future real tax burden)

Scholars/Writers	Year (s)	Public Expenditure Determinants
Buchanan & Tullock	1977	Size of Bureaucracy
Romer and Rosenthal	1978	Bureaucrats
Mueller	1987	Big size of Bureaucracy
Alesina and Sachs, HIBBS	1988, 1994	Duration before Election

2.2.6 New Institutionalism Theory

New institutionalism theory is a slight variation of neoclassical growth theory as well as endogenous growth theory by trying to integrate the theory of the institution and good governance into the theory of economic growth. This was originally developed by Mancur Olson and Doughlas North.

This theory believes that economic growth is not reliant on merely the investment in physical or human development but similarly relies on the active support of legal and government organizations, including effective legal institutions which could implement the agreements as well as property rights that empower the businessperson making an effortlessness business contract to be enforceable with confidence. Conversely, a system of good governance predominantly combines the government and bureaucratic system which are apparent and responsible for boosting the confidence, collaboration amongst people, entrepreneur, and the government. In that case, democratic partisan system can guard political liberty along with political rights. Therefore, the performance of the government in policy-making and policy execution capability improves, and in the study this performance might lead to effective performance in dealing with educational disbursement of Bangladesh.

It is obvious that accountability in all aspects of governance is a precondition to the development of any country and government takes necessary legal initiatives in constitution. A paper explored (Iyoha & Oyerinde, 2010) where accountability in public disbursement can more easily be understood within the background of a vibrant accounting infrastructure as well as a vigorous accounting profession and not in the diversity of laws and anti-corruption agencies, each of which is reactive in nature. Across the globe, and basically in emerging countries, corruption is considered as detrimental to state efficiency and impedes the budget equilibrium, slows down disbursement efficiency, as well as interferes with distribution mechanisms. One paper scrutinized the effects of corruption on the structure of government expenditure by sector using the three-stage least squares technique on 64 countries, from 1996 to 2001, and found that public corruption distorts the structure of public disbursement by dropping the portion of social expenses and increasing the part devoted to public services and order, fuel and energy, culture, and defense (Delavallade, 2006). On the other hand, a recent study applying a panel of OECD countries during the time frame of 1995 to 2015 proved that corruption upsurges public debt and that this effect is sovereign on the size of government disbursement; and if corruption were halved, public debt would decline by two percent in the short term (Del Monte & Pennacchio, 2020). These results have vital implications for policymakers as the paper recommends that better control of corruption is a credible tool for curtailing public debt in developed economies. There is extensive debate across the globe over the effects of both corruption as well as government expenditure in terms of economic growth. One study assessed a comprehensive panel of countries, and the findings displayed that collaboration among corruption, both investment and military

expenditure have a robust negative impact on economic growth. In addition, reducing corruption will not only have directly positive effects, but is also likely to have positive indirect effects by reducing the size of the negative impression of military weight (Agostino et al., 2016). However, corruption shrinks education and health disbursement as part of total public disbursement in Arab countries (Hashem, 2014).

As public expenditure efficiency depends on institutions' quality rather than individuals, so regulatory quality is a matter of effective expenditure. A study on 111 emerging countries using a panel data set from 1984 to 2004 found that political, institutional, and governance variables impact government disbursement significantly (Shonchoy, 2010). It is not exactly the quantity of transparency that matters; unlike variations of transparency will have differential impacts on the attainment of public policy objectives. How transparency systems are structured will therefore shape their influence as public policy on efficiency, on equity, and on democratic accountability (Heald, 2012).

Inefficiencies of government affect both infrastructure as well as health sector spending. A paper measuring the relative efficiency of Saudi Arabia's public expenditure, covering the time frame of 1988 to 2013 using a DEA-bootstrap analysis shows the results that on average, public disbursement is ineffective, meaning that government might improve performance on sectoral disbursement such as health, education, and infrastructure without increasing expenses (Ouertani et al., 2018). The improvement of the efficiency and effectiveness of public expenditure features high on the political plan. But another paper shows that the efficiency in public services more commonly and, in public expenditure on education as well as R&D in particular, fluctuates meaningfully between countries; though there is difficulty to measure

efficiency and effectiveness for lacking of quality data (Mandl et al., 2008) . A paper on the OPEC regions explored the effects of resource rent, human capital, and government effectiveness on government health disbursement using the MLS method covering the time frame of 2002 to 2015 and proved that the aforementioned variables influence health expenditure directly, implying that government effectiveness has a mutual relationship with public expenditure (Nikzadian et al., 2019). In Bangladesh, public expenditure has a huge impact on economic development along with people's living. In order to assess the impact, a study in Bangladesh using public expenditure tracking survey (PETS) as well as a quantitative service delivery survey (QSDS) in primary education as a test case, showed that the level of efficiency of accountability, transparency, and effectiveness of public expenditure in the aforementioned sector was very small. The paper shows that government effectiveness has a positive effect on public expenditure (Hossain, 2014).

North (1990) characterizes institutions as follows: "Institutions are the rules of the game in society or, more formally, are the humanly devised constraints that human interaction." Consequently, confirming the cost-effective decision-making of individuals as well as institutes by eradicating distortions is one of the significant effects of the institutional structure on the economy. Findings of the paper shows that the effect of institutional effectiveness on economic development analyzed among 3 country groups (developed, developing and underdeveloped) during 2002-2015 by GMM and, found that developed institutions effect economic development positively in develop countries unlike emerging countries (Ozpolat et al., 2016). The evaluation of the factors determining the ratio of economic progress has uncovered that country specific attributes have vital effects on growth performance, showing that the upkeep

of the rule of law boosts growth. Evaluations using instrumental variable methods propose that democratic institutions do experience better growth performance, meaning the quality of expenditure (Butkiewicz & Yanikkaya, 2006).

Therefore, it is assumed that these factors may have positive effects on public disbursement, especially on public education expenditure, which is also a crucial part of the macroeconomic performance of the government as well as human capital development; further, poor institutional environments may reduce the policy performance of the government, particularly education expenditure policy in Bangladesh.

2.3 Empirical Evidence of the Determinants of Education Expenditures

No one variable is sufficient to explain the determinants of the educational expenditures in Bangladesh; therefore, we need to consider various types of variables in order to obtain understanding regarding the explanation of public expenditure, i.e., educational expenditure. Using only political or economic variable is not sufficient to explicate all of the dissimilarities in public education disbursement. The question here is: What are the determinants of this kind of expenditure? Though a substantial number of studies in the past have analyzed socio-economic and political variables using time-series analysis over a longer period in various countries, and most of them focused on developed country. The present research will create a suitable framework for the examination of the policy determination of Bangladesh regarding education expenditure during the stipulated time.

2.3.1 Socio-Economic and Demographic Determinants

Compared to other studies, economic research has the significance of economic resources in the domain of public policy formulation procedure (Dye, 1978, p. 268). From the very beginning of the research in the field of public policy, it has been assumed that the changes in the socio-economic and demographic environment have been taken into consideration. This notion might be applied as well to the decision-making on education policy, since Mincer (1984) pointed out that human capital is a connection that incorporates both the causes and effects of economic-demographic variations. At present, there is massive literature on Wagner's law related to government disbursement in general. A good numbers of past research and most of them are from both developed and developing countries, for example, Kolluri et al., (2000) using time-series statistics to the G7 countries during, 1960-1993. Authors found that the guideline holds in order to some of the device of government disbursement for G7 countries similarly the short- and long-term standpoints.

Furthermore, there is good number of study that has already incorporated the theoretical background in economics that analyzes the education policy mechanisms across the global comparison point of view, specifically the determinants of educational spending (Fernandez & Rogerson, 1997; Hanushek, Eric A, Rivkin, 1997; Ram, 1995). This research particularly points out socio-economic variables, e.g., GDP, the enrollment ratio of students, the number of teachers per-capita, etc.

The paper of Hanushek & Rivkin (1997), presented that variations in enrollment have substantially inflated educational disbursement along with the intensifying the cost of outside expenses and staff. Moreover, personal income counts

as a noteworthy determinant also in terms of educational expenditure (Fernandez & Rogerson, 1997).

The study of the elucidation of cross-sectional variation in public education expenditure (Castles, 1989) takes into account the shock of the higher education enrollment rate of education expenditure where the author found a positive relationship both of the enrollment rate along with tertiary education spending. Therefore, educational indicators may be very attention-grabbing variables for testing their shock on education expenditure.

Poterba (1997) in a study of K-12 education discussed demographic structure, showing its impacts on public expenditure. Poterba used panel data in U.S. A. for the period of 1960-1990 on both primary and secondary education and recommends that a rise in the portion of aged populations in a particular area is linked to a considerable decrease in per-child education expenditure. In that study the author also pointed out a few appealing directions for policymakers of the concerned country/states and indicated that the variation in the size of the school age population does not matter in changing proportionately the allocation of the budget in education. Therefore, having a large school age population in a state means that there is less allocation of education spending per child compared to those states that have a smaller number of school age children. This also means that the government allocates education spending state-wise, not based on the number of people or school age population. Another study at the Indian provincial level during the study time frame of 2001 to 2010 applying panel model analysis showed that richer states spend compare more than poor ones in terms of per capita income (Dastidar et al., 2014). Another study on 11 OECD countries during the time period of 1979-2013 found a strong relationship among

household expenditure and the indicators of macroeconomics, for example interest rate, GDP, import growth rates, etc. (Varlamova & Larionova, 2015). The experimental results from the study of the determinants of public education disbursement in Malaysia over the period 1982-2016 found that GDP, unemployment rate, inflation rate, as well as the working age populations were the long-run determinants of public education disbursement (Yun & Yusoff, 2018).

However, another study examined the politico-economic shock of society's age structure in terms of education expenditure, for example in the work of Kemnitz (1999), who pointed out the positive effect of aging population regarding education expenditure. He noted that the age structure of society in terms of education subsidies and the decrease of the population growth rate affect the changing pattern of allocating education subsidy, meaning that aging populations have a positive relationship with increasing education spending.

Another paper examined demographic transformation as well as its effect on public education expense allocation in the East Germany, for example in Kempkes (2010), who found that recourse adjustment seemed to be mainly robust in times of lessening student cohorts through 1993-2002.

Furthermore, another paper from Switzerland grounded on demographic variation through 1990-2002, Grob & Wolter (2007) found that the education system has presented modest elasticity in fine-tuning variations in the school age population, and that the portion of the elderly population has a markedly adverse effect on the willingness to pay out on public education. We can see from the above that a society that has a large number of aged populations tends to allocate less on education by nature. The study results demonstrate that populations age structure stimuluses to the

growing of public disbursement in Africa are (0-14) and (15-64), though the age structure of 0-14 more significant than the lower one (Bernard et al., 2020). Another study came to a unanimous decision supporting the idea that economic conditions as well as demography factors had a significant role in manipulating the tendencies of public education distribution for many economies (Yun & Yusoff, 2019). A further study in South Africa during 1970-2016 uncovered that urbanization rate, national income, poverty rate, as well as the wage rate substantially manipulate the volume of government spending (Maluleke, 2018). The following table is a list of the earlier studies related to economic demographic theory

Table 2. 4 Determinants Used in the Previous Studies in the Economic-Demographic Domain

Scholar (s)	**Year of Study**	**Determinants used**
Castles	1989	Tertiary Enrollment
Ram	1995	Enrollment Rate/GDP per Capita
Hanushek and Rivkin	1997	GDP per capita/Enrollment Rate
Fernandez and Rgerson	1997	GDP per capita/Enrollment Rate
Poterba	1997	Proportion of Aging Population
Kolluri, Panik and Wahab	2000	GDP per Capita
Grob and Wolter	2007	Number of School Age Population
Kempkes	2010	Number of Students
Dastidar, Chatterji & Mohan	2014	GDP per Capita
Varlamova & Larionova	2015	Interest Rate and GDP per Capita

Scholar (s)	Year of Study	Determinants used
Yun & Yusoff	2018	GDP, Unemployment, Inflation, Working Age Populations
Maluleke	2018	Urbanization, Income, Poverty
Yun & Yusoff	2019	Demography Factors
Bernard et al.	2020	Age Structure

2.3.2 Decision-Making Determinants

As decision-making is a crucial factor in the policy-making procedure, a good number of studies have attempted to find out its effect on the public expenditures on education. A paper of Saeki (2005) tests state education spending determinants and found interesting. Saeki's research regarding basic and secondary education expenditure through the state's government of the United States in 2000 found orderly determinants for example of incrementalism. Incrementalism was seen to have substantial control on education expenditure, that reaffirms the incremental model of decision-making.

Additionally, another paper of Shelley & Wright (2009) applied panel regression to study various measurements of a state's tertiary education disbursement over 45 states from 1986 to 2005 in the U.S.A. The outcomes of panel stationarity examination pointed out that all expenditure orders held a unit origin. The findings of the study are reliable along with the incremental theory of public disbursement. In addition, the time-series of these variables might be distinguished if applied as predictor variables in regression models. Without doubt these findings from that

research show that those expenditure increments are extensively pro-cyclical. This study was on higher education level only but confirms incremental theory as well.

In a paper of Tandberg (2009; 2010), found additional support for the implication and speculation of the incrementalism model. In that paper the author used the preceding year's expenses on higher education as the independent variables to experiment with their effect. The findings showed that higher educational disbursement fluctuated moderately from the preceding year's expenses among other variables. In another study, Mogues (2012) also supported the incremental model in his study of 'determinants of public education expenditures, what makes prioritization in public investment in developing countries'.

However, based on the above-mentioned study and findings, it is bit a tricky to examine the shock of incremental variable on Bangladeshi education spending during the time frame under study as well as in terms of regions. Though these two approaches can be used to check the accuracy of the theory, they can also be used to present a solid analysis of the determinants of public policy on education disbursement in Bangladesh.

Table 2. 5 Determinants in the Empirical Studies Used in the Decision-Making Theory

Scholar (s)	**Year**	**Determinants in Study**
Saeki	2005	Previous year's Expenditure
Shelley and Wright	2009	Previous year's Expenditure
Tanberg	2009, 2010	Previous year's Expenditure
Mogues	2012	Previous year's Expenditure

2.3.3 Political Determinants

It is well known as well as an open declaration in contemporary economic history and literature that using only the economic variable is not enough to illustrate all of the distinctions in public policy, and this truth is itself confirmation of the influence on political factors (Dye, 1966). In the history of economic literature, a good number of empirical research in the domain of public choice and/or in political economy has already attempted to find out how politics plays a role in determining public policy in particular. These studies provide us with concrete proof of the political determinants of public disbursement, particularly on education expenditure. This proof leads us to consider the structure of the investigation of the education expenditure policy of Bangladesh during this research period.

A good number of papers in political economy have tried to test the median voter model. Especially, political variables have been used in the assessment of policy determinants, where some test the dynamics of welfare expenditure and some mainly test educational expenditure. These kinds of studies began from a number of prior research which investigated how political as well as economic frameworks affect policy outcomes, for example education, health, and welfare policy in advanced states. Many studies have tested the above-mentioned area and in particular. Kristov et al.'s (1992) work is prominent in this arena and has given more emphasis particularly to voter involvement or voter attendance, showing the shock on welfare expenditure.

In addition, Lindert and Davis (2004) further examined the escalation of welfare spending by applying constituent attendance as one of the imperative factors. Another domain study in the same domain, that of Weerts and Ronca (2008), included voter

participation as the independent variable in order to examine its effect on higher education in the U.S.A. from 1985 to 2005. However, a study containing state-level panel analysis from 2001 to 2013 found that the political factor significantly affects social sector expenses in only high-focused states. The previous year's voter turnout is the indicator of politically active citizens' participation in an election (Paike & Pal, 2020).

The voting bias model or fiscal illusion is one more significant discrepancy of the public choice model that similarly holds a key function in determining public policy, mainly in educational disbursement. In the usual situation of the determinants in public spending in total, the fiscal illusion model is studied by means of the shape of tax returns as a determinant of increasing the ratio of public expenses (Heyndels & Smolders, 1994). The budget deficit similarly could be clarified by the fiscal illusion model as well as testing its influence on public disbursement in terms of the economic growth ratio. However, fiscal illusion can further be applied in the instance of education disbursement, as has been seen in many studies, for example that of Radcliff and Saiz (1998) and Saeki (2005). These studies show that the amount of education expenditure is mostly determined by the volume of the government and is characterized by the fact that bigger government intends to expend additional money on education. This is confirmed by the budget-maximizing theory of bureaucrats, which was discussed earlier.

Another key policy determinant is the rate of return (RR), which is important at the higher education/tertiary level of OECD countries in terms of financial savings in higher education (Martins et al., 2007). This research shows the tax structure has a significant shock on education expenditure or financial savings. Nevertheless, a

comparatively less progressive tax structure will boost average income to higher education, while it could possibly lift common distribution anxiety. Conversely, a less progressive tax structure indicates a high distribution of income, potentially raising the threat in educational investment.

Labor union members used as a determinant of public expenditures of different types (Cameron, 1978). Tandberg (2009) examined a number of political factors affecting higher education spending. In that case, pressure groups can consider to be more considerable factors affecting higher education spending. This is similar to a study of Mclendon et al. (2009), which showed that political factors, for example partnership as well as pressure groups, have an effect on higher education spending. It can be considered that the number of teachers in the educational system can be used as a proxy of interest groups in the education policy-making procedure in Bangladesh.

For testing the political business cycle, a substantial number of studies have been conducted in order to ascertain its impact on public expenditure as a loophole of business cycle model. For example the working paper of Portrafke (2006) examined the spending trend at the German national level from 1950 to 2003 and showed party politics as well as election year effects as proof. He further investigated expenditure behavior impacts at the state/county level from 1974 to 2004 in his panel data skeleton and also found that, compared to the national level, public policy had a smaller number of impacts on the allotment of expenditure at the county level.

Theoretically as well as practically electoral contests can send a signal as well as have a solid impact on public expenses, particularly on welfare disbursement (Comiskey, 1993). In his study, he found that election competition determines the growth of public disbursement, and candidates anticipate the demand for higher

welfare from constituents and attempt to satisfy voters by raising the welfare disbursement volume. For that reason, we can anticipate that during an election period, the amount of public spending will be higher than at any other time.

In a study of Cusack (1997) on 16 OECD countries, the author investigates the extent to which politics plays a role in public expenditure and the writer focuses on the function that voting plays in determining public expenditure. The author also adds the advance democracies during the time frame of 1955 to 1989 in his study sample. This finding from Cusack studies yields solid support for the model of partisan politics. Particularly noteworthy is the dominant role that the voters play in determining as well as altering public expenditure.

However, educational disbursement has similarly been analyzed through the political business cycle in the economic literature. The political party's office or span in office additionally matters as well as gives a clear signal about public disbursement affairs. In a paper of Kemnitz (1999), investigating peoples age structure, presented that a longer voting cycle would involve less subsidy payment for public education. From this study certainly indicates the implication of the pressure of politics on public policy-making decisions, specifically concerning the disbursement of welfare.

The following table is a summary of the empirical research that has already confirmed political variables as the determinants of public choice theory. Especially, there are some papers that use precisely the same factor or determinant that may possibly mean that these factors are of interest by a substantial number of scholars in different journals, dominantly regarding public choice. This evidence will help us to develop a theoretical framework for the study in order to analyze the determinants of education expenditure in Bangladesh.

Table 2. 6 Determinants Used in Empirical Studies by Public Choice Theory

Scholar(s)	Year of Study	Determinants
Dye	1966	Voter Turnout
Cameron	1978	Member of Labor Union
Kristov, Lindert, and McClelland	1992	Voter Participation
Comiskey	1993	Election year
Heyndels and Smolders	1994	Ratio of Indirect Tax
Cusack	1997	Expanse Election Period
Radcliff and Saiz	1998	Size of Government
Kemnitz	1999	Voting Cycle Length
Lindert	2004	Voter Participation
Saeki	2005	Size of Government
Potrafke	2006	Election year
Martins, Boarini, Strauss, de la Maisonneuve, & Saadi	2007	RR from Tertiary Education
Weert	2008	Voter Participation
Mclendon, Hearn, & Mokher	2009	Interest Group
Tanberg	2009	Interest Group
Paike & Pal	2020	Voter Turnout

For this study, the conceptual framework will be conceptualized through connecting the key concepts/factors from different types of related public

policy/public expenditure theories as well as validating them with the empirical findings; and obviously, the conceptual framework will be designed based on the Bangladeshi context.

2.4 Conceptualization of Educational Spending

When explaining or analyzing public expenditure, it is essential for the researcher to bear in mind that the absolute quantity of disbursement often does not echo the true implication. The rationale behind the utilization of relative value rather than absolute value is to some extent very important for calculating expenditure. The justification behind that, total expenditure is prone to change for the duration of each period, and the relative sum of spending to GDP to total disbursement might be a better substitute that represents a real change of budget. This reflects the real connotation for inclusive analysis and can further generate better policy suggestions.

There is another type of class or category that is important for analyzing educational expenditure allocation. That means, at different levels of education, the expenditure of education allocates differently. A substantial number of studies seen from the literature review focus mostly on one stage of education; conversely, this research will attempt to cover the literature by examining several stages of education.

In Bangladesh, there are three major levels of formal education: primary (Class I-V); secondary education (VI-X) or to some extent it varies across institutes (IX-XII); and higher education, which means the tertiary stages of education. Moreover, in these stages of education there is a non-formal education system at the same time operating in the country. One more stream of education in Bangladesh is called Islamic religious education—the “Madrasah’’ system—containing five stages of

education along with the English medium system of education (‘O’ level as well as ‘A’ level) under diverse syllabi equal to the mainstream education of secondary and higher secondary levels of education correspondingly in Bangladesh. Nevertheless, for this research, primary, secondary, and higher education are considered for discussion of the distribution of public disbursement on education and further levels of education are excluded. The following figure indicates the expenditure area of public policy-making levels of education.

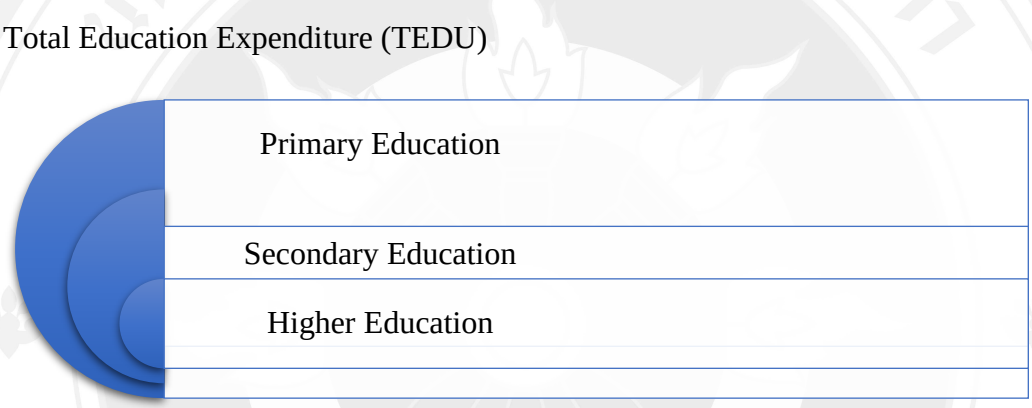


Figure 2. 9 Education Expenditure by Stages

In Bangladesh across the levels of education, the allocation of expenditure may be dissimilar, and the policy determinants may also differ accordingly. Actually, a lower level of education may be influenced by a set of determinants or variables that may not be applicable in the instance of higher education disbursement in Bangladesh, and vice versa. This differentiation presents challenges for educational expenditure analysis. In addition, combining the different kinds and stages of education is also tricky though they are importance.

Additionally, taking into consideration the stages of education as well as the policy level of requirements, education policy may be examined from different points

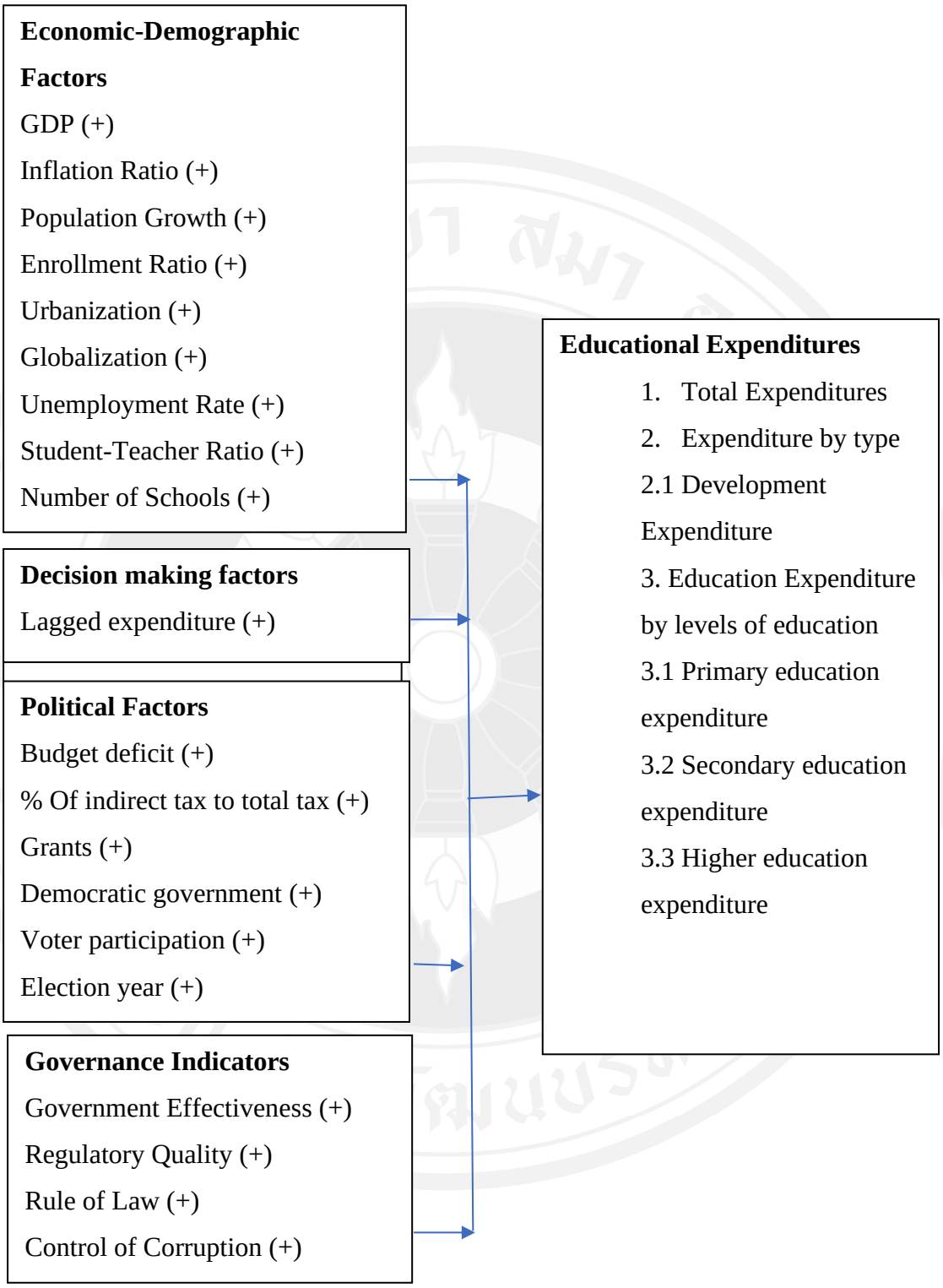
of view. Precisely, education disbursement like diverse types of public disbursement can be categorized by types. Public spending has two key forms that are broadly recognized in the economic literature: development spending and recurrent spending. In fact, these two types of expenditure form the total educational disbursement that can be in the following form:

Total Educational Expenditure (TEDU) = Recurrent Education Expenditure (ECUR) + Development Education Expenditure (ECAP)

In addition, ECAP is decisive for a country's development as well as the upgrading of governmental services, e.g., procurement of educational apparatus, other construction such as schools, colleges, universities etc. In the case of ECUR, it is used in expenditure such as salaries or wages, subsidies, and transfers. These could be the instruments of the government for receiving continued support from the bureaucracy.

As Bangladesh is a unitary system, a west minister type (a parliamentary democratic system) of government, and there is no decentralized education system, education expenditure will be analyzed nationally, which will offer a comprehensive view of policy implications along with the distributional effects across the national and rural-urban levels education.

2.4.1 Conceptual Framework I



Unit of Analysis is Years: 1980-2018

Figure 2. 10 Multi- Faced Examination of Policy Determinants Framework for Analysis of Public Education Expenditures

Note: All of the independent variables were extracted from the theory when the theory was discussed in the literature review section of the present study and MLRA will be used to test all of the factors as well as assuming that all of the explanatory factors are positively associated with the dependent variables.

2.4.2 Hypotheses Explaining Public Education Expenditure Change

This research will test the following 17 hypotheses by applying the aforementioned models.

H1: A rise in per capita income will put stress on the government to raise school amenities and the government will attempt to provide the due facilities and education expenditure will increase accordingly.

H2: A rise in inflation rates causes indispensable goods and services to be pricey, which in turn puts stress on the government to supply commodities and expenditure will sharply increase.

H3: An increase in the size of the population in urban and rural areas will accelerate the requirements for additional educational institutions, which will increase educational spending.

H4: A rise in enrollment across the levels of education puts pressure on the government to boost public expenditure on education.

H5: A rapid urban population growth rate leads to boosting total public expenditure on education for creating more facilities regarding education.

H6: Globalization compels the government to spend a lot on education and to retain a retrenched workforce and this led to increased public expenditure.

H7: An increasing unemployment rate may have a positive relationship with a higher burden of educational expenditure, which can determine the level of educational expenditure in Bangladesh.

H8: The teacher-student ratio may have a positive correlation with the determination of public expenditure on education, which may also reveal the extent to which the number of students affects the allocation of educational expenditure.

H9: The number of schools (including colleges and universities) is the sum of public schools that may have a positive direction towards public expenditure because the government may allocate more money based on the sum of schools.

H10: The government releases a larger budget than what was to be paid in the previous year since the government uses the previous year's allocation as a baseline.

H11: An increase in the budget deficit will positively affect the capacity of public spending on education as the government may have additional ability to finance education programs.

H12: A rise in the rates of indirect taxes may result in the expansion of indirect tax returns, leading to an increase in public education spending.

H13: Increasing the foreign trend of donations may create a higher government budget for the education sector, which can increase public expenditure.

H14: There is a positive correlation between the rate of voter participation as well as public education expenditure in Bangladesh.

H15: As a democratic government intends to satisfy the constituents of the country, therefore public expenditure will be increased.

H16: The political parties in the government may tend to apply good policies when the election year approaches, and this compels the government to spend a lot in order to make the voters happy so that the government will come to power again, which will enhance public expenditure.

H17: Institutional effectiveness, including government effectiveness, regulatory quality, rule of law, and control of corruption, has a positive relationship with increasing public expenditure on education.

Note: H1 to H17 means hypothesis 1 to 17.

2.5 Distributional Effects of Income on Education

The analysis of the determinants of public education expenditure as well as ascertaining accurate levels of public expenditure alone may not be sufficient in solving the problem of inequality in a country among different income household classes in terms of males and females and rural and urban areas. In that case, there is further needed to raise the share of income of the poor household class in the public economy by increasing efficiency and thereby income. The government may take initiative in doing this to make available physical capital for the poor class, for example land as well as basic inputs into their production process (Krongkaew, 1979; Romer, 2012). Therefore, policy initiatives which will lead the proper resources allocation among poor household may be important in that case, and benefit incidence analysis may be the best option for government to have a policy for well targeting the different quintiles of income class/groups.

The benefit incidence analysis (BIA) procedure in general depicts the impact of welfare diagonally across diverse groups of people or income classes in terms of

public spending (Demery, 2000). As per the study of Karim (2015), BIA is a practice applied to assess the flow of government financial assistance strategy on the distribution among diverse demographic groups of people, such as men and women, and individuals from rural-urban areas. This methods or practice was developed by the World Bank (WB) through its two classic studies in 1979; the authors were Selowsky for Colombia and Meerman for Malaysia, respectively. Besides that, there are also two outstanding BIA surveys found in the benefit incidence analysis literature, Demery (2000) and Younger (1999). Throughout the world, BIA is treated as a standard approach or a non-behavioral approach that is used as an explanans of distributional effects of income of public expenditures. In summing up, BIA accounts for the extent to which individual income or recourses need to be increased if the household income classes are to be recompensed for public-funded government services (Brasington, 2002; Cuenca, 2008). To reduce inequalities, for example in income inequality or wealth distribution and BIA of poverty of any nation state, the proviso of welfare services such as education is essential (Asghar & Zahra, 2012; Buracom, 2011; Karim, 2015; Sarkar et al., 2012).

Conversely, poor targeting can lead to the deterioration of the space among the poor and rich households, where the affluent benefit more from public expenditure compared to the poor. This may be reflected by greater distribution of public disbursement to higher education so that the lowest 20 percent obtain the reimbursement, compared to fewer beyond their original income levels, whereas the highest 20 percent receive most of the benefits (Krongkaew, 1979; Selowsky, 1979; Tiongson et al., 2003). Therefore, public expenditure is pro-rich on education in that case.

There are obviously other disadvantages linked with households in the upper- and middle-class household income sections because of the non-point targeting of public activities. Another study Chu et al. (2000) discovered that the pointing of education programs both in Asia and America is well performed, but in the region of Sub-Saharan Africa, the Middle East, and in transitional economies used of public expenditure on education is below standard. Furthermore, the social services in Africa also targeting the poor were found by another study, that of Sahn and Younger (2000). It was observed that social services served the rich class compared to the poor income households and in terms of the benefit percentage that the poor receive (4.5) where rich class receives 59 percent at the level of tertiary education in Sub-Saharan Africa (Chu et al., 2000). Another study on South Asia and Sub-Saharan Africa on public spending on higher education covering 31 countries and, found that in general prototype of pro-rich expenses when the levels of education increasing. In this case, predominantly the richest class get more access to higher education which means inequality is wealth driven (Ilie & Rose, 2018). In 2016, another study also showed that across the regions of South Asia and Sub-Saharan Africa attendance in higher education remained low; only five percent of young men get the right of entry to higher education in many countries in this region where the poor are almost excluded from the opportunity, predominantly the women. In addition, the wealth gap widens along with the gender disparity in terms of obtaining access to higher education where females are more vulnerable in the case of enrollment in higher education, indicating that inequality is widening (Ilie & Rose, 2016). Nevertheless, the middle-income households usually receive most of the government-provided opportunities for public expenditure basically on education. In addition, another study showed that regarding

the benefits gained from the opportunities to receive public expenditure on primary education, the middle income group captured 64 percentage in Sub-Saharan Africa (Tiongson et al., 2003).

There is debate regarding the analysis of public education expenditure as to whether it is either progressive or regressive in nature; this has already been studied by a substantial number of scholars, e.g., Martinez-Vazquez (2001); Sakellariou & Patrinos (2004); Son (2006), all of which showed in their study that public expenditure is progressive. Conversely, other studies found the opposite scenario of public spending, for example Castro-Leal et al. (2000); Chu et al. (2000); Gemmell (1985) where the expenditure was regressive by nature. A study on Burundi over three levels of education, including technical and vocational education using benefit incidence analysis, found that, even after increasing funding in primary education, most of the benefits went to the top quintiles compared to the bottom quintiles in terms of total public disbursement on education (Tsimpo & Wodon, 2014). According to the study of Sakellariou & Patrinos (2004) assumed that different income classes differ depending on the characteristics of the distribution of public expenditure. In addition, public expenditure incidence differs and is determined irrespective of class, caste, creed, region, political assistance, or gender as well (Blejer & Guerrero, 1990; Gemmell, 1985; Selden & Wasylenko, 1992). Different types of studies have analysis differently and found diverse results using the BIA, for example, in the case of primary education expenditure, which has been found to be progressive (Heltberg, Rasmus; Simler, Kenneth; Tarp, 2001). Basic education is also progressive (Gaddah et al., 2016), and secondary and higher or professional education are found both in progressive or regressive to some extent (Younger et al., 1999). One more study in

Bangladesh by Khan et al. (2017) found that in general healthcare incidence is pro-rich where private providers greatly favor the upper class in society and the public sector and the NGO sector providers seem deviation a bit inequality in terms of providing healthcare services. BIA is a popular method for assessing or computing the share of household income in public expenditure and many scholars use this method in their research, e.g., Sakellariou & Patrinos (2004), further examined the public support for the private education in terms of the incidence in the Cote d'Ivoire. However, Castro-Leal et al. (2000) further investigated the incidence of public disbursement in terms of healthcare in Africa, whereas Martinez-Vazquez (2001) reported the measurement of the shock of budget on the underprivileged class using the BIA method.

In Bangladesh there are few studies that have used benefit incidence analysis in education expenditure, including the work of Karim (2015), Glinskaya (2005), and Al-Samarrai (2007). In the study of Karim (2015) using the BIA method on education spending and income equality, it was shown that the poor class received benefits at the primary and secondary level of education but not at the higher level. At the tertiary level of education, the rich class received the "lion's share" of benefits of public spending. The table 2.7 presents the antecedent studies using BIA on education expenditure.

In addition, another study of Glinskaya (2005) using BIA on primary education and child health expenditure within EPS is robustly pro-poor but overall education and the child health system were not pro-poor. This study did not include secondary or tertiary education expenditure for a clear comparison of benefit incidence analysis in Bangladesh. However, in the paper of Al-samarrai (2007) using

conventional BIA, it was found that recurrent public education expenditure is not pro-poor but is rather pro-rich. Al-samarrai discussed two stipend programs on primary and secondary education where he found that even the primary stipend program expenditure was a bit pro-poor, though it was 100 percent poor targeted. Conversely, the secondary stipend program was also non-poor targeted. On the other hand, he also did not include primary, secondary, or higher education as having a perfect BIA analysis on Bangladesh. However, this study did not replicate the overall scenario of the effects that subsidies have on the primary and secondary education in Bangladesh; instead, he only assessed a partial picture of the stipend program. In addition, there are many more and diverse types of education policy being implemented by both the MoE and MoPME, in order to enhance accessibility, quality education, reduce the dropout rate, women's empowerment, as well as improve productivity in Bangladesh. However, still these programs did not make substantial changes in the objectives where these programs being operated.

Table 2. 7 Summary of Earlier Benefit Incidence Analysis Research

Country and Area of Study	**Scholar/Author and Year of the Study**	**Findings/Results**
Bangladesh- public expenditure on healthcare service by using BIA	Khan et al., 2017	In general, healthcare benefits are pro-rich where private providers mostly favor upper class and inequality found between public and NGO sectors healthcare

Country and Area of Study	Scholar/Author and Year of the Study	Findings/Results
		providers.
Burundi-public spending for three levels of education, including technical and vocational education using BIA	Tsimpo & Wodon, 2014	Despite increasing funds at the primary education level, children from bottom quintiles benefit less compared to top quintiles in terms of total public expenditure on education.
Malawi-incidence evaluation for public education spending by using BIA	Mzonde, Rodwell Sitembala Beni Kaipa (2013)	Normally at the primary education level, public expenditure is progressive while regressive both at secondary and tertiary levels.
Pakistan-PSLM data set used to explain public expenditure on education	Zahid Asghar and Mudassar Zahra (2012)	Primary as well as secondary education expenditure was progressive while the higher education spending was regressive.
Thailand-public education, health, and welfare spending	Buracom, Ponlapat (2011)	Basic education expenditure was pro-poor; on the other hand, tertiary level education spending was found to be regressive.
Cote d' Ivore-private	Sakellarious and	The entire education system was

Country and Area of Study	Scholar/Author and Year of the Study	Findings/Results
education was assessed	Partinos (2004)	found to be progressive (only the rich class children get access).
Yemen-public spending on education by using BIA	Takako Yuki (2003)	Basic education was pro-poor, even though secondary education was roughly neutral while the tertiary education was found to be regressive.
Mozambique-calculated the pervasiveness of public spending on education	Heltberg, Simler, and Tarp (2001)	The poor were favored by education spending, 36 percent was received by the poorest half while 33 percent was received by the richest quintile.
Africa- public expenditure on healthcare	Castro-Leal, Demery, and Mehra (2000)	Offered/showed various disparities among different household income levels
Kenya- kenyian data set was used to study their own research	Demery and Verghis (1994)	Primary education spending was found to be robustly progressive while university education was regressive.
Columbia- World	Selowsky (1979)	Primary education subsidies were

Country and Area of Study	Scholar/Author and Year of the Study	Findings/Results
Bank Studies on education		robustly progressive while higher education subsidies were regressive.
Malaysia- World Bank Studies on education	Meerman (1979)	On primary education, public spending was progressive while other levels of education were regressive.

Education programs such as the Primary Education Stipend Program (PESP), the Secondary Education Investment Program (SEIP), the Secondary Education Stipend Program (SESP) as well as the Secondary Education Quality Access Enhancement Program (SEQAEP) need sustainable and consistent funding along with better policies aiming to achieve the desired outcomes of education. It is worth mentioning that most of the developing countries' poor are the last to have access in terms of enrollment at the basic education level. In that case, the government needs to strongly favor the destitute or poor households. Presently, the Bangladesh government is overwhelmed by an ever-increasing population followed by the number of enrollment rates after the introduction of PESP and SEQAEP in 2003 and 2008, respectively.

As per the study of Baulch (2011) net enrollment rate (NER) in primary schools improved 84 percent in 2000 to 92.2 percent in 2006 along with the NER of

girls at around 2 percent higher than boys in both of years, 2000 and 2006, respectively. Conversely Ahmed et al. (2007) the average dropout rate was 15 percent during the period of 1990-2004 at the primary level of education and after that the dropout rate steadily reduced. This may be the cause of the introduction of PESP, and the major concern was the increasing access, retention, quality of education as well as both the efficiency and effectiveness of the management side within the education system of Bangladesh. Consequently, the BIA approach will be applied in this research in order to determine the distributional impacts of public expenditures on education in Bangladesh. This research will unlock the criteria used for the allocation of the budget for different sectors by the MoE and MoPME and to for subsectors unlike primary, secondary, and higher education levels.

2.6 Conceptual Framework II, Distributive Effects of Income, and Hypotheses

2.6.1 Conceptual Framework II

Under the conceptual framework, the researcher will conduct a benefit incidence analysis in order to find out the distributional effects of income across different quintiles of household income groups; that is, whether the expenditures of education are pro-poor or not in the Bangladeshi context. By evaluating the education system, accessibility, efficiency, and dropout rates, along with coverage, the impact of public disbursement on education can be assessed. This study will seek a reply to the following inquiry: What is the income distributional effects of public disbursement on education across different income quintiles in Bangladesh? Who are the real beneficiaries across the levels of education?

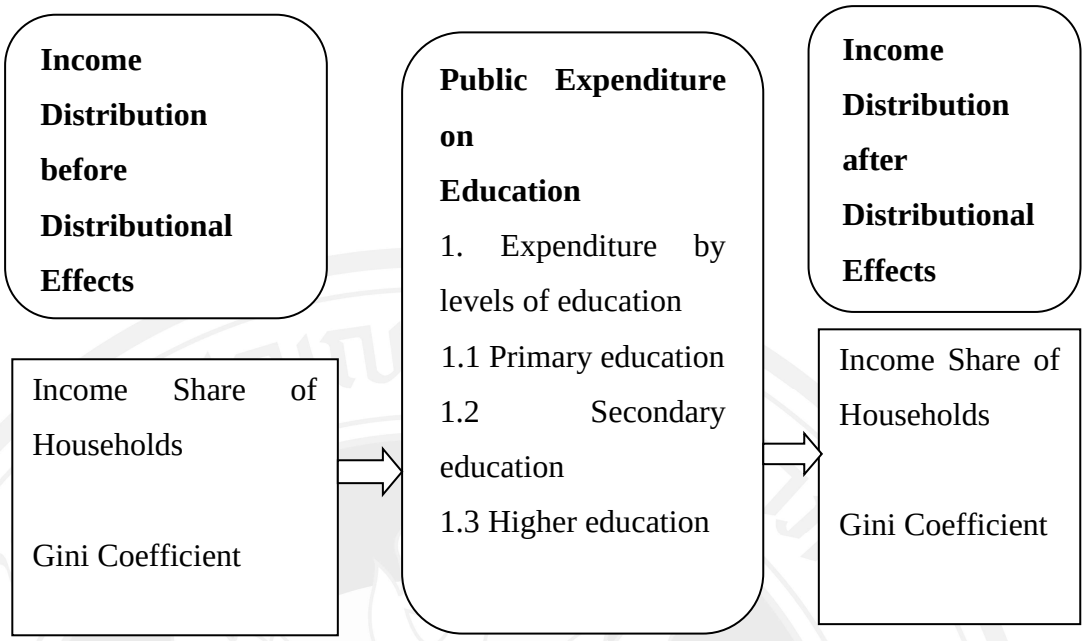


Figure 2. 11 Conceptual Frameworks II, Concept of Benefit Incidence Analysis

2.6.2 Distributional Effects of Income and Hypotheses

In order to obtain an in-depth understanding of the effects of the introduction of the Primary Education Stipend Program the Secondary Education Investment Program (SEIP), Secondary Education Stipend Program (SESP), and the Secondary Education Quality Access Enhancement Program (SEQAEP), the following four hypotheses will be formulated in order to ascertain the government's effort, aiming to improve the equality all over the country. Assessing this will be possible by using the empirical study already provided and by the following hypotheses.

H1: The public expenditure in Bangladesh on primary education is progressively and steadily improving the income distribution for the poorest income household quintile.

H2: The public expenditure in Bangladesh on secondary education is progressively and steadily improving the income distribution for the poorest income household quintile.

H3: The public expenditure in Bangladesh on higher education favors the richest income household quintile and increases income inequality.

H4: The public expenditure on Bangladesh's education in general is pro-rich and does not lessen the gap of income inequality across income household quintiles.

Note: H1to H4 refers to hypothesis 1 to 4.

CHAPTER 3

RESEARCH METHODOLOGY

In view of obtaining in-depth understanding, it is mandatory to explore the determinants of educational expenditure in Bangladesh, the historical context of education policy development, along with the entire significant variables mentioned in the conceptual framework, which need to be clearly explained. These may include the trends as well as the characteristics of educational expenditure, education policy and the dynamics of politics, a breakdown of the dependent variables, the types as well as the sources of both the dependent and independent variables, along with the effects of income distribution on education. This chapter will also include the selection approach for each variable, aiming to add specific sets of models.

3.1 Research Approach

This research used quantitative methodology supplemented by qualitative research methodology. The qualitative method will be used to provide inclusive information through case study in view of obtaining ideas on how education policy is made in Bangladesh, and this part will be preceded by the empirical results of the study. In the qualitative section, some of the magnitudes of education expenditure policy will be analyzed, aiming to offer a socio-political historical background.

Further, for the quantitative section for the time-series data analysis, the multiple linear regression technique will be used along with the BIA method for the distributional effects of income on educational expenditure.

The multiple regression technique will be used for the experiential analysis of the quantitative data, which will enable the researcher to analyze the association among the exploratory or predictable variables and the dependent variables. In a nutshell, the multiple regression technique will be used to determine several factors that contribute to educational expenditure, which are the dependent variables in this research. Therefore, this study can find out what the best predictors in Bangladesh are in terms of educational expenditures over time as well as across the country.

3.2 Operational Definition of the Quantitative Analysis

3.2.1 The Breakdown of the Dependent Variables

In this study the dependent variables will be subdivided into further specific categories of public expenditure, as already shown in the conceptual framework for the educational expenditure analysis. After conducting the literature review as well as creating the theoretical framework for this study, it is observed that a substantial number of earlier research in this area only paid attention to the total expenditure of education or focused merely on particular types or only levels of education; conversely this research will fill the research gap in this domain and will produce a new understanding where different types of educational disbursement will be used as the dependent variables. In fact, this study will use five dependent variables: total educational expenditure (GE); development education expenditure (ECAP); public expenditure on primary education (GP); public expenditure on secondary education

(GS); and public education expenditure on University (GU). The necessary information and data will be collected and the analysis of these variables will come from different sources, e.g., both the Ministry of Education and the Ministry of Mass and Primary Education (MoE and MoMPE); the Bangladesh Bureau of Statistics (BBS); the Ministry of Finance (MoF); the Ministry of Planning (MoP); Bangladesh Bank (BB); the University Grants Commission of Bangladesh (UGC); the Higher and Secondary Education Board (HSEB); and the Bangladesh Bureau of Educational Information and Statistics (BANBEIS). In addition, this study will further collect data from previous empirical studies, evaluation reports, and survey reports along with some international organizations such as the World Bank, UNDP, IMF, UNESCO, etc.

Table 3. 1 Definitions of the Dependent Variables and Sources of Data

Variables	**Definition**	**Sources of Data**
Total educational expenditure as % of GDP (GE)	Total governmental education expenditure in nominal term of government	World Bank
Development educational expenditure (ECAP)	Government education expenditure as classified capital expenditure	MoF, MoE
Primary education expenditure (GP)	Government expenditure on primary education	WB, MoF
Secondary education expenditure (GS)	Government expenditure on secondary education	WB, MoF
University education	Government expenditure on university education	WB, MoF

Variables	Definition	Sources of Data
expenditure (GU)		

3.2.2 Independent Variables

Table 3.2 shows the independent variables along with the definitions and sources of the data that will be used in the study extracted from the literature review section, and these variables also will be used in the models.

Table 3. 2 Definitions of Independent Variables and Sources of Data

Variables	Definitions	Sources of Data
GDP per capita (GDP)	Gross domestic product in nominal terms per capita	World Bank, Ministry of Finance
Inflation rate (INF)	On an average annual inflation rate	MoF
Population Growth Rate (POP)	Increasing size of population	WB
Enrollment Rate (GEN_P)	Total number of students enrolled per year in primary education	WB, BANBEIS
Government Effectiveness (GE)	Contains perceptions of the ability and effectiveness of the government regarding education expenditure policy formulation and implementation. This variable is measured in units ranging from -2.5 to 2.5, with higher values	WGI

Variables	Definitions	Sources of Data
	corresponding to better governance.	
Urban Population (URB)	The share of populations living in the urban areas	WB
Globalization (GLOB)	Sum of exports and imports as a share of GDP	WB, BB
Unemployment Rate (UNEM)	The percentage of unemployed labor/workers of total labor force	BBS, WB
Rule of Law (RL)	Contains perceptions of the government of the extent to which agents (Ministry) have confidence in and abide by the rules of the country, the quality of contract enforcement and education rights protection (Buracom, 2014). This is measured in units ranging from -2.5 to 2.5, with higher values corresponding to better governance.	WGI
Regulatory Quality (RQ)	Contains perceptions of the government in formulating and implementing sound policies that permit the government to implement	WGI

Variables	Definitions	Sources of Data
	education expenditure policy effectively. This is measured in units varying from -2.5 to 2.5, with higher values conforming to better governance.	
Student-Teacher ratio (STR_P)	Ratio of students per teacher in primary schools	BANBEIS, WB
Control of Corruption (CC)	Contains perceptions of the extent to which public power is exercised for private gain, including both petty as well as grand forms of corruption, and "capture" of the state by elites and private interests in education policy (Kaufmann et al., 2006). This is measured in units varying from -2.5 to 2.5, with higher values conforming to better governance.	WGI
Number of Schools (SCH)	Total number of public schools	BANBEIS, MoE
Lagged Expenditure (LAG_EXP)	One-year lagged of any category of disbursement	Ministry of Finance
Budget Deficit	Total amount of budget deficit	BB

Variables	Definitions	Sources of Data
(DEF)		
Indirect Tax (IDT)	The percentage of indirect tax to total tax	BB
Grants (GRANT)	Sum of monetary grant or aid given to government per year as percentage of GDP	MoF
Democratic Government (DGOV)	Use of dummy: '1' stands for the duration of government by election, '0' stands for the duration of government not by election: e.g., military government and/or caretaker government	Assigned by the author
Voter Participation (VOP)	Percentage of voter participation in parliamentary elections	Election Commission
Election Cycle (ELEC)	Use of dummy" 1 stand for election year and 0 stands for non-election year	Assigned by the author

3.3 Design of Models

3.3.1 Defining the variables for the Time-Series Equations

In order to investigate the determinants of education expenditures by diverse levels as well as the stages of education, the yearly data of government spending from the Bangladesh Bureau of Statistics (BBS) during the time frame of 1980 to 2018 will

be used. The data source is considered reliable as well as quality data in terms of government budgetary allocation in Bangladesh. All types of educational expenditures will be calculated as a percentage of GDP in order to offer an equivalent indicator, including a one-year lagged (LAG_EXP) independent variable.

As already explained regarding the dependent variables, there are prospective situations for independent variables in educational expenditure models having notable control in terms of budgetary patterns of allocation. Estimating educational expenditure requires the accommodation of all of the variables into the model. The economic variables as well as the growth of the GDP, INF, GLOB, and UNEM, all of the determinants or variables, have a positive as well as major impacts on the full amount of education spending as specified in the conceptual framework. The reason behind this is that with the increasing trend of economic growth, the government needs to increase public expenditure, basically on education. Higher rate of employment in a country offers more educational opportunity for people which compels the government to increase educational expenditures. Particularly noteworthy is the fact that the assessment can clarify whether the spending on education is pro-cyclical or if it behaves as the Keynesian counter-cyclical model has predicted.

The demographic variables also need to be accommodated in the model or equation, which includes POP, SCH, GEN_P and STR_P. As we already saw in chapter 2, a substantial amount of research has proved that demographic as well as educational factors can influence public education spending. Consequently, through accommodating all of the variables in the model or equation should produce intuitive assessment and analysis.

It is observed and implied that both the demographic and educational variables must have a strong and positive association in terms of increasing public expenditure over total governmental expenditure, particularly on education spending. The rationale behind this is, if the number of schools (number of public schools) increases, obviously, it will create demand and that demand puts pressure on the government to facilitate public services on education, which must lead to putting further pressure on the government to set higher budgetary allocation to meet the newly generated demand. Similarly, as in the case of urbanization, it is very much practical indeed that rapid urbanization requires higher investment in the infrastructural sector of the government to meet the increasing demand of the urban areas, for example, housing, roads, sewerage lines, public transport, schools-colleges, etc. This research will examine whether education expenses are in the same trend with the speculative groundwork. Furthermore, educational variables furthermore place force on the government to allocate more on education and is a subject matter for testing.

Other magnitudes of variables, including decision-making and political factors, are incorporated in this model. The incrementalist variable, which is "lagged expenditure t-1," is to be incorporated as another independent variable. This variable is anticipated to be significant and to have a positive coefficient, denoting that government raises its total educational disbursement based on the previous year's spending.

Another crucial dimension is the political factors, which also must be incorporated into the estimating model as independent variables. The estimated variables are DEF, IDT, GRANT, VOP, DGOV and ELEC. It is assumed that the four independent variables, excluding election year, have a significant effect on the total

educational expenditure in Bangladesh. ELEC and DGOV will be used as dummy variable, indicating the value of ‘0’ where there is a non-election year and ‘1’ stands for an election year; and ‘1’ stands for the duration of government by election, and ‘0’ stands for the duration of government not by election, e.g., military governments and coup d’état governments or caretaker governments. The results provided by the model will be analyzed based on the public choice theory as specified in the literature review section.

In addition, governance perception or indicators are also crucial factors to determine education expenditure as well as the effectiveness and ability of government in terms of policy formulation and implementation, which must be incorporated into the estimation model as independent variables. The estimated variables are GE, RQ, RL and CC. It is assumed that the four governance indicators or variables have a significant effect on the total education disbursement in Bangladesh. The results provided by this model will be analyzed based on new institutionalism theory as specified in the literature review section.

In fact, given the explanation regarding all of the variables, total educational expenditure may be determined through the function of regressing all three (multi-faced) dimensions, such as “economic-demographic,” “decision-making,” “political,” and “governance indicators” independently because every type and level of education may classify promising counteracting educational expenditure determinants. In order to estimate total public educational expenditure, each independent variable should be incorporated into the model. In addition, for the rest of the models, different sets of independent variables must be incorporated based on the characteristics of public education disbursement.

The proposed model design for the study is the following:

TGE = a+b1 GDP +b2 INF +b3 POP +b4 GEN_P +b5 GE +b6 URB +b7RQ +b8 GLOB +b9 UNEM +b10RL+b11 STR_P +b12 SCH +b13 LAG_EXP + b14 DEF + b15 IDT + b16 GRANT + b17 VOP +b18 DGOV +b19 CC +b20 ELEC **Model 1**

ECAP = a+b1 GDP +b2 INF +b3 POP +b4 GEN_P +b5 GE+b6 URB +b7 RQ +b8 GLOB +b9 UNEM +b10 RL +b11 STR_P +b12 SCH +b13 LAG_EXP +b14 DEF +b15 IDT +b16 GRANT +b17 VOP +b18 DGOV +b19 CC +b20 ELEC **Model 2**

GP = a+b1 GDP +b2 INF +b3 POP +b4 GEN_P +b5 GE +b6 URB +b7 RQ +b8 GLOB +b9 UNEM +b10 RL +b11 STR_P +b12 SCH +b13 LAG_EXP +b14 DEF +b15 IDT +b16 GRANT +b17 VOP +b18 DGOV +b19 CC +b20 ELEC **Model 3**

GS = a+b1 GDP +b2 INF +b3 POP +b4 GEN_P +b5 GE +b6 URB +b7 RQ +b8 GLOB +b9 UNEM +b10 RL +b11 STR_P +b12 SCH +b13 LAG_EXP +b14 DEF +b15 IDT +b16 GRANT +b17 VOP +b18 DGOV +b19 CC +b20 ELEC **Model 4**

GU = a+b1 GDP +b2 INF +b3 POP +b4 GEN_P +b5 GE +b6 URB +b7 RQ +b8 GLOB +b9 UNEM +b10 RL +b11 STR_P +b12 SCH +b13 LAG_EXP +b14 DEF +b15 IDT +b16 GRANT +b17 VOP +b18 DGOV +b19 CC +b20 ELEC **Model 5**

Note: **a** = constant, and **b1** to **b20** = the coefficients of each independent variable with the dependent variable.

The five models above include all of the explanatory variables, which have already been mentioned in the multi-faced analysis of policy determinants (conceptual framework, MPDFA) to explain the estimation of total education spending, which basically falls under different stages and levels of education that will be estimated as a proportion of GDP. In order to arrive at a true reflection of educational expenditure from policy perspectives, these comparative measures can play a crucial role.

TGE, ECAP, GP, GS, and GU stand for total education expenditure, development of educational spending, public primary education disbursement, public secondary education disbursement, as well as university education disbursement. Basically, TGE as well as ECAP contain a similar set of explanatory variables, and on the other hand, GP, GS, and GU incorporate unlike sets as per the levels of education.

3.4 Data Collection

This research will use secondary data due to the analysis of public disbursement on education and the collected data will be used in the analysis of the determinants as well as the distributional effects of public educational spending in Bangladesh on various stages of education such as primary, secondary, and higher education during the time frame of 1980 to 2018. The expected data will be collected from different types of national as well as international organization/institutions, for example, both the Ministry of Education and Ministry of Primary and Mass Education (MoE and MoMPE), the Bangladesh Bureau of Statistics (BBS), the Ministry of Finance (MoF), the Ministry of Planning (MoP), Bangladesh Bank (BB), the

University Grants Commission of Bangladesh (UGC), the Higher and Secondary Education Board, and the Bangladesh Bureau of Educational Information and Statistics (BANBEIS). However, this research will further collect data from previous empirical studies, evaluation reports, survey reports along with some international organizations such as the World Bank, UNDP, IMF, World Governance Indicators (WGI), the UNESCO Institute for Statistics, etc.

For the second part of this study, that is the BIA, and to conduct this, data will be collected from survey reports from Bangladesh such as the Household Income and Expenditure Survey (HIES). The survey of HIES 2016 (published by BBS in May 2019) and the Bangladesh Demographic and Health Survey (BDHS 2014, NIPORT published in 2017) will be used to analyze inequality in the education sector. The HIES survey is conducted by the Bangladesh Bureau of Statistics under the Ministry of Planning (MoP), the People's Republic of Bangladesh with technical assistance by the World Bank and the World Food Program. The data will cover the total number of people, total households, along with the average numbers of people per household per income quintiles across the country.

3.4.1 Data Collection and Analysis of the Qualitative Data

Qualitative methods basically refer to "the techniques associated with the gathering, analysis, interpretation, and presentation of narrative information" (Teddlie & Tashakkori, 2009, p. 6). Qualitative methods are heavily directed by the paradigm of constructivism, which recommends that "researchers individually and collectively construct the meaning of the phenomena under investigation" (Teddlie & Tashakkori, 2009, p. 6). As with quantitative research, qualitative research also intends to center

attention on process, perceptive, and viewpoints. This is fitting best in the investigation of comprehensive information on the fact of this research. Regarding the background of this research, the qualitative method will be used only for supplementing the results of the quantitative analysis, providing more inclusive information as well as evidence by linking the quantitative results.

This study will use the case study method for analyzing education expenditure policy making the case of Bangladesh. Case study is a process of pinpointing description, understanding, as well as predicting and or controlling someone: “A case study is an empirical inquiry that investigates a contemporary phenomenon within its real life context, especially when the boundaries between phenomenon and context are not clearly evident” (Woodside, 2017, p. 1). More concretely, this study will take into consideration the gradual progress of education policy in Bangladesh accordingly with the national development strategy plan, meaning the five-year plan (FYP) from the very beginning of the first one since 1973. This may provide ground for the investigation of the determinants of education disbursement trends through examining the socio-political contextual background of Bangladesh. The case of Bangladesh education policy utilizes a five-year plan that falls in the Planning Commission (PC) under the Ministry of Planning, the People’s Republic of Bangladesh.

In the case of analyzing education policy, the present education system will also be included along with the reform efforts in the education system in Bangladesh. In fact, this will be done in order to understand the educational expenditure trends as well as the distributional effects of income on education across regions. The method will use both descriptive as well as exploratory methodologies in order to examine the factors affecting the allotment of educational disbursement in Bangladesh.

Furthermore, this crucial information is very important to know the government educational policies' impact on the primary education stipend program (PESP), the Secondary Education Investment Program (SEIP), the Secondary Education Stipend Program (SESP), the Secondary Education Quality Access Enhancement Project (SEQAEP), and the distributional effects of income of each income household quintiles across regions.

3.4.2 Data Collection for the Quantitative Analysis

In every sound research, the data collection strategy directs the methodology that will be used to generate the essential as well as suitable data that can produce a perceptive analysis. Based on the secondary sources of data, the analysis of this research will be conducted. Taking into consideration the research context, it is worth using secondary sources of data for the quantitative analysis, collected from the most reliable sources of government agencies, which can produce an appropriate inquiry and thereby make inferences about the results. For many quantitative studies, secondary data are treated as the most frequent way to collect data, indeed in social science research.

This research used time-series data which covered 1980-2018, and the multiple regression technique was used as a statistical tool. The secondary data which were used in this research were collected from various sources, basically from government organizations. As the data were collected from government agencies, they were treated as reliable sources because the government conventionally applies regular as well as dependable methods to accumulate data as government possess techniques, tools, and systems that are in line with international standards.

First, educational-related data, which were also mentioned as the dependent variable in this study, were collected from the World Bank and further classified into diverse levels of education along with diverse types of expenditure. The data included primary education data, secondary education data, and university education data. On the other hand, data on spending were categorized as recurrent expenditure as well as development expenditure, whereas annual expenditure data on education were estimated into the proportion of the GDP for showing the importance of education budgetary allocation. It is worth nothing that the one-year lagged expenditure for each type of independent variable was collected from the World Bank.

Secondly, there are four sets of independent variables mentioned in the conceptual framework (multi-Faced analysis of policy determinants). The first set is considered the economic-demographic dimension, which was used for assessing the determinants of educational expenditure. For the economic variables, for example, GDP, INF, and UNEM, they were collected from the Bangladesh Bureau of Statistics as well as the World Bank.

Thirdly, another set of independent variables related to the demographic dimension were also treated as educational indicators. These variables are widely accepted for examining the impact of education policy as well as educational expenditures on different types. Furthermore, these educational indicators are used universally to assess the performance of education policy as well as education systems along with outputs and outcomes. These data were collected from the Bangladesh Bureau of Educational Information and Statistics, the Bangladesh Demographic and Health Survey, and UNESCO.

Fourthly, another dimension is politics, converted to the political determinants of educational expenditures, which were also incorporated into the conceptual framework. There are six independent variables: DEF, IDT, GRANT, VOP, DGOV and ELEC. These data for political determinants were collected from different types of government organizations, including the Ministry of Finance, the Bangladesh Central Bank for the DEF data, the Bangladesh Election Commission for the VOP data, the Ministry of Finance for GRANT and IDT data, and the Election Commission for the data on the ELEC.

Finally, another important dimension is institutional factors, meaning governance perception indicators, converted to governance indicators as the determinants of educational disbursement, which were also incorporated into the conceptual framework. There are four independent variables: GE, RQ, RL and CC. These data for the institutional factors determinants of public expenditure were collected from the World Governance Indicators (WGI), but data were available only after 1996 to till date.

3.5 Data Management Procedure and Method

It has already been mentioned that this study uses both qualitative as well as the quantitative methods by applying secondary data for the analysis. The following chapter on the qualitative data will explore the chronological development of education policy making efforts in Bangladesh, keeping in mind the essence of policy along with simultaneously examining the trend and distributional feature of policy. Under this research, two types of quantitative analyzes will be applied to shed light on the determinants of public education disbursement in Bangladesh.

First, time-series data were used covering the time frame of 1980 to 2018, for the last 39 years, to analyze the public expenditure on education policy at the macro level and the data were explored by applying the standard multiple linear regression analysis technique.

Secondly, yearly data are applied to determine the distributional effects of the income of each income household quintile across countries covering 2016 using the benefit incidence analysis method. The yearly data will explore the distributional impacts of education policy and whether education expenditure reduces inequality or not and who gets what in terms of government services, particularly in terms of education. The MLRA will apply IBM SPSS version 23 software.

In this research multicollinearity means the correlation among the independent variables. The contravention of multicollinearity assumption means a strong relationship among the independent variables and to test for this problem, correlation matrix is used. The Pearson correlation coefficient being >.75 revealed a problem of multicollinearity, and further, the tolerance value of all the variables was less than .1 or the VIF statistics were >10, meaning a problem of multicollinearity (Hair et al., 2010, p. 201). If this problem is found, the independent variable containing a high correlation problem can be merged or the variable can be deleted from the proposed model. In this research the problem of multicollinearity met as well as non-violation of the assumptions was fulfilled through correlation matrix as well as VIF along with tolerance statistics. Each model was tested separately using the MLRA method. Furthermore, the models were estimated separately by using OLS, aiming to fulfill the assumption of best linear unbiased estimator.

This research studies the association between the independent and dependent variables, where the determinants of education expenditures are the independent variables and education expenditure is the dependent variable. The independent variable lagged expenditure is taken from decision-making theory/incrementalist theory.

The remaining variables will take the real data of every observation as the dependent and independent variables, which are education expenditures and the determinants of education expenditures and occur simultaneously. The rationale behind the analysis is that the study will take into consideration the socio-economic and political milieu that affects public education expenditure decision-making. For that reason, since the analysis will spotlight the genuine or real situation that may affect the actual education at every specific time, the real data of every time frame for each variable will be suitable for this investigation. Further, the LAG_EXP variable, that is the previous year's expenditure, will be used.

In addition, all types of statistical results will be examined in support of their significance level by prescribed statistical tests, for example the t-test, the R-squared test as well as the F ratio test. Furthermore, as this research will apply time-series data containing a large number of explanatory factors, it is assumed to be the independence of the error or autocorrelation, which is one of the assumptions of BLUE. If it is existing, meaning that the conditions of BLUE were not fulfilled, that may cause a bias estimate and an incorrect interpretation. The independence of the error or autocorrelation can be measured by Durbin-Watson statistics (Tabachnick & Fidell, 2014). Therefore, considering this fact, special care was taken to solve the problem in this study.

Time-series study, a familiar way to find an autocorrelation problem is using Durbin-Watson statistics (D-W), which hold parameters of >1 and <3, indicating an acceptable value or range of autocorrelation of errors; consequently, special attention will be given for confirming the non-violation of the assumption of autocorrelation in this study.

3.6 Income Distributional Effects on Education

For estimating the distributional effects of income on education policy, the BIA approach will be applied in this study. Using benefit incidence analysis is a usual or common way to learn the details concerning who is basically benefiting from various types of government expenditures along with the welfare effects on different income quintiles in terms of government services, for example public education expenditure. The real behavioral pattern of each household income group towards their children's enrollment and government policies is greatly affected by the nature of public disbursement on education and how the public disbursement on education is being distributed across the country. It was revealed from a report of the HIES, 2016 that the enrollment rate of children from non-poor income quintiles is relatively higher than that of children from poor income household quintiles (BBS, 2017, p. 68). It is assumed that the household enrollment pattern and the government's behavior are trying to distribute income costs *via* subsidized education costs across levels of education across the country regarding education outcomes (Demery & Gaddis, 2009). BIA normally uses the public expenditure budget and different survey data for determining the effect of publicly subsidized money across a country, especially on welfare spending. This study will use BIA, as this method has a substantial number of advantages at the macro level, which is fulfill the requirements of the research.

The household wealth/income groups are determined by the Bangladesh Demographic Health Survey 2014, published in March 2016 and the Bangladesh Household Income and Expenditure Survey 2016 (published by the BBS in May 2019). For calculating the annual income for each household along with the average number of pupils per household for each income quintile, the variables will be included: the total number of households, annual average per capita income, per household pupils on average, and enrolled pupils' numbers of households at each level of school. This study will further investigate whether education expenditure policy benefits the poor or not in Bangladesh.

The benefit incidence will be assessed by considering the percentages of the benefits of each household income quintile across the country in the form of total education expenditure. In order to obtain the total income distributional effects of public disbursement on education policy in Bangladesh, we need to calculate it by incorporating the income of each household quintile as well as the expenditure of each income household quintile simultaneously to come up with the latest collective household income following the implementation of public expenditure policy on education. In order to draw an inference regarding who gets more benefits the government services, particularly from education, this study will consider both incomes along with the wealth of each income group quintile. It is widely believed that the wealth index normally should be used as the indicator of socio-economic characteristics of countries. According to a study of Howe et al. (2009), the demographic health survey is a nationwide representative dataset with a familiar methodology across countries. In Bangladesh, the wealth index is defined by the NIPORT in a survey report of the Bangladesh Demographic and Health Survey. The

wealth index is used to assess the common well-being as well as socio-economic position of people including access to safe drinking water, sanitation amenities, access to electricity, housing materials, denseness of population as well as people using fuel in their cooking arrangements (NIPORT, 2016, p. 10).

Socio-economic position (SEP) indicates the characteristics of the wealth index, and it has profound effects on government services, particularly on education. Although many scholars have different opinion regarding the use of the wealth index as compared to wealth quintiles. This study will support the wealth index as is defined by the Bangladesh Demographic and Health Survey; this kind of survey has been regularly conducted in Bangladesh since 1993-1994 and the current one is the 7th BDHS report-2016. This research will use data from HIES 2016 to compare the effect of PESP and SEQAEP along with all other education stipend programs on education policy aiming to assess, who exactly got the benefits in terms of each household income quintile.

Gini coefficients will be designed for each income household quintile to examine the change of percentages—whether the wealth level of each income quintile is correct. The examination of the outcome of the Gini coefficient indicates whether the wealth or income of each income household quintile increases or decreases (Lorenz, 1905). A Gini co-efficient of ‘0’ means no concentration or inequality, whereas ‘1’ indicates total concentration or inequality (BBS, 2017, p. 27). Consequently, when the percentages of the income of the poor household income group in terms of national income increase, it demonstrates that the income inequality of that group declines when the corresponding Gini co-efficient decreases.

The following Gini coefficient formula will be used to assess the benefit incidence:

Total income of each income class

= (Total income per year of each income group) X(Total number of households in each income

where

N = Indicates the number of household income quintiles. In this study, there are five household income quintiles.

X = Percentage of income of total income class, which means 100%

X = Percentage of income in each income class at the national income level

i = 1, 2…n (represents the number of income quintiles).

BIA normally follows the following five-step route:

1. The per unit cost of given public service is obtained *via* dividing public expenditure resting on the services by the aggregate number of users. In the case of this study, users are students attending all levels of schooling.

2. The average benefit received from public expenditure from a given service is calculated with per unit cost of given services as copied from the preceding stage.

3. Users are ordered from poor class to higher applying an income measure and are accumulated into income classes that may be deciles or quintiles. A quintile is commonly used in most of the literature as in the case of this research.

4. The distribution of benefits in different income quintiles is accounted for by multiplying the average benefit resulting from the preceding step by the service users in each group. The quintile allocation of benefits accumulated by each group from a given service is the total benefits, resulting in each class divided by the service's total

expenditure across groups. By structure, quintile shares for a given service up to unity (Buracom, 2011).

5. The consequential circulation of benefits is compared with the number of standard distributions.

3.6.1 Operational Definitions

1. The percentage of income for each household income quintile will be the total income for each household quintile that will be measured as proportion of the total income of the total number of households.

2. The per capita spending of each income quintile will be the expenses for the household income divided by the number of pupils of that specific income quintile.

3. In Bangladesh, household is classified as “a person or group of related and unrelated persons who usually live together in the same dwelling unit(s). In addition, who have common cooking and eating arrangements, and who acknowledge one adult member as head of the household. A household member is any person who usually lives in the household” (NIPORT, 2016, p. 9). Five equal categories, each category containing 20% of the people, are indicated in the Bangladesh HIES survey.

4. The percentage of students enrolled at each level of education per household income group and in rural-urban areas will be the ratio of students enrolled across the levels of education per household and will mean the total number of enrolled students across the income quintiles and in rural and urban areas.

Table 3. 3 Definition of Income Distributional Effects on Education

Variables	Years of Study	Data Sources
1. Total Public Education Expenditure across levels of education	1980 to 2018	World Bank/HIES, 2016
2. Household income groups	HIES, 2016	Survey Report of HIES and Survey Report of BDHS
3. Average number of pupils per income group across regions	,,	,,
4. Percentage of income for each income group to total income (National)	,,	,,
5. Percentage of students enrolled across educational levels per income group	,,	,,

Note: Bangladesh Household Income and Expenditure Survey and Bangladesh Demographic and Health Survey.

CHAPTER 4

ANALYSIS OF THE DEVELOPMENT AND POLITICS OF EDUCATIONAL EXPENDITURE POLICY IN BANGLADESH

Before going back to the debate over the experiential assessments under this thesis, a qualitative investigation provides an expressive as well as a key interpretation of the case of education policy in Bangladesh. Specifically, this chapter concentrates on how the public education policy in Bangladesh is prepared along with the chronological progress of educational expenditure policy. The qualitative investigation in this section is a foundation to meticulously comprehend why educational expenditure policy-making in Bangladesh is worthy of vigilant evaluation.

The context of education policy of Bangladesh may be well thought out as a rich full-information case, indicating huge inclusive information to be revealed. Basically, this section further endeavors to point out what determines education spending over time, and to address the question of the distributional effects of education inequality based on cohort analysis in countries. The exploration of this section applies both descriptive as well as exploratory methods or styles. Section 4.1 as well as Section 4.2 will provide a synopsis regarding the development of the five-

year plan and the system of education in Bangladesh. Section 4.3 as well as 4.4 will yield vital issues and apprehensions about Bangladeshi education policy-making chemistry. The last section will apply a descriptive analysis, and in another section (4.5) will use the exploratory method to explore the determinants of education expenditures policy in Bangladesh. Choosing both descriptive as well as exploratory approaches is especially noteworthy in the fact that these two approaches will serve as an underpinning for the quantitative analysis for the following chapters.

In order to comprehend the philosophical consideration of the determinants of education disbursement in Bangladesh, vigilant attention must be paid to the progress of Bangladeshi education policy along with the formulation of the Bangladesh education system, as well as chronological educational reforms that have already been proposed and implemented as well. The essence behind the analysis of both education policy as well as education structure will provide an overall scenario of what has materialized in educational administration in Bangladesh. The organization or the formation of schooling can be extracted from the analysis, since it is one of the very crucial parts of the whole scenario, and it will serve as a base line for the analysis of the expenditure of public education as well.

4.1 The Five-Year Plan and Education Policy in Bangladesh

From the very beginning of the 1930s, education was a well thought out tool for promoting democracy and during the 1950s education turned into a crucial component in social as well as economic advancement. Unfortunately, before 1947 in the subcontinent, education was not geared to the needs of an independent nation. The primary purpose of education was to produce the number of educated people that

would only help the British colonial administration. With that philosophy, a small portion of the people that were educated under that particular system acquired a set of values that made them alienated from their own people as well as developed in them a distaste for all forms of manual labor (Planning Commission, 1973).

Up to the period of 1947-55, the traditional system was practiced, but with a general deterioration resulting in a substantial shortage of qualified teachers. Following 1955, attempts were made to rectify the situation by adopting education expansion programs. Though these programs succeeded in raising a substantial number of educated people in different stages they failed to respond commensurately to the manpower requirements in different sectors. Consequently, the supply of trained manpower of some categories went up without matching with categories and created imbalance in the supply chain of trained manpower; the philosophy of education or contents was not changed appreciably to suit the requirements of a developing nation. Therefore, the system conspicuously failed to inculcate consciousness in the minds of educated people of their obligation towards the less fortunate masses. The educated few in Bangladesh have remained oblivious of their debt to the society, which has really born the cost of their education.

The development in the 1st FYP (1973-78) and Midterm Plan (1978-80) could not quite reverse to the process. Consequently, the familiar rural-urban gap, the gap in educational facilities between the sexes and an imbalance among levels and within each level, persists. Soon after independence, Bangladesh emphasized educational reforms and measures to make all stages of education cheaper financially as well as going closer to the people but there were resource constraints coupled with a lack of preparation of details; most of the basic policies remained unimplemented. In

addition, science, and technical education remained terribly undeveloped and grossly neglected.

If we critically see the process made and the problems encountered all through the 1st FYP and Two-Year Plans (1973-80), it reveals a wide gap between the plan targets and actual performance. This was due to a marked departure from the programs envisaged in the plan. It was because of the pressure from the urban middle class for a diversion of funds in favor of higher education, where was not possible to adhere to the intended allocation pattern. Therefore, the outcomes of development did not grasp those that needed it most and consequently, education development could not bring about equality of opportunity as envisaged.

Over the period, the public disbursement on education declined both in terms of GDP and annual budget. During the period 1973-81 the share of recurrent expenditure on education underwent a gradual declined from 15.5 percent to 13.10 percent. In terms of GDP, the 1982-83 budget expenditure on education was less than 1.4 percent while most countries of the region spent in the neighborhood as 3 percent and UNESCO's recommendation was 7 percent. In addition, the share of education in total public expenditure was gradually low as compared with other countries at the same stage of development. In terms of current prices, the per capita expenditure on education in Bangladesh in 1982-83 was only BDT38.77 (Planning Commission, 1982).

In the 3rd FYP 1985-1990, the plan was to increase enrollment to 70 percent among the primary age populations in 1990 in order to achieve the universal primary education with retention completion and reducing the gap between rural-urban individuals as well as males and females in terms of educational facilities and given

more weight to science and technical education. For achieving the target of the Third Five-Year Plan, the government used several strategies to enhance educational facilities from the very grass-roots level. Consequently, the dropout rate for class V in 1990 was only 11 percent and the enrollment rate increased from BDT89.20 lakh (lakh means one hundred thousand) in 1985 to BDT119.40 lakh in 1990. During that period, all educational parameters were enhanced due to taking some pragmatic policy as well as some programs by the government (Planning Commission, 1995). The total ADP investment in education and religious affairs stood at BDT997.81 crore (Ten million = 1 crore) during the 3rd FYP.

During the 4th FYP 1990-1995 period, there was substantive progress in primary education both in terms of coverage as well as in expenditure because of implementing compulsory primary education and creating a qualitative change in the primary education system in Bangladesh. In that period, different types of objectives were ensured, for example “optimum use of existing physical facilities and maintaining, regional balance in respect of creating new educational facilities; enhanced participation of women at the primary level as teachers; establishment of an effective system of in service training of primary school teachers; development of primary school curricula, and introduction of academic supervision and administrative inspection” (General Economics Division, 1995). New programs were introduced, such as Satellite Schools and free textbook distributions, which added a new dimension to the primary education system in Bangladesh and continued its noble activities. These initiatives created an increasing flow of enrollment to the secondary as well as the tertiary levels of education in Bangladesh.

The total budget on primary education in 1990-91 was BDT888.78 crore and BDT8,313.58 crore in 1994-95 and total enrolment rates increased in primary education, and the statistics for the 1,20,51,172 students in 1990 and 1,72,84,113 students in 1995 and female students' percentage also increased substantially: 44.71 percent in 1990 and 47.38 percent in 1995. The same progress was made in the following education levels, such as secondary and tertiary levels of education along with reducing the gap between rural-urban and male-female individuals in terms of education attainment and/or facilities. According to the 4th FYP, the total allocation and expenditure on higher education was BDT13,413.20 million.

Over the period of the 5th FYP 1996-2000, efforts were made to increase the literacy percentage to 100 percent within 10 years and initiatives were taken to make more effective the compulsory primary education program thorough the active participation of local government and community support. In addition, more weight was offered regarding technical and vocational education programs at secondary/higher secondary levels, as well as at the tertiary level to expand the technological foundation for economic development. Following different strategies, a good number of policy issues made this plan very successful, for example, with community participation, excellence and equity, gender specificity, female teachers, modernization of Madrasah education, and food for education. In order to implement all the strategies as well as programs, an umbrella project, namely the PEDP (Primary Education Development Program), was initiated, and the estimated outlay of primary education was BDT 68,594.20 million plus a spill-over requirement of BDT13,414.20 million.

During the period of the 6th FYP 2011-2015, the political pledgee of the government was echoed in Vision 2021 and Education Policy of 2010. Under this framework, the purposes, priorities, as well as plans for the education sector in the 6th FYP were determined. The plan specifically highlights the significance of educational excellence at all levels of education and took required plans to "nursing" the problem of lower quality of education. In that instance there was no way to deny the fact that it was not only knowledge acquired over several courses taught across the levels of education but was also the quality of that education that really made a difference in framing up the human capital foundation in the state. Following this background, the development of syllabuses, the training of teachers, enhancing the inducement structure of teachers, effective supervising of the syllabuses of higher education institutions, connecting the gaps in the quality of educational institutes across rural-urban zones, the incorporation of courses on mathematics as well as science at the madrasa level, firming knowledge of English and mathematics both at the primary and secondary level were the central concerns for consideration (General Economics Division, 2011). The major initiatives and policies of this plan were training of the teachers for ensuring quality education, effective instructional contracts, improving educational service delivery through better governance and management, public-private partnerships in education, etc.

The total allocation and expenditure for the financial year in 2011 was BDT4,893 crore and BDT11,876 crore in the financial year of 2015. For 2014-15 budget year, Bangladesh's educational sectors provided by far the highest allotment of BDT292.13 billion, which was 12.3 percent of total educational expenditures and as percentage of GDP, it was 2.3 percent in 2015. This expenditure primacy helped

Bangladesh and was echoed in the improvement made in the education indicators of Bangladesh.

In the current 7th FYP 2016-2020, government wishes at accelerating growth that is all-encompassing in the logic that the benefits of development are shared by the whole community. In the context of the Rio +20 outcome paper, which speaks clearly of the global sustainable development plans, the National Sustainable Development Strategy (NSDS) pinpoints HRD as an urgency sector. Keeping mass people, the Centre of development in Bangladesh, the NSDS calls for population planning, introducing quality education training, as well as delivering quality health sanitation amenities along with nutrition for everyone. As a tool for executing the strategies sketched in the NSDS, the 7th FYP further acknowledges the vital task of human development in the quest of a prosperous nation and will promote procedures to ensure that development is certainly all-encompassing so that the benefits can be rightfully distributed to all (General Economics Division, 2015).

Under this plan different types of projects and programs are initiated and continued in the educational sector for attaining the educational indicators as settled by the government and international organizations such as PEDP-3, SEQAEP, HEQEP, the Prime Minister's Education Assistance Trust fund, the free distribution of textbooks to all students at basic education levels, etc. These initiatives bear the effective commitment of the government towards the educational attainment made by the government in different international forums from the very beginning of Bangladesh. Furthermore, Secondary Education Sector Investment Programme (SESIP), Teaching Quality Improvement II (TQI-II) in the Secondary Education Project, the Female Stipend Project for Degree (Pass) and Equivalent Level (FSPD)

are operating in the educational sector. For achieving educational and technical expertise, Bangladesh is implementing different types of skilled based projects such as “The Bangladesh Skills Development System,” which includes the NTVQF, Competency Based Industry Sector Standards and Qualifications, and the Bangladesh Skills Quality Assurance System.

Under the 7th FYP, the government invests its funds for advancing human capital for the development of educational sectors aiming at a higher productive labor force to accomplish plan-directed development. The goals and targets for total education have been disseminated across levels of education. The government is concentrated on increasing secondary and tertiary enrolment percentages, along with vocational and technical education aiming at increasing the quality and learning levels to be increased. For ensuring that the labor force is rightly trained with the right skills, a number of training courses along with additional capability improvement actions will be held (General Economics Division, 2015). Aiming to achieve the targets sketched in the 7th FYP, the planned development fund allocations for the year 2016 is BDT97.4 billion and is projected for year 2020 to be BDT of 195.4 billion (Constant FY 2016 Prices), and for the current prices it stands for BDT97.4 billion in 2016 and for 2020, it would be BDT241.1 billion. The government is qualitatively trying to achieve its commitment to education in the human resource development sector.

4.2 The Education System in Bangladesh

Table 4. 1 The Education System of Bangladesh

SL	Levels of Education	Grade		Age		Years
		From	To	From	To	
1	Pre-Primary	-	-	5	6	1
2	Primary/Ibtedayee	I	V	6	10	5
3	Junior Secondary/Junior Dakhil	VI	VIII	11	13	3
4	Secondary/Dakhil	IX	X	14	15	2
5	Higher Secondary/Alim	XI	XII	16	17	2
6	Bachelor's/Fazil	XIII	XVI	18	21	4
7	Master's/Kamil	XV	XVII	22	23	1
8	Master of Philosophy (M. Phil.)	-	-	-	-	2
9	Doctor of Philosophy (Ph.D.)	-	-	-	-	4

Source: Banglapedia, 2012, PP.456-457.

4.2.1 Pre-School Education

Pre-school education in Bangladesh is known as "pre-primary education." Pre-primary education denotes the level of education for children 5 year plus before beginning their primary education. It means an enjoyable education preparation stage for children under 5 to adopt and adjust to their next education stage and to reduce timidity regarding schooling (Shikkhok Batayon). Pre-primary education is generally

classified into two levels: kindergarten/nursery/playgroups for those aged 3-5 years, as well as pre-primary or kindergarten for children aged 5-6 years. However, still there is an additional type of arrangement in some schools: a play group for those aged 3 to 4, nursery for the 4 to 5 group, KG-1 for those 5 to 6, and KG-2 for those that are aged 6 to 7.

Since the liberation of Bangladesh, there has been a rising consciousness of the importance of pre-primary education as well as the essence for suitable care for very young children. Consequently, the numbers of early childhood education institutions have increased over time in the category of daycare centers and nursery schools. Both the education commission (Government of Bangladesh, 1974, 1988) acknowledged the necessity of early childhood education and endorsed its existence in the country (Asiatic Society of Bangladesh, 2003). One year pre-primary education for 5 plus age children has also been included in the new education policy of Bangladesh (GOB, 2010). The government has implemented pre-primary education class for 5 plus age children in all government primary schools in Bangladesh from 2011.

4.2.2 Primary Education

In Bangladesh, primary education begins at 6 years. Primary school education is classified into V grades, grade I to V. For each class, a yearly examination is held per subject, and each student must pass all of the subjects in order to pass to the following class. Every school or institution arranges an examination according to set courses and curriculums. Further, a public examination called the “Primary Education Completion Examination” (PSC) ends at grade V. The headmaster of the concerned

institutions issues school leaving certificates to the successful students. There is a provision of awarding a stipend to the brilliant students based on the results of the PSC examination ending grade V. The supervision of the primary school is conducted by the DPE under Primary and Mass Education, which has branch offices in each Zella town (BANBEIS, 1987). According to DPE (2017) there are total 1,33,901 primary schools in Bangladesh. Among them 38,879 are public primary schools, 26,159 are newly nationalized schools, 23,544 are kindergarten schools, and 45,319 are other types of non-government primary schools. There are 1,72,51,350 students and 5,74,001 teachers at the primary level (DPE, 2017).

4.2.3 Secondary Education

This levels of education in Bangladesh are classified into three levels: junior secondary, secondary and higher secondary. Secondary education is obtainable at secondary schools known as high schools and higher secondary education is obtainable at intermediate colleges and intermediate section of degree colleges. Usually, a high school encompasses five classes, VI to class X, as well as intermediate colleges encompassing two classes, XI and XII. In Bangladesh, there are many high schools, where the primary level is class I-V, and offers teaching up to class X. However, another type is called the junior high school which contains schooling provisions up to class VIII. The syllabi composition is identical up to VIII where the basic program is general education. For grade VIII, there is a public exam called the junior school certificate (JSC) after completing the grade. Each institution conducts its own annual examination at grades VI, VII and IX and offers promotion to further higher classes only for those that have obtained a minimum prescribed mark.

The diversification of the syllabus is incorporated at grade IX, where students re subdivided into three main steps: science, humanities, and commerce. The academic programs are envisioned to be terminal, ending at grade X where the schoolchildren sit for a public exam called the Secondary School Certificate (S.S.C.). Students that have passed the S.S.C examination get a chance to enter the higher secondary level. At this level, the educational package for general education is of a two-year period (grade XI-XII). Courses are diversified into science, commerce, and humanities. There is a public exam called the Higher Secondary Certificate (H.S.C.) ending at grade XII. The procedures of the examinations are MCQ and are written by nature. Practical tests are undertaken in science groups as well as in other subjects that are compulsory. One hundred marks are allotted to each subject. Results are given in a grade point average system where minimum marks for A^+, A, A^-, B, C, D grades are 80-100, 70-79, 60-69, 50-59, 40-49, 33-39. The qualifying mark for each subject stand at 33. Successful students are conferred a credential by the concerned boards. Qualifying for a credential, the student has to pass all subjects (for schoolchildren needing practical exams, it is obligatory to pass in both theory as well as practical courses separately). Students that get less than 33 in any subject are declared has having failed in that subject and do not receive a certificate and lose the chance to get promotion to next level of education. An irregular student without prescribed education can sit in S.S.C. and H.S.C. exams as private applicants having permission of the authority concerned. Correspondingly, external students can also sit for examinations. A country-wide scholarship is given every year to brilliant students that have had a very good result in the J.S.C., S.S.C. and H.S.C examination. Every school and college are bound to follow the centralized set of courses and curriculum given by

the National Curriculum and Textbook Board (NCTB). Secondary education is supervised and controlled by the MOE, which is responsible for policy-making, design, inspection, appraisal, and implementation of plans and programs. This philosophy further pertains to technical and Madrassah education. The Ministry of Education works in cooperation with the affiliated directorate and boards. The Directorate of Secondary and Higher Education (DSHE), affiliated with the MOE, is accountable for the direction, managing, as well as controlling of secondary and higher education (counting the Madrasah and other types of education). It is supported by lower offices located in divisional and district towns, and project offices at the Upazila level. The DEO is accountable for academic regulation as well as routine supervision of secondary schools and madrasahs, and the supervision of newly founded schools. In addition, there is a USEO for supervising stipend programs for girls at secondary and higher secondary levels. There is also academic inspection, as well as data collection of yearly surveys done by the BANBEIS. There are ten boards of intermediate and secondary education for overseeing the SSC and HSC levels of public exams and recognizing the private sector education institutions.

The boards of secondary education have been handling a massive number of schools (20,297 in 2015), where 2,43,117 teaching staff are engaged in providing education approximately 10,000,000 schoolchildren. The increase of girls' enrollment is praiseworthy. Girls presently comprise 54 percent of secondary enrollment, outstripping their counter parts. Among the substantial numbers of secondary schools, barely 804 are public managed institutions and the rest (96% plus) are privately operated. However, the number of schools is in a rising trend, though schoolrooms facilities continue to be congested, schoolhouses risky (low quality building/semi-

pakaghor) and insufficient for students as well. Particularly, in off-grid regions, there is a lack of schools and schoolrooms (BANBEIS, 2017).

4.2.4 Higher Education

After H.S.C., students can continue their further study, based on capability and financial ability. Higher education in degree/(honors) bachelor's degree courses (2-4 years duration) in the degree colleges or the universities, that are followed by the master's degree courses is of one years for holders of an honors bachelor's degree and, two-year for holders of a bachelor's pass degree. The length of a bachelor's degree is four years in engineering and agriculture, and five years in medicine, following H.S.C. Tertiary education in engineering as well as technology along with agriculture are offered in the colleges and universities of engineering and technology and agriculture.

M.Phil. and Ph.D. degrees in certain subjects are further obtainable in the universities. The length of studies for an M.Phil. degree is two years, and that of a Ph.D. is at least three years followed by a master's degree. Furthermore, all of the medical colleges and institutions, engineering colleges, and agricultural colleges fall under the academic supervision of the affiliated schools, the common supervision of which is derived from diverse jurisdictions. The medical colleges and institutes are administered by the MoH. In addition, there is a college of physicians and surgeons for conducting fellowship (FCPS, MCPS) programs (BANBEIS, 1987).

According to the MoE (Feb 2019), there is a total of 151 public and private universities in Bangladesh. Among them only 48 are public and the rest, 103, are private universities. Public universities are fully autonomous in character.

General Education System of Bangladesh

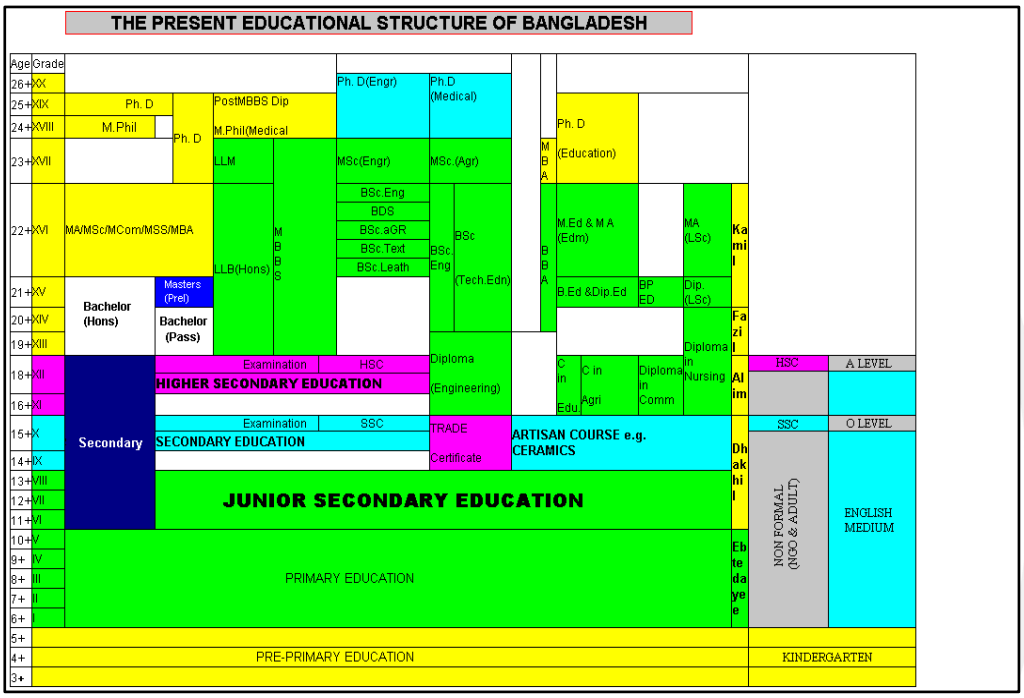


Figure 4. 1 Education System of Bangladesh

Source: Education Ministry of Bangladesh, 2019.

There are 40 public universities currently operated in Bangladesh. The universities are fully self-governing by nature. There is a university grant commission that is a self-governing body for synchronizing the academic programs of the universities as well as stimulating research programs and harmonizing the development activities of the universities in liaison with the authorities. The institute of scientific instrumentation under the UGC provides training for technicians for

maintenance, repair, and development of expensive and sophisticated scientific instruments and apparatus applied for teaching and research reasons in the university's mid colleges.

4.2.5 Madrasah Education

Apart from the discussed general education system of Bangladesh, there is a comparable education system called "Madrasah Education." It is a sub-sector of the education system of Bangladesh that provides conventional Islamic teaching to Muslim boys and girls. The Madrasah possess succeeding levels:

Table 4. 2 Madrasah Education System in Bangladesh

Ibtedayee	Primary of a 5-year period, grade I-V
Junior Dakhil	Junior Secondary of a 3-year period, grade VI-VIII
Dakhil	Secondary of a 2-year period, grade IX-X
Alim	Higher Secondary of a 2-year period after Dakhil, grade XI-XII
Fazil	Bachelor's degree of a 4-year period after Alim
Kamil	Master's degree of a 2-year period after Fazil

Source: BANBEIS, 1987.

The courses provided at these institutions emphasize primarily the education of the Holy Al-Quran, Hadith, Tafsir, Fiqh, Usul, and the Arabic language as well as literature. Furthermore, a proviso has also been made for the teaching of general science, mathematics, social sciences, Bengali, English, Persian, and Urdu at apposite

levels, aiming the madrasah pupils to become qualified for general vocations as well in Islamic education (BANBEIS, 1987). All of the institutions of distinct levels, better known as “Madrasah,” need affiliation and acknowledgment of the Madrasah board. Courses and syllabuses are prepared by them. Academically, Madrasahs are fully controlled by the board. Examination processes are the same as those of the general education system.

Additionally, in the government system of Madrasah education, a substantial number of private institutes provide traditional islamic teaching to Muslim children, called furquania Madrasah, hafizia and qaumi Madrasah. Recently, the Awami League government of Bangladesh has nationalized quami Madrasah. Furquania provides elementary education on Islam, containing Arabic language, Quran recitation, basic Bengali language, as well as simple arithmetic. Hafizia Madrasah is solely intended for “Hifz” or the memorizing of the whole Quran. Early aged children join these institutions and accomplish their course in the stipulated time. Most of the institutions are located and attached to a Mosque. Quami or nizamiah Madrasahs organize their academic curricula as per grades, 1 year each from Grade I to XIV. The grades are prepared in Arabic. Final grades are known as “Daurah.” Certificates are conferred for the successful completion of the “Daurah” class. In addition, specialized higher subjects’ of 2/3 years in length are also held in specific quami Madrasahs. Conventionally, a student awarded a Kamil degree passing the “Daurah” level of Madrasah education is entitled “Moulana” with their manes (BANBEIS, 1987).

This sub-sector of education is substantively large, teaching over 20,12,122 students, comprising post-primary institutions, which are for the most part privately

managed. Among the 234 Kamil madrasas, barely three are public institutions (BANBEIS, 2018).

4.2.6 Educational Indicators

The difficulty or the challenge of the education sector is gradual expansion, deepening as well as diversifying the need of education that is demanded along with the challenge of how to effectively meet the voluminous demand while ensuring that the types of nature as well as categories of learning respond to needs effectively. In that case effective education policies are vital for the progress of the quality of educational amenities, and to ensure effective and functional assurance of the use of resources along with fair distribution of educational materials, meaning learning opportunities.

Indicators are established measures used to determine how well a result has been achieved in an area of interest. According to UNESCO-UIS (2009), there are some educational indicators with statistics (Ministry of Primary and Mass Education, 2017), where the literacy rate is 72.9 percent, the gross intake rate is 109.8 percent, the net intake rate is 97.93 percent, school life expectancy is 11.2 percent, the transition rate is 94.51 percent, the gross enrollment rate is 111.7 percent, the net enrollment rate is 97.97 percent, the repetition rate by grade is 6.8 percent in grade I, 5.3 percent in grade II, 5.6 percent in grade III, 7.1 percent in grade IV, 2.5 percent in grade V, the percentage of repeaters in primary is 4.74 percent, the survival rate is 83.3 percent, the cycle completion rate is 81.2 percent, the coefficient of efficiency is 81.8 percent, public disbursement on education as a proportion of GDP is 1.54, public spending on education as a proportion of total public disbursement is 11.42,

the pupil-teacher ratio is 1:46, the percentage of female teachers is 61.3 percent. The dropout rate is 18.8 percent, the gender parity index in GER is 1.07, the gender parity index in NER is 1.01, the percentage of new entrants to primary education with ECCE experience is 88 percent, and the percentage of trained teachers is 95.6 percent.

In fact, indicators are statistics that reflect the significant characteristics of the education system of a country. The enrollment indicator is treated as commonly-used indicators and is treated as the essential indicator of the education system. Two kinds of enrollment exist: GER and NER, which helps us to comprehend the whole scenario of the percentage of students that are enrolled in the education system. A higher enrollment rate implies that additional students took admission to the education sector and therefore educated in a school.

Another important indicator concerns teachers in primary teaching holding the requisite academic qualifications as well as the rate of schoolteachers that are authorized to teach as per nationwide standards. Efficacy is one more crucial indicator explaining the further height of quality education, e.g., PTR, RR, SR, and literacy rate; one of the most commonly used indicators of education is efficiency.

UNESCO has flourished in developing the education for all development index that has set up four indicators, which include NER in primary education, the adult literacy rate or that of people 15 years and over, and SR and gender parity. The following figure is an overview of the GER of Bangladesh in 2017 showing a very high rate at the primary level of education.

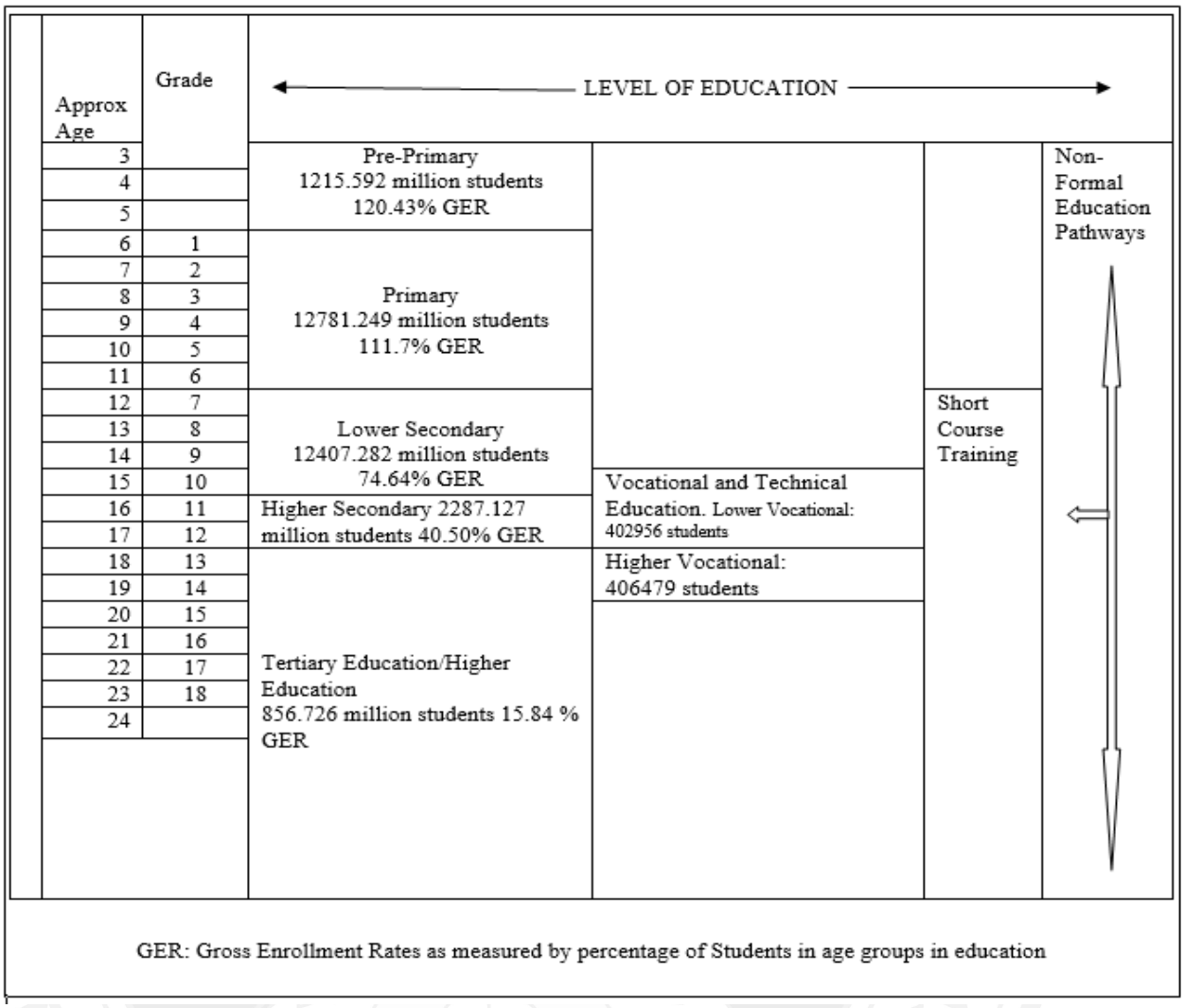


Figure 4. 2 Gross Enrollment Rate in Bangladesh

Source: BANBEIS, APSC 2017 and BTEB Report 2016, Ministry of Education, 2017.

4.3 The Progress of Education Policy and Contemporary Education Reforms in Bangladesh

In this the study, this 4.3 parts depicts the synopsis of Bangladesh educational policy in terms of the general education policy-making context, and content along

with the aims and objectives of the education policy in Bangladesh, the educational administration supervision system, along with the involvement of Bangladesh politics in education. This part of the present study further summarizes the reforms in the progress of education, covering the improvement of teaching-learning regarding outcomes and learning. This type of conversation depicts a scenario of the effect of Bangladesh education policy. By considering these crucial pieces of information, one can easily apprehend systematically that public expenditure in Bangladesh on education is worth analyzing.

4.3.1 Education Policy and Politics of Bangladesh

After the independence of Bangladesh, the education system received new momentum and rearranged its education philosophy in line with the spirit of "Sonar Bangla," (golden Bengal) which means free of discrimination and poverty, taking into consideration the war-torn socio-economic conditions, politics, and cultural heritage of Bangladesh. Of importance is the stimulus of politics regarding education policy as well as spending in Bangladesh. The independence of Bangladesh in 1971 represents the end of Pakistani mal governance as well as bad politics in Bangladesh, and the politics in Bangladesh received new dimension and has changed the previous unparliamentary practices of Pakistani discrimination. Following that situation, education in Bangladesh seems to be given more priority.

From the very beginning of the presidential as well as parliamentary forms of government in Bangladesh, the education minister has always come from the leading political party or the party from the prime minister. From 1971 to 1975 Prof. M. Yousuf Ali, chosen by Bangabandhu Sheikh Mujibur Rahman, was the first education

minister in Bangladesh and laid down the fundamental education policy along with some positive reform initiatives. Following the immediate past of the assassination of Bangabandhu Sheikh Mujibur Rahman by a brutal military coup, Ziaur Rahman snatched state power by a military coup, and forcibly conducted a presidential election after becoming president, formed a political party on September 1, 1978, called the BNP. Forming the government by collecting different professional people by offering state facilities, which was also called a "Rehabilitation Center" of derailed people, Ziaur Rahman appointed some people as education ministers but a name. The exception in the period of 1982 to 1990 when H.M. Ershad (army chief) was the president. During that period, the education minister came from different as well as mixed backgrounds, such as politicians, civil servants, educationists, justices, etc. From 1982 to 1990 dozens of education ministers came and went under the regime of the military coup government. Basically, during that period, no education policy or program was initiated that can be cited here; only desk work was carried out by the minister.

Table 4. 3 Ministers of Education, 1971-2020

Education Minister and Party			**Prime Minister and Party**	
Election Date	**Education Ministers**	**Political Party**	**Prime Ministers**	**Political Party**
1971-72	Prof. M. Yousuf Ali	BAL	Tajuddin Ahmed	Bangladesh Awami League (BAL)
07-03-73	Prof. M. Yousuf Ali	BAL	Sheikh Mujibur Rahman	BAL
1972-73	Prof. M. Yousuf Ali	BAL	Sheikh Mujibur	BAL

Education Minister and Party			Prime Minister and Party	
Election Date	**Education Ministers**	**Political Party**	**Prime Ministers**	**Political Party**
			Rahman	
1973-75	Prof. M. Yousuf Ali	BAL	Sheikh Mujibur Rahman	BAL
1977-81	Abul Fazal, Syed Ali Ahsan, Kazi Jafor, Abdul Baten, and Shah Md. Azizur Rahman	No Election (N/E)	Ziaur Rahman	Bangladesh Nationalist Party (BNP)
1982-90	Shah Azizur Rahman, Tafazzal Hossen Khan, Dr. A Mazid Khan, Dr. Abdul Mazid Khan, Shamsul Huda Chowdhury, Dr. Md. Abdul Matin, Justice Abul Kalam Mohammad Nurul Islam, Momin Uddin Ahmed, Mahbubur Rahman, Anisul Islam Mahmud, Sheikh Shohidul Islam and Kazi Jafor Ahmed	N/E	H.M Ershad	Jatiyo Party (JP)
1990-91	Zillur Rahman Siddiqui		Sahabuddin Ahmed	N/A
1991-96	Jamir Uddin	BNP	Begum Khaleda Zia	BNP
1996	M. Habibur Rahman	Non-party caretaker govt.	Prof. Muhammad Yunus	N/A

Education Minister and Party			Prime Minister and Party	
Election Date	**Education Ministers**	**Political Party**	**Prime Ministers**	**Political Party**
		(N/A)		
1996-01	ASHK Sadek	BAL	Sheikh Hasina	BAL
2001	A.S.M. Shahjahan	N/A	Latifur Rahman	N/A
2001-06	Osman Faruk	BNP	Begum Khaleda Zia	BNP
2006-07	Iajuddin Ahmed	N/A	Iajuddin Ahmed	N/A
2007-08	Dr. Hossain Zillur Rahman	N/A	Dr. Fakhruddin Ahmed	N/A
2008-14	Nurul Islam Nahid	BAL	Sheikh Hasina	BAL
2014-2018	Nurul Islam Nahid	BAL	Sheikh Hasina	BAL
2019-2020	Dr. Dipu Moni	BAL	Sheikh Hasina	BAL

Source**:** Ministry of Education, 2020.

In table 4.3, it can be seen that during the elected government period, almost all of the education ministers came from the power party, meaning the party in power. Conversely, there is an opposite picture seen during the non-political government in power; meaning that during the coup governments or caretaker governments, for example in 1982-1990, almost a dozen education ministers worked in the education ministry. On the other hand, during the period of 2006-2007 and 2007-2008, the education minister was Iajuddin Ahmed, the then president, and Dr. Hossain Zillur Rahman for the caretaker government, who was an educationist.

It should also be noted that Bangladeshi politics from 1975 to 1990 faced brutal experiences a number of times from a coup. It is true that during the coup regime, the education minister always was from the education sector, and was not a politician. However, table 4.3 also indicates the ever-increasing crucial role of education.

As per table 4.3, it should be noted that when Bangabandhu Sheikh Mujibur Rahman assumed power, his cabinet made courageous political reforms in Bangladesh along with the introduction of a substantial number of people-centric policies in Bangladesh, including the basic right to education of the people as well as enjoining the state to confirm the proviso of universal and compulsory free primary education for all with special emphasis on removing illiteracy from the society (GOB, 1972). Bangabandhu's cabinet nationalized and took over 36,165 primary schools in 1973 as well as conformed them under the Primary Education Act of 1974, as well as confirmed 1,57,724 primary school teachers as government personnel. These populist policies or initiatives demanded higher government disbursements, where the education disbursement was expected to increase as well. This same situation arose roughly at the same time when the public sector reforms began into Bangladesh from 1972 to 1973.

Even more notable is the fact that from the very beginning of the democracy in Bangladesh after coup in 1990, every education minister assumed the post from the prime minister's party, except 2006-2008 when a caretaker government was in power and the education minister was chief adviser Iajuddin Ahmed, who was also the then president of the BNP-backed political party and Dr. Hossain Zillur Rahman, who was an educationist and came from a non-party caretaker government as an adviser to the ministry of education. After the general election in December 29, 2008 Bangladesh

Awami League president prime minister Sheikh Hasina again came to state power and chose her best politically committed associate, Mr. Nurul Islam Nahid MP, as an education minister until December, 2018; and after the current land slide victory over general election in December 30, 2018 Sheikh Hasina became for the fourth time (3rd consecutive time) prime minister in Bangladesh and chose her best politically committed close associate Dr. Dipu Moni MP as an education minister to carry out the great responsibility on behalf of the Sheikh Hasina government. From this perspective, it is assumed that the ministry of education is treated as a very important element of the government of Bangladesh. This crucial role of the MoE underscores that education expenditure policy in Bangladesh is worth studying.

Conversely, it is similarly important and striking that during the military-backed the H. M. Ershad government in 1990, primary education was free and made compulsory under the Primary Education (Compulsory) Act 1990, and the BNP-led Begum Khaleda Zia government also chose to carry out this policy, with special concentration on education and implemented it primarily in 68 Upazillas in 1992 as well as extended the policy to the rest of the country from 1993. These facts motivated to evaluate whether this policy further results in quality education or the spreading out of education opportunities to the next stages in Bangladesh.

4.3.2 The Ingredients of Bangladesh Education Policy

Apart from above fact that, Bangladesh education policy is somehow closely knotted with conventional politics and the role of education policy ingredients also taken under consideration. After all, the existing education policy of Bangladesh appeals to more investment in nurturing the quality of the whole education system,

addressing the issue of teacher-student development, curriculum development, and the medium of instruction as well as IT in order to enhance the knowledge and quality level of the students as per the direction of education plans, the efficient use of limited resources, as well as adjacent aspects and to produce a structure of whole life learning for the Bangladesh people in general.

Secondly, education policy of Bangladesh is trying to confirm that each person will have access to a minimum of 8 years of basic education (which was also recommended by the Khudrat-e-Khuda Commission, 1974), be free of charge and without any restrictions, with special emphasis given to reach to the destitute or the disadvantaged section of people, physically challenged people, those that live in remote corners or difficult-to-reach areas, along with efforts to increase the access level of further education by providing food for education (Mid-Day Meal), a Stipend Program, free education for girls up to class X, free distribution of textbooks from class V to class XII, etc. This is clearly connected to policy concerning the spirit of the liberation war and the development of the sagacity of justice, non-communalism, dutifulness, awareness of human rights, the cultivation of free thinking along with discipline, love for honest living, the tolerance of corporate life, and friendliness and perseverance of capable graduates (GOB, 2010). This intends that a higher budgetary allocation could be anticipated due to the existing objectives of education policy in Bangladesh.

Thirdly, prime importance is given to the modification of teacher training as well as development in order to make sure of quality and high moral standards of teachers at the same time guaranteeing a suitable salary structure as well as welfare regarding the quality of life (GOB, 2004, p. iv). It is to be noted that an additional

goal of education policy is to develop as well as reform the curriculum and medium of instruction in line with the international context. This might be completed by accelerating the role of innovative learning techniques, the advancement of a modernized and well-equipped library management system, more research funding, as well as creating a new learning environment for all stages of education.

Currently, it is visualized that the Bangladeshi education policy emphasizes more upholding the exhaustive use of IT to enhance learning competency due to making sure of unrestricted access to the required infrastructure, technologies, as well as software along with emphasizing particularly the enhancement of history and Bangladesh studies in higher levels of education.

Taking under consideration the education policy of Bangladesh, it can be claimed that greater allocation in this sector should continue to increase in order to fulfill the requirements as well as the aims of the policy, as the policy needs significant quantity of resources both physically as well as in terms of human capital in order to accomplish the policy goals.

Another emphasis of the education policy of Bangladesh is to develop high quality as well as standard institutions of tertiary education so that they can ensure the higher levels of academic and specialized facilities, achieve distinction and innovation in research, and promote a labor force that can match the coming operational variations in manufacturing as well as service sectors in the global arena. The ultimate objective of this policy is to speed up the trend of development of skilled workers having vibrant career paths to improve the society's affordability in different sectors (GOB, 2010, p. 23). By achieving these goals, Bangladesh will be able to deliver occupational as well as professional skill certification and keep increasing its role at

the community level. Once more, it seems that higher education policy will require a substantial number of budget allocations for continuing with this aim.

Another factor is to bear in mind that Bangladesh is practices decentralized education administration policy and aims to promote more decentralization as well as further participation of the private sector in the education administration at all stages of education, from higher to primary level. These aims or policy allow Bangladesh to build dynamic capacity at the root level of administrations allow for the handing over of responsibility in aiming to make sure that the necessary quality standards are fulfilled. This is the crucial issue that needs to be considered—that centralized budget allocation may not fulfill the demands at the local levels along with some malpractices of unequal distributions of budget allocation in regions or districts. Therefore, in view of this issue or demand, it is important to pay heed to the budgetary disbursement in districts.

4.3.3 Reforms of Education Policy in Bangladesh

The education system in Bangladesh is developed and flourished from different periods, e.g., Vedic Aryans, Maurya Senas, Viharas served as centers of education. Following the development of education in the ancient period, the British Raj also laid down different education commissions/committees during the time period of 1757 to 1947, which contributed a lot to the development and reforms of education, for example with the following: the Charles Grant Education Commission 1792; the Company Charter 1813; the Lord Macaunay Committee 1835; the Williams Adams Committee 1838; the Woods Education Despatch 1854; the Stanley's Education Despatch 1859; the W. W. Hunter Education Commission 1882; the M E

Sadlar Education Commission 1919; the Sa Pru Education Commission 1934, and the John Sergeant Education Commission 1944 (Ali, 1999). The Woods Education Despatch was treated as one of the first official papers encouraging formal education of girls in Bengal and the characteristics were the centralization and bureaucratization of the education.

After independence of India and Pakistan in 1947, the task of planned and wide-ranging educational modernization fell upon the new independent countries, which had to come up with plans to overcome the problems of colonial legacy through different education commissions and reports during the time periods of 1947 to 1971, which also further contributed in the flourishing of education, for example with the following: the Maulana Akram Khan Education Commission in1949; the Ataur Rahman Khan Education Commission 1957; the Commission on National Education 1958; the Commission on Student's Problem, and the Welfare 1964 and Air Marshal Nur Khan Commission 1969 (Ali, 1999). The precise summary development of the education system of the commissions was to make free and compulsory primary education, 5-year and 6-year courses, for primary and secondary education, mentioned degree pass course as pass and honors of 3 years, and the mother tongue as the medium of instruction, including Madrasah education into the normal school system.

For upholding the philosophy of the newly independent country, the government of Bangladesh formed different education commissions and education policy immediately after the formation of the government, for example the following: Kudrat-e-Khuda's National Education Commission 1972; Kazi Jafar Ahmed's Interim Education Policy 1978; Mafiz Uddin Ahmed's Bangladesh National Education

Commission 1987; Shamsul Haque's Education Committee 1997; the National Education Policy 2000; professor Mohammad Moniruzzaman's Bangladesh Education Commission 2003, and professor Kabir Choudhury's National Education Policy-2010.

The enactment of the NEP 2010 already stimulated mammoth apprehension in the educational sector both in terms of schooling and learning techniques and in learning milieus. This system of conversion is particularly focused on categorizing learning results within the 8-year plus 4-year basic education system, enlightening provisions as well as practices in basic education along with the enactment of a vocational and technical training education system or provision. The philosophy of this system furnishes the nation with the qualities and skills that are supposed to intensify Bangladesh to function with the same capability as well as speed as seen in the international community (GOB, 2010). This policy works as a foundation for a suitable education system for providing education that will be people oriented, easily reachable, uniform, universal, well-planned, science-oriented, and of a high standard presenting to the statutory transcription and it will also work as a tactic to counter all teaching troubles.

The education system in Bangladesh is strategy-based and is founded upon the philosophy of enhancing moral as well as ethical values in line with the central program for cultivating quality education. This plan is strengthened by the philosophy of the first education commission of Dr. Kudrat-e-Khuda in 1974, which promotes harmony as well as moderation among communities to fulfill their wants in a justifiable manner.

The ultimate platforms of education reform efforts include professional development, achieving a marked standard of professional competence for teachers due to improving as well as transmuting subject expertise, the introduction of innovative techniques into the teaching methods, and classroom management along with the development of professionalism.

4.4 The Nature of Public Expenditure on Education in Bangladesh: The Present Trend

A brief look at the nature or trends of education expenditure in Bangladesh serves as a foundation for understanding educational expenditure-related policy-making in Bangladesh. An analysis is rendered to compare as well as contrast the development of education policy illustrated in the preceding section with the expenditure presented below. The change in the nature of education expenditure can probably match the political as well as education policy-making backgrounds in Bangladesh. Therefore, a brief view of educational expenditures at national level is taken under consideration.

4.4.1 Education Expenditure in Bangladesh from Past to Present: An Issue of Institutional Shifting

Under this head of the study an attempt will be made to appraisal and present approximately useful information along with introductory figures vis-à-vis educational expenditures in Bangladesh over the past four decades. Through in-depth understanding of these figures, we can comprehend the historical inclination of public expenditures on education. The figures are depicted on the following page, including

total public expenditure on education as well as the relative amounts in terms of key economic indicators, e.g., GDP as well as total public expenditures. Expenditure by types (development expenditure) and or levels of education should also be taken into consideration due to having a vast as well as comprehensive view with which to explore the education expenditures. The issue of institutional shifts is valuable to take under consideration since it could be able to clearly explain the trend as well as nature of education expenditures from past until now in Bangladesh.

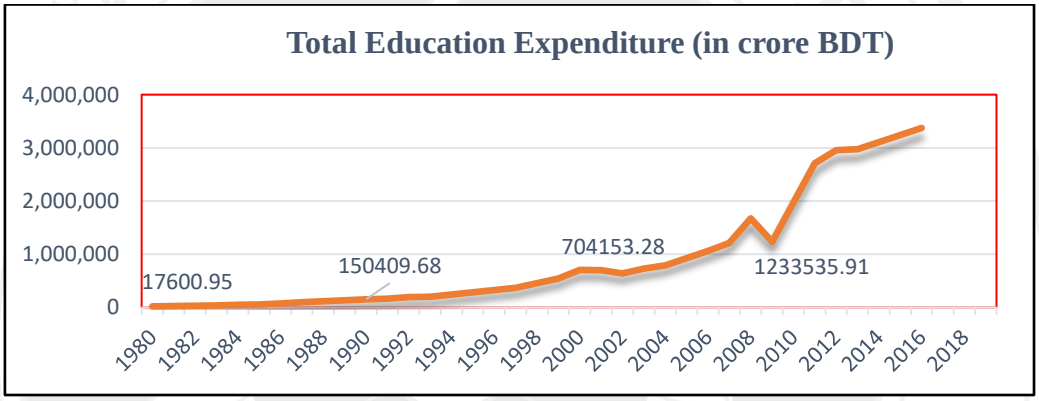


Figure 4. 3 Public Expenditure on Education in Bangladesh 1980 to 2018

Source: Ministry of Education, 2019.

Public budget has been a key financial resource of education expenditure as well as educational expansion in the past. On average, during 1980-1985, total public disbursement on education was 1 percent of the GDP or 6.87 percent of over-all expenditures. The amount dedicated to the central financial statement for education ministry rose approximately twelvefold from 1985 to 2000 and the East Asian Economic crisis during 1997 did not affect Bangladesh in terms of total educational expenditures. Universal primary education and Education Policy 2000 began to be implemented in this period.

Educational expenditure began to increase sharply after 1990 and from the very beginning of 1991 when Begum Khaleda Zia was the prime minister after H. M. Ershad government. This is in line with the introduction of Universal Primary Education policy (UPE) in 1992 and following that the education expenditure peaked at BDT7,04,153.28 crore in 2000 when the prime minister was Sheikh Hasina. After the general election in 2001, total education expenditure slightly declined at the time of the BNP government and began to steadily increase the total education expenditure and again peaked at BDT16,72,602.45 crore BDT in 2008 which was a general election year. After the election, the expenditure again slightly declined in 2009 and in the irony of the leadership of H.E. Sheikh Hasina, education expenditure steadily increased after the year 2009.

One more big “uphill” drive of education expenditures commenced again from the years 2010 to 2016 is the heroic leadership of H.E. Sheikh Hasina, the chief of the Bangladesh Awami League. This may come from her different populist policy both at home and abroad, along with the implementation of Education Commissions Report as well as the Education Policy of 2010, along with some public sector reforms. It can probably be said that this trend in education sector expenditure derives from the institutional shift from 1991, the new age of democracy after the killing of the father of the nation, Bangabandhu Sheikh Mujibur Rahman, on August 15, 1975.

In 2009, in the leadership of H.E. Sheikh Hasina’s government, with the policy of SEQAEP (PESP continuation), along with many other educational promotion projects, education expenditure noticeably increased from 2009 to 2018. In 2018, the yearly budget was BDT4,64,572 crore. Here, one may argue that the political scenario or party philosophy played a key role in influencing education

expenditures, since the variation in party politics from one to another party could lead to a big jump in the budget of education expenditure, particularly in recent trends. These fluctuations are depicted in figure 4.3.

Regarding education expenditures as the ratio of total public expenditure (in terms of relative amount), it is appreciated the changes. The following figure displays that budgeted expenditures rose from just above 5 percent to 10.35 percent in 1996, having little fluctuation. Following the year in 1997, meaning after the election year, it jumped to 15.20 percent and again went down to 8.77 percent in 1998, but after that the education expenditure jumped to an all-time high at 20.49 percent in 2000, which was before an election year and may be happened due to different types of education programs were taken by H.E. Sheikh Hasina. Education expenditure as a proportion of total public expenditure in Bangladesh has fluctuated since 1991 when the democratic government took state power and has continued. This is indeed a mysterious case in Bangladesh politics regarding educational expenditure.

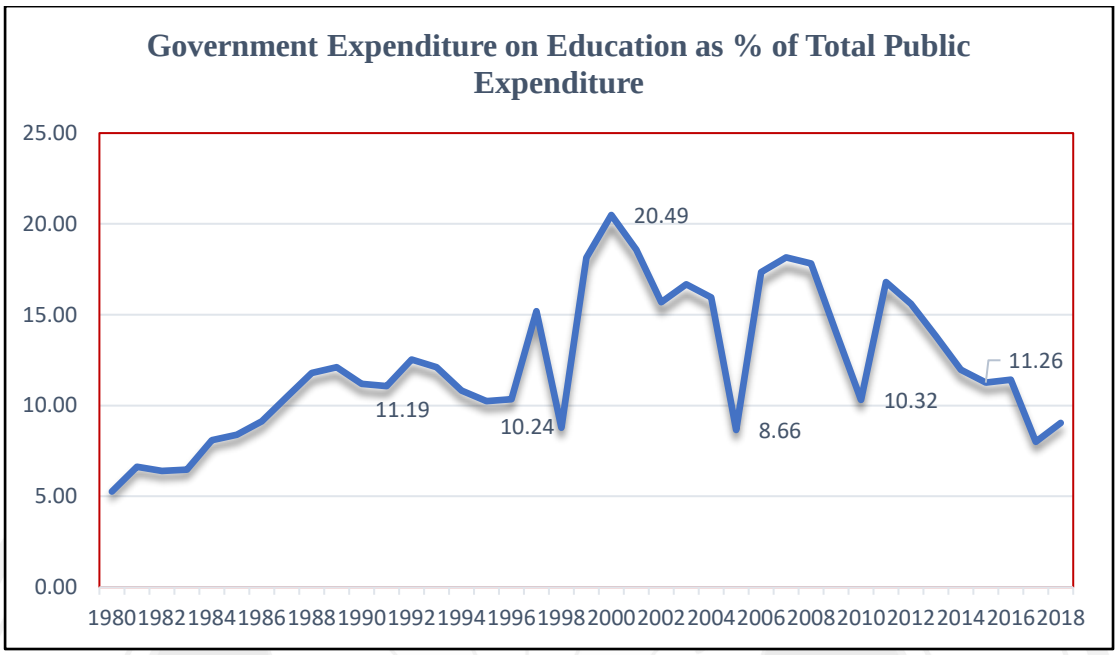


Figure 4. 4 Education Expenditure as Percentage of Total Public Expenditure, 1980-2018

Source: World Bank and Ministry of Education, 2019.

The relative total of education budget began to deteriorate, however very slightly, in 2002 as the aggregate budget of the government was improved significantly, whereas the education budget was almost the same. The trend of fluctuations in education expenditure as a proportion of total government expenditure remained at around 6 percent and 9.04 percent, with the highest in 2000 at 20.49 percent, and following that began to show a steady as well as a marginal decrease.

In 2000, the budget dedicated to the central budget for the education sector was BDT7,04,153.3 crore, representing 20.49 percent of the total government expenditure and 2.12 percentage of the GDP. In 2002, following the effect of the economic catastrophe in the world, the aggregate budget of the government for education was reduced to BDT6,38,844.4 crore or about 2.01 percentage of the GDP; however, it represented 15.69 percent of the aggregate government disbursement. The

education sector has got the lions' share of aggregate government expenditure since 1987. In 1995, it signified 2.4 percentage of the GDP and increased to an all-time high at 2.82 percent in 2015.

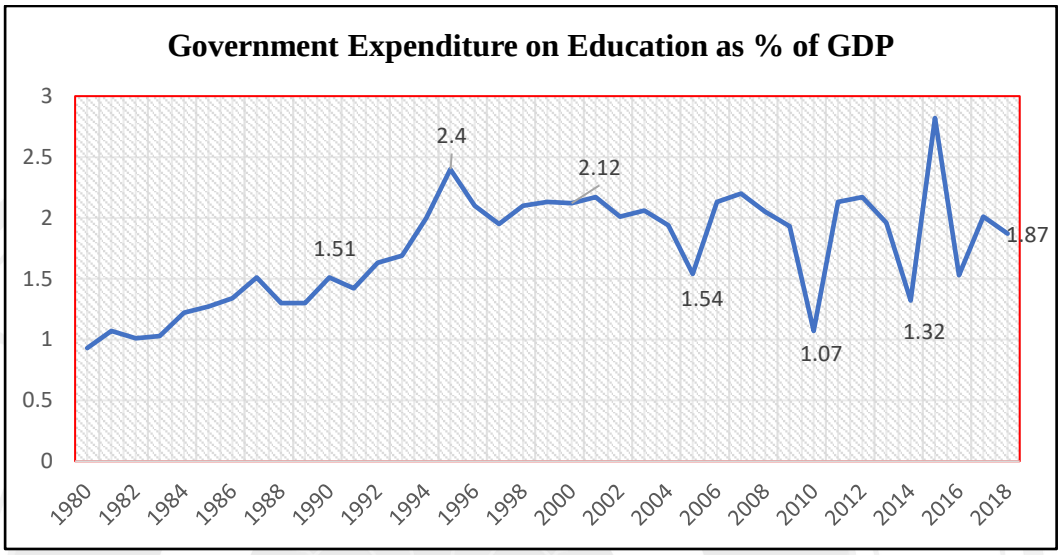


Figure 4. 5 Education Expenditure as Percentage of GDP 1980-2018

Source: World Bank and Ministry of Education, 2019.

Figure 4.5 depicts the fluctuations of the trend in education disbursement as a percentage of GDP, the normal measurement of assessing the volume of the economy, due to finding out just how the amounts (relative) have been fluctuating during the time in a country. Education expenditures increased as a ratio of GDP from 1991 to 1995, however fell until 2005 and following that it followed marginal fluctuations.

Figure 4.5 further illustrates the variations of education disbursement as a share of GDP over the last four decades, although we can observe a growing trend of education expenditure. However, if we go through the aggregate level, then it can be observed that the relative amount of education disbursement to GDP improved at just about 1.00 percent since 1980-2018. This trend evidently depicts the importance of the education sector to which policymakers give importance, and this is manifest

seeing the government expenditure on education, which echoes the way in which the government generally behaves in practical terms.

Apart from considering education in terms of relative amounts, it is worth taking a look at the movements of education expenditure by level of education, as this will provide insight into another dimension of education for policy analysis. Figure 4.6 demonstrates disbursements across levels of education.

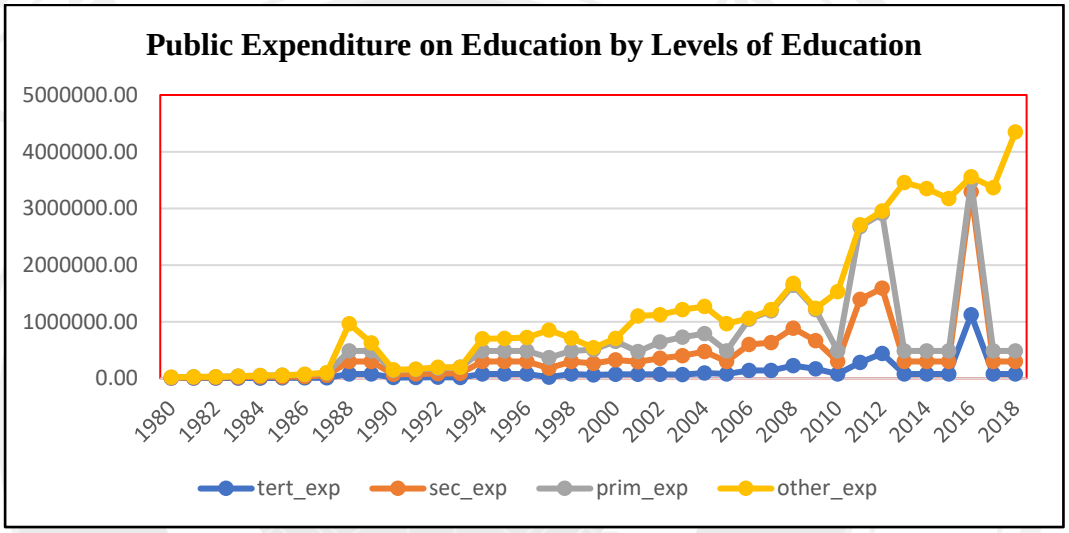


Figure 4. 6 Education Expenditure by Levels of Education during 1980-2018

Source: World Bank and Ministry of Education, 2019.

Figure 4.6 presents a holistic view of exactly in what way public education expenditures are distributed across levels of education across countries during the study period. Every level of education shows increasing trends of public expenditure subsequently from 1993, even though these expenditures experienced a little bit of a drop in the years 2004 to 2005. Interesting point is that the trend of primary as well as secondary education expenditure almost the same as the government's commitment to the basic education for all and achieved an outstanding performance in primary education, almost a 100 percent enrollment rate. Furthermore, regarding the education

of females, Bangladesh achieved an outstanding target as well. Additionally, the government introduced different types of incentives both at primary and secondary levels of education, such as free distribution of textbooks in all primary as well as secondary schools across the country, stipend programs both at primary and secondary levels of education, mid-day meals for selected primary schools, SEQAEP at the secondary level and different training programs at basic education levels. Higher education expenditure goes in a steady line with little variation, as higher education is concentrated in the big cities and most of the benefits went to the upper class who deep a big pocket for their education expenditures, though there are some scholarships, fee waivers, and stipends for the poor students at the higher level but they are not effectively operated.

Other expenditures of education include mainly non-formal, adult education, pre-primary, education training in the primary training institute, the development of education expenditure which has exhibited an increasing trend since 1993 and still exhibits an upward movement in Bangladesh.

The following figure shows the educational expenditure as a percentage of total expenditures in SAARC countries where Nepal is at the highest and Sri Lanka is at the lowest position in terms of total expenditure as a percentage of education expenditure and Bangladesh is at a moderate position. Even Afghanistan spends more compared to Bangladesh in the education as percentages of total public expenditure, but this may not normally represent the real picture of education expenditure in a particular country, as other types of expenditure are related to it, such as coverage of other education expenditures, education related programs and number of students therefore should take consideration.

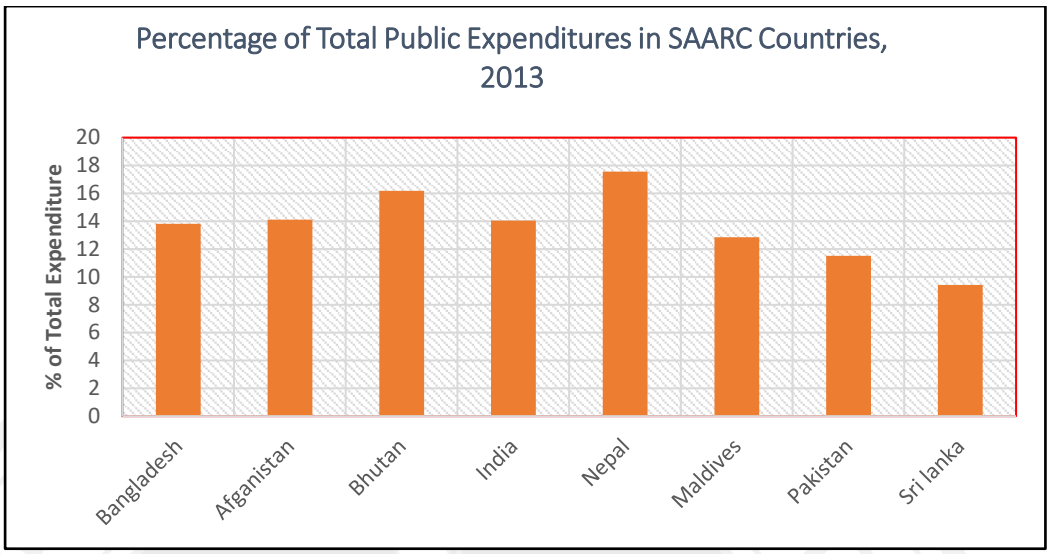


Figure 4. 7 Education Expenditure as a Percentage of Total Public Expenditures in SAARC, 2013

Source: World Bank Development Indicators, 2019.

4.5 Economic-Demographic, Political, Governance Contexts and Education Expenditure in Bangladesh

This dissertation incorporates the qualitative study of educational expenditure policy of Bangladesh that places greater importance on the issue of context as well as historical compassion. The exploratory approach under the case study of education expenditure policy in Bangladesh could penetrate the most prospective determining factors of education expenditures. This analysis is grounded on the context of socio-economic, historical as well as the time factors of Bangladesh. A specific context analysis of a country is appropriate in particular country's context. Nevertheless, this analysis probably will not be applicable in other countries' contexts.

Therefore, many contexts deserve an analysis in this part of the current research in order to offer hypotheses for future analysis using the quantitative method.

This part aims to explore why and how the government of Bangladesh distributes education expenditure for types and levels of education by looking at the qualitative data grounded on the above growth and education strategy of Bangladesh, along with some factors concerning the allotment of expenditure across the country.

4.5.1 Socio-Economic Context and Education Policy

In Bangladesh, Education policy has settled with the passage of time and regarding both compulsory as well as universal primary education and in terms of budgetary allotment. This development of education policy in Bangladesh has evolved in line with the response to the socio-economic milieu along with the demand as well as support from the mass. Consequently, education is a crucial element in different national education development strategies.

The current expansion of infrastructures in Bangladesh is trailed by an extension of education at different levels and stages. This trend is reflected as the philosophy of education policy to encourage the masses to enhance and develop their lives by getting an education. Furthermore, as Bangladesh is going to be industrialized from an Argo-based society, the trends of the demand of a skilled labor force is steadily increasing (BBS, 2018). Consequently, this may lead to higher budgetary allocations to the education sector. There is the effect of the economic crisis that resulted in a slight drop in education expenditure, especially after the 1998s, meaning the global economic recession.

Bangladesh has placed greater importance on the role of education in its advancement procedure by education development plans. Accordingly, education expenditure has also increased steadily over the time under study. Even when taking

under consideration education spending as a proportion of GDP or as a proportion of total expenditure, they seem not to increase intensely, but a steadily increasing can be observed.

We can argue that education expenditure seems to be going in line with the five-year plan as well as policy; for instance, the determining factors put pressure on the budgetary distribution of education. In addition, the demand and support of the masses, as socio-economic as well as political milieu changes, also further lead to higher budgetary allocation. This situation is supported by systems theory, which appears to be appropriate in the case of Bangladesh education expenditure budget and of course containing other factors that might influence in making educational expenditure budget decisions during time frame of the study.

4.5.2 Historical Context

Notwithstanding the presence of the five-year plan, the MDG or education plans, which directs the education spending policy, this type of expenditure must adjust in an incremental manner during a certain duration before a dramatic change is observed, just as a lot of other categories of public expenditure in different states. A shift or transformation of education policy in Bangladesh during the time frame can be well thought out as typically incremental; however, it is a little bit connected with the shifting period of the reform era. Particularly, there were a couple of great fluctuations or a big jumped from year to the next over the past 39 years, which was 1998 to 2000 and 2005 to 2007. Even though it can be assumed that education disbursement is generally incremental, education reforms in Bangladesh appear to display a demanding drive-in educational expenditure, with a noteworthy change.

However, only absolute spending has a clear sign of two big shifts and spending as relative to aggregate spending has confirmed one big shift. The education expenditure as a proportion of the GDP has improved very little, with a great rise and fall during the period, which can be treated as very incremental. Further, there is no sharp shifting in the policy of education expenditure, indicating that education expenditure policy-making is totally grounded on the previous year.

The trends of education expenditure in Bangladesh are steady changes with very little percentage yearly with some increasing swings. The education expenditure policy case in Bangladesh might offer a good instance or a worthy assessment of the incrementalism theory. The experimental investigation in the following chapter can help confirm whether the nature of education budgetary expenditure is in line with incrementalism theory. Finally, the quantitative investigation in the following chapter will help to confirm this assumption.

4.5.3 Institutional and Governance Context

In the situation of education disbursement in Bangladesh, it is interesting to take into consideration the impact of institutions and the governance pattern. There may be some judgment whether institutions have an influence on the budgetary allocation of education over period as we observed sharp or key fluctuations in the trend of education expenditure in Bangladesh over the last few decades. The key changes in education expenditure in Bangladesh during that time basically followed the education policy in 2010, while education expenditure significantly afterwards can be treated as institutional or as a structural swing.

Especially, the organizations in Bangladesh appear to have roughly influenced public expenditure, including expenditure on education. The ministry of education and ministry of primary and mass education are the key institutions for the creating of education policy but at the departmental level these are directed by the directorate general, the ministry of finance, and finally the parliament. Both directors always have a link with the representatives from the government side. These institutions play a crucial role in education policy-making as well as in budgetary allocation on education. Both the ministry of education has really renewed education in Bangladesh by means of policies and programs; however, simply in reality, they seem to be a bit incompetent as well as ineffective. Traditionally, the subdivision and its DG and the ministry of finance have a massive influence on the allocation of budgets. Furthermore, the prime minister's office from time to time very closely monitors and is linked to budgetary politics, and this office also puts pressure and influences the allotment and distribution of education disbursement during budget time.

There is a close connection with the governance pattern or institutional indicators with the budgetary allocation of education expenditure in Bangladesh because these are the indicators of the government's ability to effectively manage as well as allot expenditure, especially on education. The following figure shows that the governance indicators are in negative position in terms of all four indicators, which are measured by the World Bank, and the scale is -2.5 to 2.5, where '0' is the normal position. All of the indicators show a declining trend from 2002 to 2005 and the period was under the leadership of Begum Khaleda Zia of the four-party alliance in Bangladesh. After 2004-2005 with a small deviation, all of the indicators show a slightly increasing trend, though the values are in a negative mark. In summary, the

governance indicators in Bangladesh are not satisfactory or are below the average level, though all four indicators show increasing trend after 2016 and onwards. The figure further indicates the ability as well as the effectiveness of the government in overall policy performance, especially regarding education expenditure policy, which is also depicted by the previous bar charts and line charts as well.

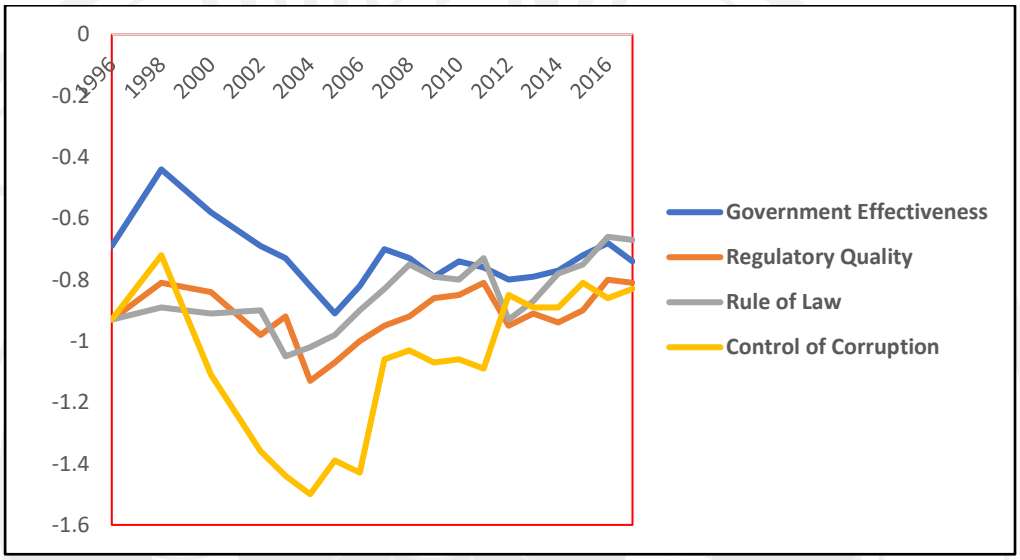


Figure 4. 8 Governance Indicator Values of Bangladesh, 1996-2017

Source: World Governance Indicator, 2019.

4.5.4 Political Context

If we consider the political background along with its philosophy, politics appears to play a crucial part in determining education expenditure. The derives from the three political philosophy-led administrations: Bangabandhu Sheikh Mujibur Rahman (BAL); Ziaur Rahman (BNP); and General H.M. Ershad (later JP); and after 1990s Begum Khaleda Zia of BNP (1991-1996, 2001-2006); and Sheikh Hasina of Bangladesh Awami League (1996-2001, 2008-till now). This was when education

expenditure mostly moved or jumped from the previous year's basically on absolute value. Consequently, political regime or power appears to determine education expenditure as well as policy, just as populism appears to have recently resulted in more expenditure, including education.

Public policy/expenditure theory also confirms these facts as per public choice theory; public expenditure is anticipated to rise in the zone that can increase the votes from voters. It is assumed that public expenditure on education in Bangladesh might be prejudiced by political factors. However, these political variables might not have a robust effect in comparison with other types of expenditures that could inspire electorates. For instance, expenditure on agriculture, transport, or some additional types of infrastructure could lead to an additional as well as tangible output that voters can see with their own eyes. Especially for example in terms of pressure groups, Bangladesh has no robust promoters or pressure groups (except some NGOs that also are not powerful) that could represent the claim for more expenditure on education.

On the other hand, the median-voter model recommends that budgetary distribution depends on the inadequate distribution of income. Although in the case of Bangladesh, the inequality gaps are high, the budgetary allocation on education is not well represented by this theory. In this dissertation, it might not be possible to guess the apparent influence of the median voter model in the education expenditure policy of Bangladesh. Over time, fluctuations in income distribution in Bangladesh also do not echo a clear sign of change in education expenditure.

CHAPTER 5

EMPIRICAL RESULTS AND DISCUSSION OF THE DETERMINANTS OF PUBLIC EDUCATION EXPENDITURE

In this section, the experimental findings are offered for all of the models employing time-series data in Bangladesh for 39 years from 1980 to 2018, to offer the macro point of interpretation of financial allocations. The findings of the empirical tests obtained from this study can provide a clarification of to what was really revealed concerning the provision of education expenditure in Bangladesh throughout the last four decades. These findings are led by the explanation and discussion of the underlying motives for the assessed results, particularly while the results are not consistent with expectation. The following table depicts a summary the statistics of all the variables that are used in the research.

Table 5. 1Summary Statistics for All of the Variables

Variables	Minimum	Maximum	Mean	S. D.
Dependent Variables				
TGE	.93	2.82	1.7421	.45170
ECAP	73.92	26963.77	3169.5474	5430.69864
GU	3507.06	1122648.45	104420.9574	187077.39141

Variables	Minimum	Maximum	Mean	S. D.
GS	4250.38	2170183.20	298504.6458	401095.17029
GP	7088.26	1317491.85	252799.0587	294386.78095
Independent Variables				
GPD per capita	199.33	1913.00	540.5079	402.44763
INF	1.94	18.49	7.2723	3.44889
POP	81470860	164669751	126833491.49	26141986.427
URB	14.85	35.85	24.1589	6.02275
GLOB	16.68	392.30	44.9561	71.56620
UNEM	1.00	5.00	3.2121	1.03888
SCH	36952.0	66269.0	41442.103	9104.1188
LAG_EXP	201.00	49010.00	9142.3332	12731.82708
DEF	-1212.42	1.10	-218.7433	320.32553
DGOV	0	1	.69	.468
IDT	54.78	84.54	70.1422	9.69772
GRANTS	.20	27.55	4.1205	6.98066
VOP	51.29	87.13	66.2985	13.80641
ELEC	0	1	.21	.409
GE	-.91	-.44	-.7316	.09907
RQ	-1.13	-.80	-.9147	.08959
RL	-1.05	-.66	-.8495	.11143
CC	-1.50	-.72	-1.0695	.24339
GEN_P	66.12	114.23	91.6955	14.53374
PTR_P	30.05	117.85	65.0802	27.69679

Table 5.1 depicts some interesting figures, especially on education expenditure as a proportion of the GDP, which reached the highest point at 2.82 percent in total

education expenditure in Bangladesh. Conversely, the mean value of primary, secondary, and higher education expenditures during the study period for the 39 years under review was BDT2,52,799.0587, 2,98,504.6458 and 1,04,420.9574 crore. Table 5.1 additionally encompasses the minimum-maximum values of the independent variables employed in this research. This figure is quite significant because it is more than 25 percent of the total GDP, indicating that the government gives a comparatively high-level priority to education policy or this sector in the country. The development education expenditure alone has a good margin at BDT26,963.77 crore of total expenditure, which is much more compared to other types of spending devoted to other ministries.

5.1 Correlations and Multicollinearity

This research reflects the concern regarding the multicollinearity question. While the independent variables are highly and positively correlated, the coefficient estimations tended to be extremely unstable from one sample to the other. The more multicollinearity, the more were the standard errors. This challenge could be detected by analyzing the bivariate correlations between the predicted variables and looking for greater values (for example, 0.80).

5.2 Multiple Regression Analysis

The multiple regression analysis in this section of the research offers an assessment of the five dependent variables. Explanations are presented for every exploratory variable since it is crucial to comprehend which independent variable can determine every one of the exploratory variables. The statistical significances are

offered with an interpretation in order to observe whether these assessments are important.

Techniques such as multiple regression analysis are well thought out as being suitable as well as crucial statistical tools for dealing with the subject of the determinants of education spending in Bangladesh given the data set in the time-series presentation along with several predictor variables. The findings of the regressions can further be explored to offer convenient policy implications along with suggestions.

Model 1

TGE = a+b1 GDP +b2 INF +b3 POP +b4 GEN_P +b5 GE +b6 URB +b7RQ +b8 GLOB +b9 UNEM +b10RL+b11 STR-P +b12 SCH +b13 LAG_EXP + b14 DEF + b15 IDT + b16 GRANT + b17 VOP +b18 DGOV +b19 CC +b20 ELEC

Table 5.2 (Annexure A) does not make any sense; though the R^2 as well as the adjusted R^2 (0.976, 0.569) looks good, in this model no one variable was found to be significant. However, most of the variables show the problem of tolerance value except for RQ and GLOB. On the other hand, RQ, GLOB, and ELEC show the problem of VIF. In addition, another parameter of the regression analysis is Durbin-Watson (3.003), which is also a problem in the existing model. If this problem is found, the independent variable containing a high correlation problem can be combined or the variable will be detached from the proposed model (Hair et al., 2010, p. 201). In that case, the researcher must choose another model for a model fit and remove the variable that contains the problem of multicollinearity.

Afterwards, the test of the Pearson correlations, the tolerance, and VIF in the existing model for aggregate education expenditure as a proportion of GDP were

calculated to detect more multicollinearity among the predictor variables, and it was shown that the TGE contained a relatively high as well as significant relationship with POP, GEN_P, GE, RQ, UNEM, RL, PTR_P, DEF, VOP, CC, and ELEC. These also exhibited very high VIF and a very low tolerance value. Having a high multicollinearity problem, these variables were removed from the model. The LAG_EXP, IDT, INF, GLOB, SCH, GRANTS, and DGOV were freed of significant correlations with the other predictor variables. In addition, these variables exhibited a high tolerance of > 0.10 as well as a low VIF of < 10. Consequently, these variables were freed from the multicollinearity problem as they had no significant correlation with each other. This is the reason for including these variables in the model.

Following the removal of the variables that showed a multicollinearity problem, the new regression model was then developed:

TGE = a1+ b1 LAG_EXP + b2 IDT + b3 INF + b4 GLOB + b5 SCH + b6 GRANTS +b7DGOV *Model1*

Model 2

ECAP = a+b1 GDP +b2 INF +b3 POP +b4 GEN_P +b5 GE+b6 URB +b7 RQ +b8 GLOB +b9 UNEM +b10 RL +b11 STR_P +b12 SCH +b13 LAG_EXP +b14 DEF +b15 IDT +b16 GRANT +b17 VOP +b18 DGOV +b19 CC +b20 ELEC

Table 5.3 also (Annexure B) exhibits the problem regarding the parameter of the MLRA, which does not make any sense, meaning that no conditions of the MLRA were held. In addition, no single variable was significant in this model. Furthermore, the tolerance value was very low and the VIF was very high for almost all of the variables, and even the Durbin-Watson showed a problem, being greater than 3.

In that case, the researcher must choose another model for a model fit and remove the variables that contain the problem of multicollinearity. Following the removal of the variables that showed a multicollinearity problem, the new regression model was then developed:

ECAP = a2 + b8 INF + b9 POP + b10 GLOB + b11 SCH + b12 DGOV + b13 GRANTS + b14 IDT + b15 ELEC + b16 GE Model2

Model 3

GP = a+b1 GDP +b2 INF +b3 POP +b4 GEN_P +b5 GE +b6 URB +b7 RQ +b8 GLOB +b9 UNEM +b10 RL +b11 STR_P +b12 SCH +b13 LAG_EXP +b14 DEF +b15 IDT +b16 GRANT +b17 VOP +b18 DGOV +b19 CC +b20 ELEC

This table also shows (Annexure C) the problem of multicollinearity, though the R^2 and adjusted R^2 (0.999, 0.985) were very good, and some of the variables also were significant, but almost all of the independent variables contained a very high VIF and a low tolerance value, which was really a problem and needed to be solved the model fit.

In that case, the researcher must choose another model for the model fit and remove the variables that contain the problem of multicollinearity. Following the removal of the variables that showed a multicollinearity problem, the new regression model was then developed:

GP = a3 + b17 GLOB + b18 LAG_EXP + b19 INF + b20 POP + b21 SCH + b22 DGOV + b23 ELEC + b 24 STR-P *Model 3*

Model 4

GS = a+b1 GDP +b2 INF +b3 POP +b4 GEN_P +b5 GE +b6 URB +b7 RQ +b8 GLOB +b9 UNEM +b10 RL +b11 STR_P +b12 SCH +b13 LAG_EXP +b14 DEF +b15 IDT +b16 GRANT +b17 VOP +b18 DGOV +b19 CC +b20 ELEC

Table 5.5 also shows (Annexure D) a problem of multicollinearity, though the R^2 and adjusted R^2 (0.994, 0.901) were very good, but no single variable was significant. Almost all of the independent variables contained a very high VIF and a low tolerance value which as really a problem and needed to be solved for fitting the model.

In that case, the researcher must choose a further model for model fit and remove the variables that contain the problem of multicollinearity. Following the removal of the variables that showed the multicollinearity problem, the new regression model was developed:

GS = a4 + b25 INF + b26 POP + b27 GLOB + b28 SCH + b29 DOGV + b30 IDT + b31 GRANTS+b32LAG-EXP *Model 4*

Model 5

GU = a+b1 GDP +b2 INF +b3 POP +b4 GEN_P +b5 GE +b6 URB +b7 RQ +b8 GLOB +b9 UNEM +b10 RL +b11 STR_P +b12 SCH +b13 LAG_EXP +b14 DEF +b15 IDT +b16 GRANT +b17 VOP +b18 DGOV +b19 CC +b20 ELEC

Table 5.6 also shows (Annexure E) a problem of multicollinearity, though the R^2 and adjusted R^2 (0.996, 0.921) were very good, but no single variable was significant. Almost all of the independent variables contain a very high VIF and a low tolerance value which is really a problem in the MLRA and needed to be solved for fitting the model.

In that case, the researcher must choose a further model for the model fit and remove the variables that contain the problem of multicollinearity. Following the removal of the variables that showed the multicollinearity problem, the new regression model was then developed:

GU = a5 + b33 INF + b34 POP + b35 GLOB + b36 IDT + b37 SCH + b38 DGOV + b39 GRANTS+ b40 ELEC+ b41 LAG_EXP *Model 5*

Five newly settled regression models are to be employed for the multiple linear regression analysis aiming to assess the determinants of education disbursements in Bangladesh. Degenerating all of the sets of the predictor variables, independently for type and levels of education, can classify credible counteracting determinants of education disbursements. The development of education spending will incorporate the same set of predictor variables, excepting lagged expenditure.

In the process of the estimation for each model, all of the probable vital statistics are provided along with an examination of the goodness of fit to confirm the robustness of the assessment in this research. Careful consideration was made in this research regarding statistics in order to provide a systematic as well as expressive analysis for the determinants of educational expenditure.

All of the tables below demonstrate the regression outcomes, with 39 observations from 1980 to 2018, as well as statistics on the determinants of types as well as levels of education expenditure. The outcomes similarly contain the R-squared, adjusted R squared, and Durbin-Watson statistics. The sign ** and * in the table indicate that it is statistically significant at a 1 and 95 percent confidence level, respectively.

5.2.1 Model of the Empirical Estimation of Total Education Expenditure

In order to obtain a clearer as well as more comprehensive understanding of the impacts of each predictor variables on the total education disbursement as a proportion of GDP, an enquiry from the MLRA was needed, as shown in following table. The crucial statistics are exemplified to offer in what way the model can explain as well as forecast the trend of total education disbursement as a proportion of GDP. This scenario is depicted by the graph of the goodness fit of the model.

Table 5. 2 Model 1 and Empirical Findings of TGE

					Collinearity Statistics	
Variable	**Coefficient**	**Std. Error**	**T**	**Significance**	**Tolerance**	**VIF**
LAG_EXP	.673	.000	2.939	.006*	.169	5.914
IDT	.605	.006	4.497	.000**	.490	2.040
INF	-.321	.017	-2.431	.021*	.507	1.974
GLOB	-.410	.001	-2.718	.011*	.389	2.568
SCH	-.043	.000	-.234	.817	.265	3.772
GRANTS	-.372	.008	-2.983	.006*	.568	1.759
DGOV	-.250	.184	-1.322	.196	.247	4.045
CONSTANT		.333	.563	.578		
R^2 =.734	**Adjusted R^2 = ·672**		**F-statistic 11.838**		**Durbin-Watson = 2.495**	

Note: ** Significant at 1%

*Significant at 95%

The estimation of the model is:

TGE = .333 + 0.673 LAG_EXP + 0.605 IDT** -.321 INF* -.410 GLOB* -.043 SCH -.372 GRANTS* -.250 DGOV*

The estimated model may be believed as a wide-ranging clarification regarding the total determinants of government education spending as a proportion of GDP based on its statistical significance as revealed by the t-value being significantly greater than 95 percent. In addition, bearing in mind the value of the tolerance and VIF which are all greater than 0.10 and less than 10 correspondingly, it means that there is no concern regarding a multicollinearity problem. However, the Durbin-Watson statistics hold the parameters of greater than 1 and less than 3, indicating an acceptable value or range of autocorrelation of errors; and this also ensured the non-violation of the assumptions of autocorrelation.

The R^2 and adjusted R^2 value further indicate the drive or movement of the total education spending as a proportion of the GDP determined by this set of predictor variables at 67.2 percent. The adjusted R^2 value infers that the predictor variable can describe the shift in the exploratory variable up to 67 percent.

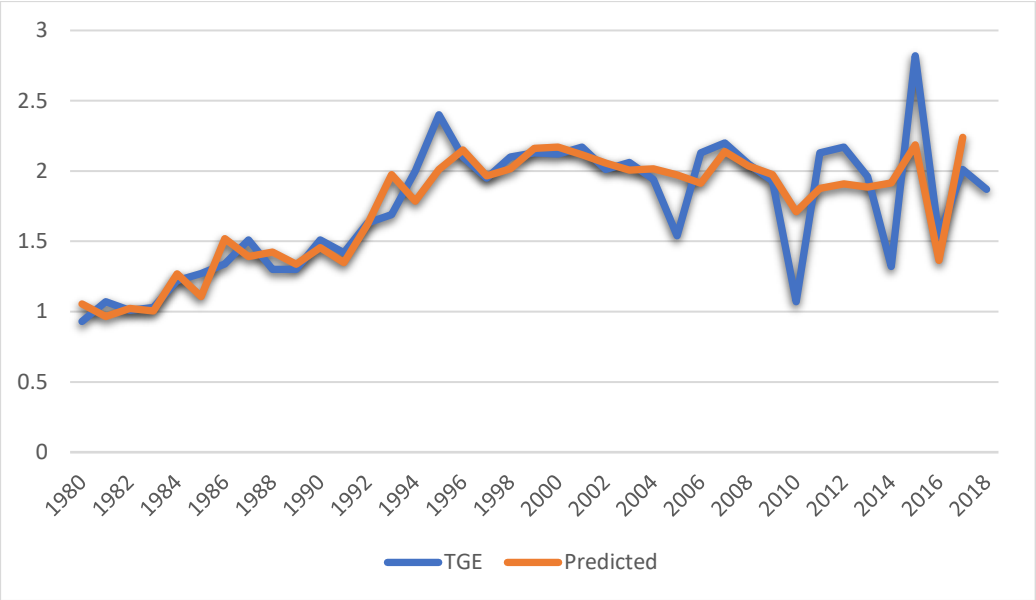


Figure 5. 1 The Goodness of Fit of the Total Education Expenditure as a Proportion of GDP

Note: Goodness fit Test.

According to figure 5.1, the movement of actual total education spending as a proportion of GDP is plotted along with the projected total education spending as a proportion of GDP obtained from table 5.2. The goodness of fit of the projected total education spending as a proportion of GDP is fairly consistent with the actual data, implying that this model is quite robust, except for a little bit of a deviation from the actual levels of data observed from 1994 to 1996, 2013 to 2014, and 2018 correspondingly. This movement suggests the intensity of the assessment from the total education expenditure as a proportion of GDP. Therefore, this can be taken into consideration as an accurate projection of the movement of total education spending in Bangladesh. Moreover, each variable can justify the drive of total education expenditure as a proportion of GDP comparatively sensibly.

5.2.1.1 The impact of Economic-Demographic Factors

The variables such as INF and GLOB in the first model echo in what way economic factors or economic situation can determine the level as well as the budget distribution of total education expenditure as a percentage of the GDP. Both the coefficient of the inflation rate and globalization are negative but are significant at 95 percent. This implies that inflation is negatively correlated with the total education expenditure as a proportion of GDP. Conversely, it could be an issue when price levels rise, and the expenditure of the government on education declines. Moreover, this assessment has decisive implications for theories, implying that it offers confirmation to the Keynesian counter-cyclical theory to the extent that inflation has an adverse impact on government spending, and especially in this case of education spending in Bangladesh. Indeed, the government boosts its expenditure to lift the economy in the time of depression. On the other hand, it might be the case that the government raises education expenditure at a smaller percentage in comparison to the inflation rate.

In the case of globalization, the estimated coefficient is -.410 but is significant at 95 percent, implying that globalization decreases total education expenses as a proportion of the GDP, which conflicts with the theory of Wagner's law and compensation theory. It could be the issue that the government can distribute additional money in different kinds of expenditure, not on education.

Surprisingly, the number of schools is negatively associated with the total education expenditure as a proportion of GDP though not significant at all. In that case, there may be other types of expenditure affecting the total education disbursement of Bangladesh as this study only covers education expenditure. These results from the analysis seem to send a clear-cut idea that public policymakers hardly

take into consideration demographic factors, especially the requirement from the education sector as the key determinants of the levels of disbursements. Conversely, it could be the case that the government could have unheeded these factors while making decisions on the disbursement of education.

5.2.1.2 The Impact of the Decision-Making Factors

Theoretically this decision-making variable comes from the incrementalist school of thought, which believes in the bounded rationality as well as partial proactivism of government officers. This was recommended in the literature section, conferring the incrementalism theory of Lindblom, that the lagged expenditure must be positively and significantly correlated with government spending if the budget places its decision-making on the preceding year. In other words, the government allocates its expenditure based on the preceding year.

After that, the estimated finding demonstrates that the one-year lagged total education expenses are statistically positive as well as highly significant correlated with the dependent variable's total education expenditure as a percentage of the GDP. Its coefficient of 0.673 shows the reasonably high reputation of this variable. This outcome correspondingly lends support to incrementalism theory, inferring that the government of Bangladesh distributes its education spending by depending significantly on its last budgetary practices in framing the present policy on total education expenditure with less respect to the demographic factors.

5.2.1.3 The Impacts of Political Factors

After holding the multicollinearity problem, only three political variables persisted in the model of total education spending as a percentage of GDP. As for the proportion of indirect tax to total tax, it was found to be positive as well as

significantly connected to total education expenditure as a proportion of GDP, which indicates that total education expenses rise as the government accumulates additional indirect taxes. This is very much related to what fiscal illusion theory or voting bias model suggests. Since the government is responsive to the demands of the voters according to the theory of fiscal illusion, so the government is bound to increase taxes for meeting the growing demand of the constituencies.

According to the fiscal illusion theory, a positive association between the proportion of indirect tax to total tax as well as the increasing public spending was anticipated, so the government is inclined to raise its income which is less evident for the individuals due to intensification of expenses.

As for grants, they were found to be very significantly linked to total education expenditure as a proportion of GDP, which at a 95 percent confidence level, but the coefficient was negative. This conflicts with the theory that supports the idea that their rise will take the lead in raising public education spending. The public choice theory forecasts that funding illusion is a proviso of just how a country misapprehends the trustworthy charge of capital inflow or the expenditure tendency near the inflow, denoting that false grant impressions arise in situations of flawed information, thereby increasing government income as well as subsequently government intensification education spending, which is not the instance in Bangladesh. It is evident that the government of Bangladesh needs to discover the best approaches to stimulate and make education expenses sustainable. In that case the government can achieve this through the launch of policy interventions that will empower the government to efficiently meet their commitment, mainly during policy design along with the enactment phase.

As for democratic government, it was found to be negatively associated with total education expenditure as a proportion of the GDP, but it was not significant, which is also contrary to the theory of the median voter model. As per the model, it was assumed that the government, for wining votes, increases public expenditure, at the community level, so that the voter may benefit from that type of expenditure; but the case in Bangladesh is not the same. It can be the instance that the government may increase expenditure in other welfare sectors than education.

5.2.2 Model of the Empirical Estimation of the Development of Education Expenditure

The following table shows the empirical findings for the MLRA of the development education expenditure model. This model also can be taken as a pretty good justification of the determinants of government development education spending based on its statistical significance as revealed in table 5.3, which is greater than 95 percent. The estimated R^2 and adjusted R^2 values of 0.882 and 0.764, further indicate that the drive of the development of education expenditure is able to be explained through this set of independent variables quite well at around 76.40 percent. The other parameters of the MLRA, such as tolerance, VIF, and the Durbin-Watson values have exhibited not one sign of concern regarding multicollinearity and autocorrelation problems.

The predicted variables, including model 2, can thus explicate nearly all of the variations in the exploratory variables. As per model 2, there are three categories of factors determining the development of education disbursement in Bangladesh, which are economic-demographic, political, and governance indicators.

Table 5. 3 Model 2 and Empirical Findings of ECAP

					Collinearity Statistics	
Variable	**Coefficient**	**Std. Error**	**T**	**Significance**	**Tolerance**	**VIF**
INF	-.224	598.404	-1.406	.193	.436	2.296
POP	2.234	.001	2.509	.033*	.017	6.529
GLOB	.084	12.077	.501	.629	.468	2.135
SCH	-1.053	.152	-4.402	.002*	.229	4.368
DGOV	-.478	4545.902	-3.196	.011*	.585	1.709
GRANTS	.260	12506.460	.378	.714	.028	6.069
IDT	.772	241.756	2.585	.029*	.147	6.804
ELEC	.722	3193.309	4.207	.002*	.445	2.249
GE	.608	11953.689	3.577	.006*	.454	2.204
CONSTANT		87116.113	-1.742	.115		
R^2 = .882 Adjusted R^2 = .764			**F-statistic 7.481**		**Durbin-Watson = 2.514**	

Note: *Significant at 95%

The estimation of the model is:

ECAP = -151755.313 - .224 INF + 2.234 POP + .084 GLOB - 1.053 SCH* - .478 DGOV* + .260 GRANTS +.772 IDT* +.722 ELEC* +.608 GE**

The following figure demonstrates the goodness of fit of assessed development education spending, which seems logical; still there is some fluctuation and unorthodoxy concerning the real levels observed for the period of 1996, 2000, and 2016 to 2017. Since the data of governance effectiveness indicators were unobtainable for the years 1996-1997, 1999, and 2001, SPSS version 23 was not able to forecast the value of government effectiveness that was incorporated into the development education spending model.

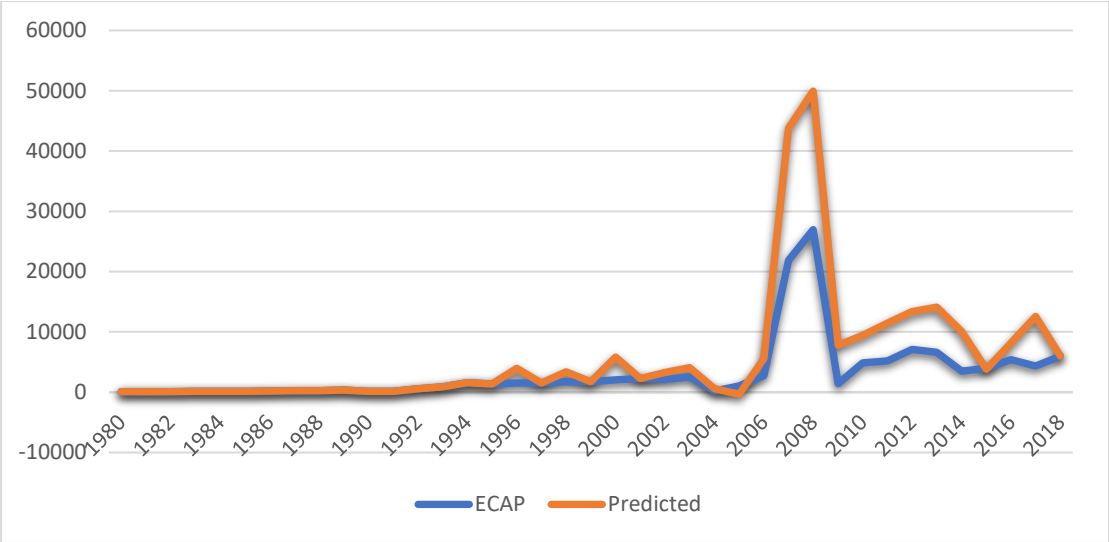


Figure 5. 2 The Goodness of Fit of the Development Education Expenditure
Note: Goodness fit Test

During the period of 2002 to 2004, Bangladesh was experiencing a severe political crisis, meaning the insurgence of terrorism as well as economic crisis as well, and the GDP was at 1.94 percent and foreign grants were reduced to only 0.7 percent of the GDP. Notwithstanding the fact that there is a little bit of a variation, the projection of this model can soundly depict the trend of the drive of the development of education spending in Bangladesh, and the coefficients of the significant factors in this model can also be thought of as pretty good.

5.2.2.1 The Impact of the Economic-Demographic Factors

As for the economic-demographic factors' effect on the development of education expenditure, some exciting as well as astute implications can be found from the estimation of model 2. It is of course true that no one of the economic factors has confirmed a significant relationship. Only inflation rate shows a negative relationship with the dependent variable development of education expenditure, but it was not

significant. The VIF and tolerance values of each predictor variable showed no concern for high correlations.

First, the number of schools was significantly although negatively associated with the development of education spending on education, which indicates the SCH has a blurred effect on the development of education spending. This is not in line with what was anticipated by Wagner's Law, nor Keynesian counter-cyclical theory logics.

It may be said that the development of education spending allocation of Bangladesh cannot be projected by Wagner's law nor by Keynesian counter-cyclical theory. The development of education disbursement steadily escalates, not because of fluctuations in the aggregate demand, while the economy expands. The SCH does not influence the manner in which policymakers make decisions about boosting the development of education disbursement.

According to the estimation of the model above, the assessed coefficient of total population is positive and significant at 95 percent. In this situation, POP is significantly correlated with the development education spending. This is an instance that is in line with Wagner's law, indicating that when there is an increase in the population, then the government also raises the development education spending since it is the commitment of the government to enhance educational facilities and the government wants to provide everyone with this benefit by providing more expenditure of this type.

As per the estimation of the model above, globalization is insignificantly related to the development of education expenditure though it possesses (.084) positive coefficient. This is a case against Wagner's law as well as compensation theory. Debatably, the government of Bangladesh does not take under consideration

the stiff competition from the external-internal pressure of total exports-imports as a percentage to the GDP in the weak domestic markets, while allocating to the development of the education disbursement budget. In this condition, those that receive education as well as the incumbent school age population may suffer a lot and this will adversely affect the total education systems in Bangladesh as it concerns salaries, incentives, as well as the infrastructural development of the educational environment.

5.2.2.2 The Impact of the Political Factors

After holding the parameters of multicollinearity, only four political variables persisted in the model of the development education spending. As for democratic government (DGOV) as well as election cycle (ELEC), the variables were found to be significantly correlated with the development of education spending notwithstanding their negative and positive coefficients (-.478 and .722). The statistical parameters found in result DGOV that conflicts with the median voter model. It might be the instance that in this research only education disbursement was taken under consideration, but further categories of welfare expenses such as health and social safety nets could affect the development of education expenses in Bangladesh.

As the ELEC contained in model presents a significant and positive association with the development of education spending, that is as per the political business cycle theory. Bangladesh significantly modifies the development of education disbursement in election time since the government is inclined to make the voters happy irrespective of which political party is in rule.

As for IDT, it was found to be positive as well as significantly associated with the development of education spending, which indicates the development of education

expenses since the government accumulates extra indirect taxes. This philosophy is included in the fiscal illusion theory/voting bias model. However, this theory considers that since the government is approachable regarding the desires of the voters, this is the reason why the government must raise taxes to meet the demand of the voters of the constituencies.

According to fiscal illusion theory, a positive association between the proportion of indirect tax to total tax as well as increasing public expenses is anticipated, since the government is inclined to raise its income to a less extent due to an increase in its disbursement.

As for the last political factor, grants have shown to be statistically insignificant. Statistically, grants or financial assistance from overseas have no significant association with the development of education expenses and thus no confirmation persisted with the voting bias model of public choice theory.

5.2.2.3 The Impact of Governance Indicators

As for government effectiveness, it was significant at 95 percent as well as positively (coefficient was 0.608) associated with the development of education spending, which is in line with the new institutionalism theory, indicating that the governance indicators determine the government's policy performance level. One study of Forson, Buracom, Baah-Ennumh, Chen, & Carsamer (2015) examined the causal connection of aid inflows as well as the economic development in Ghana over the time of 1970-2013 and showed that corruption (governance issue) was ineffective in creating GDP growth, meaning that this affects the performance of the policy implementation of a particular government, particularly regarding the development of education disbursement in Bangladesh.

5.2.3 Model of the Empirical Estimation of Primary Education Expenditure

The regression findings found in the following table can be accepted as a fairly complete clarification of the determinants of government education disbursement on primary education based on the statistical significance level, as presented by the t-value being significant at 95 percent. In addition, the model contained an R^2 and adjusted R^2 of .580 as well as .465 correspondingly, which further shows that the drive of primary education spending can be explained by this set of predictor variables by roughly 47 percent. The calculation t this level appears to be conclusive and could lead to sound policy implications. However, the tolerance and VIF value have no concern regarding multicollinearity, and the Durbin-Watson statistics has also no autocorrelation problem.

Table 5. 4 Model 3 and Empirical Findings of GP

					Collinearity Statistics	
Variable	**Coefficient**	**Std. Error**	**T**	**Significance**	**Tolerance**	**VIF**
GLOB	-.187	828.010	-.938	.356	.366	2.731
LAG_EXP	.693	10.197	1.773	.087	.095	10.553
INF	-.093	15045.738	-.529	.601	.468	2.139
POP	.621	.003	2.115	.043*	.168	5.958
SCH	-.851	8.862	-3.473	.002*	.241	4.156
DGOV	-.099	165342.113	-.377	.709	.212	4.719
ELEC	.038	98672.702	.294	.771	.856	1.169
PTR_P	-.073	2199.488	-.356	.724	.347	2.882
CONSTANT		601624.421	1.063	.296		
R^2 = .580	**AdjustedR^2 .465**		**F-statistic 5.016**		**Durbin-Watson = 2.402**	

Note: *Significant at 95%

The estimation of the model is:

GP = 639606.256 - .187GLOB + .693LAG_EXP -.093INF + .621POP* -.851SCH* - .099DGOV + .038ELEC -.073PTR_P

In other words, none of the predictor variables in this model of primary education expenditure has a high correlation among each other.

In the following figure, the model fits the reflection very well. The two lines the projection and actual lines—are roughly harmonized at a similar point as per the observation time 1980 to 2018, apart from a little bit of nonconformity in 2016-2017. Furthermore, there is no clear deviation of the projection from the actual line. This result implies that the robustness of this model is high. This is additionally confirmed by the adjusted R^2 value, which is roughly 47 percent. The judgment between the actual value and the value projected by the model are almost equal, as seen from the line chart.

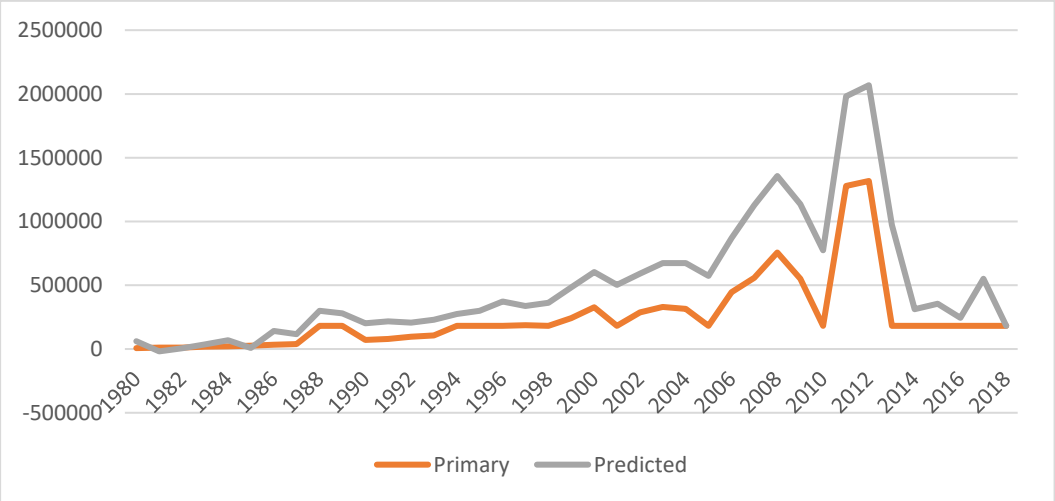


Figure 5. 3 The Goodness of Fit of Primary Education Expenditure

Note: Goodness fit Test

5.2.3.1 The Impact of Economic-Demographic Factors

This set of variables echoes what way that economic and demographic factors can determine the level as well as budgetary allocation of primary education expenditure. The calculated coefficient of the total population is positive as well as significant at 95 percent. In this argument the total population is significantly correlated with primary education disbursement. This is in line with Wagner's law, denoting that with the growing size of the population, the government boosts primary education disbursement since it is universal education, and the government intends to provide every student with this level of education.

As for the number of schools, it is highly significant though negatively associated with the disbursement of primary education, which is contradictory with Wagner's law. In that case, Bangladesh government does not consider the increasing number of schools while making primary education disbursement policy decisions. It could be the case that primary education expenses are not a type of expenditure that arises to promote the economy in the time of a depression.

The estimated coefficient of globalization, inflation rate, and pupil-teacher ratio at the primary level is negative but statistically insignificant, implying that globalization, inflation rate, and the pupil-teacher ratio at the primary level statistically do not determine primary education expenditure.

In this estimation, no economic factors were statistically significant, meaning that statistically primary education disbursement budgetary distribution does not consider economic factors by the government. Additionally, primary education is the main stage of Bangladesh in several aspects and is reflected in developing the human capital in the countryside.

5.2.3.2 The Impact of the Decision-Making Factors

The assessed coefficient of the incrementalist variable in primary education spending was positive but statistically not significant, which is a little bit contradictory as per theoretical anticipation. The influence of this variable, having a high coefficient of .693, indicated the importance of the lagged expenditure. Therefore, the government's budgetary distribution of money to primary education expenditure has been prejudiced but not determined by the previous year's budget.

5.2.3.3 The Impact of Political Factors

Regarding the political variables, DGOV as well as ELEC have exhibited statistical insignificance. Statistically, a democratic government has no significant association with primary education disbursement and this situation does not confirm the median voter model- other variants of public choice theory. In terms of the ELEC, its insignificant coefficient infers that the theory of political business cycle is not acceptable in the case of primary education expense budget distribution.

Nevertheless, in this scenario, the affiliation of the two variables may be examined cautiously in the background of education outflow. As the concentration of this research is solely on education spending, and this model only attempted to estimate the determinants of primary education expenditure, the voter median model and political business cycle covering the two variables may not determine this type of expenditure but can determine other types of disbursement in Bangladesh.

5.2.4 Model of the Empirical Estimation of Secondary Education Expenditure

The regression outcomes found in the following table might be believed as a fairly wide-ranging clarification of the determining factor of government education spending on secondary education grounded on the statistical significance level, as

indicated by the t-value being significant at greater than 95 percent. In addition, the model contains an R^2 and adjusted R^2 of .701 as well as .619, which further shows that the change of secondary education disbursement is explicated by this set of independent variables by 62 percent. The assessment at this level appears to be persuasive and might lead to sound policy implications. However, the tolerance and VIF value have no concern for multicollinearity, and the Durbin-Watson statistics also had no autocorrelation problem.

Furthermore, none of the independent variables in this model of secondary education expenditure had a high correlation among each other.

Table 5. 5 Model 4 and Empirical Findings of GS

					Collinearity Statistics	
Variable	**Coefficient**	**Std. Error**	**T**	**Significance**	**Tolerance**	**VIF**
INF	.160	16930.409	1.104	.279	.489	2.046
POP	1.087	.005	3.406	.002*	.101	9.888
GLOB	.930	983.085	5.372	.000**	.344	2.909
SCH	-.228	10.185	-1.104	.279	.241	4.147
DGOV	.114	181273.414	.542	.592	.233	4.286
IDT	-.393	6383.596	-2.546	.016*	.432	2.313
GRANTS	.203	9919.705	1.174	.250	.346	2.894
LAG_EXP	-.787	13.424	-2.084	.046*	.072	13.820
CONSTANT		650036.375	.811	.424		
R^2 = .701	**Adjusted R^2 = ·619**		**F-statistic 8.501**		**Durbin-Watson = 1.953**	

Note: **Significant at 1%

*Significant at 95%

The estimation of the Model is:

GS = -518260.558 + .160INF + 1.087POP* + .930GLOB** -.228SCH + .114DGOV -.393IDT* + .203GRANTS -.787LAG_EXP*

In figure 5.4, the model fits the reflection very well. The value of two lines the forecast and real lines—are roughly corresponding at similar points during the evaluation period of 1980 to 2018, except for a slight variation in the years 2006-2007. Furthermore, there is no apparent deviation of the projection concerning the real line. This outcome denotes that the strength of this model is incredibly high. This is confirmed by the value of the adjusted R^2 at 62 percent. The difference between the actual value and the value anticipated by the model was almost the same, as witnessed in the line chart.

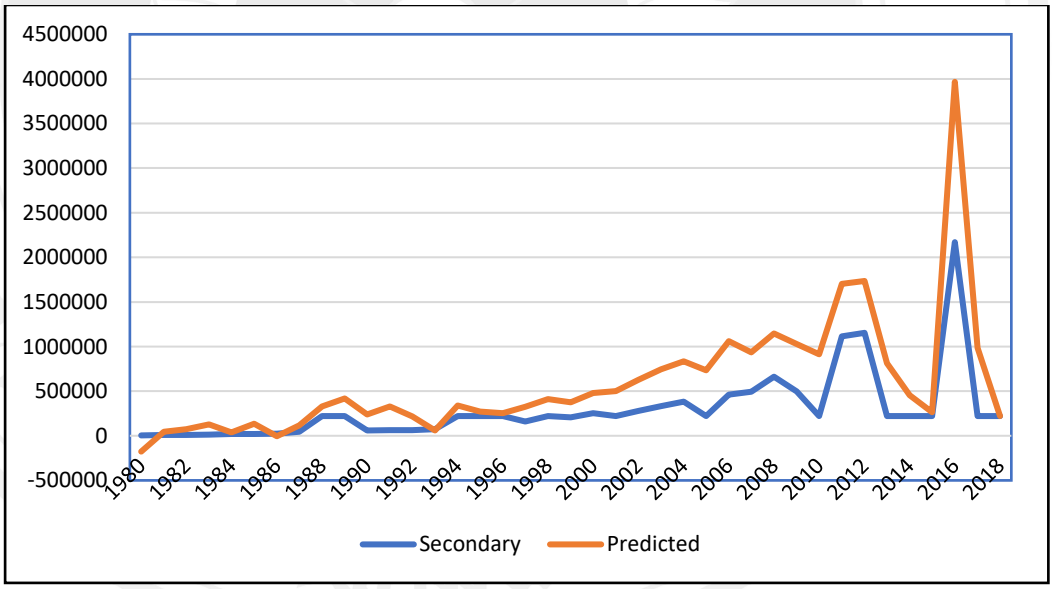


Figure 5. 4 The Goodness of Fit of Secondary Education Expenditure

Note: Goodness fit Test

5.2.4.1 The Impact of the Economic-Demographic Factors

This set of variables echoes the way in which economic and demographic factors or environments can determine the level as well as fiscal allocation of secondary education disbursement. The assessed coefficient of the total population is (1.087) positive as well as highly significant at 95 percent. In this instance, the number of POP is significantly associated with secondary education disbursement similar to the development of primary education spending. This is in line with Wagner's law, denoting that due to the growing size of a population, the government will increase secondary education disbursement.

The estimated coefficient (0.930) of the economic variable GLOB is significantly positive as well as highly significant at greater than 99 percent. In this context, the burden from globalization forces the government to raise the budgetary distribution for secondary education disbursement positively. This is in line with compensation theory and Wagner's law. The secondary level of education is a vital phase in Bangladesh since the additional human capital added to the workforce after completing this level of education contributes to the economic and social development of the state.

As for the estimated coefficient of inflation, it is positive opposite to primary education expenditure but is insignificantly associated with secondary education spending. In this assessment, no economic factors except GLOB were statistically significant, meaning that statistically secondary education spending on budgetary distribution is not consider an economic factor by the government. Additionally, secondary education is also the largest level of education in Bangladesh in several aspects and is well thought out in improving the human capital of the nation.

Surprisingly, the number of schools was negatively associated with secondary education disbursement though was not significant at all. In that case, it may be other types of expenditure that affect the secondary education spending of Bangladesh since this study only covers education expenditure. This result from the analysis seems to send a clear signal that the public policymakers hardly take into consideration education factors, especially the claims from the education sector as the imperative determinants of determining the levels of expenses. Conversely, it could be the case that the government could have not heeded these issues while making decisions on the spending of education.

5.2.4.2 The Impact of Decision-Making Factors

As for secondary education spending, the assessed coefficient of incrementalism variable was negative (-.787) while statistically significant, which is a bit contrary to theoretical expectancy. The effect of this variable, having a high negative coefficient of -.787, demonstrates an arbitrary influence, denoting that the incrementalist variable reduces secondary education disbursement meaningfully. According to this finding, the government's budgetary distribution of money to secondary education has been sturdily influenced though not determined by the previous budget year.

5.2.4.3 The Impact of Political Factors

As for IDT, in relation to the influence of the political factors, it is the lone variable in this model that has a significant effect on secondary education disbursement. Containing a negative coefficient of indirect tax (-.393), it shows that as indirect taxes rise, secondary education disbursement appears to be reduced. This is

the reverse of the fiscal illusion model of public choice theory. It is fairly shocking that this variable is one of the determinants of secondary education spending.

Despite the fact that the indirect tax has a negative as well as a significant coefficient, supplementary political variables such as DGOV as well as grants do not statistically determine secondary education disbursement. The findings found in this research thus reveal that the voting bias model as well as the political business cycle model cannot be applied to the budgetary distribution of secondary education disbursement in Bangladesh.

5.2.5 Model of the Empirical Estimation of University Education Expenditure

According to the regression findings found from the following table, the determinants of the government's university education disbursement exemplify a wide-ranging clarification founded on their statistical significance, as demonstrated by the t-value being significant at greater than 95 percent. In addition, the model contains R^2 and adjusted R^2 value of 0.751 and 0.671 correspondingly, which further reveals that the trend of university education spending is clarified by this set of independent variables at 67 percent. The estimation in this level appears to be encouraging and might lead to better policy implications. However, the tolerance and VIF value were of no concern regarding multicollinearity, and the Durbin-Watson statistic of 1.777 implies that there was no concern in terms of the autocorrelation problem.

Table 5. 6 Model 5 and Empirical Findings of GU

					Collinearity Statistics	
Variable	**Coefficient**	**Std. Error**	**T**	**Significance**	**Tolerance**	**VIF**
INF	.199	7534.462	1.434	.163	.464	2.156

					Collinearity Statistics	
Variable	**Coefficient**	**Std. Error**	**T**	**Significance**	**Tolerance**	**VIF**
GLOB	1.110	433.481	6.782	.000**	.332	3.009
IDT	-.432	2784.363	-2.993	.006*	.427	2.341
SCH	-.056	4.447	-.291	.773	.238	4.206
DGOV	.172	78609.328	.881	.386	.233	4.287
GRANTS	.234	4370.395	1.433	.163	.335	2.988
ELEC	.056	50413.529	.538	.595	.815	1.226
LAG_EXP	-.996	5.822	-2.837	.008*	.072	13.826
CONSTANT		-314502.308	-.900	.376		
R^2 = .751	**Adjusted R^2 = .671**		**F-statistic 9.368**		**Durbin-Watson = 1.777**	

Note: **Significant at 1%

*Significant at 95%

The estimated equation for the Model is:

GU = -314502.308 + .199INF + .975POP* + 1.110GLOB** -.432IDT* -.056SCH + .172DGOV + .234GRANTS + .056ELEC -.996LAG_EXP*

The following figure shows that the projection and the actual lines are very well harmonized at the similar points under review of the study, 1980 to 2018, for the university education spending model. In this context, the projected values of this model are logically matched, with the actual value as observed in the following line graph 5.5.

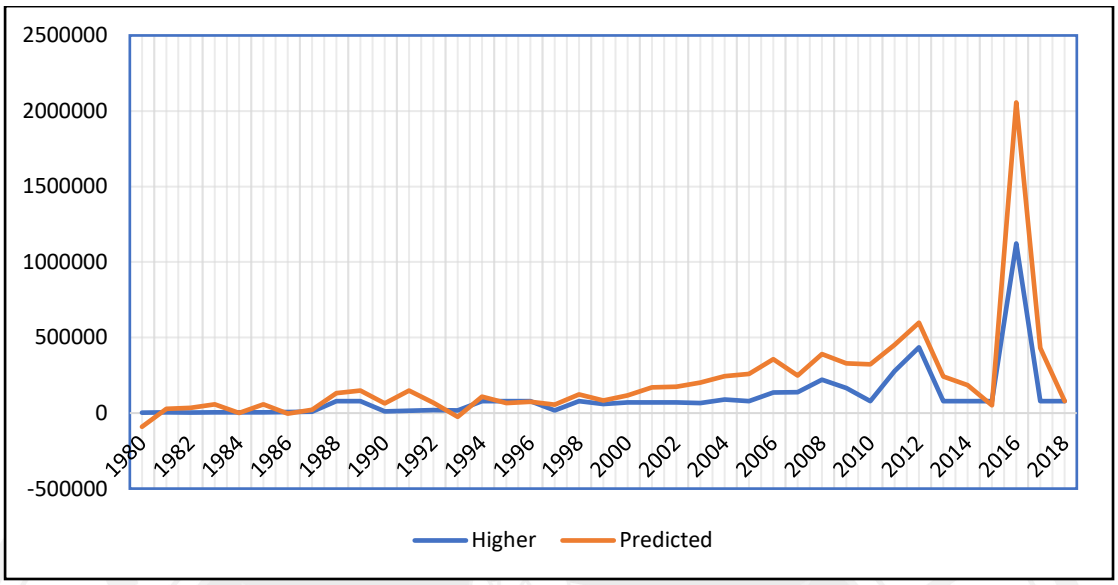


Figure 5. 5 The Goodness of Fit of the University Education Expenditure
Note: Goodness fit Test

This situation extracted from the figure presents a high adjusted R^2 of .671. This goodness of fit model encompasses merely a slight fluctuation from 1991 to 1993 as well as 2017 to 2018, which is almost that of the secondary education spending model. This is moreover identical to the model that look like the secondary education disbursement model.

5.2.5.1 The Impact of the Economic-Demographic Factors

As per the economic variable GLOB, the assessed coefficient it was positive (1.110) as well as highly significant at greater than 99 percent. In this situation, the force from globalization induces the government to boost the budgetary allotment for university education expenses positively as with secondary education disbursement. This matches compensation theory along with Wagner's law. The higher level of education is a significant phase in Bangladesh since greater human capital adds to an

active workforce following completion of the university level of education, as well as supports the socio-economic and political advancement of the nation.

The assessed coefficient of the total population was (0.975) positive as well as highly significant at 95 percent. In this situation the total population was significantly associated to university education spending as with the development, of secondary along with primary education disbursement. It can be argued that this matches Wagner's law, suggesting that with the growing size of the population, the government boosts university education disbursement.

As per the number of schools, it is statistically insignificant though negatively (-.056) associated with the expenses of university education, which contradicts Wagner's law. In that case, the Bangladesh government does not consider the growing number of schools while making university education disbursement policy decisions as with education expenditure on primary and secondary education and the development of education spending. It can be argued that university education disbursement is not a kind of spending that exists to promote economy during a recession or in the case of increasing aggregate demand.

As for the estimated coefficient of inflation rate, it is positive though insignificantly correlated with university education spending. In this assessment, no economic factors except for GLOB had a statistical significance, meaning that statistically university education disbursement budgetary distribution does not take into consideration economic factors by the government. Additionally, university education is specialized education in Bangladesh in many aspects and few have access to this level, and it is considered crucial in developing the human capital of a nation.

5.2.5.2 The Impact of Decision-Making Factors

The approximate coefficient of the incrementalist variable in university education spending was negative (-.996) though statistically significant, which is a bit ambiguous in terms of the theoretical anticipation. This variable, having a high negative coefficient of -.996, suggests an arbitrary effect, inferring that the incrementalist variable lessens university education disbursement significantly. Debatably from this outcome, the government's budgetary distribution of money to university education spending has been sharply manipulated though not determined by the previous budget's session.

5.2.5.3 The Impact of the Political Factors

As for indirect tax, in relationship to the effect of the political factors, it is the lone variable in this model that has a significant influence on university education disbursement. The indirect tax's negative (-.432) coefficient suggests that when indirect taxes are increased, university education expenses appear to be reduced. It can be argued, nevertheless, that this is the reverse of the fiscal illusion model of public choice theory. It is therefore fairly surprising that this variable is one of the determinants of university education disbursement.

Despite the fact that indirect taxes have a negative as well as significant coefficient, further political variables such as DGOV, GRANTS as well as ELEC do not statistically determine university education expenses. The findings revealed in this research thus suggest that the voting bias model and political business cycle model are not applicable to the budgetary distribution to university education in Bangladesh.

5.3 Discussion and Comparison among the Five Empirical Estimations

Having discussed the estimation of each model at the macro-level, time-series analysis, the substance of all of the determinants of education disbursements from the above five models, must be made in order to demonstrate the practical results of the analysis in this section. Every model is clarified through to some extent distinct sets of explanatory variables, even though there are some common variables accompanying most of the models.

The following table depicts the substance of the variables that depicted the education disbursements in Bangladesh for type as well as levels of education as projected by the multi-faced examination of policy determinants framework for analysis of public education expenditures and the time series regression investigation at the macro level. It must be born in mind that the time series data for each of the exploratory variables in this macro-level investigation go back to 1980. Instead of our consideration, every education spending type as well as levels is thus examined in terms of the policy determining factor of education expenditure.

As for data explanation, table 5.7 presents a comparison of the similarities and dissimilarities of the determinants with diverse education expenditures that can be examined for insightful understanding. Furthermore, this initiative can aid in the clarification that would be useful in terms of theoretical claims and policy announcements for policymakers.

Table 5. 7 Summary of the Determinants of Education Expenditures at the Macro-Level

Expenditures	**Determinants**	**Signs**
Total Education Expenditure as Percentage of GDP	Lagged Expenditure	+
	Indirect Tax	+
	Inflation Rate	-
	Globalization	-
	Grants	-
Development Education Expenditure	Number of Schools	-
	Democratic Government	-
	Election Cycle	+
	Government Effectiveness	+
	Total Population	+
	Indirect Tax	+
Primary Education Expenditure	Total Population	+
	Number of Schools	-
Secondary Education Expenditure	Total Population	+
	Globalization	+
	Lagged Expenditure	-
	Indirect Tax	-
Higher Education Expenditure	Total Population	+
	Globalization	+
	Indirect Tax	-
	Lagged Expenditure	-

Surprisingly, the incremental variable is not such a prominent variable among others and is only significantly and positively associated with total education spending as a proportion of the GDP and not with other dependent variables, except

secondary and university education expenditure, where this variable was negatively related. This implies that policymakers in Bangladesh do not exclusively ground their decisions on the education disbursement budgetary distribution from the previous year's distribution, except for total education spending as a proportion of the GDP. Though the trend of education disbursement in Bangladesh during the study period is undeniably incremental, it incorporates structural or institutional shifts, as argued earlier.

Second, economic-demographic factors similarly affect the distribution of several types of education disbursements. The inflation rate affects total education expenditure as a proportion of GDP, but it is incorporated with a negative sign, inferring that inflation shrinks this form of education expenses. It might be that when typical price levels increase, the total education disbursement of the government decreases. The impact of inflation may further be comprehended while education spending does not rise in an equal percentage across time compared to a rise in price levels.

Evidently, the number of schools has a significant effect on development as well as primary education expenditures. It has a negative effect upon these forms of education expenditures, which denotes that when the number of schools expands, the development and primary education disbursement declines. This is not what is suggested by Wagner's law, nor what the Keynesian counter-cyclical theory suggests. The underlying principle behind the Keynesian theory is that the growth in public expenditure, such as welfare—meaning education disbursement—might encourage an expansion in total demand as well as inspire sophisticated working opportunity.

Globalization, which is used as a proxy of the sum of exports and imports as a proportion of the GDP, has a positive and significant effect on secondary and university education disbursement but for total education spending as proportion of GDP, globalization is negatively affected. In this situation, the force from globalization induces the government to boost monetary distribution on secondary as well as on university education positively. This is in line with the theory of compensation and Wagner's law. Surprisingly, for the case of total education disbursement as a proportion of GDP, it decreases with the increasing pressure from the external factors, which contradicts compensation theory. The government may allocate a greater budget in other sectors such as agriculture, transport, or health in this situation.

Total population has a positive and significant influence on the distribution of development, primary, secondary as well as university education expenditures. This is in line with Wagner's law, inferring that with the growing size of the total population, government intensifies these kinds of expenditures as the government wants to make these levels of education affordable for everyone.

Third, as for the political factors, indirect tax was uncovered to have a significant as well as a positive effect on total education disbursement as a proportion of GDP and the development of education expenditure. This complies with the logic of fiscal illusion theory or voting bias model. This theory asserts that since the government reacts to the requirements of crucial voters, that is why the government ought to raise taxes to satisfy the increasing demand of the voters. In the case of secondary and university education spending, indirect tax has a reverse relationship compared to total and development education expenditures. It might be disputed that

an escalation in IDT might be used to fund new forms of expenses and not only education. Conversely, it can be because IDT, which is the denominator of this variable, has grown as well as headed to more expenditure on education. Increasing secondary and university education expenditure may come from direct taxes and not from indirect taxes.

As for democratic government as well as the election cycle, these are seen to be significantly associated with the development of education disbursement despite their negative as well as positive coefficients, respectively. This case is contrary to the median voter model. The argument might be that only education expenditure is taken under consideration in this study, although other forms of expenses—health, social safety nets, and welfare—could affect the development of education disbursement. Regarding the election cycle, it was found to positive and significantly affect the development of education disbursement, which is in line with the political business cycle theory. The Bangladesh government meaningfully modifies the development of education disbursement for the period of an election year since the government is inclined to make the constituencies happy no matter what political party is in power.

As for grants, it significantly affects total education disbursement as a proportion of GDP, but the coefficient is negative. This conflicts with the theory which indicates that expansion will lead to an increase in public education disbursement. The public choice theory forecasts that funding illusion is a facility of what manner a country misapprehends vis-à-vis the reliable custody of funding inflow or the expenditure tendency adjacent to the inflow. It means that grant false impression arises in condition of flawed information. In that way, intensify government income and therefore, government boost education disbursement that is

not the instance here in Bangladesh. It sends a clear message that the government of Bangladesh wants to use the best behaviors to promote and make education expenditure sustainable. In that case, government may take initiative for ensuring sustainable education expenditure by introducing policy intervention and thereby fulfilling its people-centric obligation.

As for governance indicators, government effectiveness positively affects development education disbursement, which is in line with new institutionalism theory, suggesting that governance indicators determine the policy performance level of the government, particularly development education expenses, since the lack of government effectiveness impedes the competition of development initiatives of the government in all strata of a country like Bangladesh.

CHAPTER 6

EMPIRICAL RESULTS AND DISCUSSIONS OF THE INCOME DISTRIBUTIONAL EFFECTS OF PUBLIC EXPENDITURE ON EDUCATION

The analysis of the determinants of public education spending as well as achieving accurate levels of public expenditure alone may not be sufficient in solving the problem of inequality in a country among different income household quintiles (groups) across the country. In that case, there is further needed to raise the share of the income of poor household classes in the economy by increasing their efficiency and thereby income level. The government may take initiative in doing this by providing them with physical capital, for example land as well as basic inputs into their production process (Krongkaew, 1979; D. Romer, 2012). Therefore, policy initiatives that will lead to proper resource allocation among poor household classes may be important in that case, and benefit incidence analysis may be the best option for the government to have a policy that targets the different quintiles of income class/groups across the country well.

6.1 Empirical Findings and Data Analysis

Taking into consideration, the methodology of BIA and its calculation, this research used the most common definition; that is, a comparison of the distribution of income before and after specific public spending on education by using the distributional effects of public expenditure on each quintile income group along with the post-expenditure wage income distribution of each quintile income group and finally compared with pre- and post-expenditure income inequality along with the measurement of the Gini coefficient.

6.2 Distribution of Wage Income by Income Group

It is necessary to comprehend a little bit regarding the quintile share of the income of households before going back to explain the effects or the BIA of public spending on education. The quintile percentage was selected because it is detailed enough for policy analysis, and households being categorized into quintile classes offers a more convenient way of comparison (Krongkaew, 1979). The distributions of the income of households in Bangladesh are shown in table 6.1. It is clear that the total of 15,000 (Reported in HIES-2016) households is classified into five income groups equally at 20 percent of each. The lowest 20 percent of the households earn only 3.79 percent of total income even though the highest-income group of 20 percent of the households earns 47.62 percent. Altogether the highest two quintiles earn more than 70 percent of total wages in Bangladesh. Therefore, this scenario depicts that income is not equally distributed in Bangladesh.

Table 6. 1 Distribution of Income-by-each Income Group before Public Expenditure (crore BDT and percentage)

Income class	**No. of total household = 15000. 20% for each class**	**Wage income per month**	**% of income share**	**Yearly income of household**	**Total income of income class**
Lowest income	3,000	2,075.45	3.79	24,905.40	53,567.40
Low income	3,000	6,132.22	10.88	73,586.64	1,54,000.00
Middle income	3,000	9,001.76	14.94	1,08,021.12	2,11,000.00
High income	3,000	13,266.12	22.77	1,59,193.44	3,22,000.00
Highest income	3,000	27,298.53	47.62	3,27,582.36	6,72,000.00
Total	**100.00**	**57,774.08**	**100.00**	**6,93,288.96**	**14,12,567.40**

Source: Adapted from HIES (2016).

6.3 Incidence of Education Expenditure

The following table indicates the benefit incidence of public spending on education for five different income groups (quintile group) and the analysis is based on the budget year of 2016. This research comprises the public education expenditure

of primary, secondary, and higher/tertiary education in Bangladesh. The table further depicts that primary education is pro-poor, where the lowest-income group receives 11.42 percent of the benefits for primary education. Altogether the lowest two groups and middle-income class receive 49 percent of the benefits of public spending at the primary level of education. On the other hand, the highest-income group receives 26.27 percent of the benefits for primary education expending, which clearly indicates that primary education in Bangladesh is pro-poor. This situation is completely different when it reports on secondary education, where the highest-income group receives 57.86 percent of the benefits for secondary education expenditure and the lowest-income class receives only 5.42 percent of benefits for secondary education expenditure. On the other hand, altogether the lowest two income classes and middle-income group receive only 20.85 percent of the benefits of public expenditure on secondary education. This clearly indicates that secondary education in Bangladesh is not pro-poor but is rather pro-rich and contradicts the primary hypothesis, which confirms that secondary education tends to benefit the rich and is pro-rich. The Bangladesh government has introduced a stipend for secondary students both for rural and urban areas, distributed free textbooks, implemented the secondary education quality enhancement program, and the secondary education investment program across the country but has failed to attract lower-class household students to the secondary level of education across the country.

The scenario for higher/tertiary education is as same as for secondary education disbursement where the highest-income group receives a lion's share of 68.57 percent of the benefit of expenditure for higher/tertiary education. It is shocking to point out that the lowest-income group receives only 2.85 percent of the benefit of

higher education spending. Altogether the lowest two groups and middle-income class receive only 11.43 percent of the benefits of public spending at the higher level of education.

Table 6. 2 Household Characteristics and Expenditure by Income Class (as percentage)

Income class	**Proportion of number of students enrolled in primary education**	**Proportion of number of students enrolled in secondary education**	**Proportion of number of students enrolled in higher education**
Lowest income	11.42	5.42	2.85
Low income	17.47	7.12	4.29
Middle income	20.11	8.31	4.29
High income	24.73	21.29	20.00
Highest income	26.27	57.86	68.57
Total	**100.00**	**100.00**	**100.00**

Source: Adapted from HIES (2016).

Finally, these findings confirm that higher/tertiary education tends to benefit the rich and it is clearly pro-rich. The government of Bangladesh introduced an

education device loan program to support the students from poorer households, introduced a quota for different segments of households, a stipend for the meritorious students, subsidized accommodation pricing, but the ultimate result does not indicate that the real poor students are getting financial or aid support. In addition, the admission test to higher education in Bangladesh is highly competitive. As a result, poor households are not capable of supporting their children to get prepared for an urban coaching center for a long time so that they can do well on the admission test for the university level. Consequently, it might be noted that public expenditure such as education goes to the pro-rich, especially the secondary and higher level of education.

A more in-depth tendency of the distributional effect and the extent to which it benefits the poor can be obtained if the analysis takes into consideration the total amount of spending in each category of public spending on education, considering the expenditure of the year 2016.

6.4 The Distributional Effects of Public Expenditure on Education

Table 6. 3 Distributional Effects of Public Expenditure (crore BDT)

Types of expenditure	**Total amount (Year 2016)**	**Income class**				
		Lowest income	**Low income**	**Middle income**	**High income**	**Highest income**
Primary education	1,82,577.10	44,457.53	44,220.18	36,971.86	32,224.85	24,702.68

Types of expenditure	**Total amount (Year 2016)**	**Income class**				
		Lowest income	**Low income**	**Middle income**	**High income**	**Highest income**
Percentage	100.00	24.35	24.22	20.25	17.65	13.53
Secondary education	2,17,018.32	20,053.78	32,053.72	48,228.02	52,120.07	64,562.73
Percentage	100.00	9.24	14.77	22.22	24.02	29.75
Higher education	1,12,264.85	840.96	1,710.48	4,437.47	20,954.66	84,321.28
Percentage	100.00	.75	1.52	3.95	18.67	75.11
Total	**5,11,860.27**	**65,352.27**	**77,984.38**	**89,637.35**	**1,05,299.58**	**1,73,586.69**
Percentage	100.00	12.77	15.24	17.51	20.57	33.91

Source: Adapted from HIES (2016).

6.5 Incidence of Education Expenditure

The distributional effects of education expenditure indicated in table 6.3 for the five income groups tend to benefit primary education spending for the lowest-income group (24.35%) and on the other hand, the highest-income group receives

fewer benefits for primary education (13.53%) compared to lowest-income group. The primary education spending for the lowest-income group was BDT44,457.50 crore (24.35%), and BDT44,220.18 crore (24.22%) was spent for the low-income group. On the other hand, BDT24,702.68 crore (13.53%) was spent for the highest-income class. This amount for primary education confirms that the government of Bangladesh is committed to making wider primary education for the poor households across the country so that the poor people can obtain greater benefit from primary education. In the case of secondary education, on the other hand, the allotted amount clearly favors the rich. Approximately 64,562.73 crore taka (29.75%) of public spending on secondary education is received by the highest-income group and 52,120.07 crore taka (24.02%) is spent on the high-income group. Therefore, the two highest-income groups together receive almost 54 percent of the total disbursement on secondary education.

In the instance of higher education, the condition strongly favors the rich households. Approximately 84,321.28 crore taka (75.11%) of the public spending on higher/tertiary education is received by the highest-income group and 20,954.66 crore taka (18.67%) is spent on the high-income group. Altogether the two groups, low-income and middle-income, receive only 6.22 percent of the befit from higher education, whereas the two high income groups receive 93.78 percent of the benefit for higher education.

Compared to higher income group, the low-income group receives only 840.96 crore taka (0.75%) of the total spending on higher education, which confirms that higher education is absolutely pro-rich. The reason behind that is that the higher-level education institutions are mainly situated in the urban areas where usually live

rich families, the admission process is highly competitive, and poor households are not capable of supporting their children to get prepared for urban coaching centers for a long time so that they can participate in the admission process at the university level. Another reason may be the socio-political background of the people of Bangladesh as there are different social structures. These are the obstacles for poor households not to able to send their children to the higher education institutions that are in urban areas. Moreover, expensive university-level education prevents the poor households from having the opportunity of higher education.

The total amount of 5,11,860.27 crore taka was spent on the education sector, while primary level education was allotted 1,82,577.10 crore taka (35.67%), the secondary level of education was allotted 2,17,018.32 crore taka (42.40%), and the higher-level education was allotted 1,12,264.85 crore taka (21.93%) for the year 2016 in Bangladesh. These seems from the budgetary allocations, that primary and secondary education expenditure are much higher than that for higher education but the individual benefits go to the rich people compared to the poor, as is indicated in table 6.3, and it was found that the highest-income group receives 24,702.68 crore taka, which is 13.53 percent, and 64562.73 crore taka, which is 29.75 percent, respectively, in terms of primary and secondary education expenditure; the lowest-income group receives 44,457.50 crore taka, which is 24.35 percent and 20053.70 crore taka which is 9.24 percent; and the middle-income group receives 36971.80 crore taka, which is 20.25 percent and 48,228 crore taka, which is 22.22 percent. On the other hand, in terms of higher education, the highest-income group receives 84,321.28 crore taka, which is 75.11 percent; the lowest-income group receives 840.96 crore taka, which is 0.75 percent, and the middle-income group receives

4,437.47 crore taka, which is 3.95 percent. Therefore, it is easy to conclude that the benefit incidence for both secondary and higher education spending is pro-rich.

6.6 Pre- and Post-Expenditure Income Distribution

Table 6. 4 Pre- and Post-Expenditure Income Distribution (crore BDT)

Income class	**Post-Exp income**	**Post-Exp (Prim. Edu)**	**Post-Exp (Second. Edu)**	**Post-Exp (Higher Edu)**	**Post-Exp (Total Edu)**
Lowest income	53,567.40	98,024.93	73,621.18	54,408.36	1,18,919.67
Low income	1,54,000.00	1,98,220.18	1,86.053.72	1,55,710.48	2,31,984.38
Middle income	2,11,000.00	2,47,971.86	2,59,228.02	2,15,437.47	3,00,637.35
High income	3,22,000.00	3,54,224.85	3,74,120.07	3,42,954.66	4,27,299.58
Highest income	6,72,000.00	6,96,702.68	7,36,562.73	7,56,321.28	8,45,586.69
Total	**14,12,567.40**	**15,95,144.50**	**16,29,585.72**	**15,24,832.25**	**19,24,427.67**

Source: Adapted from HIES (2016).

Table 6. 5 Pre-and Post-Expenditure Income Distribution (percentage of income share)

Income class	**Pre-Exp % of income**	**Post-Exp (Prim. Edu)**	**Post-Exp (Second. Edu)**	**Post-Exp (Higher Edu)**	**Post-Exp (Total Edu)**
Lowest income	3.79	6.15	4.52	3.57	6.18
Low income	10.88	12.43	11.42	10.21	12.06
Middle income	14.94	15.54	15.91	14.13	15.62
High income	22.77	22.21	22.96	22.49	22.20
Highest income	47.62	43.67	45.19	49.60	43.94
Total	100.00	100.00	100.00	100.00	100.00
Gini coefficient	**0.3982**	**0.3393**	**0.3715**	**0.4174**	**0.3426**

Source: Adapted from HIES (2016).

The above table indicates that the post-public expenditure income shares of five income groups for the year of 2016 in Bangladesh. Taking into account the income distribution after the public disbursement on education in the case of primary education, the income shares of the lowest-income group increased to 6.15 percent

from 3.79 percent and in the case of the highest income, it has decreased to 43.67 percent from 47.62 percent, while income inequality has improved as the GINI coefficient decreased to 0.3393 from 0.3982. On the other hand, regarding the income distribution after the public disbursement on education in the case of secondary education, the income share of the lowest-income group has increased to 4.52 percent from 3.79 percent and in the case of the highest-income group, it has decreased to 45.19 percent from 47.62 percent, while the income inequality has decreased to 0.3715 from 0.3982. On the other hand, in the case of higher education, the income share of the lowest-income group has decreased to 3.57 percent from 3.79 percent because most of the students from poor households have limited access to the higher-level education. This condition has changed to the opposite direction while the income inequality increased as the GINI coefficient increased to 0.4174 from 0.3982. On the whole, after public disbursement on education, the income share of the lowest class has increased to 6.18 percent from 3.79 percent, whereas the income share of the highest-income group has decreased to 43.94 percent from 47.62 percent; and consequently, the inequality has reduced as the GINI coefficient decreased to 0.3426 from 0.3982. The findings confirm the larger share of the expenditure on primary and secondary education across the country and this affects income distribution significantly.

Interestingly, the income shares of the middle-and high-income groups have remained almost the same as the two income groups are in line with pre-expenditure. Therefore, we can easily conclude from the total findings for the three levels of education expenditure patterns indicate that the income share of the lowest-income group has increased to 6.18 percent from 3.79 percent, whereas the income share of

the highest-income group has decreased to 43.94 percent from 47.62 percent. Therefore, finally the income inequality overall decreased after public spending as determined by the Gini coefficient, which has also decreased to 0.3426 from 0.3982.

The formula used for post-public expenditure income distribution

Household income for each income group after tax =

Total income of each income group + Benefits of expenditure received by each income group

where

Total income of each income class

= (Total income per year for each income group) X(Total number of households in each income group)

The following Gini coefficient formula will be used to assess the benefit incidence:

$$\text{Gini Coefficient} = \left(1 + \frac{1}{5}\right) - [\frac{Nx1 + (N-1)x2 + - - - + Nxn - 1 + xn}{NX}]$$

where

N = Indicates the number of income classes. In this study, there are five household income quintiles.

X = Percentage of income of total income classes, which means 100%.

X = Percentage of income in each income class at the national income level; and

I = 1, 2…n (represent the numbers of income quintiles).

Having a closer look at the findings and the analysis of the data on the effects of public income distribution, it might be concluded that public expenditure is primarily pro-poor, but secondary education is not pro-poor in terms of the distributional effects of public expenditure, although the combined incidence with higher education is pro-rich. The income share of the lowest-income group has

increased to 6.18 percent from 3.79 percent, whereas the income share of the highest-income group has declined to 43.94 percent from 47.62 percent and overall inequality has decreased, as determined by the Gini coefficient, which has decreased to 0.3426 from 0.3982.

CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

This research sought clarification regarding two leading problems pertaining to public educational spending policy in Bangladesh. First, in the last few years, it has been evident that public education expenditure has been growing significantly. Academician, thus, is capable of explicating what triggers that type of sharp increase, especially in terms of policy determinants. Secondly, there is deep apprehension regarding the issue of fairness in terms of the income distributional effects of public educational expenditure in the education sector across the country. There must be evidence to show the characteristics of the distribution of the income of public educational expenditures in terms of educational inequality across the five income quintile groups in Bangladesh.

This study has attempted to increase comprehension pertaining to the actual behavior of the government of Bangladesh regarding education disbursement policy. In the contemporary literature, this type of research is truly rare as well as partially conducted in Brazil, Thailand, Kenya, and Argentina, which are the examples of this sort of research. Most of the past research pays attention to the aggregate budget of the government or cross-country examination alongside concentrating on total expenses as part of education disbursements. This study can thus be a significantly

counterpart to the literature by exploring in detail the context of Bangladesh and by discovering the determining factors of diverse kinds as well as levels of education expenditure along with the income distributional effects of public education disbursements of the income quintile groups in terms of the Gini coefficients of education in Bangladesh.

Exploratory study is the type of research that is demonstrated in this research. It considers government public spending policy as the dependent variable: the extent to which the analysis explains the behavioral pattern by discussing the multi-faced independent variables, including economic-demographic, decision-making, and political variables, as well as governance indicators. Given the purposes of this research, therefore, the purpose was to solve the following questions.

First, how do economic-demographic, decision-making, political, and governance factors determine the public education expenditure in Bangladesh, and how has the expenditure developed with the passage of historical events and how has the allocation changed over time? Second, how do these factors affect the public education expenditure, how does it vary across levels of education, and what are the suggested variables to explain this in Bangladesh? Third, how do these factors affect the development expenditure of education, Four, what are the income distributional effects of public education expenditures on education across income quintile groups and levels of education in Bangladesh, and finally, which policy inferences would be recommended from the experiential findings found in the research? After reviewing pertinent literature, a substantial number of theories as well as hypotheses, it is preferred to examine their applicability for an explanation of educational disbursement in the context of Bangladesh.

Having the insufficiency of empirical literature, particularly in terms of both time-series as well as yearly data analyses, this research generates a multi-faced examination of the policy determinants framework to match the background of Bangladesh for a macro-level analysis. This MPDFA framework takes into consideration the viewpoints, data, and methodology for explaining the budget of Bangladeshi education expenditure. There are four key points that must be considered concerning the framework of this research: economic-demographic factors; decision-making factors; political factors; and governance factors.

Secondly, concerning viewpoint, as mentioned earlier, exploratory study was the type of research employed in this study, aiming to analyze the behavioral pattern of the government, growth, as well as the determinants of public expenditure in Bangladesh. Taking into account the analytical context as well as objectives, two types of investigation are integrated in this research: time-series investigation and yearly data analysis. The research investigates the data, the effect of the predicted variables in the time-series, as well as the yearly data in the income distributional section analysis. The posited predictor variables were obtained from a mixture of interrelated theories, earlier research, and the hypothesis formulation in this research founded on the background of Bangladesh.

Prominent is the point that this type of study has never been carried out in the context of Bangladesh’s education expenditures. Not only in Bangladesh but also internationally, this type of multi-faced study has hardly ever been done, especially the kind which is grounded on both time-series in public education expenditure and yearly data regarding the income distributional effects of public educational expenditures in a particular state.

Thirdly, the identification of the variables in this research incorporated various dimensions. As with the exploratory variables, both levels and types of educational expenditures are incorporated along with the total education expenditures. Furthermore, the selection of the predictor variables in this research's explanation of the trend of education expenditure similarly differs from that in the literature.

Fourthly, notwithstanding the reality that various theories as well as techniques applied to constructing the structure along with the examinations in this research resulting from the public finance and economic discipline, the fundamental aspect of this research is that it is a policy-orientated study. This is based primarily on the ground that any endeavor applied to more advanced quantitative tools of other fields due to convey policy analysis can benefit the dissertation in terms of advancing the body of knowledge in similar fields.

Accordingly, the multi-faced examination of the policy determinants framework was applied in this research, founded on the modification afforded to the theoretical background, some proof from earlier research, and the historical backdrop of Bangladesh in particular. The MPDFA framework was applied throughout this research for both the analysis for the macro level, employing time-series data and for the income distributional effects of public education expenditure on education using yearly data of 2016.

Having debated the prospects of the variables which could determine the educational disbursements in Bangladesh, those that were considered suitable as well as theoretically sound were incorporated in the models for empirical estimations. For the time-series analysis, there were five models in total. The estimated models were divided by total education expenditure and development education expenditure by

types, and by levels of education disbursements—primary, secondary, and higher. These models are widened to incorporate several predictor variables. The predictor variables that were employed in this research consisted of four key groups: economic-demographic, decision-making, political, and governance indicator variables.

The economic-demographic factors included GDP per capita, inflation rate, population growth, enrollment rate, urbanization, globalization, unemployment rate, student-teacher ratio, and number of schools. The decision-making variable was the lagged expenditure for each category of expenditure. The political factors including budget deficit, percentage of indirect tax to total tax, grants, direct voter participation, and election year, were the dummy variables. The governance indicators were government effectiveness, regulatory quality, rule of law, as well as control of corruption.

Regarding the income distributional effects of public education expenditure on education, this study answered the following questions: Is public disbursement on the education sector pro-poor or pro-rich? Who are the main beneficiaries of the public subsidies? What degree of inequality exists in the distribution of government benefits across levels of income groups/quintiles? In order to answer these questions, the benefit incidence analysis method was employed to explain the means by which monetary benefits are being explored and its impact on the education sector. The findings confirmed that poor households in primary and secondary education had a lion’s share of enrollment, whereas the rich household groups grasped advantage more at the higher-education level. This denotes that public education expenditure in Bangladesh is pro-poor at primary levels, and implication is that the lower-household

income group benefits further from primary education policies and the high-income groups from secondary and higher-education policies.

The results further indicate that the income portion of the lowest-income group has increased to 6.15% from 3.79% and in the case of the highest income, it has decreased to 43.67% from 47.62%, while the income inequality has improved as the GINI coefficient decreased to 0.3393 from 0.3982. Conversely, in the case of secondary education, the income share of the lowest-income group has increased to 4.52 percent from 3.79 percent and for the highest-income group, it has decreased to 45.19 percent from 47.62 percent, while income inequality has decreased to 0.3715 from 0.3982. On the other hand, in the case of higher education, the income share of the lowest-income group has decreased to 3.57 percent from 3.79 percent and the condition has changed in the opposite direction while income inequality increased as the GINI coefficient increased to 0.4174 from 0.3982.

Interestingly, the middle-and high-income groups' income share has remained almost the same as the two income groups are in line with pre-expenditure. Therefore, we can easily conclude from the total findings for the three levels of education expenditure pattern that the income share for the lowest-income group has increased to 6.18 percent from 3.79 percent whereas the income shares for the highest-income group it has decreased to 43.94 percent from 47.62 percent. Therefore, finally income inequality overall decreased after public spending as determined by the Gini coefficient, which has also decreased to 0.3426 from 0.3982.

For the time-series analysis, finally five models incorporated suitably the independent variables and were regressed using time-series data because every model at the macro level analysis was a combination of many predictor variables that tend to

encompass the challenge of multicollinearity, where the associations among the variables was tested predominantly for Pearson correlations. The independent variables having a significant correlation with each other were detached from the models. For the problem of multicollinearity, each model was tested employing Pearson correlations.

While the evaluation of chapter five it was on time-series analysis, the problem of autocorrelation was brought under consideration in order to confirm that the assessed coefficients and their standard errors were valid. The Durbin-Watson statistics were employed for monitoring the problem of autocorrelation.

The inclusive findings for the assessment of all of the models are summarized as follows:

1) Regarding the five suggested models in the time-series, evaluation may fit as well as explicate the behavioral pattern of education spending budget sensibly. Each of the five models had F-statistics that were statistically significant, and four models had an adjusted R^2 greater than 68 percent, suggesting the respectable exploratory strength of the models. Although the remaining model for primary education disbursement had comparatively less value of the adjusted R^2 at approximately 47 percent, it still could be considered sensible in terms of the justification of regarding the trend or change in the exploratory variable.
2) Surprisingly, the incremental variable was not such a prominent variable among others and was only significantly and positively associated with the total education disbursement as a proportion of GDP and not with other dependent variables, except for secondary and university education

expenditure, where this variable was negatively related. This implies that policymakers in Bangladesh do not solely ground their decisions upon education disbursement budgetary distribution as of the previous year's allocation except for total education disbursement as a proportion of the GDP. Though the trend of education spending in Bangladesh during the study period was undeniably incremental, nevertheless it incorporates organizational or institutional swings, as argued earlier.

3. The economic-demographic factors similarly were seen to affect the distribution of numerous types of education expenses. The inflation rate affected total education disbursement as a proportion of GDP, although it was incorporated with negative sign, inferring that inflation shrinks this type of education disbursement. This might be an instance that when average price levels increase, the total education disbursement of the government decreases. The impact of inflation can further be comprehended while education spending does not increase in an equal percentage across time in comparison to price hikes.

Evidently, number of schools retain a significant influence on development as well as primary education expenditures. This has a negative effect on these forms of education expenditure, which suggests that since the number of schools is growing, development and primary education disbursement declines. This was not anticipated by Wagner's law, nor from the Keynesian counter-cyclical theory point of view. The underlying principle behind the Keynesian theory is that an escalation in public disbursement, such as welfare-meaning education expenses, might encourage an upsurge in total demand as well as inspire higher working opportunity.

Globalization, which was used as proxy for the sum of exports and imports as a proportion of GDP, had a positive and significant effect on secondary and university education disbursement, but for total education spending as a proportion of GDP, globalization was negatively affected. In this instance, the force from globalization induces the government to boost the budgetary allotment for the secondary as well as university education expenditure constructively. This instance is in line with the theory of compensation and Wagner's law. Surprisingly, for the case of total education disbursement as a proportion of GDP, it decreases along with increasing pressure from the external factors, which contradicts compensation theory. The government may allocate greater budget in other sectors such as agriculture, transport, or health in this situation.

Total population was seen to have positive and significant effects on the distribution of development, primary, secondary, as well as university education expenditures. This is in line with Wagner's law, suggesting that with the growing size of the total population, the government boosts these kinds of expenditures as the government wants to make education affordable to everyone at these levels.

4. As for political factors, indirect tax was seen to have a significant as well as positive effect on total education disbursement as a proportion of GDP and the development of education expenditure. This logic is in line with the fiscal illusion theory or voting bias model. This theory asserts that since the government is quick to respond to the requirements of its constituencies, that is the reason that the government increases taxes to satisfy the increasing demand for the greater benefits for its constituencies. However, in case of secondary and university education disbursement, indirect tax has the reverse

relationship compared to total and development education expenditures. The dispute might be that an escalation in IDT cannot be used to finance additional forms of disbursement, not simply education. Conversely, it can be because IDT, which is the denominator of this variable, has expanded as well as led to more expenditure on education. Increasing secondary and university education expenditure may arise as a direct tax and may not as an indirect tax.

As for democratic government and the election cycle, these were seen to be significantly associated with the development of education disbursement even though they had negative as well as positive coefficients, respectively. This case is ambiguous in terms of the median voter model. The argument might be that only education expenditure was taken under consideration in this study although other kinds of spending—health, social safety nets, and welfare—could influence the development of education disbursement. In terms of the election cycle, it was found to positive and significantly affect the development education disbursement, which is in line with the political business cycle theory. The Bangladesh government significantly modifies the development of education disbursement for the period of election years as the government is inclined to make its constituencies happy no matter what political party is in power.

As for the grants, they significantly affect total education disbursement as a proportion of GDP, but the coefficient is negative. This conflicts with the theory that their expansion will lead to an expansion in public education disbursement. The public choice theory forecasts that funding illusion is a proviso by which means a country misapprehends the reliable control of funding inflow or the expenditure tendency adjacent to the inflow, denoting that false grant impressions arise according

to flawed information; in that way, there is an upsurge in government income and therefore, the government boosts education disbursement, which is not the instance in Bangladesh. This sends a message that the government of Bangladesh needs to identify the best behaviors in order to encourage and make education disbursement sustainable. In that case, the government may take policy initiatives that will allow the government to efficiently meet its targets, predominantly at the time of policy formulation and the execution of a particular policy, both at national and local levels.

5. As for governance indicators, government effectiveness positively affects the development education disbursement, which is in line with new institutionalism theory, suggesting that the governance indicators determine the policy performance level of the government, particularly the development of education expenses, while the lack of government effectiveness impedes the race for development initiatives in all strata of a country like Bangladesh.

Having considered the limitations along with the rigidity of the results of the time-series regression analysis, further investigations into the income distributional effects of public educational expenditure on the levels of education across the country particularly in terms of the five household income groups, was taken under consideration in order to supplement the regression outcomes. This research has inspected the public education expenditures' income distributional effects in terms of the Gini coefficient of education across the levels of education in Bangladesh.

7.1 Theoretical Contributions of the Study

Even though this research is policy concerned by nature, concentrating alone on policy determinant investigation as well as targeting exhaustive understanding

regarding the conduct of the government of Bangladesh in allotting public expenditures on education, there stand some noteworthy theoretical contributions.

This research has delivered some original experimental proof helping with the continuation of a long-term positive relationship between education disbursements as well as some vital determining factors in Bangladesh. Contained by a well-recognized frame of study, this research has supported the policy analysis arena of research. The findings extracted from a promising calculation technique, that makes more competent utilization of both the time-series as well as yearly data for income distributional effects. The results found in this research manifest insightful contributions in this field of policy evaluation. The theoretical contributions produced in this research are as follows.

First, the findings indicate that the education disbursement in Bangladesh is partially determined as well as channeled by the government's sensitivity to the economic *status quo*, especially the previous year's expenditure, GDP per capita, unemployment, as well as inflation, over the research period. These results further shed light on the ideas of Thomas Dye—that public policy is not arbitrarily determined and is instead a component of the procedure of social as well as economic development.

Secondly, in general, the distribution of education disbursement in Bangladesh is not best clarified by one sole variable or theory. The previous year's spending and indirect tax are the best forecasters of the total education disbursement as a proportion of the GDP, and these are statistically as well as positively significant. University education disbursement is adversely influenced by indirect tax. Wagner's law and fiscal illusion theory as well illuminate the means by which public education

disbursement in Bangladesh is determined. This could be because of the ineffectiveness as well as the policy disparity of the government of Bangladesh in distributing education disbursement accurately.

Thirdly, the number of schools has impacts upon one type as well as levels of education: development and primary education disbursements. They are mutually and negatively determined by the number of schools, which conflicts with Wagner's law and Keynesian counter-cyclical theory. Globalization similarly intensifies the levels of education disbursement, including secondary and university education disbursement, with Glob's coefficients of 0.739 and 0.851, correspondingly. This is backed by compensation theory. On the other hand, total education disbursement declines because of globalization, with a coefficient of -.410, which is the reverse of compensation theory. It could be that the government is not worried about education factors for distributing education disbursement and absolutely relies on the implementation of imports as well as exports in the global marketplaces. This is additionally an indication of ineffective policy concerning education disbursement.

Fourthly, the calculation of the effect of inflation supports the Keynesian counter-cyclical theory, which utilizes merely the issue of total education disbursement. The impacts of inflation uncovered in this study are counter to the notion of Wagner's law. Fiscal illusion theory is not appropriate in the instance of Bangladesh since IDT is positively associated with total as well as the development the education disbursement and is negatively associated with secondary and university education disbursement.

Fifthly, the calculation of the effect of the total population supports Wagner's law, which pertains to the type as well as levels of education such as development,

and primary, secondary, and university education disbursements. Election cycle assessment similarly endorses the political business cycle theory. The government of Bangladesh adjusts the development education disbursement for the period of an election. Nevertheless, the calculation of the effect of government effectiveness supports new institutionalism theory, which uses the instance of the development of education disbursement since it incredibly significantly determines the distribution of the overall disbursement of education.

Sixthly, this paper provides further evidence that a sum of theories is worthless in the instance of education disbursement policy in Bangladesh. The outcomes that are distinct from the earlier cross-sectional research, climax the importance as well as some recompences of the time-series investigation. In depending only on cross-country calculations and findings, a specific country's policy analysis may lead to extrapolations and misconceptions regarding policy analyses. Therefore, the outcomes gained in this research demonstrated that the educational spending policy of Bangladesh is made in a different way possibly from the case of many countries.

Finally, the income distributional effects of public education expenditure across levels of education in terms of the Gini coefficient of education demands smooth and steady investment in primary and secondary education; in this way, expenditure may be distributed according to "weight" across the levels of education and receive the equal benefits of public services by well targeting stipends and other subsidized education-related programs across the country.

7.2 Policy Implications

The outcomes of this study make policy suggestions. These policy suggestions are grounded on the examination as well as experiential outcomes of this paper, which assumed the specific socio-economic as well as partisan background of Bangladesh.

There are several suggestions that must be taken into consideration at this stage since they can recommend to policymakers how to increase educational expenditures and respond to the desires of constituents in terms of education. The responsibility of policymakers, in the context of efficiency as well as effectiveness, might be heightened regarding the application of the following policy suggestions.

7.2.1 Increasing Transparency in Allocating Educational Expenditure as Well as Reducing the Role of Incrementalism

Educational disbursement of Bangladesh has a robust incremental nature that links the total education disbursement as a proportion of GDP to the base of the previous year's expenditure, with just a little modification, and this examines the transparency regarding the actual requirements of the government's financial allocation. According to the outcomes of this research, it is implied that educational disbursement fine-tuning as well as distribution are not considered urgent in terms of policy. The Bangladesh government is supposed to emphasize further society's requirements along with demographic change, since this will permit education expenses allotment to be additionally transparent and well-organized, and therefore the use of the total education expenditure of the government will be expanded, which further needs to be categorized into levels of education. Allocation should be made according to the levels of education considering the volume of the levels of education.

Certain categories of educational spending, especially the development of education disbursement, must put additional weight on how it is responsive to requirements as well as needs in terms of socio-economic and educational aspects. A further receptive education disbursement policy, for example budget distribution as per levels of education, may lead to further transparent and active policies that will result in suitable policy production as well as results.

This dissertation suggests that the Bangladesh government apply the mixed-scanning method, paying attention to both macro as well as micro points of view. A microeconomic point of view should therefore be taken under consideration while allocating education expenditure across the country, particularly regarding different types as well as levels of education.

7.2.2 Education Expenditure Policies Require Sustainable Funding

The government needs to ensure sustainable funding across the levels of education. In order to make effective free primary education and to provide diverse stipend programs among different levels of education, the government ought to find dependable sources of funding other than trusting conventional sources of financing, e.g., donations from foreign countries as well as organizations, lump-sum allotments, and government allocation of budgets that are so far not reliable. This funding flow or not only will increase the enrollment rate of the poor households but will further improve the student retention ratio. The government must make primary and secondary education as a main concern while allocating funds and it can understand this through the reorganization of assets from other sources of the country, for

example defense as well as public services, since education greatly accelerates the growth of the country's income and has a spillover effect.

7.2.3 Increase the Participation of All Stakeholders in the Process of Education Expenditure

The engagement as well as participation of all stakeholders is essential for successful policy implementation. In the education sector across the levels of education, all stakeholders' participation in terms of education policies regarding cost and financing is to be ensured. The success of any policy like education in a particular country depends on good governance, efficiency, as well as better establishment of fiscal management procedures that are attainable through the engagement of stakeholders. Furthermore, information regarding policy and budget should be open and easily accessible by the citizens and media, which is very important for advocacy along with the performance monitoring of the total education system. This initiative not only will ensure all sectors' support of the policy but will also encourage real participation in education reforms.

7.2.4 Improve the Criteria for the Distribution of Education Expenditure Budget

In the earlier studies, education budget was not divided by types of education, and different types of schools were considered in different ways and the demand for public spending might have been distinct as well. In addition, while glancing at the benchmarks through which to evaluate education disbursement, practically all of the data accessible continuously consider merely the conventional forms of disbursement, e.g., wages, salaries, infrastructures, and apparatus. For attaining a better analysis,

education disbursement must therefore be distributed by taking under consideration the teaching-learning technique. Especially, the technique of teaching Bangladeshi students how to think, which is in fact very vigorous in relation to the effect of education policy and the expenditure of money.

It is a debatable issue whether the benchmarks of education disbursement allotment in the earlier period may merely seem to be simple as well as come from the traditional manner of allocation, concentrating only on materials. If the budget of education disbursement can include qualitative procedures, e.g., posture making or concentrating not merely in terms on knowledge or competence provision, the education disbursement may possibly resolve the inequality difficulties of society in Bangladesh.

7.2.5 Implementing the Years of Schooling of Primary Education and Lifting the Age bar in Technical Education Level

Policy, for implementing the level of primary education up to class eight as a basic education (Education Policy-2010 recommended already) it is important to involve the local government. Local governments are a decentralized form of government which are closer to the citizens. Although the extension of basic (up to class eight) education is in papers, but in the near future if it is implemented by the close assistance of local governments, then it would be more effective as the representatives of local government have detailed information about the households, those that are poor or rich. In that case, it would be helpful for the government to ensure equitable distribution of public money and thereby reduce the Gini coefficient of education. Following the implementation of basic education, the flow of enrollment

will go up to the next levels of education as well as equal opportunity will be enjoyed irrespective of rich and poor households across the country.

7.3 Suggestions for Future Research

Further recommendations for future studies must be considered at this point. For future study, especially further study on financial policies of Bangladesh, additional specific categories of disbursement may be highlighted; for instance, it could offer an in-depth investigation of as well as outline better policy recommendations which fulfill the requirements of a specific category of a policy. In particular, micro-level evaluation is essential along with the macro-level assessment of public education expenditures.

In the socio-economic and political background of Bangladesh's education policy formulation, the disputes that immediately affect education disbursement are similarly worth exploring. In view of the significance of the determining factors of educational disbursements, policymakers must also consider their effect. Especially attention-grabbing are concerns regarding the effectiveness as well as equity of education policy following public disbursements.

Future studies might promote the policy analysis field if it can include the new initiatives that are to be executed in the future, e.g., books, clothing, mid-day meal, and tab (minicomputer) for primary students which require a huge amount of money; the outcomes of the scheme nonetheless appear to be vague. This additional experiment might create supplementary understanding in terms of the circulation of educational disbursements transversely across the country and whether this kind of investigation is actually determined by economic-demographic requirements and if it

would help in reducing education inequality as well as increasing enrollment rates across Bangladesh.

Another issue that is worth exploring vis-à-vis the determinants of education disbursement is unauthorized charges for new pupils joining schools basically at the primary and secondary levels of education, which are to be made official. These types of charges are paid “under the desk” before the present government is trying the plan to make up it declared. The assessment of educational disbursements might also be completed in another dimension, which concerns the effect of disbursements, for instance, private education expenditures that would be extraordinarily advantageous for policymakers along with the citizens who obtain amenities from the government.

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ANNEXURE

Annexure A: Initial Model 1and Regression Analysis (Table 5.2)

					Collinearity Statistics	
Variables	**Std. Error**	**Coefficients**	**T**	**Sig**	**Tolerance**	**VIF**
INF	.146	-3.116	-3.975	.157	.039	25.673
POP	.000	-13.719	-3.027	.203	.001	858.137
GEN_P	.203	7.167	2.426	.249	.003	364.755
GE	5.846	-2.707	-1.760	.329	.010	98.839
RQ	1.965	-.678	-1.449	.385	.109	9.133
GLOB	.001	-1.595	-4.478	.140	.189	5.303
UNEM	.462	-1.821	-2.396	.252	.041	24.124
RL	5.927	4.873	2.778	.220	.008	128.570
PTR_P	.015	-4.449	-3.785	.164	.017	57.712
SCH	.000	-7.520	-2.078	.286	.002	546.962
DEF	.006	7.697	1.657	.346	.001	900.838
IDT	.067	3.199	2.082	.285	.010	98.677
GRANTS	4.678	-13.231	-2.780	.220	.001	946.306
VOP	.088	-6.009	-1.956	.301	.003	394.059
DGOV	.957	-1.375	-2.357	.255	.070	14.215
CC	3.706	6.300	2.630	.231	.004	239.751
ELEC	.488	.424	.872	.543	.101	9.861
R^2 = .976	**Adjusted-R^2 = .569**		**F = 2.398**		**Durbin-Watson = 3.003**	

Annexure B: Initial Model 2 and Regression Analysis (Table 5.3)

					Collinearity Statistics	
Variable	**Std. Error**	**Coefficients**	**T**	**Sig**	**Tolerance**	**VIF**
INF	3704.623	-.406	-.378	.770	.039	25.673
POP	.004	3.357	.541	.684	.001	858.137
GEN_P	5157.672	-.239	-.059	.962	.003	364.755
GE	148210.514	1.359	.645	.635	.010	98.839
RQ	49816.659	-.504	-.786	.576	.109	9.133
GLOB	35.238	.183	.375	.771	.189	5.303
UNEM	11724.982	-.120	-.115	.927	.041	24.124
RL	150282.866	-.182	-.076	.952	.008	128.570
PTR_P	390.307	-.495	-.307	.810	.017	57.712
SCH	3.151	.739	.149	.906	.002	546.962
DEF	140.778	.255	.040	.975	.001	900.838
IDT	1704.648	.498	.237	.852	.010	98.677
GRANT	118604.549	1.594	.244	.847	.001	946.306
VOP	2233.679	1.398	.332	.796	.003	394.059
DGOV	24270.639	-.406	-.508	.701	.070	14.215
CC	93954.020	-.458	-.140	.912	.004	239.751
ELEC	12379.221	.419	.630	.642	.101	9.861
R^2 = .955	**Adjusted-R^2 = .192**		**F = 1.251**		**Durbin-Watson = 3.003**	

Annexure C: Initial Model 3 and Regression Analysis (Table 5.4)

					Collinearity Statistics	
Variable	**Std. Error**	**Coefficients**	**T**	**Sig**	**Tolerance**	**VIF**
INF	25153.256	-1.296	-9.004	.070	.039	25.673
POP	.024	-14.321	-17.214	.037	.001	858.137
GEN_P	35019.020	.030	.056	.965	.003	364.755
GE	1006304.094	-1.259	-4.459	.140	.010	98.839
RQ	338239.887	.192	2.233	.268	.109	9.133
GLOB	239.257	-.463	-7.084	.089	.189	5.303
UNEM	79609.044	-1.061	-7.606	.083	.041	24.124
RL	1020374.728	.403	1.252	.429	.008	128.570
PTR_P	2650.066	-4.075	-18.887	.034	.017	57.712
SCH	21.397	-5.456	-8.214	.077	.002	546.962
DEF	955.840	-.991	-1.162	.452	.001	900.838
IDT	11574.039	-.310	-1.100	.470	.010	98.677
GRANT	805288.642	-12.087	-13.836	.046	.001	946.306
VOP	15165.995	-3.654	-6.482	.097	.003	394.059
DGOV	164790.225	-.739	-6.901	.092	.070	14.215
CC	637919.080	3.188	7.249	.087	.004	239.751
ELEC	84051.129	1.182	13.253	.048	.101	9.861
R^2 = .999	**Adjusted-R^2 = .985**		**F = 72.878**		**Durbin-Watson = 3.003**	

Annexure D: Initial Model 4 and Regression Analysis (Table 5.5)

					Collinearity Statistics	
Variable	**Std. Error**	**Coefficients**	**T**	**Sig**	**Tolerance**	**VIF**
INF	92065.701	-.947	-2.519	.241	.039	25.673
POP	.087	-10.317	-4.747	.132	.001	858.137
GEN_P	128176.272	.217	.153	.903	.003	364.755
GE	3683264.334	-.428	-.581	.665	.010	98.839
RQ	1238022.303	-.404	-1.801	.323	.109	9.133
GLOB	875.725	.738	4.320	.145	.189	5.303
UNEM	291384.239	-.431	-1.183	.447	.041	24.124
RL	3734765.532	.714	.849	.552	.008	128.570
PTR_P	9699.746	-3.259	-5.783	.109	.017	57.712
SCH	78.316	-2.385	-1.375	.400	.002	546.962
DEF	3498.556	.624	.280	.826	.001	900.838
IDT	42363.185	-1.643	-2.230	.268	.010	98.677
GRANT	2947509.557	-7.038	-3.084	.200	.001	946.306
VOP	55510.427	-1.770	-1.202	.442	.003	394.059
DGOV	603163.557	-.459	-1.643	.348	.070	14.215
CC	2334905.133	1.860	1.620	.352	.004	239.751
ELEC	307643.114	.330	1.419	.391	.101	9.861
R^2 = .994	**Adjusted-R^2 = .901**		**F = 10.630**		**Durbin-Watson = 3.003**	

Annexure E: Initial Model 5 and Regression Analysis (Table 5.6)

					Collinearity Statistics	
Variable	**Std. Error**	**Coefficients**	**T**	**Sig**	**Tolerance**	**VIF**
INF	40933.847	-.747	-2.230	.268	.039	25.673
POP	.039	-6.386	-3.297	.187	.001	858.137
GEN_P	56989.171	.364	.288	.822	.003	364.755
GE	1637636.805	-.304	-.462	.724	.010	98.839
RQ	550444.037	-.432	-2.161	.276	.109	9.133
GLOB	389.361	1.031	6.772	.093	.189	5.303
UNEM	129553.980	-.273	-.840	.555	.041	24.124
RL	1660535.042	.582	.776	.580	.008	128.570
PTR_P	4312.658	-2.167	-4.313	.145	.017	57.712
SCH	34.820	-.676	-.437	.738	.002	546.962
DEF	1555.513	1.830	.922	.526	.001	900.838
IDT	18835.333	-1.416	-2.156	.276	.010	98.677
GRANT	1310508.749	-4.255	-2.092	.284	.001	946.306
VOP	24680.802	-.783	-.597	.658	.003	394.059
DGOV	268175.931	-.362	-1.453	.384	.070	14.215
CC	1038135.262	1.456	1.422	.390	.004	239.751
ELEC	136782.930	.010	.050	.968	.101	9.861
R^2 = .996	**Adjusted-R^2 = .921**		**F = 13.396**		**Durbin-Watson = 3.003**	

Annexure F: Educational Expenditures in Bangladesh

Table F1 Education Expenditures by types and levels of Education, 1980 to 2018

Year	TGE	ECAP	GU	GS	GP
1980	0.93	75.77	3855.82	4250.38	7088.26
1981	1.07	73.92	4030.36	8601.49	11069.77
1982	1.01	90.25	3507.06	9865.28	11937.69
1983	1.03	126.46	4331.74	13541.87	18568.06
1984	1.22	128.44	5644.81	20081.32	22106.58
1985	1.27	163.47	5834.45	20210.62	26647.53
1986	1.34	211.94	6786.21	24281.77	34664.94
1987	1.51	281.28	9047.48	44909.69	39019.87
1988	1.30	260.95	78315.72	219654.36	182577.10
1989	1.30	358.61	78315.72	219654.36	182577.10
1990	1.51	170.00	12399.29	58277.72	70184.05
1991	1.42	170.08	14764.51	63434.74	80020.14
1992	1.63	593.00	19827.78	62474.79	96028.66
1993	1.69	892.00	16796.64	73618.25	106118.40
1994	2.00	1603.00	78315.72	219654.36	182577.10
1995	2.40	1370.00	78315.72	219654.36	182577.10
1996	2.10	1551.00	78315.72	219654.36	182577.10
1997	1.95	1542.00	17304.10	160552.94	187370.86
1998	2.10	1751.00	78315.72	219654.36	182577.10
1999	2.13	1751.00	59374.73	205046.63	240856.65
2000	2.12	2064.00	71228.55	254239.89	327363.75
2001	2.17	2252.00	70459.34	219654.36	182577.10
2002	2.01	2138.00	71160.24	279531.79	288152.35
2003	2.06	2541.00	66218.43	330443.86	330198.03
2004	1.94	228.30	90739.30	381058.42	314365.02
2005	1.54	1065.38	78315.72	219654.36	182577.10
2006	2.13	2755.10	136965.17	460050.39	444522.93
2007	2.20	21883.25	138686.14	493206.18	559355.65
2008	2.05	26963.77	221868.54	662214.92	757601.77
2009	1.93	1430.80	166544.74	495951.75	551736.44
2010	1.07	4893.00	78315.72	219654.36	182577.10
2011	2.13	5213.00	279086.76	1115572.43	1278037.60
2012	2.17	7128.10	435202.38	1154919.82	1317491.85
2013	1.96	6634.50	78315.72	219654.36	182577.10
2014	1.32	3490.83	78315.72	219654.36	182577.10
2015	2.82	3987.68	78315.72	219654.36	182577.10
2016	1.53	5409.99	1122648.45	2170183.20	182577.10
2017	2.01	4355.31	78315.72	219654.36	182577.10
2018	1.87	6014.17	78315.72	219654.36	182577.10

Annexure G: Independent Variables

Table G1 Economic-Demographic Variables

Year	GDP	INF	POP	URB	GLOB	UNEM	SCH	GEN_P	STR_P
1980	222.63	17.55	81470860	14.85	23.37	3.21	36957.0	70.54	53.56
1981	241.87	9.89	83721268	15.80	19.24	3.21	36953.0	69.30	55.27
1982	215.39	9.85	86007331	16.21	20.60	3.21	36952.0	70.49	44.62
1983	199.33	8.48	88338242	16.63	20.31	1.80	36959.0	71.68	51.40
1984	208.53	7.87	90732362	17.06	16.81	1.80	36956.0	70.14	46.95
1985	239.03	18.49	93199865	17.49	18.22	1.10	36999.0	67.94	46.97
1986	227.42	8.25	95742431	17.94	17.01	1.00	37101.0	67.33	47.84
1987	247.07	11.11	98343809	18.39	16.68	3.21	37102.0	66.12	48.08
1988	263.22	7.49	100975321	18.85	17.67	3.21	38077.0	77.65	57.87
1989	277.81	8.33	103599232	19.33	18.32	1.20	38126.0	77.61	60.39
1990	297.56	6.53	106188642	19.81	16.70	1.90	38158.0	80.89	63.00
1991	284.72	2.72	108727432	20.25	17.60	2.20	38184.0	75.60	78.97
1992	285.09	2.58	111221938	20.61	20.10	2.29	38615.0	91.70	82.13
1993	291.71	3.30	113695139	20.96	19.90	2.41	38572.0	91.70	89.03
1994	290.65	8.90	116182267	21.32	24.50	2.51	38575.0	91.70	95.47
1995	319.60	6.70	118706871	21.69	26.40	2.60	38562.0	92.00	108.68
1996	382.93	3.96	121269645	22.06	27.30	2.50	38574.0	95.00	109.19
1997	389.52	8.66	123854640	22.43	28.80	2.71	38271.0	95.60	111.68
1998	395.29	7.06	126447965	22.81	29.10	2.93	38274.0	96.20	116.17
1999	397.35	2.79	129029691	23.20	30.00	3.12	38275.0	96.30	117.85
2000	405.60	1.94	131581243	23.59	33.60	3.26	38261.0	96.60	111.67
2001	402.59	2.79	134107160	24.09	30.60	3.40	38259.0	97.50	108.95
2002	400.61	4.38	136600667	24.75	31.20	3.55	38259.0	97.30	108.09
2003	432.73	5.83	139019001	25.42	32.80	4.32	38259.0	104.10	65.08
2004	460.75	6.48	141307489	26.11	36.30	4.36	38263.0	101.60	65.08
2005	484.15	7.17	143431101	26.80	38.30	4.25	38267.0	98.47	47.04
2006	494.05	7.22	145368004	27.51	48.90	3.58	38267.0	99.18	47.54
2007	541.06	9.93	147139191	28.23	42.00	3.91	38264.0	98.36	44.75
2008	615.77	6.66	148805814	28.96	40.10	4.23	38275.0	96.27	43.73
2009	681.12	7.71	150454708	29.70	39.90	5.00	38276.0	99.46	45.76
2010	757.67	10.91	152149102	30.46	42.90	3.38	38279.0	102.30	42.97
2011	835.78	8.69	153911916	31.22	43.00	3.65	38288.0	101.50	40.21
2012	856.34	6.78	155727053	31.99	40.10	3.91	38315.0	104.40	50.00
2013	951.88	7.35	157571292	32.76	38.10	4.42	38357.0	108.60	49.00
2014	1084.56	6.40	159405279	33.53	34.60	4.42	63702.0	108.40	46.00
2015	1210.15	5.90	161200886	34.30	33.00	4.42	64692.0	109.20	36.13
2016	1358.77	5.44	162951560	35.08	392.30	4.34	64821.0	112.10	33.94
2017	1516.51	5.85	164669751	35.85	282.00	4.36	64627.0	111.09	30.05
2018	1913.00	5.68	163650000	-	-	4.38	66269.0	114.23	37.00

Table G2 Political Factors

Year	DEF	DGOV	IDT	GRANT	VOP	ELEC
1980	0.00	0	67.81	22.53	51.29	0
1981	1.10	0	65.57	27.55	51.29	0
1982	0.00	0	62.12	21.03	51.29	0
1983	0.00	0	60.56	22.47	51.29	0
1984	0.00	0	60.08	12.43	51.29	0
1985	0.00	0	63.06	4.10	51.29	0
1986	0.00	0	62.03	3.81	66.31	1
1987	0.00	0	61.30	3.53	66.31	0
1988	-8.01	0	57.69	4.21	51.81	1
1989	-0.02	0	55.79	4.12	51.81	0
1990	-36.60	0	55.87	2.70	51.81	0
1991	-25.50	1	54.78	2.60	55.45	1
1992	-16.00	1	64.43	2.60	55.45	0
1993	-50.40	1	77.27	2.10	55.45	0
1994	-34.30	1	79.34	2.30	55.45	0
1995	-50.70	1	83.70	1.70	55.45	0
1996	-35.60	1	84.31	1.70	74.96	1
1997	-42.50	1	84.54	1.30	74.96	0
1998	-70.90	1	83.84	1.30	74.96	0
1999	-107.40	1	82.29	1.50	74.96	0
2000	-111.80	1	81.04	1.10	74.96	0
2001	-80.70	1	80.13	1.30	75.59	1
2002	-101.40	1	79.81	0.80	75.59	0
2003	-113.00	1	80.22	0.80	75.59	0
2004	-137.90	1	81.44	0.70	75.59	0
2005	-137.10	1	80.69	0.80	75.59	0
2006	-152.10	1	78.04	0.70	75.59	0
2007	-286.80	0	76.49	0.80	75.59	0
2008	-200.30	1	75.06	0.70	87.13	1
2009	-273.00	1	73.67	0.50	87.13	0
2010	-306.00	1	68.22	0.50	87.13	0
2011	-418.70	1	66.52	0.40	87.13	0
2012	-443.80	1	63.11	0.40	87.13	0
2013	-536.00	1	61.46	0.40	87.13	0
2014	-706.20	1	59.39	0.40	51.37	1
2015	-821.30	1	64.21	0.30	51.37	0
2016	-939.80	1	59.38	0.20	51.37	0
2017	-1075.84	1	70.14	0.20	51.37	0
2018	-1212.42	1	70.14	4.12	80.41	1

Table G3 Governance Indicators

Year	GE	RQ	RL	CC
1996	-0.69	-0.93	-0.93	-0.93
1997	-	-	-	-
1998	-0.44	-0.81	-0.89	-0.72
1999	-	-	-	-
2000	-0.58	-0.84	-0.91	-1.11
2001	-	-	-	-
2002	-0.69	-0.98	-0.90	-1.36
2003	-0.73	-0.92	-1.05	-1.44
2004	-0.82	-1.13	-1.02	-1.50
2005	-0.91	-1.07	-0.98	-1.39
2006	-0.82	-1.00	-0.90	-1.43
2007	-0.70	-0.95	-0.83	-1.06
2008	-0.73	-0.92	-0.75	-1.03
2009	-0.79	-0.86	-0.79	-1.07
2010	-0.74	-0.85	-0.80	-1.06
2011	-0.76	-0.81	-0.73	-1.09
2012	-0.80	-0.95	-0.93	-0.85
2013	-0.79	-0.91	-0.87	-0.89
2014	-0.77	-0.94	-0.78	-0.89
2015	-0.72	-0.90	-0.75	-0.81
2016	-0.68	-0.80	-0.66	-0.86
2017	-0.74	-0.81	-0.67	-0.83
2018	-	-	-	-

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