PUBLIC EXPENDITURE EFFECTIVENESS, ECONOMIC GROWTH, AND

POVERTY IN BANGLADESH

An Assessment of the Impact of Government Spending and Intervention on Poor
Citizens

by

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For any errors or inadequacies that may remain in this work, of course, the responsibility is entirely my own.

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Abstract

The main focus of this thesis is the link between public expenditure and its role in reducing poverty with an especial care on related expenditure management policies (initiatives) in Bangladesh. The objective of this thesis is to review and analyze the trends in government expenditure and its compositions in a Bangladesh perspective, and to develop an analytical framework for determining differential impacts of various public investments on economic growth and poverty alleviation. This study intended to examine and test two key hypotheses while trying to answer the basic research question: *has public expenditure in Bangladesh successfully contributed to economic growth and poverty alleviation of the country?*

We did apply both qualitative judgments and quantitative estimations from a dynamic macro-econometric model and time series analysis by utilizing an Ordinary Least Square (OLS) Estimate. Since the link is complex in many aspects, this study made an attempt to utilize both analytical (qualitative) explanations and econometric analysis to untangle the nature of relationship. In the econometric analysis efforts were made to use a set of 31 years' time series data in order to see the impact of various components of government spending on poverty (through real GDP, wage, and employment growth) by estimating a linear equation. Another quantitative explanation has been performed based upon the findings of a joint Public Expenditure Tracking and Quantitative Service Delivery Survey (PETS-QSDS) conducted while considering the primary education sub-sector in Bangladesh as a test case.

Utilizing results of our econometric estimation we have checked the study's hypothesis one and found it to be partially true. We did not find any significant impact of government spending on economic growth and poverty reduction in the Bangladesh economy.
We verified our second hypothesis by our findings from the PETS-QSDS survey and found true. It was revealed that widespread corruption in resource management practices, leakages

of funds and/or political and bureaucratic capture coupled with a lack of adequate funds lowered significantly the welfare effects of public expenditure in Bangladesh. We found two layers of agency problem namely *'between the citizens and politicians'* and *'between politicians and service providers'* appeared in the public expenditure management hierarchy.

This study was engaged to look for common trends and patterns and we also sought to gather evidences supporting our hypotheses through a variety of approaches and methods. Finally, this thesis deliberately visited various expenditure management initiatives in Bangladesh and justified their effectiveness through the prism of equity, accountability, transparency, and appropriateness. Based upon the findings of the study some policy recommendations were suggested to show the direction of future expenditure strategies in major sectors of the Bangladesh economy.

INTRODUCTION

1.1 Background of the Study

Following a nine month long liberation war Bangladesh gains independence from Pakistan in 1971. Formerly known as East Pakistan and before that as the East Bengal region of British India, Bangladesh was created as a result of ethnic division and the desire for self-expression by Bengalis (Vaughn, 2010). Whereas the division of British India into two countries (namely India and Pakistan) was a result of religious division between Hindus and Muslims and was based upon a political agreement by the so called Two Nations Theory[1], twenty-five years later, the partition of Pakistan was the result of a desire for self-identity of the Bangladeshi people. This double partition was different from the previous one in a sense that the philosophy that drove the passion of the Bengalis was economic and political and was coupled with a strong secular identity (Pattanaik, 2005). Consequently, the creation of Bangladesh reconstructed the social and political history of the Indian Subcontinent. Rather than the religious component, the newly established Bangladesh State represents the national spirit of the Bengali identity, which offers a ray of hope for economic development and prosperity of the people.

At the first phase of development many impediments including desperate initial conditions, political instability, widespread corruption, and a record of systemic governance failure hindered the country's growth performance (Mahmud, Ahmed & Mahajan, 2008). Extensively State controlled economic policies until 1979 ended up with little or no investment, limited export gain, a stagnated financial sector and eventually a low level of per

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[1]In 1947 the Indian Subcontinent was partitioned into two separate nations: India and Pakistan. The Two Nations Theory advanced by Mohammad Ali Zinnah, the first President of Pakistan, acted as a founding principle of the Pakistan Movement. According to this theory the primary identity of people in the Subcontinent should be their religion, rather than commonalities in other factors such as language or ethnicity.

capita GDP. As a means of recovery, during the 1980s Bangladesh has adopted a series of reform policies particularly in areas of trade, finance and capital account in order to maintain a liberal economic regime (Bashar & Khan, 2007). Growth-patterns since then show that the country has moved from an uncertain economic future in 1971 (the year of independence) to become one of the best performers in the Least Developed Country category by 2010 (Rahman & Yusuf, 2010). Todaro and Smith (2010) acknowledged that even though starting out as desperately poor, with much of the institutional and physical capital obliterated by the liberation war, Bangladesh has been transforming itself from a symbol of famine to a symbol of hope.

Within forty years of independence Bangladesh has gained rapid economic growth and significant improvement in major social development indicators. Especially when viewed through the prism of weak initial conditions and surrounding pessimism and evaluating from the viewpoint of economic and social progresses, the country has achieved a remarkably positive record (World Bank, 2005). Recent data shows that Bangladesh's overall life expectancy at birth has risen to 68 years (more than both Pakistan's and neighboring India's), population growth rate has dropped to 1.5 percent (resulting from a reduction in the fertility rate from 7 children in 1972 to 2 in 2009), literacy has more than doubled (net primary school enrollment rate was only 49 percent in 1972 and has grown to 92 percent in 2009), child mortality has been cut by 70 percent, unemployment is down to 4 percent, poverty incidence as measured by the $1 a day has fallen to less than 40 percent, and at present about a quarter of the population lives in urban areas. Bangladesh is the only nation in South Asia to be on track in meeting Millennium Development Goal (MDG) on gender parity, having already achieved the goal in primary and secondary schooling. The ratio of female to male has been raised—there were an estimated 978 females for every 1000 males in 2008 which is more than those of in India, Sri Lanka, and Pakistan.

Giving credit for progresses the country achieved since independence, Nobel Laureate Dr. Amartya Sen addressed Bangladesh as a model of development. Sen (2011) evaluated that the people who once branded Bangladesh as a bottomless basket, they now consider it as a model of progress. Sen (2011) also claimed that doubts and doubters about the country's future were proven to be wrong. On the other hand, Khan (2011) concludes that the test case for development hypothesis dubbed undiplomatically by one U.S. statesman became no more valid for Bangladesh. Moreover, considering concerns of growth and future market potential, in 2005 Bangladesh was coined as a member of Goldman Sachs' *Next 11 (N11)* country category—a group of eleven most rapidly developing countries with superior economic opportunities and greater market potential.

Table 1.1: Bangladesh's Progress on Key Social Indicators

Social Indicators	Then (Year)	Now (Year)
Primary school enrollment rate (% net)	49(1972)	92(2009)
Secondary school enrollment rate (% net)	19(1990)	46(2009)
Rate of fertility	7(1972)	2(2009)
Immunization, DPT (% of children ages 12-23 months)	1(1980)	96(2009)
Immunization, measles (% of children ages 12-23 months)	1(1982)	98(2009)
Population with access to improved sanitation facilities (%)	20(1990)	53(2008)
Total life expectancy at birth (years)	39(1972)	68(2009)
Malnutrition prevalence, weight for age (% of children under 5)	68(1983)	48(2004)
Mortality rate of children under 5 years old (per 1000)	229(1972)	51(2009)
Infant mortality rate (per 1000 live births)	153(1972)	40(2009)

Source: World Bank (1981)

However, despite its progress on most human development indicators is indicative of the fact that within a short period of time the nation has performed relatively better than many of its neighbors, Bangladesh is afflicted with many of the social problems found in most developing countries. It is commonly acknowledged that the country lags behind many other developing nations and more importantly Bangladesh still suffers from difficulties of rampant poverty.

To achieve poverty reduction and certain threshold in development, *per se,* virtually all successive governments in the country implemented some *ad hoc* policies that were aimed to stimulate per capita income growth of people. Notwithstanding, economic growth is affected by the government's monetary and fiscal policy instruments including taxation, expenditure, and through correcting market failure, and providing a wide array of public goods. This is due to the fact that for a developing country perspective like Bangladesh, very low level of social services and meager infrastructural facilities are blamed to reduce greatly the contribution of private sector in development endeavors. The State, therefore, needs to generate the appropriate ground to stimulate private investment and better use of its scarce entrepreneurial ability by spending more in productive sectors like education, health, and infrastructure. In this respect government spending patterns in Bangladesh over the last decades have changed dramatically and a rapid growth in the nation's public expenditure account has been seen (Ketema, 2006).

Governments in Bangladesh try to focus on, *inter-alia*, the rate of annual growth in the country's real GDP as one of the main objectives while designing various economic and social policies. Macroeconomic instruments are engineered with an aim of overcoming persistent poverty and securing possible improvement in life standards of people by increasing per capita income. To ensure well-functioning markets government also spends resources to enforce contract, maintain national security, protect citizens against criminals, and provide valuable public goods like provisions of education and health services. In this connection, ensuring a sound public expenditure management system is considered to be an important obligation of the Bangladesh government. Moreover, the principal objectives of such expenditure management should be focused to confirm, among others, expenditure in productive sectors, exercise austerity in public spending, and restrain unproductive or unnecessary outlays.

It was mentioned in the Bangladesh Economic Review 2010 published by the Bangladesh Ministry of Finance that the key aspects of the nation's total public outlays in each year are to build physical infrastructure for channeling investment and developing human resources. On this ground, it is necessarily true that Bangladesh Government's pro-poor policies towards public spending in the areas of productive sectors, particularly in infrastructure development, health and education acted as a major force behind the progress made in the public expenditure account of the country. However, the success of the country's expenditure management policies and relevant systems are questioned in many ways, hence, we recommend that there is a need to revise, recheck, and update the policies regarding public expenditure management.

Having such background, the main focus of this thesis is surrounded by specific issues like public expenditure, growth, and poverty in Bangladesh because it is commonly acknowledged that public expenditure can play a significant role in economic lift-up and poverty reduction in the context of developing countries. Therefore, now-a-days, a vision of ensuring sustainable development and reducing mass poverty at a meaningful magnitude is enshrined in national expenditure strategy of many developing nations including Bangladesh today (Tanzi, 1994; CPD, 2008).

Nevertheless, our special attention for this study is paid to the link among public expenditure, economic growth, employment, and wages because theoretically the latter three factors are the fundamental sources that relate poverty and public expenditure in developing societies of many low income countries including Bangladesh. To give an explanation, an increase in expenditure puts a ripple effect in the economy by raising aggregate demand and productivity, which eventually leads to a higher level of employment and wages and thus reduces poverty by accumulating wealth with a favor to the poor people (Hassan, 2007).

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The present study also sheds light on the performances, efficiency and effectiveness of current policies regarding public expenditure in Bangladesh. The role of governments in Bangladesh is found within the so called neo-liberal poverty reduction paradigm in which the current regime has made a commitment to bring country's poverty rate to 25 percent by 2013 and 15 percent by 2021. Having such national goals, governments in successive regimes have been implementing many poverty reduction programs and spending plenty of resources with the support of donors and other private bodies. Accordingly, viewing from the prism of poverty alleviation performances achieved by Bangladesh during the last two or three decades, it seems that policies are not completely ineffective in reducing poverty. But this thesis assembles evidences and information to show that some, if not all, public expenditure management tools are not achieving their targeted goals. Based on an experimental survey to measure the levels of accountability, transparency, equity, and effectiveness of the present policies we try to claim that policies are not qualified to fully address the evolution, character and dynamics of poverty in Bangladesh.

1.2 Statement of the Problem

The fundamental and foremost problem of this study, theoretically and empirically, is poverty and the role of public expenditure and government intervention in reducing it although poverty is a secondary concept in conventional economics and a residual in public finance (Musgrave, 1956). Bangladesh has been facing a rampant and long standing hardship of poverty since Independence. As reported by the Household Income and Expenditure Survey of 2010 (HIES-2010) conducted by the Bangladesh Bureau of Statistics (BBS) 31.5 percent of the total population in the country lives below the official poverty line. Moreover, spikes in food prices and high inflation plunge additional population under the officially estimated rate of poverty. If the problem cannot be addressed properly and the current trend continues, it was estimated that by 2021 more than 59.8 million Bangladeshis will fall below the poverty

line. From the above facts it can be claimed that the poverty reduction strategies (PRS) and the neo-liberal paradigm that successive regimes in Bangladesh have been pursuing are not sufficiently contributing to tackle the problem because evidence suggests that in the country still millions of people suffer from the curse of poverty (Rashed &Titumir, 2011). We put data table in a subsequent chapter which presents the rates and severity of poverty in Bangladesh from various dimensions.

We suggest that following a revision of Bangladesh government's expenditure related principles and an assessment of the role of the public sector in poverty alleviation, it then becomes possible to show appropriate paths in addressing the problem of deep and widespread poverty in the country. Hence, the first generic problem lies under the character and dynamics of poverty and its relation with government spending in Bangladesh. In this connection, no systematic study has been undertaken to see the appropriateness of current policy framework and the need for a comprehensive pro-poor public expenditure management system in the country.

Secondly, poverty estimation techniques such as those in Bangladesh are not free from criticism and question. Estimates are plagued with many problems because in measuring poverty they over emphasize on person's income without considering the impact of inflation or other socioeconomic facts. And the estimate that Bangladesh uses to measure poverty level is unrealistically low. In the country poverty is measured by USD 1.25 per day income or a minimum spending of about Tk. 50 which is equivalent to USD 0.71 for a need of 2122 kilocalories intake per day per person. This thesis maintains that poverty measuring tools do not capture the real magnitude and dimensions of poverty because in a country specific situation of Bangladesh it is very difficult or even impossible to maintain basic needs with this amount of income where every year prices are tend to rise continuously (Rashed &Titumir, 2011). Besides, inflation and food price inflation indices, which are presented in a

later chapter, have tremendous impacts on daily life of the poor people in the country.

The third element of the problem, already hinted earlier, is the weaknesses of the current expenditure related policy approaches in Bangladesh. Whether past and current policies are effective in reducing poverty is a corollary to the issue at hand. The approaches of structural adjustment policies of 1980s and the Poverty Reduction Strategy Papers (PRSPs) of the late 1990s enveloped by the poverty reduction paradigm of LDCs attract the main focus in this regard. It is claimed that these are contradictory in nature and practice. The wisdom behind this argument is that, at one hand, current policy paradigm in Bangladesh seeks to promote diminished role of government to confirm a status of minimum State intervention. Through liberalization, deregulation and privatization the State reduces its function ability assuming that market will overwhelmingly replace it to deliver the expected outcomes. On the other hand, the newly adopted poverty reduction conditionality promotes a bigger role for the State because in a developing country like Bangladesh market can hardly be a main actor when the problem is poverty reduction (Mushahara, 2004). From this point of view, public spending and government intervention, especially for the productive economic sectors, in Bangladesh can play important roles in reducing poverty, provided that resources are utilized properly in a favor to the well-being of poor people.

The fourth issue is related to the reasons of poverty and the major factors that led to a failure in reducing it by government's expenditure policies in Bangladesh. It is widely assumed that addressing the problem of poverty requires a thorough understanding of its generic causes. Among many other factors, we intentionally hypothesize that the major reasons for persistent poverty in Bangladesh include inadequate or inefficient State intervention and absence of efficient policies in government spending and resource management system. This phenomenon was reported by Bangladesh Ministry of Planning (GOB, 2011).

"……..In instrumental sense, the major reasons for persistence of poverty are: absence of adequate State intervention for the expansion of production, deficiency of equalizing income augmenting employment system, shortfalls in public expenditure for capabilities enhancements, inadequacies in regulatory regimes, and lack of complementary policy structure and non-existence of enforceability of constitutional rights…..." (GOB, 2011).

Another important but often overlooked, though not neglected, fact is that poverty is a part of social relationship. It was asserted by Nobel laureate Dr. Muhammad Yunus that the poor are remaining to be poor not due to their fate but due to the structural reasons that force them to be poor. The system is like that accumulation of resources is biased in a favor of some groups who are rich and powerful in the society. Corruption and inadequacies in regulatory regimes are blamed to be some important underlying causes. This study suggests that Bangladesh, thus, needs to update intervention policies and affirmative actions must be taken in a favor to the poor if the country really wants to reduce the sufferings of poverty (Mushahara, 2004; GOB, 2011).

1.3 Research Questions

Annual budget account shows that substantial increase in public expenditure with the support of donors and development partners had taken place in Bangladesh since 1990s when the democratic regime had established in the country. After a long period of military rulings, a wide range of pro-poor economic and social policies in an effort to accelerate targeted growth and to reduce poverty were adopted. Since then investment in defense, education, health, energy, rural development and infrastructure became a critical part of various development and non-development expenditures in the country. The nation's expenditure management policies were aimed to translate resources into improvements in all thrust sectors. Having such records in past decades, there are various questions that come out of the above facts.

Does increase in government spending and changes in its composition help or hinder economic growth in Bangladesh? Is an increase in spending on education, health, and physical infrastructures effective in improving human development outcomes and complementing private sector investment; thereby boosting long-term growth given the weakness in public budget administrations? Is there any on-the-process leakage and capture in the disbursed funds on the way they reach to the frontline service providers and are they efficient in fulfilling their pre-designed goals? And what will be the probable prospects of government's policy on public expenditure in Bangladesh considering the challenging global and domestic economic conditions?

This study will thoroughly examine the Bangladesh Government's declared public investments under its development budget expenditure, the Annual Development Program (ADP), World Bank Public Expenditure Reviews (PER), and other published documents regarding State financed spending of the country. Then it seeks to answer the next core question: *has public expenditure in Bangladesh successfully contributed to economic growth and poverty alleviation of the country?* Under this broader one, efforts will be made to answer other relevant questions, such as:

- How does government expenditure and intervention make an impact on economic growth and poverty in Bangladesh? Or, in other words, does an increase in spending on key sectors of the Bangladesh economy significantly contribute to raise income of the (poor) people?

- How efficient are the public expenditure management policies adopted by the Bangladesh government? What is the level of accountability and transparency being maintained in the process of expenditure disbursement and utilization?

- Does the system effectively reduce leakages and captures of funds in delivering provision of key public services?

- Why has public expenditure in key sectors (targeted towards alleviation of mass poverty in Bangladesh) been of little or no impact on the poor group of population?

- If the policies are not successfully addressing the problem at hand, then, what are the appropriate alternatives that must replace them?

1.4 Objectives

The first and foremost objective of this study is to review and analyze the trends in government expenditure and its compositions in a Bangladesh perspective, and to develop an analytical framework in order to empirically determine differential impacts of various public investments on economic growth and poverty alleviation. We apply both qualitative judgments and quantitative estimations from a dynamic macro-econometric model and time series analysis by utilizing an Ordinary Least Square (OLS) Estimate. Since the link is complex in many aspects, this study makes an effort to utilize both analytical (qualitative) explanations and econometric analysis to untangle the relationship. In the econometric analysis efforts will be made using a set of 31 years' time series data to see the impact of various components of government spending on poverty through real GDP, wage, and employment growth by estimating a linear equation.

Another important objective of this study is to perform a quantitative explanation which is based upon the findings of a joint Public Expenditure Tracking and Quantitative Service Delivery Survey (PETS-QSDS) conducted while considering the primary education sub-sector in Bangladesh as a test case.

This thesis makes efforts to look for common trends and patterns and we also seek to gather evidences supporting our hypotheses through a variety of approaches and methods. Therefore, before going to the actual study, as a brief review, macroeconomic performances and some key factors of the Bangladesh Economy have been studied.

Finally, this thesis attempts to justify the effectiveness and efficiency of public expenditure in Bangladesh through the prism of performance, equity, accountability, transparency, and appropriateness.

As it has been mentioned before in a previous part, for this study, a survey has been conducted for a sample of about 50 primary schools in three districts of Bangladesh. The objective of the survey is to track expenditure flows in Bangladesh education sector using a combination of Public Expenditure Tracking Survey (PETS) and Quantitative Service Delivery Survey (QSDS). Specific objectives include measuring the leakage in school funding, absenteeism of school staffs, completion rates of enrolled students, capture in resources etc. In connection to the study's hypothesis that public expenditure in the key sectors is not efficient enough to improve quality of life of the poor, the objective of the proposed survey also includes a thorough investigation of the reasons behind the situation. A comparison of official budgetary allocations and actual spending in primary schools is done using various survey instruments. For this thesis *we utilize our survey findings in an attempt to logically explain our arguments related to policy conclusion rather than generalizing them for the whole population*. Thus, suggesting policies on the basis of the findings of the statistical tests and the conducted survey is another important goal of this study.

1.5 Hypothesis

National budget data for the last three decades indicates that along with a rise in its quantity the pattern of public expenditure in Bangladesh has undergone some changes. Development expenditure as proportion of GDP has fallen for some key sectors—most importantly manufacturing, energy, water resources and agriculture. It is also notable that Bangladesh government is rapidly reducing spending in directly productive sectors while allocating more resources for the purpose of providing basic public goods such as education and health,

infrastructure building and rural development (Wahiuddin et al, 2004). From this point of view, government spending in Bangladesh seems to be *pro-poor* in nature. However, two important issues regarding recent policy reforms for public expenditure should not be ignored. *First*, the quality and effectiveness of public spending in some social sectors are more important than higher allocations if the aim is to translate resources in better social development outcomes. The underlying argument is that the actual effectiveness of public expenditures and their *a priori* rationale are two separate aspects. *Second*, although Bangladesh's performances in reducing poverty and achieving economic and social development outcomes in the last two three decades are not unsatisfactory, a review of the policies and programs related to public expenditure in key sectors—education and health, infrastructure and transport, power and energy, and agriculture and rural development—highlights a number of inefficiencies and structural issues which, if not addressed, will impede further progress on the outcomes. Being specific to the above mentioned issues, the present study intends to examine and test the following two key hypotheses:

- Hypothesis 1: theoretically public expenditure in Bangladesh can be pro-poor but in effect it does not have positive and significant impact on economic growth and poverty reduction.

- Hypothesis 2: The major impediments in Bangladesh's public expenditure management are—widespread corruption, lack of accountability and transparency in the system, leakage and capture of funds.

1.6 Significance

There are at least four reasons for carrying out the proposed study perspective to Bangladesh. *Firstly*, it utilizes a mixed method and is focused on a set of time series data from 1980, a year characterized by the start of various economic reforms in accordance to the suggestions

advanced by the international financial organizations (IFOs)[2], up to 2010, a year featured by an overturn to development after a long legacy of underdevelopment.

Secondly, if the country can continue its current growth pace, it was estimated that by 2021 Bangladesh will be able to graduate from the LDC status and elevate development conditions to such a level that can be viewed as what is resembled to 'the process of industrialization'. In this connection, public expenditure may emerge as an important factor to bring valuable economic growth in the coming future.

Thirdly, in Bangladesh the role of government is considerable from both scope and significance in an effort aiming for utilizing public funds properly in order to reduce poverty level by keeping the growth ladder moving. Governments in successive years have taken poverty reduction activities as a priority in their manifestos and are spending billions of dollars in various relevant programs. Development partners including private bodies, NGOs, and donor countries are also incorporated to those pro-poor activities of the Bangladesh government. However, millions of people live under poverty yet which indicates that government efforts and spending are not appropriate and/or inefficient in attaining the targeted goals. This thesis will contribute to understand the genesis and causes of poverty and try to relate them with policy failure.

Fourthly, very little study to test the relationship among economic growth, poverty reduction and government expenditure has so far been conducted in Bangladesh using both qualitative and quantitative methods. In fulfilling such research gaps, this thesis utilizes a mixed method and is focused on a set of time series data. Moreover, our study will conduct a PETS-QSDS survey in Bangladesh education sector for the first time in the nation's history.

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[2] They include mainly the World Bank (WB) and the International Monetary Fund (IMF) among others.

At last, in developing countries including Bangladesh, now-a-days the long term effects of government spending is of keen interest to policy makers for the purpose of designing strategies and helping achieve the Millennium Development Goals (MDGs). Thus, it is significantly important to look at trends, levels and composition of public expenditures, and to assess the causes of changes over time. This is even more important to determine the relative and differential contribution of various government expenditures to both productivity growth and poverty reduction of the country because they are interrelated with each other (Fan & Saurkar, 2003). In this connection, reliable information is crucial in designing effective policy for the field of public finance and State intervention. Therefore, this study will make an effort to provide such information for more efficient targeting of limited and often declining financial resources of the Bangladesh government.

1.7 Purpose and Organization of the Thesis

This study focuses mainly issues related to public expenditure, economic growth and poverty in Bangladesh within the period of 1980-2010. The nature, extent, trends and their interrelationships within these macroeconomic factors are examined using data covering the above mentioned time period. The situation of the Bangladesh economy is reviewed mainly since and after the year 1980 while not delving deeper into the past economic condition in 1970s or before because proper data for the period from 1971 (the year of independence) till 1979 in Bangladesh is very limited. In this connection, scarcity and unavailability of historical data have imposed some limitations for the present study. Another important limitation is that we cannot generalize the findings of our survey for the whole Bangladesh because proper sampling is necessary in that case and has not been done. The PETS-QSDS survey in primary schools conducted under this study was focused for a rather smaller list of school facilities located in some three out of a total 64 districts in the country within a shorter period of time. Potential future studies and researches on the similar field in Bangladesh

ought to fill these gaps, among others.

The thesis is planned and designed as follow. A brief overview of the Bangladesh Economy is presented in Chapter Two where the structures and proximate sources of growth are highlighted. The contributions and performances by various economic sectors are summarized separately. Economic reforms and other important factors affecting the country's growth achievement (such as growth in savings, investment, consumer price indices and inflation etc.) are also noted briefly.

Chapter Three covers public expenditure and poverty issues in Bangladesh. In the beginning of the chapter historical trends of public expenditures in various sectors and their roles in the Bangladesh economy is discussed. Next current poverty estimating method in the country has been reviewed. Then poverty trends in aggregate level and severity of poverty with the help of spatial variation in poverty and poverty gaps are examined. Later various welfare impacts of inflation on poverty are discussed where relevant changes in poverty data are shown. With the help of a micro level framework of demand and supply, the chapter also devotes some efforts to indicate the causes of poverty by promoting a link among economic growth, employment, wage, and poverty reduction.

Next is the Chapter Four which represents a glimpse of literature review in the contexts of both theoretical explanation and the results of previous findings. A list of public expenditure theories are discussed in some subsequent sections. Later the link among public expenditure, economic growth and poverty is explained with the help of a schematic diagram. In this chapter we also discuss the link and impacts of public expenditure from the viewpoints of firms and households. Finally in the empirical literature part we review and present some important research findings in similar fields of study from developing countries all over the world including Bangladesh.

Chapter Five of this thesis focuses on the methodologies and related issues which are going to be utilized for the study. Methods regarding our hypotheses have been separately described. The essence of an OLS Estimate which is used in our time series data analysis is pointed out here. Then in the next parts we define the econometric model and note the sources of data that are used to estimate the model before we summarize the fundamentals of a Public Expenditure Tracking Survey (PETS) and Quantitative Service Delivery Survey (QSDS) in the education sub-sector of a developing country. Finally, basic facts about the primary education system in Bangladesh are highlighted in a subsequent part.

An analysis based on findings of econometrics tests and the conducted surveys is called for in Chapter Six where we explain the contribution of government expenditures and growth on poverty reduction in Bangladesh. In the first part of the chapter we examine the impacts of public expenditure on poverty through GDP growth and various impacts of public expenditures in some important sectors of the Bangladesh economy. Then the survey results are described in an attempt to see the performance of Bangladesh's government spending in the nation's major economic sectors[3] in terms of accountability, transparency, and equity.

Finally in Chapter Seven a conclusion of the thesis along with the study's major recommendations has been turned in. An overall summary of the entire thesis is presented first. Then some issues of policy recommendation to show proper directions for future public expenditure related strategies are suggested.

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[3] This study has collected primary data for only the primary education sub-sector in Bangladesh. It should be very wise to perform surveys for all the relevant sectors which are utilized for this study. However, conducting such a broad study requires plenty of time and monetary resources.

OVERVIEW OF THE BANGLADESH ECONOMY

2.1 Introduction

This chapter provides a very brief description about the fundamental features of the Bangladesh economy. Focus of this chapter includes historical growth of the country in some basic economic sectors starting mainly from the beginning of 1980s. Latest data from some key government led institutions are presented in outlining the recent performances of the economy. The indicators include GDP growth rates and its composition (structure and sources), external sectors (import and export), savings and investment rates, inflation and consumer price indices, and rate of employment and wages etc. The chapter claims that despite the economy's performance in the said sectors is not unsatisfactory, it needs to get improvement in all key sectors by reducing structural problems, taking conservative but effective reform measures and diversifying it to achieve a broader export base. A conclusion for the chapter will be turned in based upon the findings of the chapter's entire discussion.

2.2 Bangladesh Economy in the Recent Past (2000-2010)

Considering most recent performances achieved by the Bangladesh economy, it can be said that the economy has gained both macroeconomic stability and robust economic growth since the early 1990s and the country continued to demonstrate satisfactory performance despite the global economic recessions and amidst episodes of natural calamities and external shocks (Bhattacharaya, 2003; MOF, 2010). To report about the most recent growth achievement in Bangladesh, with brisk output activities meeting strong domestic demand, the economy was provisionally estimated to have grown at a rate of 5.83 percent during FY2009-10, slightly higher than that of 5.74 percent which was achieved in FY2008-09. As compared to other emerging and developing economies in Asia, Bangladesh economy is showing an impressive

growth rate and high potential for further growth. Evaluating from the sectoral contribution, the achievement of the economy during the previous two decades was featured by a sustained growth in agriculture sector coupled with moderate growth in industry and service areas (CPD, 2006; MOF, 2010).

Other features of the economy also maintained good records of performance. Revenue earnings grew at a satisfactory rate, remittances inflow started to maintain steady growth rate, foreign exchange reserves turned to be safe (in FY2009-10 there was a more than US$ 10 billion in reserve), and the current account deficit was disappeared to become surplus of US$ 3.73 billion. Moreover, some short, medium and long-term policy interventions by the government to stimulate agricultural and industrial investment became enormously successful as disbursement of loans in these two sectors increased enormously in FY2009-10. Furthermore, private sector credit flow has been increasing along with more import expenditures in capital equipment and industrial inputs. All these above mentioned developments formed a stronger base for the economy of Bangladesh and all of these above features are indicative to the fact that the economy has been standing on stronger footing by recent years and has been moving towards a positive direction (MOF, 2011).

However, these developments in the economy nevertheless interpreted in part as symptoms of economic stagnation. During the early 2000s the Bangladesh economy experienced a gradual build-up of inflationary pressures, a rapid draw-down of foreign exchange reserves, a dramatic deficit in government's resource base, and was indicative for a deteriorated budgetary balance (Mahmud, 2007). In addition to this, the balance of payments reached to an entrenched dangerous position since the start of the new decade (2000s) and the economy was supposed to vulnerable to the most severe exigency again after the economic crisis in 1980s. In this connection, foreign remittance which is regarded as very crucial for the

economy started to fall because of the fact that political turmoil in Arab nations deteriorated the labor market for millions of Bangladeshi workers abroad. Finally, the emanated twin deficits started to be exposed as threats to the enormous gains in the previous decades, as such, the achievements in the economic spheres (the macroeconomic stability and high growth) were in peril. Worldwide pressure from severe competition and other external shocks ranging from global economic recession to discriminatory treatment from the U.S. and European markets further aggravated the situation (Bhattacharaya, 2003).

Table 2.1: Selected Recent Macroeconomic Indicators of the Bangladesh Economy (Amounts are in million U.S. dollar)

Fiscal Year	Foreign Exchange Reserve *(Annual change, %)*	Inflow of Remittances *(Annual Change, %)*	Balance of Payment *(Annual Change, %)*	Total Value of Exports *(Annual Change, %)*	Total Value of Imports *(Annual Change, %)*	Total Investment as % of GDP	GDP growth at constant prices (%)	Inflation, (general, %)
FY2001-02	1583 *(21.1)*	2501 *(32.9)*	408 *(245.2)*	5986 *(-7.44)*	8540 *(-8.5)*	23.1	4.42	2.79
FY2002-03	2470 *(56)*	3062 *(22.4)*	815 *(99.8)*	6548 *(9.39)*	9658 *(13.1)*	23.4	5.26	4.38
FY2003-04	2705 *(9.5)*	3372 *(10.1)*	171 *(-79.0)*	7603 *(16.10)*	10903 *(12.9)*	24.0	6.27	5.83
FY2004-05	2930 *(8.3)*	3848 *(14.1)*	67 *(-60.8)*	8655 *(13.83)*	13147 *(20.6)*	24.5	5.96	6.48
FY2005-06	3484 *(18.9)*	4802 *(24.8)*	365 *(444.8)*	10526 *(21.63)*	14746 *(12.2)*	24.7	6.63	7.17
FY2006-07	5077 *(45.7)*	5978 *(24.5)*	1493 *(309.0)*	12178 *(15.69)*	17157 *(16.4)*	24.5	6.43	7.22
FY2007-08	6149 *(21.1)*	7915 *(32.4)*	331 *(-77.8)*	14111 *(15.87)*	21629 *(26.1)*	24.2	6.19	9.93
FY2008-09	7471 *(21.5)*	9689 *(22.4)*	2058 *(521.8)*	15565 *(10.31)*	22507 *(4.1)*	24.4	5.74	6.66
FY2009-10	10750 *(43.9)*	10987 *(13.4)*	2865 *(39.21)*	16205 *(4.11)*	23738 *(5.5)*	24.4	6.07	7.31

Source: Bangladesh Bank, Bangladesh Ministry of Finance, Bangladesh Bureau of Statistic*s*

2.3 The Bangladesh Economy Prior to the 1980s Era

Immediately after the country achieved independence, Bangladesh was viewed as lagging insurmountably behind every other nation in South Asia. In 1971 during the liberation war,

twenty percent of the economy was destroyed and later severe dislocations in it put the country on the trajectory of low economic growth (Rahman & Yusuf, 2010). Extremely weak initial conditions in social, political and economic spheres and multi-dimensional threats of vulnerabilities offered plenty to worry about the future of the nation. According to a World Bank document in 1981, (The title of the document is *Bangladesh: Current Economic Situation and Review of the Second Plan),* the economy of Bangladesh was characterized by a set of fundamental conditions and constraints which have persisted for years and in some cases for decades or more. A combination of underdeveloped physical and social infrastructure was coupled with limited natural resources and poor institutional capabilities. In the macro level extreme poverty (70% of the population) as a result of high rates of unemployment, underemployment and landlessness was reflected in widespread malnutrition. Severe poverty also inhibited savings and capital formation in the economy. Furthermore, most of the rural population (above 90 percent) lived below subsistence, infant malnutrition led to a very high child mortality rate (about 240 deaths for every 1000 children), extremely poor people sheltered in deplorable living conditions in urban slums grown enormously, and gender discrimination was prevalent—in 1970 the ratio of female to male was 0.958, which then was the lowest in Asia. In the industrial sector a severe dearth of skilled manpower and very low productivity of the labor force (especially in manufacturing sector) limited the country's managerial and entrepreneurial capabilities. Dissemination of knowledge and technology did not happen for widespread illiteracy in the mass level. Above all, particularly unrestrained growth in population retarded economic growth and has absorbed much of the benefit of whatever growth was achieved (World Bank, 1981).

In the early years following the War of Liberation (in 1971), economic management in Bangladesh was primarily aimed at reviving a war-ravaged economy in an overall framework of extensive State control and with an avowed ideology of socialism (Ahmed, 2005; Mahmud

2008a). During those days the government started to follow a socialist path of recovery by nationalizing most of the large manufacturing units. But recovery from the economic predicaments was far away from reality. As it was hinted earlier, at the first phase of development in the 1970s, many impediments including desperate initial conditions, political instability, widespread corruption and a record of systemic governance failure hindered the country's growth performance (Mahmud, Ahmed & Mahajan, 2008). Extensively State controlled economic policies until 1980 resulted in little savings and investment, low level in export earnings, an underdeveloped financial sector, high inflation rates and very low levels in growth of both national GDP and per capita income (see Table).

Therefore, at one hand, during the late 70s and the early 80s the newly elected regime started to reform the economy by embarking a denationalization program. They reduced agricultural subsidy and adjusted monetary policy in order to reduce inflation. They also included de-regulatory measures in their prescription to enhance the role of private enterprises (Islam, 1977). On the other hand, major economic reform initiatives in Bangladesh in the 1980s and early 1990s came out as implementation of a package of Structural Adjustment Policies (SAP) sponsored by the Breton Woods institution and under the support of the World Bank and the International Monetary Fund (IMF). Some examples include World Bank's Structural and Sectoral Adjustment Loans (SAL and SECLs) in early 1980s. Reform programs include trade liberalization, agricultural reforms, privatization, financial sector reforms, and fiscal reforms (Bashar & Khan, 2007) and were implemented accordingly during three phases— the first phase (1972-1975), the second phase (1977-1986) and the third phase (1986-Onward). These means of recovery enveloped in a series of reform policies particularly in areas of trade, finance, and capital account helped maintain a liberal economic regime later.

Table 2.2: Some of the Selected Macroeconomic Indicators of the Bangladesh Economy Prior to the 1980s (Amounts are in million U.S. dollar)

Fiscal Year	Foreign Exchange Reserve *(Annual change, %)*	Inflow of Remittances *(Annual Change, %)*	Current Account Balance *(Annual Change, %)*	Total Value of Exports *(Annual Change, %)*	Total Value of Imports *(Annual Change, %)*	Total Investment as % of GDP	GDP growth at constant prices of 1972/73 (%)	Inflation, (general, %)
FY1972-73	173 *(…)*	33 *(…)*	-326 *(…)*	347 *(…)*	727 *(…)*	…	…	…
FY1973-74	115 *(-33.52)*	19 *(-42.42)*	-554 *(-69.93)*	373 *(7.49)*	925 *(27.23)*	…	12.09	40.6
FY1974-75	266 *(131.3)*	34 *(78.94)*	-997 *(-79.96)*	359 *(-3.75)*	1402 *(51.56)*	…	3.38	71.1
FY1975-76	213 *(-19.92)*	62 *(82.35)*	-839 *(15.84)*	389 *(8.36)*	1266 *(-9.70)*	…	12.24	-23.9
FY1976-77	294 *(38.02)*	81 *(30.64)*	-345 *(58.87)*	455 *(16.97)*	865 *(-31.67)*	…	1.33	-3.2
FY1977-78	269 *(-8.50)*	113 *(39.50)*	-757 *(-119.42)*	496 *(9.01)*	1349 *(55.95)*	….	7.58	14.9
FY1978-79	393 *(46.09)*	140 *(23.89)*	-807 *(-6.60)*	614 *(23.79)*	1556 *(15.34)*	…	4.35	6.5
FY1979-80	251 *(-56.57)*	163 *(16.43)*	-1477 *(-83.02)*	719 *(17.10)*	2352 *(51.15)*	…	3.39	17.3
FY1980-81	…	219 *(34.36)*	-1702 *(-15.23)*	757 *(5.29)*	2639 *(12.20)*	…	7.52	8.1

Source: Adapted and calculated from World Bank (1981), "…" indicates data unavailability

2.4 Explaining Bangladesh's Economic Growth Since 1980

2.4.1 Overall Growth Performance of the Economy

Despite many economic and political impediments—some manmade and some natural—the economy of Bangladesh has gone through a moderately accelerated growth environment in the last two decades. It was grown at an average rate of only 3.73 percent per annum during the 1980s. In the 1990s average annual growth rate has grown to reach a level of 4.81 percent. The average growth rates were 4.4 percent during FY91-95 and 5.2 percent between FY96 and FY2000[4]. Later GDP growth has increased to report a rate of around 5.80 percent during the 2000s. According to the Bangladesh Bureau of Statistics (BBS) and Finance Department

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[4]Bhattacharaya (2006), Bangladesh Economy: Macroeconomic Performance.

of the Bangladesh Ministry of Finance, the economy posted an average annual growth rate of 5.3 percent during FY2001-04. Then economic growth has registered a solid average annual growth of 6.3 percent between FY2004 and FY2008. This is a significant acceleration in the economy if seen with the prism of desperate initial conditions and signs of huge pessimisms (Wahiuddin et al, 2008; CPD, 2003).

Accordingly, per capita income in Bangladesh grew comparatively rapidly. Estimated decadal data shows that growth rate of per capita GDP was only 1.57 percent during 1980s. In 1990s this has gained a record growth and jumped to 3.01 percent. The GDP per capita growth (annual %) in Bangladesh was last reported at 4.88 percent in 2010 and according to a World Bank report released in 2011 the economy maintained an average rate of around 5 percent during the whole 2000s. The country started with a per capita GDP figure of less than $70 in the 1970s. Later by 2004 per capita GDP had grown to US$392 and it reached to an estimated US$497 in 2008, then it jumped to above $700 in 2011. If considered separately, the per capita income growth from 2004 to 2008 indicates a rise of 19 percent over this four-year time interval (CPD, 2006; MOF, 2009).

The above phenomena simply attract our attention to ask about the reasons behind such an impressive growth performance. Both a slowdown in population growth and a sustained increase of GDP growth have contributed greatly to the per capita income growth of the country (GOB, 2011). In Bangladesh an early demographic transition at a low level of development has occurred. Population growth dropped to 2 percent by the early 1990s and now the rate is less than 1.6 percent. In the same time the country's GDP growth also accelerated in tandem. Both productive and reproductive performances of the economy boosted a remarkable improvement during the previous decades. However, to bring it in light

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the aim of being a middle-income country by 2021, current government's *"Vision 2021"* demands to deliver 8 percent GDP growth by FY2013 (USAID, 2010).

Figure 2.1: Growth Rate of GDP at Constant Price: 1999/200-2009/10 (Annual average rate,%)
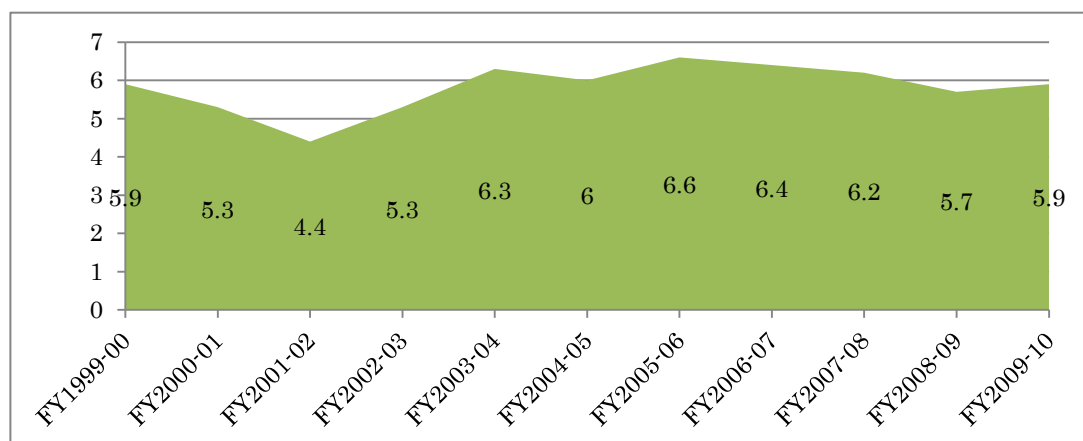
Source: Bangladesh Ministry of Finance (MOF, 2010)

Figure 2.2: Growth of Bangladesh Economy During FY1980/81-FY2009/10
(Decadal average growth rates)
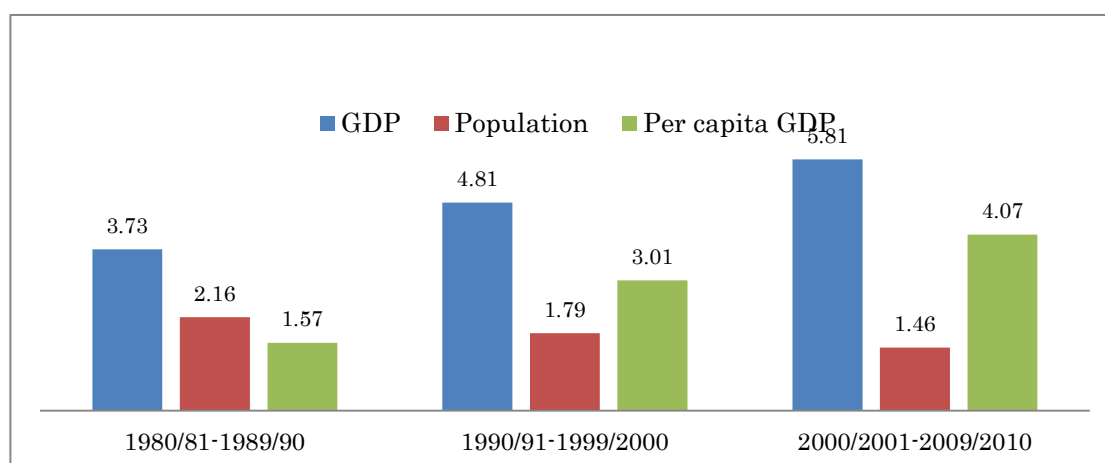
Source: Data collected from BBS (2010) and MOF (2010)

Figure 2.3: Growth of Bangladesh Economy During FY1980/81-FY2009/10
(Five-yearly average growth rates)
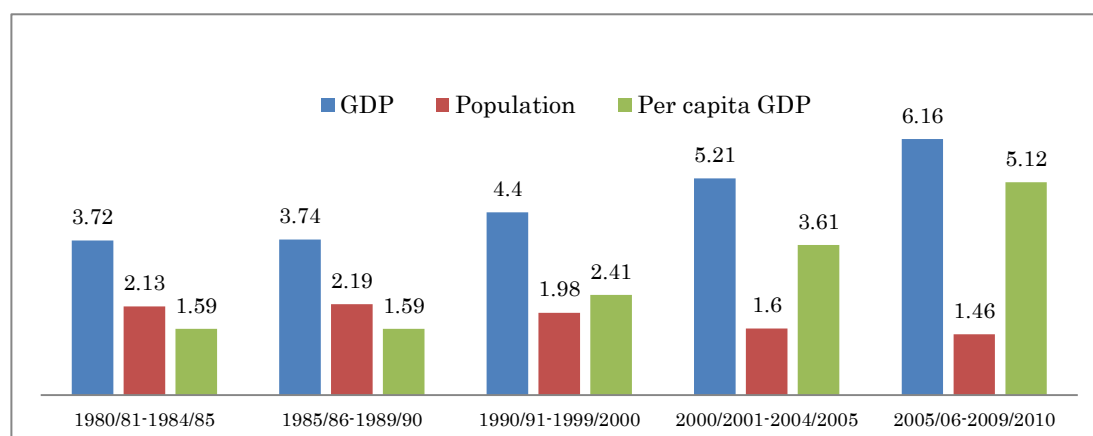
Source: Data collected from BBS (2010) and MOF (2010)

2.4.2 The Proximate Sources of Growth

In order to identify the underlying factors of growth in the economy we explore it at two levels. The proximate level, which searches at the relative performance of various economic sectors, sees which sector actually contributed the most. The second one, at somewhat deeper level, tries to identify forces that stimulated the leading economic sectors in Bangladesh.

GDP growth in Bangladesh is contributed by corresponding growths of some basic sectors like agriculture, industry, and services. The most recent growth figures for these three key sectors are 4.67 percent, 6.01 percent and 6.38 percent respectively. Within the real economy whereas the Service sector used to dominate during the earlier period (FY85-95), however, sectors such as Industry and Agriculture emerged as the major contributors to GDP in the later part of 1990s. But since FY2001 the Service sector has been contributing more than half of the total GDP and once again it has turned back to be considered as the major source of GDP growth in Bangladesh.

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Figure 2.4: Contribution Trends of Various Key Sectors in GDP Growth (%)
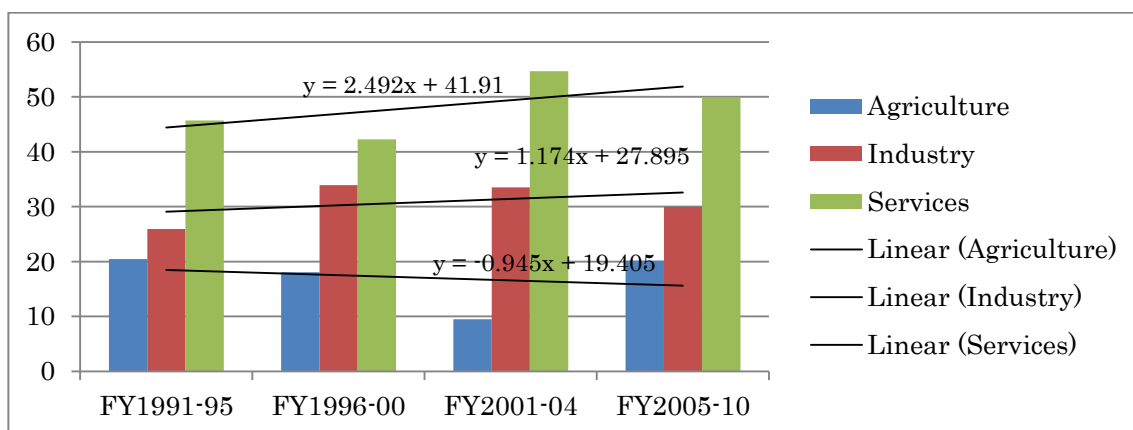
Source: MOF (2010), BBS (2010), Bangladesh Bank Statistics Department (various issues)

It can be noted from the sectoral contribution data that all three broad economic sectors contributed to the growth momentum. Decadal average data shows that agricultural GDP growth has been raised from 2.5 percent during the 1980s to 3.2 percent in the 1990s and later 3.62 percent in 2000s. Industrial sector GDP growth was seen to accelerate from 5.8 percent in 1980s to 7.0 percent in 1990s and later to 7.4 percent in the 2000s. And the service sector performed its proper role by increasing its contribution to the overall GDP growth from 3.71 percent in 1980s to 4.48 percent in 1990s, although later in the 2000s, the said sector's contribution declined to be only 4.05 percent (Osmani, 2004).

A careful attention in the disaggregated sectoral growth composition shows that fisheries and manufacturing have been emerged as the two fastest growing sub-sectors in Bangladesh. The earlier has experienced sharp growth acceleration from 2.4 percent in the 1980s to 8.2 percent in the 1990s and then declined again; whereas the latter has grown continuously to report a rate of 4.98 percent, 6.90 percent, and 7.43 percent during the consecutive three decades of 1980s, 1990s, and 2000s respectively. But since the 1990s, frozen shrimp as well as the textile industry have happened to be the fastest growing contributors in the economy. In the next sub-sections a glimpse of growth contributions by various sectors will be presented.

Table 2.3: Sectoral GDP Growth Rates for FY1980/81-FY2009/10 (Annual average and in constant 1995/96 producer prices)

Sector	Five-yearly average						Decadal average		
	1980/81 -'84/'85	1985/86 -'88/'89	1990/91 -1994/'95	1995/96 -1999/'00	2000/01 -2004/'05	2005/06 -2009/10	1980/81 -1989/'90	1990/91 -1999/'00	2000/01 -'09/'10
Agriculture	**2.68**	**2.40**	**1.55**	**4.89**	**2.88**	**4.36**	**2.54**	**3.22**	**3.62**
▪ Crop	2.69	2.69	-0.43	3.86	2.34	4.36	2.69	1.72	3.35
▪ Fisheries	3.06	1.64	7.86	8.56	1.35	4.06	2.35	8.21	2.71
▪ Others	2.40	2.21	2.53	3.30	4.74	4.81	2.31	2.92	4.78
Industry	**5.70**	**5.80**	**7.47**	**6.44**	**7.26**	**7.52**	**5.75**	**6.96**	**7.39**
▪ Manufacturing	4.69	5.27	8.20	5.59	6.84	8.02	4.98	6.90	7.43
▪ Large & medium	4.44	5.43	8.41	5.49	6.59	8.10	4.94	6.95	7.35
▪ Small scale	5.41	4.89	7.69	5.87	7.46	7.84	5.15	6.78	7.65
▪ Construction	6.44	5.59	6.27	8.80	8.38	6.51	6.02	7.54	7.45
Services	**3.83**	**3.58**	**4.14**	**4.81**	**3.55**	**4.55**	**3.71**	**4.48**	**4.05**
Total GDP	**3.72**	**3.74**	**4.15**	**5.23**	**5.44**	**6.16**	**3.73**	**4.69**	**5.80**

Source: Estimated from BBS (2000) and BBS (2001a), MOF (2010)

Table 2.4: Growth of Principal Export Products (annual average and in million US dollars)

Export item	FY1989/90-FY19991/92	FY1998/99-FY2000/01	FY2007/08-FY2009/10
Textile products (RMG) & knitwear	891	4411	12422
Frozen foods	137	327	446
All other exports	717	750	3017
Total exports	1745	5488	15885

Source: World Bank (1999a) and GOB (2002)

Table 2.5: Growth Figures for Various Economic Sectors between FY1980 and FY2010 (Based on 1995/96 constant prices)

Sector	Growth in GDP over 1979/80-1981/82 to 1988/89-1990/91 (billion taka)	Growth in GDP over 1998/99-2000/2001 to 2007/2008-2009/2010 (billion taka)	GDP growth increment from 1980s to 2000s (billion taka)	Contribution of the sector in incremental GDP growth (%)
Agriculture	**65.36**	**142.09**	**76.73**	**6.97**
▪ Crop production	40.51	88.97	48.46	4.40
▪ Fisheries	11.36	41.68	30.32	2.75
▪ Others	13.49	53.13	39.64	3.60
Industry	**102.36**	N/A	N/A	N/A
▪ Manufacturing	56.22	297.24	241.02	21.88
▪ Large & medium	39.66	209.00	169.34	15.37
▪ Small scale	16.58	88.24	71.66	6.51
▪ Construction	29.26	148.86	119.6	10.86
Services	**174.05**	**172.96**	-	-
Total GDP	**341.77**	**1443.12**	**1101.35**	**100**

Source: GOB (2010)

- *Contribution of the Agriculture Sector and Agriculture Production in Bangladesh*

The economy of Bangladesh has been experiencing a dominant change as agricultural share in the Gross Domestic Product is on a declining trend. By the late 1990s, having been experienced by wide fluctuations, the average growth rate in the said sector is about 2.5 percent per year and compared to the 1980s the share of agriculture in GDP reduced to around 25 percent. Nevertheless, still agriculture provides the largest share of more than a bulk of 50 percent of total employment in the country and the sector still defines the threshold performance of the economy (Asaduzzaman et al, 2010). While reduction of agriculture share in GDP is a natural process, there is tremendous importance for Bangladesh to recognize the primacy of sustained growth of agriculture in providing food and income security to rural households (World Bank, 2001).

Figure 2.5: Year-on-year Rates of Growth in Agriculture and its Sub-sectors (%)
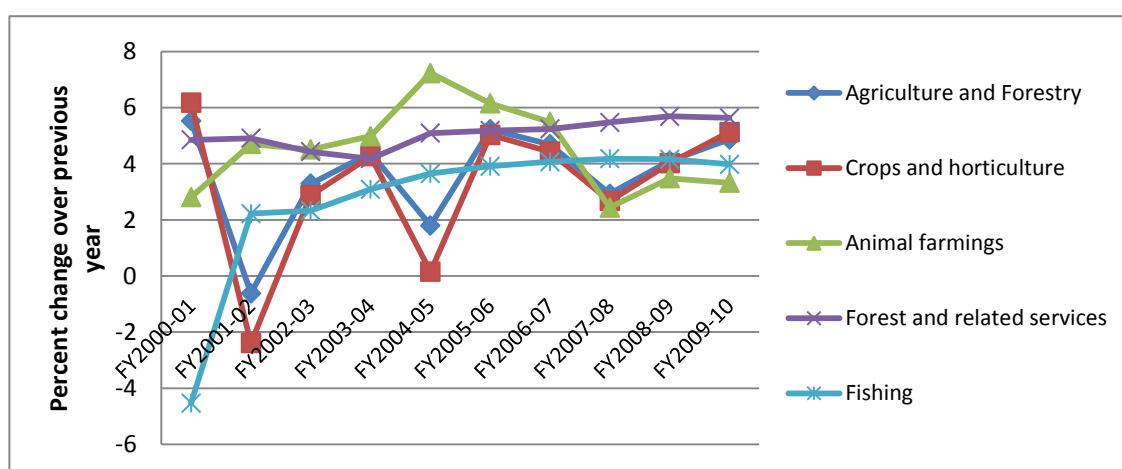
Source: Bangladesh Bureau of Statistics (various issues), MOF (2011)

- *Role of Industrial Production and the Trade Sector*

The industrial sector is yet to be considered as a prominent contributor to the GDP of Bangladesh in terms of value addition and employment. It has grown substantially after a democratic rule was established in the country and its share in GDP increased from around 10

percent in FY1983-84 to 17 percent by FY2005-06. Then it has reached its latest figure 17.86 percent in FY2009-10 (MOF, 2010; BBS, 2010). More importantly, on the other hand, at present the sector constitutes as much as 11 percent of total employment in the country.

During the 1990s, manufacturing industries observed some changes by lowering/eliminating of import tariffs in order to gain reduced protection. Because of such liberalization reforms the sector experienced a robust average growth rate of 7 percent, even though the prolonged and devastating flood of 1998 caused severe losses. Thus, a gradual recovery was visible in the sector by the successive years after 1990s. For an instance, during FY2001-2010 the sector posted an overall average growth rate of 7.43 percent. To be more specific, the rates were on average a robust 7.34 percent for large and medium scale industries and 7.65 percent for that of the category of small scale industries (MOF, 2010; BBS, 2010). Nevertheless, even though the dynamics of the industrial sector is reflected in the sectoral share to GDP and particularly in the share of incremental GDP value addition, on the weak side, Bangladesh has created a manufacturing sector that is narrow-based being represented by only five industries—readymade garments and textiles, fish and seafood, leather, fertilizer, and pharmaceuticals (GOB, 2010). Together these five industries earned US$13036 million in FY 2009-10 which is around 81.35 percent of total export volume of the nation. During FY 2008-09 the figure was US$13083 million or more than 85 percent of country's total export.

Table 2.6: Average Growth of Industrial Production (Annual percentage change)

Year	Overall Industry	Mining and Quarrying	Manufacturing			Power, Gas, Water Supply	Construction
			Large and Medium	Small	Total		
FY91-FY95	7.47	5.79	8.41	7.69	8.20	8.20	6.27
FY96-FY00	6.44	5.59	5.49	5.87	5.59	5.59	8.01
FY01-FY04	7.12	7.05	6.26	7.39	6.58	6.58	8.42
FY05-FY10	7.58	9.13	8.13	7.86	8.00	6.37	6.81

Sources: Adapted and Computed from BBS (2010); Bhattacharya (2006)

- *The Service Sector and Skewed Structural Transformation in the Economy*

In Bangladesh services and not the manufacturing sector is picking up the space vacated by the agriculture sector and the economy is exposed to a skewed structural transformation. The share of Agriculture sector to GDP fell from more than 38 percent in the early seventies to 20 percent by FY2009-2010. On the contrary, the contribution of Industry rose from as low as 15.5 percent in FY1972-1973 to around 30 percent recently. The Service sector could maintain its status as the largest sector with a relatively stable share ranging from about 46 percent in the 1990s to 50 percent during 2010 (MOF, 2009).Thus, the present structural transformation of the Bangladesh economy experiences a falling contribution from the agriculture sector and a marginal increase in the contribution of manufacturing industry in the backdrop of increasing contribution of the Service sector. Clearly, a considerable shift of the economy from agriculture to industry has been taken place, which is a good sign (Bhattacharaya, 2003). However, the combined weight of the most rapidly growing activities in the overall economy is still rather small in Bangladesh while the weights of the sectors also have important implications for the coming future.

Figure 2.6: Unsustainable Structural Transformation in the Bangladesh Economy
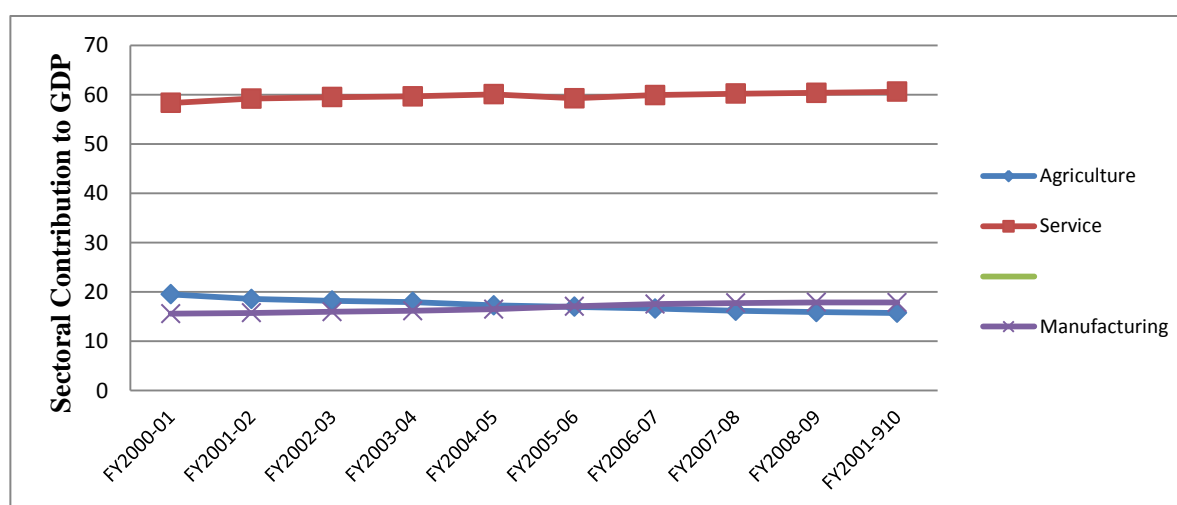
Source: Bangladesh Bureau of Statistics

- *Growth Performance of the External Sector: Exports and Import Composition*

Bangladesh's external sectors have experienced robust growth in recent years, thanks to the Export Policy of 1997-2002, which has been designed in order to maximize export growth and narrow down the gap between import payments and export earnings. However, during the later part of 1990s the export-oriented industry was featured by some fluctuating fortunes. Growth rates in FY1997 and FY1998 were a robust 13.8 percent and 16.8 percent, only to subsequently come down to 2.9 percent in FY1999. In FY2000 export sector was able to make some rebound and posted a growth record of 8.3 percent. The rate was 12.43 percent in the corresponding next year. During the FY2001-02 the sector was shaken by some domestic political turmoil to be recorded for a growth rate as low as -7.44 percent. After that export growth in Bangladesh was seen to be continuously positive and a double digit growth rate was posted thereafter until FY2010-11 except FY2009-10. Export earnings performance of some of the major sectors including woven-RMG, knit-RMG, frozen foods, and leather goods was significantly better during the last two decades. However, Bangladesh's export trade is continued to be featured by the dominance of a few commodities in a narrow market and unavailability of mentionable breakthrough in the performance of the said sector.

In describing the import composition of the Bangladesh economy, it can be observed that the import share of 'Principal Primary Commodities' such as rice, wheat, oilseeds, crude petroleum and raw cotton showed a declining trend in the later half of 1990s but started to rise again in recent years. On the other hand, the combined shares of 'Major Industrial goods and Capital Goods' reported a continuous increase during the same period. The import payment for principal primary commodities in FY1998-99 was US$ 1,448 million representing 18.06 percent of total import. These figures decreased to US$ 980 million and $ 1,098 million (11.66 percent and 11.73 percent) in FY 1999-2000 and 2000-01 respectively

(Rahman, 2010). However, since FY2002-03 and after that an overall increasing trend was observed in the nation's import sector.

In the category of major intermediate goods (such as edible oil, petroleum products, fertilizer, clinker, staple fiber and yarn etc.) import has been increasing continuously from US$1037 million (12.95 percent of total imports) in FY1998-99 to US$5035 million (22.37 percent) in FY2008-09 and US4957 million (20.88 percent) in FY2009-10. Import of capital machinery also was in the rising trend. Bangladesh imports a large volume of other goods in addition to the above three mentioned categories and the category of 'Other Goods' comprises around slightly more than 50 percent of total imports of the country. For an instance, in FY2010-11, it was reported that total payment for other goods was US$ 6427 million out of US$ 9335 million of total imports (MOF, 2008).

Figure 2.7: Export and Import Trend in Bangladesh During FY2001 to FY2010
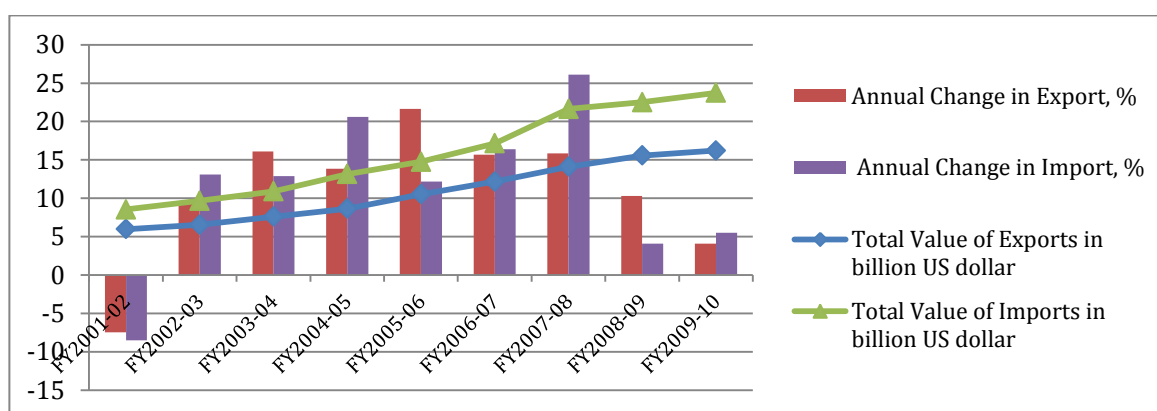
Source: Bangladesh Bank, Bangladesh Ministry of Finance (various issues)

2.4.3 Other Impacting Factors

- *Economic Reforms and Economic Growth*

Economic liberalization in developing countries like Bangladesh refers to macroeconomic stabilization in sectors like foreign aid, exchange rate, remittances and the like. Bangladesh also requires some micro-structural changes like reform of the financial sectors to improve

saving and investment etc. Reforms in the Bangladesh economy include reallocation in public expenditure, making foreign investment easier by opening up the economy to overseas investors and making an adjustment of the exchange rate, undertaking deregulation measures in most markets and removal of restrictions on entry/exit capacity (Bhalotra, 2002).

Like many other developing countries major economic reform initiatives in Bangladesh in the 1980s and early 1990s came out as implementation of a package of Structural Adjustment Policies (SAP) sponsored by the International Financial Agencies (IFAs) and under the supports of the World Bank and the International Monetary Fund. Some examples include World Bank's Structural and Sectoral Adjustment Loans (SAL and SECLs) in the early 1980s. Reform programs also included trade liberalization, agricultural reforms, privatization, financial sector reforms, and fiscal reforms (Bashar & Khan, 2007). These policies were implemented accordingly during three phases—the first phase (1972-1975), the second phase (1977-1986) and the third phase (1986-Onward).

Consistent with related literature available research findings show a mixed explanation about the role of various reforms in the Bangladesh economy. According to Palit (2006) agriculture liberalization had positive impact on Bangladesh's growth and such policies were capable to rescue the stagnated agriculture sector during the later part of 1990s. Moreover, Ahmend (2001) and Bashar & Khan (2007) concluded that trade reforms impacted positively on Bangladesh's GDP growth while some other authors found an indirect link between them through an expansion of manufacturing growth and export (Rashid, 2000; Mamun & Nath, 2004). Siddiki (2002) reported that financial liberalization, along with trade liberalization, investment in human capital have enhanced economic growth in Bangladesh. Hossain (2011) concluded that implementation of economic liberalization reforms during the 1980s and 1990s has contributed for the GDP growth of Bangladesh.

▪ *Savings and Investment*

Savings behavior of a nation is important to achieve economic prosperity because of the existing link between savings and growth. Further, development policy especially in the contexts of low income countries maintains a critical importance upon the direction of causality between savings and growth (Agrawal & Das, 2007). Hence, during the last several decades development economists and researchers emphasized the importance of savings and investment in the growth dynamics of LDCs.

In order to achieve growth in a country's GDP, it is an essential obligation that the country has increased its level of investment, at the same time it is an important prerequisite that a pick-up in national savings has been taken place to a higher level, so that sufficient investable resources in the development endeavor is available (Unnayan Onnesha, 2010). For the case of Bangladesh, the nation has gradually increased its level of savings in monetary value and also savings rate as percentage of GDP (Agrawal and Das, 2007). However, in both national and domestic savings categories the nation still lags behind many developing countries in Asia.

Figure 2.8: Gross Savings in Bangladesh (Domestic and National)
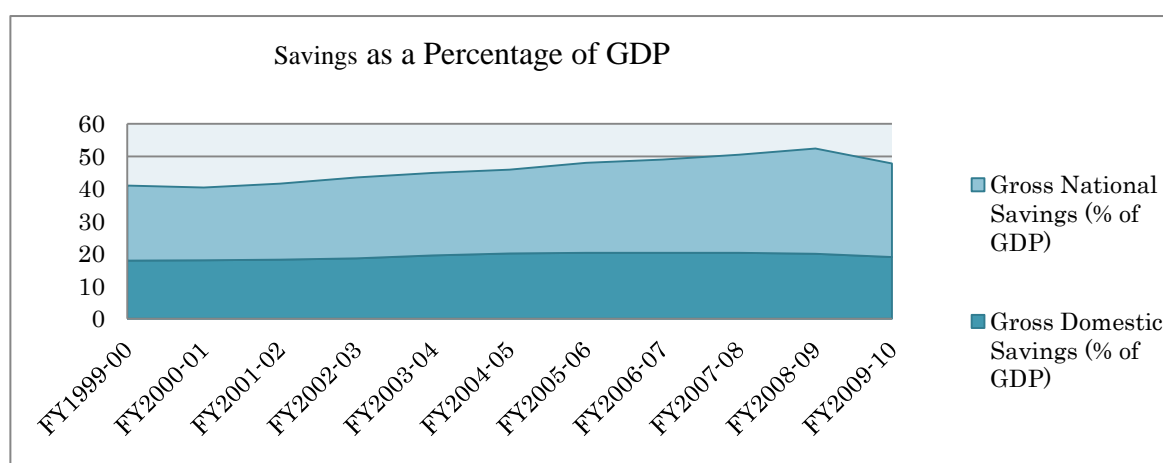
Source- MOF (2010), National Savings Board, GOB.

Theoretically investment rate also is an important factor if viewed from its contribution to economic growth because endogenous growth theory suggests that there is a strong and

positive association between GDP growth rate and investment level in a developing country like Bangladesh (Romer 1986; Lucas, 1988). According to Agrawal (2000), neoclassical growth models suggest that income per capita of a country is higher in the long run if it can maintain a higher rate of savings or investment. Empirical findings of Levine and Renelt (1992) also indicated that there exists a robust positive correlation between the investment rates and GDP growth of LDCs. In order to achieve a better front in the economy through rapid and meaningful/sustained growth in GDP, a high level in investment is required. Moreover, an incremental rate of investment is another fundamental requirement for developing countries in order to generate more employment and high level in wages. For the case of Bangladesh, this is especially appropriate for reducing poverty given that the country's income distribution has remained largely unchanged over the last 42 years since independence. Thus, high investment rates appear very desirable to Bangladesh's long-term vision of improving national development and welfare (Agrawal, 2000).

Data shows that in 2010 Bangladesh's private sector investment was only at 19 percent of GDP. Looking back over the past ten years' data, it can be seen that the country had been suffering from a virtually stagnated gross fixed investment rate at 24 percent. The Bangladesh Ministry of Finance projects that delivering a rate of 8 percent GDP growth by FY2012-17 in order to fulfill the government's *Vision 2021*[5] the country needs to raise its share of private sector investment to 30–32 percent. To realize that target Bangladesh has to remove major impediments in its business environment through administrative reforms and eliminating infrastructure bottlenecks.

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[5] *Vision 2021* aims to develop Bangladesh as a middle income country by 2021 by reducing poverty drastically. Bangladesh aims to reach such a position where development will be on fast track with a continuous and increasing rate of growth so that citizens will be able to meet their basic requirements easily.

Figure 2.9: Gross Investment in Bangladesh as a Percent of GDP is Comparatively Lower
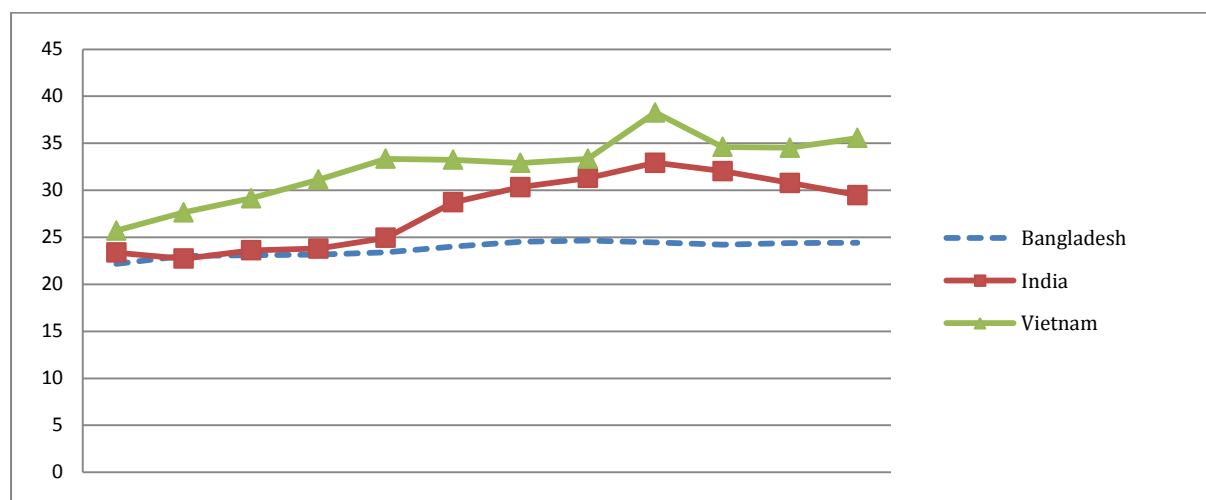
Source: World Development Indicators 2011, World Bank.

▪ *Inflation and Consumer Price Index*

Similar to most other developing countries in Asia majority of the people in Bangladesh now-a-days are vulnerable to a price hike in basic commodities especially food items. The recent spike in commodity price coupled with the recovery of global economy and the shortsighted domestic policy responses threaten to push large numbers of people back below the poverty line in Bangladesh due to high inflation (ADB, 2009). Average inflation in the economy was on an upward trajectory since June 2000 mainly because of a big hike in crude oil prices and food inflation largely contributed to the rise of the overall inflation in the country (ADB, 2009; GOB, 2010). Supply side inflation is more common in Bangladesh although both demand and supply induced inflations are prevalent. Major causes inflation in Bangladesh are in a broad category — structural and cyclical factors, demand and supply factors, and factors related to controlling measures of the domestic market. To be more specific, labor cost increases, import cost hikes, exchange rate response and devaluation of the domestic currency (TAKA), high oil price in the international market, supply shortages and market syndication etc. are to be mentioned as major factors behind high inflation (Hossain, 2002; Majumder, 2006 and ADB, 2008;). Other reasons include supply disruptions

due to natural disasters and buffer stock build up for inadequate regulation and poor monitoring.

Table 2.7: Consumer Price Index and Inflation in Bangladesh (Base year 1995-96=100)

Index	FY2001-02	FY2002-03	FY2003-04	FY2004-05	FY2005-06	FY2006-07	FY2007-08	FY2008-09	FY2009-010	FY2010-11
General (% change)	130.6 (2.79)	135.97 (4.38)	143.90 (5.83)	153.23 (6.48)	164.21 (7.17)	176.06 (7.22)	193.54 (9.93)	206.43 (6.66)	221.53 (7.31)	241.02 (8.80)
Food (% change)	132.43 (1.63)	137.01 (3.46)	146.50 (6.93)	158.08 (7.91)	170.34 (7.76)	184.18 (8.12)	206.79 (12.28)	221.64 (7.18)	240.55 (8.53)	267.83 (11.34)
Nonfood (% change)	127.89 (4.61)	135.13 (5.66)	141.03 (4.37)	147.14 (4.33)	156.56 (6.40)	165.79 (5.90)	176.26 (6.32)	186.67 (5.91)	196.84 (5.45)	205.01 (4.15)

Source: Hossain, 2002 and Bangladesh Bureau of Statistics (various issues)

Figure 2.10: Inflation Trends in Bangladesh
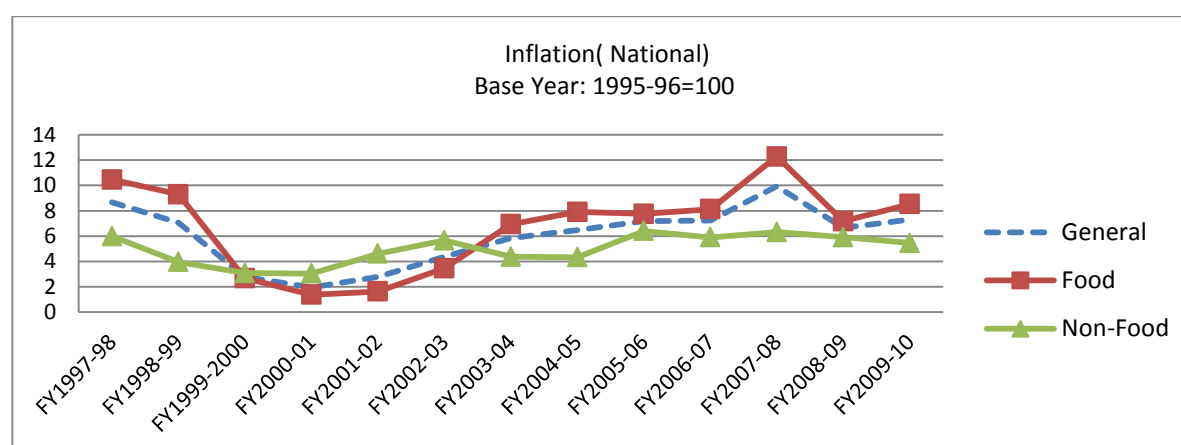
Source: Hossain, 2002 and Bangladesh Bureau of Statistics (various issues)

▪ *Employment and Wages*

The Bangladesh Ministry of Finance indicates prices, wages and employment as the three most important indicators for the economy of Bangladesh (MOF, 2011). According to the latest labor force survey of the Bangladesh Government (MES-2009) the number of economically active people (with an age of 15 years or more) is 53.7 million and among them 51.0 million people are engaged in various professions of whom 43.53 percent are in the

agriculture sector (BBS, 2009).[6] The Labor Force Survey (LFS) of 2005-06 reported that total working age population was 47 Million and among them 48.10 percent was engaged in agriculture. The MES-2009 indicated that 39.22 percent of the total labor force is employed in self-employed activities while the rate was 41.98 percent in FY2005-06. According to the latest survey, 17.06 percent of the labor force was employed in full time jobs which is 3.14 percent more than the previous survey. On the other hand, in 2009 20.20 percent of the working aged people were daily laborers and 21.18 percent served as unpaid family workers which were 18.14 percent and 21.73 percent as reported by the FY2005-06 data.

Table 2.8: Share of Employed Labor Force (Above 15 years) by Sector

Sector	LFS 1995-96	LFS 1999-00	LFS 2002-03	LFS 2005-06	MES 2009
Agriculture, forestry and fishery	48.85	50.77	51.69	48.10	43.53
Mining and quarrying	--	0.51	0.23	0.21	0.20
Manufacturing	10.06	9.49	9.71	10.97	13.53
Power, gas and water	0.29	0.26	0.23	0.21	0.20
Construction	2.87	2.82	3.39	3.16	3.92
Trade, hotel and restaurant	17.24	15.64	15.34	16.45	15.29
Transport, maintenance and communication	6.32	6.41	6.77	8.44	8.24
Finance, business and services	0.57	1.03	0.68	1.48	2.35
Commodities and personal services	13.79	13.08	5.64	5.49	5.69
Public administration and defense	--	--	6.32	5.49	7.06
Total	100.00	100.00	100.00	100.00	100.00

Sources: BBS's Labor Force Survey (LFS) 1995-96, 1999-00, 2002-03, 2005-06 and Monitoring of Employment Survey, 2009

A table showing the wage rate indices of Bangladesh from FY2001-02 through FY2009-10 has been presented below. It is observed that the nominal wage rate index at the beginning of the decade was 2637 and in FY2009-10 it has been raised to 5562. The increment rate in FY2009-10 was 10.67 percent in general. Accordingly wage indices for all major sectors also showed an increase of 10 percent or more. For instances, the sector-specific wage rate indices

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[6] The title of the survey is Report on Monitoring of Employment Survey (MES) 2009

grew by 16.65 percent, 14.0 percent, 13.95 percent, and 10.31 percent for agriculture, fisheries, manufacturing, and construction respectively.

Table 2.9: Wage Rate Indices (Base year 1969-70=100)

Fiscal Year	Nominal Wage Rate Index					CPI for industrial labor (national)	Real Wage Rate Index (General)
	General	Agriculture	Fisheries	Manufacturing	Construction		
2001-02	2637 (5.95)	2262 (5.95)	2411 (5.65)	3035 (7.17)	2444 (3.74)	2024 (1.25)	130 (4.00)
2002-03	2926 (10.96)	2443 (8.00)	2563 (6.30)	3501 (15.35)	2624 (7.36)	2068 (2.17)	141 (8.46)
2003-04	3111 (6.31)	2582 (5.69)	2775 (8.28)	3765 (7.55)	2669 (1.69)	2129 (2.95)	146 (3.55)
2004-05	3293 (5.85)	2719 (5.31)	2957 (6.55)	4015 (6.64)	2758 (3.33)	2216 (4.08)	149 (2.05)
2005-06	3507 (6.50)	2926 (7.61)	3133 (5.95)	4293 (6.92)	2889 (4.75)	2351 (6.09)	149 (0.00)
2006-07	3779 (7.76)	3156 (7.69)	3332 (6.35)	4636 (7.99)	3135 (8.52)	2524 (7.36)	150 (0.67)
2007-08	4227 (11.85)	3524 (11.66)	3669 (10.11)	5197 (12.10)	3549 (13.20)	2740 (8.56)	154 (2.67)
2008-09	5026 (18.90)	4274 (21.28)	4236 (15.45)	6128(17.91)	4311 (21.47)	2885 (5.30)	174 (12.92)
2009-10	556 (10.67)	4985 (16.65)	4821 (14.0)	6620 (13.95)	4756 (10.31)	…	…

Sources: Bangladesh Bureau of Statistics (BBS) various issues

2.5 Conclusion

Performances of the Bangladesh economy during last two decades are impressive. GDP has grown quickly and per capita income has been raised comparatively rapidly. Contribution from the thrust sectors: agriculture, industry, services and export and import were satisfactory. Now Bangladesh is trying to shift its reliance from agriculture to a modern industry sector. However, growth features of the economy in some other macroeconomic spheres like savings and investment, inflation, employment, wages and poverty reduction showed moderate or low gains.

Poverty is still a big problem in Bangladesh. Because of high rate of inequality and other governance failures still a vast majority of the people suffers from rampant poverty in the

country. In order to reduce poverty to a certain stage, the country needs to increase its GDP to a higher level and at a time it should address the structural problems so that private sector can grow faster. Poverty reduction also matters efficiency and effectiveness in public expenditure and intervention by the government. Pro-poor intervention policy to regulate government spending with a favor to the poor segment of the population, thus, is crucial for a low income country like Bangladesh. We have reviewed the impacting factors important for GDP growth and social development in the present chapter. The next chapter briefly presents latest information about public expenditure and poverty issues in the country.

Chapter Three

PUBLIC EXPENDITURE AND POVERTY IN BANGLADESH

3.1 Introduction

This chapter investigates public spending and poverty trends in Bangladesh. A glimpse in Bangladesh government's expenditure for various purposes (development and non-development) has been discussed first. Budgetary expenditure shares in some thrust sectors and areas are presented next. Later in a separate sub-section the level of pro-poorness of public expenditure in Bangladesh on the basis of a discussion about government spending in health and education sectors is examined. Then a brief description of the existing correlations of economic growth and poverty between public expenditure is identified.

The discussion about Poverty in Bangladesh starts with a summary of the current poverty measurement methodology being used. After that poverty trends in an aggregate level, poverty gap (PG) and spatial poverty gap (SPG), and some welfare impacts of inflation and food inflation on poverty are discussed in some separate sub-sections. Throughout the discussion it reveals that government data by the Cost of Basic Needs (CBN) method shows satisfactory rates in poverty reduction indicators but they lose faith if inflation and food-price inflations are also considered. The last section concludes the chapter by highlighting the main findings from the entire discussion of the chapter.

3.2 Public Expenditure

Economic policy reforms in Bangladesh during the last few decades redefined the developmental functions of the government by giving more emphasis on public expenditure. Agricultural and food subsidies were at first reduced gradually and then eliminated completely. Reforms also included a withdrawal of direct public investment in productive

economic sectors. Instead of that the government played its developmental role by providing provision of essential public goods like education, healthcare services and infrastructure building. In addition, cost-effective poverty alleviating programs were implemented since the country's transition to a democratic regime from a semi-autocratic one in the early 1990s. In this connection, Bangladesh's revised budget figures at current prices and sector-wise allocations as percentages of development expenditure for the last three decades (19980-2010) are presented below. Some points need to be mentioned in this regard.

The annual budget of Bangladesh contains two important components—the current or revenue budget and the Annual Development Plan (ADP). Whilst the regular day-to-day expenditure on public administration (including the recurrent expenditures in social sectors) and defense are met by the current or revenue budget, the ADP takes care of expenditures needed for project-oriented development programs.

A comparison of government expenditure in Bangladesh during the last three decades indicates that current expenditure has risen from 4.6 percent to 9.8 percent of annual GDP, but the size of development expenditure declined substantially falling from 6.6 percent of GDP in 1980s to 4.2 percent in 2000s (Bhattacharya, 2003).

Data provided in Table 3.1 and Table 3.2 reveals that although total public expenditure is rising in Bangladesh, development expenditure actually squeezed in the country to maintain rising current expenditures along with a greater control on government's budget deficit. Data presented in Table 3.3 shows that sector-wise allocations of public resources have been reduced for some key sectors that are directly productive in nature like agriculture, manufacturing industry, water resources and energy. At the same time increased proportional allocations of resources to sectors like education and health, transport and communication and rural development have been realized.

Table 3.1: Bangladesh Government's Budget at a Glance (As percentage of GDP)

	FY '80/81-84/85	FY '85/86-89/90	FY '90/91-94/95	FY '95/96-99/00	FY '00/01-04/05	FY '05/06-09/10
Total Revenue	6.3	6.7	8.8	9.2	10.2	10.9
Tax revenue	5.2	5.4	7.0	7.5	8.2	8.8
Current expenditure	4.6	6.0	6.7	7.3	8.5	9.8
Revenue surplus	1.7	0.7	2.1	1.9	1.7	1.1
Development expenditure	6.6	5.4	5.4	5.9	5.7	4.2
Total expenditure	12.9	12.2	13.8	13.6	14.8	15.5
Budget deficit	6.6	5.5	5.0	4.4	4.5	4.5
Domestic borrowing	1.0	0.5	1.2	1.9	2.2	2.3
Foreign financing	5.6	5.0	3.8	2.5	2.2	1.8

Sources: The annual budgetary figures are adapted from Osmani (2008) and GOB (2010)

Table 3.2: Various Public Expenditure in Bangladesh (in Million TAKA)

Year	Total Expenditure	Revenue Expenditure	Development Expenditure	Recurrent Expenditure	Capital Expenditure	Per capita Total Expenditure:	
						At constant prices (base: 1995-96)(in BD Taka)	At current prices(in BD Taka)
1980/81	38113	14468	23645	21037	17076	---	---
1981/82	41805	17894	23911	24921	16885	---	---
1982/83	46171	19472	26699	27784	18388	---	---
1983/84	49772	19712	30060	32299	17273	---	---
1984/85	57411	25730	31618	36145	21265	---	---
1985/86	71164	36870	34294	48007	23157	---	---
1986/87	83996	39605	44391	52969	31027	---	---
1987/88	88458	46958	41500	61068	27389	---	---
1988/89	107528	61303	46225	76608	30920	---	---
1989/90	123526	66358	57168	85687	37839	---	---
1990/91	124978	72279	52699	96062	33919	---	---
1991/92	138162	77915	60247	98193	39976	---	---
1992/93	151583	85971	65612	106018	45564	---	---
1993/94	182618	92783	89835	119972	61363	---	---
1994/95	214500	103000	111500	---	---	---	---
1995/96	231650	120833	100157	---	---	893	1810
1996/97	240820	123731	110410	---	---	1827	1884
1997/98	258590	148450	110370	---	---	1885	2046
1998/99	297790	168783	125090	---	---	2018	2292
1999/00	344640	185820	154710	---	---	2268	2623
2000/01	373990	206619	161508	---	---	2411	2834
2001/02	407570	220002	140902	---	---	2261	2742
2002/03	420750	265881	154343	---	---	2485	3150
2003/04	471840	274322	168173	---	---	2477	3273
2004/05	539030	327736	187260	---	---	2707	3759
2005/06	590300	351544	194720	---	---	---	---
2006/07	668360	454120	172060	---	---	---	---
2007/08	936080	574750	225000	---	---	---	---
2008/09	941400	671250	230000	---	---	---	---
2009/10	110520	771290	285000	---	---	---	---

Sources: Bangladesh Bureau of Statistics and MOF (2011), "---" indicates unavailability of data

Table 3.3: Sectoral Shares in Development Expenditure (Percentages)

Sectors	FY '80/81-84/85	FY '85/86-89/90	FY '90/91-94/95	FY '95/96-99/00	FY '00/01-04/05	FY '05/06-09/10
Agriculture	13.09	5.48	5.93	4.72	3.77	6.10
Rural Development	3.51	2.59	5.40	9.14	12.85	15.89
Water Resources	13.99	12.63	8.76	7.16	4.75	3.52
Industry	9.57	11.60	1.59	1.24	2.25	1.62
Energy	21.87	23.33	17.74	17.08	16.49	12.69
Transport & Communication	15.34	10.71	18.82	21.96	21.63	14.32
Physical Planning & Housing	5.32	3.77	5.48	5.50	6.41	8.92
Education &Religious affairs	3.97	4.40	8.14	13.08	12.73	15.63
Health and Family Planning	5.18	4.71	7.73	8.04	7.70	10.41
Others	7.47	17.45	21.60	12.10	11.42	10.90
Total	100.00	100.00	100.00	100.00	100.00	100.00

Sources: The annual figures are from the statistical appendices of GOB (2002), GOB (2010) and adapted from Osmani (2008)

Government expenditure mainly on social sectors is relevant to human poverty and is instrumentally needed to reduce income poverty in Bangladesh. Table 3.4 below shows the sector-wise resource allocations for education and health as percentages of GDP as well as shares of total budget expenditure. The proportional shares of expenditure in these two thrust sectors have been increased continuously throughout the past three decades. Share of education expenditure increased rapidly and has almost doubled from 8 percent of the budget to 15 percent during the period from 1980 to 2010. Health care and family planning expenditure also has been raised moderately from 5 percent to 8 percent. Expenditure as a proportion of GDP also has risen for these two important sectors. Their combined share has been increased remarkably from 1.66 percent of GDP to 3.6 percent within this period.

Table 3.4: Government Expenditure on Health and Education Sectors

Fiscal year	Education Expenditure (As percentage of GDP at market prices)	Education Expenditure (As shares of the budget)	Health Expenditure (As percentage of GDP at market prices)	Health Expenditure (As shares of the budget)
1980/81-'84/85	1.00	8.16	0.66	5.40
1985/86-89/90	1.33	11.24	0.70	5.88
1990/91-94/95	1.81	13.62	0.90	6.77
1995/96-1999/00	2.11	15.51	0.97	7.13
2000/01-2004/05	2.36	13.26	1.18	7.89
2005/06-09/10	2.47	14.67	1.13	7.84

Sources: World Bank (1991), World Bank (1995), GOB (2002), and MOF (2010)

However, allocating more resources to social sectors such as health and education does not confirm that Bangladesh's public expenditure policies are entirely pro-poor. Ensuring the fact that poor people actually get their proper shares is more important than an increase in amount when the policies' aim is to achieve meaningful success in economic wellbeing and poverty reduction. In this regard, conducting a benefit incidence analysis for different income groups is necessary to appropriately judge whether government spending in Bangladesh is really pro-poor in effect. Figures 3.1 and 3.2 report relevant information and results for such an experiment in health and education sectors in Bangladesh conducted wholly based on detailed household level data of the Household Income and Expenditure Survey of 2010. Some points draw our careful attention.

First, both public and private expenditure on these said sectors are skewed in Bangladesh. For the case of health expenditure, it is indicative that poor people not only get lower absolute amounts in public and private health spending but also receive comparatively less than the richer groups. While per capita health expenditure is as low as 26 units for the poor group the richer people get as high as 74 units.

Figure 3.1: Distribution of Expenditure on Health
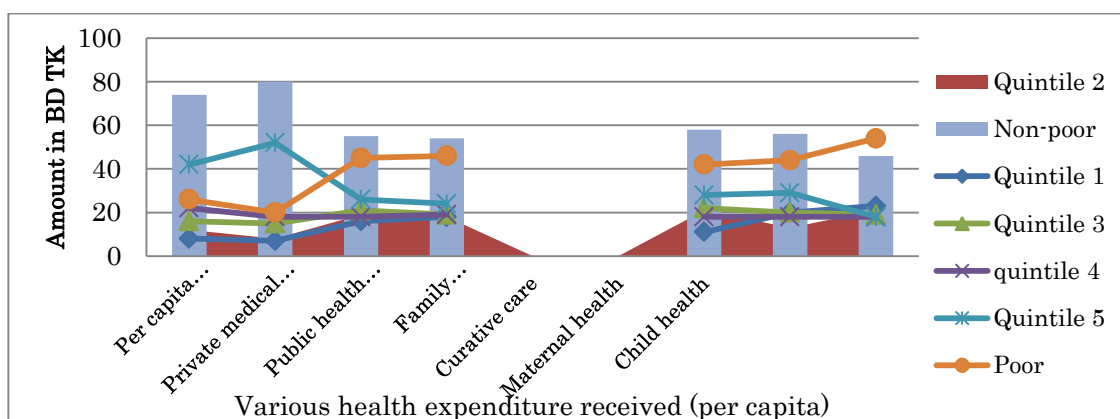
Source: World Bank (2002a)

Secondly, the situation in the education sector is almost identical to that of the health sector. For the case of public expenditure at a higher level of education the inequality gap is bigger and the policy is less pro-poor. While some 56 percent of government's expenditure in primary level education reaches to the poor, only less than 24 percent in secondary education spending and only 17 percent in tertiary level education spending finally go to poor people. Public expenditure policies in these two sectors thus can be described as weakly or not pro-poor at all in effect.

Figure 3.2: Distribution of Expenditure on Education
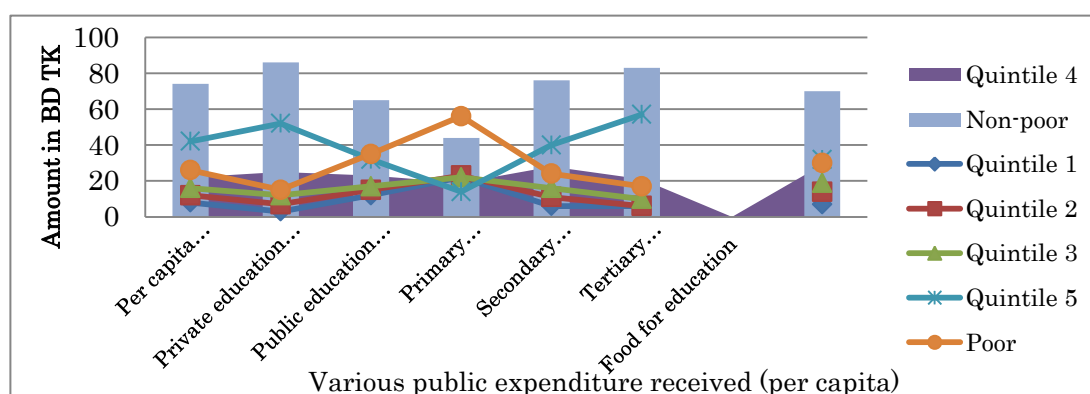
Source: World Bank (2002a)

The last issue related to public expenditure in Bangladesh is its correlations with economic growth and poverty trends. Figures 3.3 and 3.4 show such relationships in graphical forms.

The trend in GDP growth rate since 1980 until 2010 does not show any clear or distinct relationship with various sector specific public expenditures in the country. While there were enough variations and fluctuating in sector wise ADP expenditures in Bangladesh, GDP has grown showing a linear trend. Similarly, poverty and disaggregated ADP expenditure also show moderate or very low or even no correlations.

Figure 3.3: GDP Growth (%) and Sector-wise Disaggregated ADP[7] Expenditure (%)
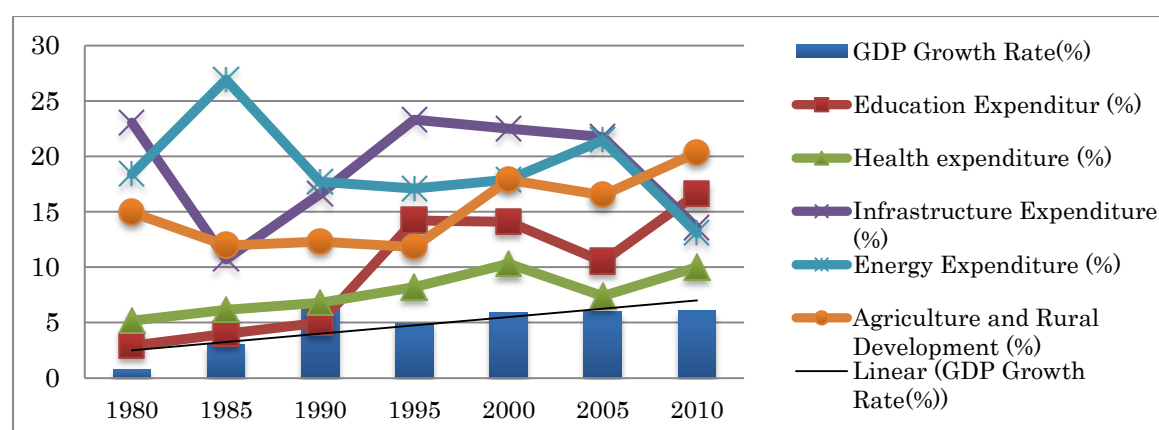
Sources: BBS (2010), MOF (2011) and World Bank (1981)

Figure 3.4: Poverty (HCR) and Sector-wise Disaggregated ADP Expenditure (%)
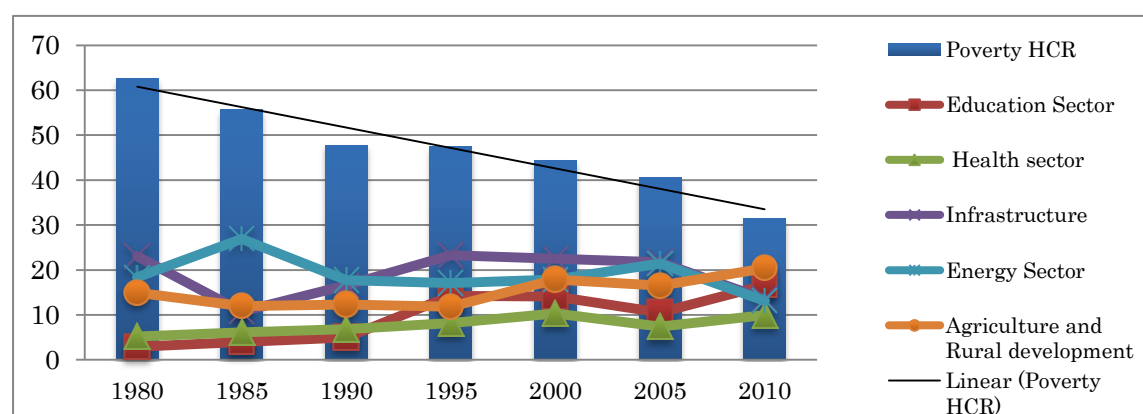
Sources: BBS (2010), MOF (2011) and World Bank (1981)

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[7] ADP stands for Annual Development Plan and almost all development expenditures in Bangladesh occur under this plan.

3.3 Poverty

3.3.1 Methodology of Poverty Estimation[8]

Before starting to report about the level of poverty, it seems logical to describe the official methodology utilized in Bangladesh for setting up the poverty lines. Various methods are available and used while there is no fixed and universal consensus on the prevalence of poverty. However, in the context of a developing country like Bangladesh the Cost of Basic Needs (CBN) Estimate has some advantages over other methods and is utilized (BBS, 2010). CBN is a fundamental tool that considers the cost of a certain fixed bundle of different normative food items necessary to fulfill the minimum daily requirement of 2112 kilocalories per person. According to this method, an individual household is considered as poor if its per capita expenditure falls below a certain poverty line. In other words, estimating with the CBN method, poverty lines indicate the level of per capita spending at which members of the households have to maintain basic requirements including food and non-food consumptions. The next sub-section puts forth a brief description about the CBN method and presents various poverty data on the basis of some important socioeconomic characteristics of the population in Bangladesh.

- *Cost of Basic Needs (CBN) Method*

The current study deliberately followed the prescribed estimation technique of Bangladesh Bureau of Statistics (BBS) to define the poverty lines and trends. As reported in BBS (2010), making comparisons of poverty rates for a given time interval requires that CBN poverty lines for different years are defined in real terms. The process is simple and straight forward. At first, the CBN poverty lines are estimated for a certain base year (for this thesis 2005 is used as the base year) and then matched to the target year (2010) through using a price index to capture the impacts of various price changes.

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[8] This section heavily followed BBS (2010) that was published by Bangladesh Bureau of Statistics, BBS

Regarding the spatial variation in poverty trends, poverty lines were estimated at a disaggregated level considering that cost of living/prices of basic goods and services may vary among different areas or localities in Bangladesh. In order to confirm that poverty lines are correctly estimated, BBS (2010) divided the country into 16 different geographical areas (10 urban and 6 rural) or strata in their survey. The process for estimating the regional CBN poverty lines is described below.

Constructing Consumption Aggregates. All food and non-food expenditures (except for taxes and fees, and lumpy expenditures) were summed up in calculating household consumption expenditures. A regression formula where the (log of) reported rents were regressed against a set of housing characteristics, and (log of) per capita income.

Estimating Base Year (CBN) Poverty Lines. The base year was estimated following three steps. First, following Ravallion and Sen (1996) and based on Alamgir (1974), the cost of a fixed food bundle consisting of a set of eleven basic food items such as rice, wheat, pulses, milk, oil, meat, fish, potato, other vegetables, sugar, and fruits were estimated. The price for each item (unit price) in the bundle was measured separately for each of the 16 strata or geographic areas and was based on prices reported by a reference group of households. The prices were multiplied with the quantities in the food bundle in order to compute the food poverty line. In the second step, two non-food allowances namely the *lower non-food allowance* and the *upper non-food allowance* for the non-food consumption have been entailed. Finally, in the third step the lower and upper non-food allowances have been added to the food poverty lines in order to yield the total lower and upper poverty lines for each of the 16 geographical areas.

Updating Poverty Lines. After the base year (2005) CBN food poverty lines were determined then they were updated to the target year's (2010) prices in order to capture the effects of changes in cost-of-living. The food price information available in the Household

Income and Expenditure Survey (HIES-2010) data was utilized to derive the necessary price indices. The food poverty line of 2005 was first updated with this food price index. Later the nonfood poverty line was re-estimated using CBN method to account for the changes in nonfood-food ratios.

3.3.2 Describing Poverty Trends

- *Trends in the Aggregate Level*

We present the trends of poverty (i.e. Poverty Head Count Rates of Incidence, HCR) estimated on the basis of the preceding methodology in a regional basis. HCR of national, rural and urban areas are listed from 1991/92 to 2010 in two broad categories of upper and lower poverty lines (please see Table 3.5 and Figure 3.5). A comparison of long-term poverty trends in Bangladesh shows a remarkable progress.

Using the upper poverty line the latest survey of 2010 estimated that HCRs are 31.5 percent in national level, 35.2 percent for rural areas and 21.3 percent in urban areas whilst in 2005 these rates were recorded at 40.0 percent, 43.8 percent, and 28.4 percent respectively. These are indicative to a clear reduction of HCR by 8.5 percentage points in national level, 8.6 percentage points in rural areas, and 7.1 percentage points for urban people within these five years. Compared to poverty HCR in 1985 and 1991/92 of 55.7 percent and 56.7 percent respectively, in 2010 the rate was less than 25.2 percent. Hence, poverty HCR in Bangladesh has been reduced by more than 1.5 percentage points annually since the mid-1980s.

On the other hand, using the lower poverty line the HCR of incidence of poverty in 2010 is estimated at 17.6 percent, 21.1 percent, and 7.7 percent in national, rural, and urban areas respectively. These rates were 25.1 percent, 28.6 percent, and 14.6 percent in 2005. Thus, the alleviation rates of poverty were 7.5 percent in national level, 7.5 percent in rural areas, and 6.9 percent in urban level. Measuring by the lower poverty line, the country was able to

reduce national level HCR by more than half of that was prevailed in 1991/92 within the last two decades. According to some opponents, it seems that the pace and rate of poverty alleviation in Bangladesh are considerably lower than that of some high-performing East and South-East Asian countries (Westergaard and Hossain, 2000). However, some other scholars like Siddiqui (2000) think that it is an impressive and commendable achievement of the country especially if considered from the viewpoint of a decade-long slow and stagnated growth records of the domestic economy after Independence

Figure 3.5: Poverty Head Count Rates Estimated by the CBN Method (1991-92 to 2010)
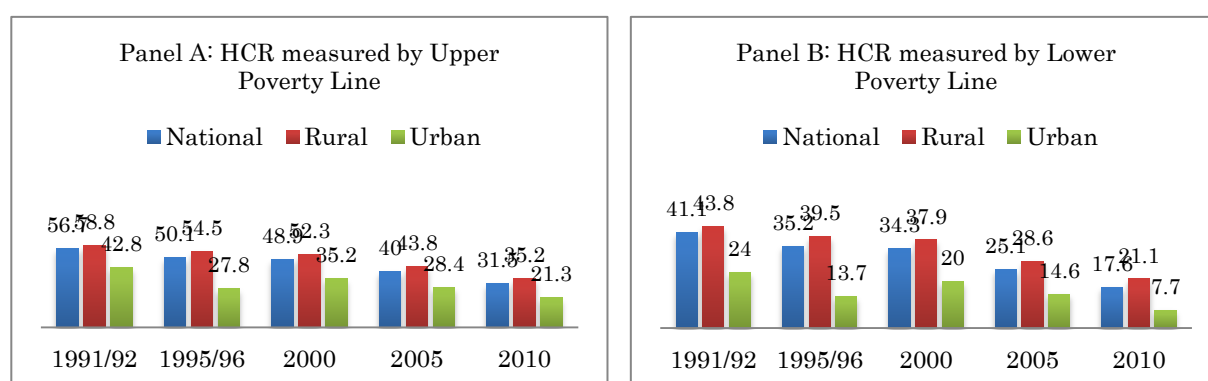
Source: GOB (2011)

- *Spatial Variation in Poverty and Poverty Gaps*

Explaining from the viewpoint of division-wise spatial estimates of poverty HCR and measuring by the upper poverty line, latest data indicates that the newly established Rangpur division has the highest rate of poverty (HCR) at 46.2 percent, followed by Barisal division at 39.4 percent, Rajshahi division at 35.7 percent, and Khulna division at 32.1 percent. On the contrary, Chittagong division ranks to have the lowest HCR of poverty incidence in the country at 26.2 percent followed by Sylhet division at 28.1 percent and Dhaka division at 30.5 percent. On the other side, if the lower poverty line is used, the estimates of HCR incidence show that Chittagong division has the lowest poverty incidence at 13.1 percent. Khulna division and Dhaka division follow it with HCRs of 15.4 percent and 15.6 percent

respectively.

As compared to 2005 data and using the scale of upper poverty line, Rajshahi division achieved the highest reduction of poverty and Khulna, Barisal, and Chittagong divisions followed it. But seeing from the prism of lower poverty line estimate, the highest reduction of poverty HCR occurred in Khulna division and Barisal division ranks next to it. Unfortunately Sylhet division experienced almost no change in poverty incidence within the previous five years. More interestingly throughout all the seven divisions the reduction of HCR of poverty in Bangladesh is featured by a common characteristic—a sharp and significant improvement of poverty mainly in urban areas.

Table 3.5: Divisional Poverty Head Count Rate Measured by Cost of Basic Needs Method

	2010			2005		
	National level	Rural level	Urban level	National level	Rural level	Urban level
1. Measured by the Lower Poverty Line						
National	17.6	21.1	7.7	25.1	28.6	14.6
Barisal Division	26.7	27.3	24.2	35.6	37.2	26.4
Chittagong Division	13.1	16.2	4.0	16.1	18.7	8.1
Dhaka Division	15.6	23.5	3.8	19.9	26.1	9.6
Khulna Division	15.4	15.2	16.4	31.6	32.7	27.8
Rajshahi Division	21.6	22.7	15.6	34.5	35.6	28.4
Rangpur Division	30.1	30.8	24.0	….	….	….
Sylhet Division	20.7	23.5	5.5	20.8	22.3	11.0
2. Measured by the Upper Poverty Line						
National	31.5	35.2	21.3	40.0	43.8	28.4
Barisal Division	39.4	39.2	39.9	52.0	54.1	40.4
Chittagong Division	26.2	31.0	11.8	34.0	36.0	27.8
Dhaka Division	30.5	38.8	18.0	32.0	39.0	20.2
Khulna Division	32.1	31.0	35.8	45.7	46.5	43.2
Rajshahi Division	35.7	36.6	30.7	51.2	52.3	45.2
Rangpur Division	46.2	47.2	37.0	….	….	….
Sylhet Division	28.1	30.5	15.0	33.8	36.1	18.6

Source: GOB (2010)

According to World Bank (2002a), in Bangladesh poverty trends seem to maintain a robust relationship with the choice of poverty estimates. The HCR of poverty measures only the percentage value of poverty incidence and unfortunately it does not say anything about the

distance of the poor households from the estimated poverty lines. To overcome this problem and to measure the depth of poverty accurately we need to employ two important tools—Poverty Gap (PG) Index and Squared Poverty Gap (SPG) Index. This pair of distributional sensitive techniques is capable to appropriately estimate the depth of poverty in the population by closely tracking the movement in the headcount ratios. Considering the fact that differences in income or consumption between the poor and the poorest group have an important implication for the poverty reality in Bangladesh, the present study reports about the PG and SPG indices estimated by Cost of Basic Needs method using the scales of lower and upper poverty lines, and are presented next (see Table 3.6).

Household Income and Expenditure Survey Data of 2010 report significant improvement of poverty gap in Bangladesh. By 2010 using the lower poverty line scale, national level Poverty Gap is measured at 3.1 percent and since 2005 it has experienced a record reduction of 1.5 percentage points. Similarly for the scale of upper poverty line, Poverty Gap index has reduced by 2.5 percentage points over the same time interval. Calculating by the lower poverty line PG index was 4.6 in 205. PG index using upper poverty line was 6.5 and 9.0 for 2010 and 2005 respectively. Spatial variation of Poverty Gap has also decreased for all the seven divisions.

The estimation technique of Squared Poverty Gap (SPG) is used to measure the severity of poverty. The Foster-Greer-Thorbecke (FGT) Poverty Measure is utilized in this study to estimate poverty gap as well as squared poverty gap indices for both the lower and upper poverty lines[9]. According to HIES and by lower poverty line, national level SPG indices have been recorded at 0.8 percent in 2010 and 1.3 percent in 2005. The values have appeared to be 2.0 percent and 2.9 percent if measured using the upper poverty line. This along with division

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[9] The proper formula for this method is $P_\alpha = \frac{1}{n} \sum_{i=1}^{q} (\frac{z-y_i}{z})^\alpha$; where z indicates poverty line, y_i is the ith lowest income, n is for total number of population, q is indicating the number of poor people, and $\alpha \geq 0$ represents a poverty aversion parameter.

level SPG data for Bangladesh implies a notable reduction in severity of poverty during the said period.

Table 3.6: Estimated Poverty Gap and Squared Poverty Gap measured by CBN Method

	Poverty Gap, PG			Squared Poverty Gap, SPG		
	National level	Rural level	Urban level	National level	Rural level	Urban level
For year 2010						
1. Measured by the Lower Poverty Line scale						
National	3.1	3.7	1.3	0.8	1.0	0.4
Barisal Division	5.4	5.4	5.2	1.6	1.6	1.7
Chittagong Division	2.2	2.7	0.8	0.6	0.7	0.2
Dhaka Division	2.7	4.1	0.5	0.7	1.1	0.1
Khulna Division	2.7	2.7	2.6	0.8	0.8	0.7
Rajshahi Division	2.8	2.9	2.3	0.7	0.7	0.6
Rangpur Division	5.5	5.6	4.0	1.4	1.4	1.0
Sylhet Division	3.3	3.7	1.2	0.9	1.0	0.4
2. Measured by the Upper Poverty Linescale						
National	6.5	7.4	4.3	2.0	2.2	1.3
Barisal Division	9.8	9.2	12.6	3.4	3.0	5.2
Chittagong Division	5.1	6.1	2.1	1.5	1.8	0.6
Dhaka Division	6.2	8.1	3.3	1.8	2.4	0.9
Khulna Division	6.4	6.1	7.4	2.0	1.9	2.3
Rajshahi Division	6.2	6.4	5.6	1.9	1.9	1.7
Rangpur Division	11.0	11.3	8.6	3.5	3.6	2.7
Sylhet Division	4.7	5.0	2.7	1.3	1.3	0.9
For year 2005						
1. Measured by the Lower Poverty Line scale						
National	4.6	5.3	2.6	1.3	1.5	0.7
Barisal Division	9.1	9.6	6.4	3.3	3.4	2.6
Chittagong Division	2.2	2.7	0.9	0.5	0.6	0.2
Dhaka Division	3.6	4.9	1.5	1.0	1.4	0.3
Khulna Division	6.2	6.3	5.5	1.7	1.7	1.7
Rajshahi Division	6.4	6.5	5.5	1.8	1.8	1.6
Sylhet Division	3.4	3.7	1.9	0.8	0.8	0.5
2. Measured by the Upper Poverty Line scale						
National	9.0	9.8	6.5	2.9	3.1	0.7
Barisal Division	15.5	16.3	10.7	6.3	6.6	2.6
Chittagong Division	6.3	6.5	5.6	1.7	1.7	0.2
Dhaka Division	6.9	8.6	4.0	2.1	2.7	0.3
Khulna Division	10.8	10.4	12.3	3.5	3.2	1.7
Rajshahi Division	11.9	12.0	11.4	3.8	3.8	1.6
Sylhet Division	7.2	7.6	4.5	2.1	2.1	0.5

Source: GOB, 2010

3.3.3 Inequality Issues

Income inequality was reported to be high in Bangladesh and has been deteriorated according to available data during the period of 1995-2010. Total Gini coefficients were measured to be 0.432, 0.451, 0.467, and 0.458 for 1995, 2000, 2005, and 2010 respectively. While income inequality within rural households have been increasing continuously from 0.385 in 1995 to 0.393 in 2000 to 0.428 in 2005 to 0.430 in 2010, urban households saw income inequality fluctuations as Gini indices increased from 0.444 in 1995 to 0.497 in 2000, then stagnated and finally decreased to 0.452 in 2010. Distribution of income to the lower 5% of population declined from 0.88 percent of GDP in 1995 to 0.78 percent in 2010. Combined share of income accrued to the lower 20 percent of the population also decreased from 5.71 percent in 1995 to 5.22 percent in 2010. Similarly the situation of income distribution for lower 20 percent of the population in both rural and urban areas also experienced a negative shift.

Table 3.7: Percentage Distribution of Income and Gini Co-Efficient

Household Income Group	2010			2005			2000			1995		
	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban
National	100	100	100	100	100	100	100	100	100	100	100	100
Lower 5%	0.78	0.88	0.76	0.77	0.88	0.67	0.93	1.07	0.79	0.88	1.00	0.74
Decile 1	2.00	2.23	1.98	2.00	2.25	1.80	2.41	2.80	2.02	2.24	2.56	1.92
Decile 2	3.22	3.53	3.09	3.26	3.63	3.02	3.76	4.31	3.07	3.47	3.93	3.20
Decile 3	4.10	4.49	3.95	4.10	4.54	3.87	4.57	5.25	3.84	4.46	4.97	4.06
Decile 4	5.00	5.43	5.01	5.00	5.42	4.61	5.22	5.95	4.68	5.37	5.97	4.98
Decile 5	6.01	6.43	6.31	5.96	6.43	5.66	6.10	6.84	5.60	6.35	6.98	5.97
Decile 6	7.32	7.65	7.64	7.17	7.63	6.78	7.09	7.88	6.74	7.53	8.16	7.20
Decile 7	9.06	9.31	9.30	8.73	9.27	8.53	8.45	9.09	8.24	9.15	9.75	8.98
Decile 8	11.50	11.50	11.87	11.06	11.49	10.18	10.39	10.97	10.46	11.35	11.87	11.35
Decile 9	15.94	15.54	16.08	15.07	15.43	14.48	14.00	14.09	14.04	15.40	15.58	16.29
Decile 10	35.84	33.89	34.77	37.64	33.92	41.08	38.01	32.81	41.32	34.68	30.32	36.05
Top 5%	24.61	22.93	23.39	26.93	23.03	30.37	28.34	23.52	31.32	23.62	19.73	24.30
Gini Index	0.458	0.430	0.452	0.467	0.428	0.497	0.451	0.393	0.497	0.432	0.385	0.444

Source: BBS, HIES-2005 and 2010; Dev et al. (2008)

3.3.4 Welfare Impacts of Inflation and Changes in Poverty Data

High price inflation can wipe out part of the income of poor households and reduce the value of their real wages. In addition, persistent food price inflation leads to a decline of consumption by poor people because they live on a fixed daily income, of which a disproportionally large share is spent to buy food items only, and they do not possess any alternative to compensate this income loss. Moreover, households that currently live just above the poverty line may fall into poverty as a result of food price increases. It was estimated that in Bangladesh there is a high concentration of households around the poverty line and this coupled with a high food price inflation bears the risk of movements into poverty even by the middle income households.

Literature suggests two types of effects from food price inflation in Bangladesh namely *First Round Effects* and *Second Round Effects*. Whilst in the case of the First Round Effects, poverty impact is determined exclusively by the marketing position of a household, the Second Round Effects track the reactions and behavioral adjustments made by consumers and producers after a price change.

Literature also suggests two measures: *Equivalent Variation (EV)* and *Compensating Variation (CV)* that could be used to estimate the welfare effects of high food inflation. The EV measure is based on production and consumption outcomes at previous prices and is ex-ante in nature, the CV technique on a contrary, relies on production and consumption outcomes after the price change has occurred in the economy. For this study we followed the CV method to calculate the changes in HCR.

The results are presented in a table below. The first-order impacts increase the national level HCR by 6 percentage points using the upper poverty line and 7 percentage points for the lower poverty line. On the other hand, the increment in HCR based on upper poverty line is 6

percentage points in urban areas while it is reported to be 5 percentage points in rural areas. The poverty gap for the entire sample increases from 0.35 to 0.41 for upper poverty line and from 0.25 to 0.32 for the lower poverty line.

Within Bangladesh there are significant impact variations of food inflation on HCR among regions as some divisions suffer from high vulnerability imposed by a larger first order impact on poverty and a smaller partial reversal through second round responses. Estimation results showed that the largest first order impact of an increase of 7 percentage points (upper poverty line) and 8 percentage points (lower poverty line) in HCR can be found in Chittagong division while the smallest change of 4 percentage points increase (by upper poverty line) and 5 percentage points (by lower poverty line) is observed in Khulna, Rajshahi, and Sylhet divisions. Using the upper poverty line both Dhaka and Barisal divisions have an increase of 6 percentage points in HCR but for the lower poverty line they got an increase of 7 percentage points and 8 percentage points respectively. It is also notable that a second round reversal response of 2 percentage points is found in the divisions of Chittagong, Dhaka, and Khulna for the upper poverty line while these values are 2 percentage points, 1 percentage point and 2 percentage points respectively for the lower poverty line. Both Rajshahi and Sylhet got a second order reversal response of 3 percentage points using the upper poverty line but the shares are 2 percentage points and 1 percentage point if the lower poverty line is considered. On the other hand, the remaining Barisal division had a decline of 1 percentage point and 2 percentage points in HCR using the upper and lower poverty lines respectively.

Table 3.8: Change in Poverty Headcount Ratio from Base Expenditure Data

District	Changes in HCR (upper poverty line)		Changes in HCR (lower poverty line)	
	With only first-round effects	With both first- and second-round effects	With only first-round effects	With both first- and second-round effects
Barisal	+.06	+.05	+.08	+.06
Chittagong	+.07	+.05	+.08	+.06
Dhaka	+.06	+.04	+.07	+.06
Khulna	+.04	+.02	+.05	+.03
Rajshahi	+.04	+.01	+.05	+.03
Sylhet	+.04	+.01	+.07	+.06
Rural	+.05	+.03	+.07	+.05
Urban	+.06	+.05	+.07	+.06
National	+.05	+.03	+.07	+.05

Source: GOB (2010)

3.4 Conclusion

In order to fight poverty by causing growth in GDP and creating more employment opportunities, public expenditure in important economic as well as social sectors in Bangladesh were emphasized. Cost-effective poverty reduction programs were implemented and more government spending in a provision of public goods for pro-poor sectors that are relevant to human and income poverty (education and health sectors) were achieved side by side. However, public expenditure in these sectors appeared to be skewed to rich people mainly and poor people do not get their proper share in resources spent by the State. For the highlighted sectors, poor people get comparatively less than the richer group of the population and they also receive lower absolute amounts.

Measuring poverty is a complex task because there is no universally accepted poverty measurement tool. Therefore, the level of poverty depends on the estimation technique used. Bangladesh utilizes the Cost of Basic Needs (CBN) method to report poverty data. Aggregate level trends of poverty in a regional basis estimated by the Poverty Head Count Ratio (HCR) shows a remarkable progress in the country. Data for spatial variation in poverty and poverty gaps indices (i.e. Poverty Gap as well as Squared Poverty Gap Indices to check severity of

poverty) also indicate improvement to some extent. However, seeing from the prism of current trends and levels, it has been seen that in Bangladesh millions of people in all seven divisions still suffer from the curse of rampant poverty. Official data does not show the real poverty situation in Bangladesh because the trends in poverty maintain a strong relationship with the choice of the estimation technique. It was revealed that a big portion of middle income households in the country who are counted originally as non-poor bears the risk of movement into poverty if the impacts of high inflation rates are included (BBS, 2011).

The reasons of poverty are many. The micro level framework of demand and supply that we follow for the present study indicate that low rate of wages, lack of employment and insufficient household incomes are the fundamental reasons behind poverty in Bangladesh. In the next chapter we discuss this issue broadly by utilizing a schematic diagram which shows the linkages among poverty reduction, public expenditure, economic growth, employment, and wages in a Bangladesh perspective.

Review of Literature

4.1 Introduction

In this chapter we make efforts to review the essence of a number of fundamental public expenditure theories to realize the contribution of public expenditure to an economy. The chapter also describes the pattern and levels of such expenditure in developing countries in general and in the context of Bangladesh in particular while the country is struggling to maintain optimal growth using its limited and often declining resources. The chapter next makes a link between public expenditure, employment, wages and poverty in Bangladesh where we point out the impact of government spending on the economy by utilizing a schematic diagram. Two types of quantity effects of public expenditure from the viewpoints of firm and household perspectives are also discussed. At last in the empirical literature part we present various findings of previous researchers in the field of public expenditure, growth, and poverty. Main findings of this chapter will be summarized and addressed in the last section as a conclusion.

4.2. Public Expenditure Theories

- *Public Expenditure Definition and Classification*

Public expenditure refers to spending by the government of a country incurred in central, State, or local levels of administration. But formally, the definition of public expenditure is: It is the kind of expenditure incurred by the public authorities of a country such as the central, State or a local government to satisfy the collective social needs and demands of the people.[10]

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[10] Source: http://kalyan-city.blogspot.jp/2011/02/what-is-public-expenditure-meaning-and.html

In general public expenditure can be classified in various ways: functional expenditure, revenue and capital expenditure, transfer and non-transfer expenditure, productive and non-productive expenditure, development and non-development expenditure, grant and purchase prices, and classification according to benefits etc. Only some of them will be discussed here.

Public expenditure can be represented by two broad categories of government activity namely exhaustive expenditure and transfer expenditure. Exhaustive expenditure refers to government's spending for purchasing current goods and services as well as capital goods and services. British economist A.C. Pigou classified public expenditure as transfer and non-transfer expenditure. Transfer expenditure refers to expenses that have no corresponding return for the government but improves society's aggregate welfare. Such expenditure includes interest payments, pension schemes for senior people, unemployment allowances etc. Besides, non-transfer expenditure implies government's spending that creates some outputs directly or indirectly. Examples of such spending include government's incurred expenses for economic infrastructure like power, transport and irrigation etc.

Accounting components of public expenditure correspond to current and capital expenditures. Spending on wages and salaries for government employees, supplies and services and so on are current expenditures. On the other hand, capital expenditure is necessarily important for building of durable assets like investment in irrigation projects and dams, roads and highways, and airports etc. (Bailey, 2002; Heller and Diamond, 1990).

Government of a country needs to allocate resources in performing various functions like defense, social welfare, infrastructure building, industrial development and agriculture. Spending for such sectors is known as functional expenditure. Revenue expenditures are

current or consumption expenditure needed in a year after year basis for various sectors of the economy like defense forces, health and education, and general public administration etc.

Classical economists, on the other hand, categorize public expenditure on the basis of creating productive capacity in the economy. These are productive and non-productive expenditures. Productive expenditure is public spending in infrastructure development and development of agriculture sector etc. Unproductive expenditure does not create any productive asset such as spending for administrative expenses of the government, spending for defense etc. Modern economists term the above two items as development expenditure and non-development expenditure.

- *Two General Schools of Thoughts Regarding Public Expenditure[11]*

Literature suggests two opposite theories related to public expenditure namely the *Wagner's Law and the Keynes' view*. The earlier one is advocated by economist Adolph Wagner who thinks that economic growth helps expanding public expenditure and government intervention in the economy. The other one is the Keynes view which postulates that greater expenditure in the public sector leads to higher economic growth of a country.

A positive correlation between public expenditure and economic growth exists and German economist Adolph Wagner, at first, recognizes this relationship. In the literature his thoughts are referred to as 'Wagner's Law of increasing expansion of public and particularly State activities' or the 'Law of increasing expansion of fiscal requirements'. According to the essences of the law of Wagner, economic growth serves as a catalyst in expanding the role and activities of the government (Wagner, 1883).

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[11] Keynes view and Wagner's law indicate completely reverse conclusion to each other for the correlation between government expenditure and growth of the economy.

The theory of Wagner is established upon the pillars of a list of three factors. The first pillar is related to an expansion of State activities for more administrative and protective interventions in the economy. Wagner propounds that as the economy grows public sector will take over many functions that are currently performed by the private sector. Secondly, the provision of social and cultural goods and services enormously improves both in quality and quantity as the economy rises. Finally, along with economic growth the society maintains a greater demand for government intervention in an act of better management practices in natural monopolies. In the same time government's role in maintaining well-functioning market forces also becomes more important (Bird, 1971).

Works done by Keynes, *vis-à-vis*, formulates that economic growth occurs as a result of rising public sector expenditure. According to Keynes' view, government spending or public expenditure is an independent exogenous variable in explaining economic growth. Therefore, it can be used as an efficient instrument in formulating growth policies for a developing country perspective. Many empirical works were done to find supporting evidences for this theory. To give one example, Ansari et al (1997) finds an evidence of positive correlation between public expenditure and economic growth in an extensive study done on four economies of Asia: Singapore, Malaysia, the Philippines and Thailand.

- *Public Expenditure Theory of Various State Forms*

This theory provides a rationale for public expenditure in various development stages of a country. Valentino (2001) suggests a framework which reports that public expenditure can be explained from the view point of three models of development stages in an economy. These are namely the nominal state, the welfare state, and the development state. Each of the models categorizes, *prima-facie,* government expenditure in accordance with macroeconomic function of the economy.

First of all, in the nominal or the night watchman state the government merely provides security and protection to its citizens from coercion, fraud and theft, and foreign intervention. The State limits its functions in spending for providing police, judicial systems and prisons in an attempt to compensate for victims and punish criminals. The State also spends for military purposes to protect its citizens from foreign danger and international threats.

The next is the welfare state where the government takes responsibility in State actions to conform the providence of security for its citizens and also provides them with goods like education, housing, healthcare, insurance, sick leave, supplemental income, and equal wages.

Finally, the third stage is the development state or the hard state. In this stage the State maintains sovereign control on the economy after providing protection and security. The government is politically independent to take any decision regarding public expenditure and intervention. It also has the ability to impose extensive regulating and planning decisions. In this regard, government takes entire responsibility of economic growth and development. In order to foster higher production and more income for the citizens the State also allocates its resources to build infrastructure and to support businesses and firms.

- *The Theory of Public Choice*

This theory is also known as Down's theory and it provides an interesting framework to explain public expenditure in developing countries. The theory was emerged in an attempt by Anthony Downs who recognizes the importance of the political systems in revealing preferences of citizens regarding public spending and interventions. The theory claims that in a developing country context government will provide what voters want and not necessarily what is beneficial for the economy in the long run. Government's main focus is spending money to attract more people in a course of re-election in the future. To do so, it takes even very risky decisions that are harmful for the country after a certain period.

4.3 The Link among Public Expenditure, Economic growth and Poverty

This section reviews the link between public expenditure and poverty reduction in developing countries like Bangladesh from the view point of income growth, employment and wages. From previous discussion regarding trends in public expenditure and state of poverty in Bangladesh, clearly there is an opposite relation between these two. Whilst public expenditure is rising in the long run, poverty is falling in Bangladesh. However, the link between public expenditure and poverty comes through some other intermediate factors that also contribute in reducing poverty. Growth in income, employment and wages are three such channels in the case of Bangladesh. In the economy effective and efficient public expenditure bears special importance as it helps to reduce poverty and inequalities in income distribution among various groups. By accelerating the economy it also creates employment opportunities for poor people (Gaurav, 2011).

It is acknowledged universally that a higher and sustained economic growth is necessary in reducing poverty. But growth alone is not sufficient. Literature suggests evidences that there are countries that maintained high growth but were not successful in reducing poverty. On the contrary, higher employment intensity of economic growth is a must to reduce severe poverty in developing countries. Therefore, employment serves as a key factor to make a link between economic growth and poverty reduction (Islam, 2001; Islam 2004; Islam 2007).

Public expenditure has two broad categories of impacts on an economy: effects on macroeconomic indicators and the microeconomic effects. Theoretically, as it has been hinted in an earlier part, public expenditure and poverty are linked through three basic macroeconomic channels: growth in GDP, employment, and wages. In Keynesian models, in an economy investment in public spheres by the government affects the level of national income through its effect on aggregate demand. Public expenditure increases aggregate

demand in developing countries by raising people's income and productivity. It also increases

demand for labor and creates more employment opportunities within the economy. Higher

level of employment and productivity not only accelerates economic growth which finally

can raise public expenditure but also increases wages and reduces poverty in the same time

(Islam, 2007 cited in Hassan, 2007). The link is put in a schematic diagram as below.

Figure 4.1: The Link among Public Expenditure, Growth, Employment and Wages
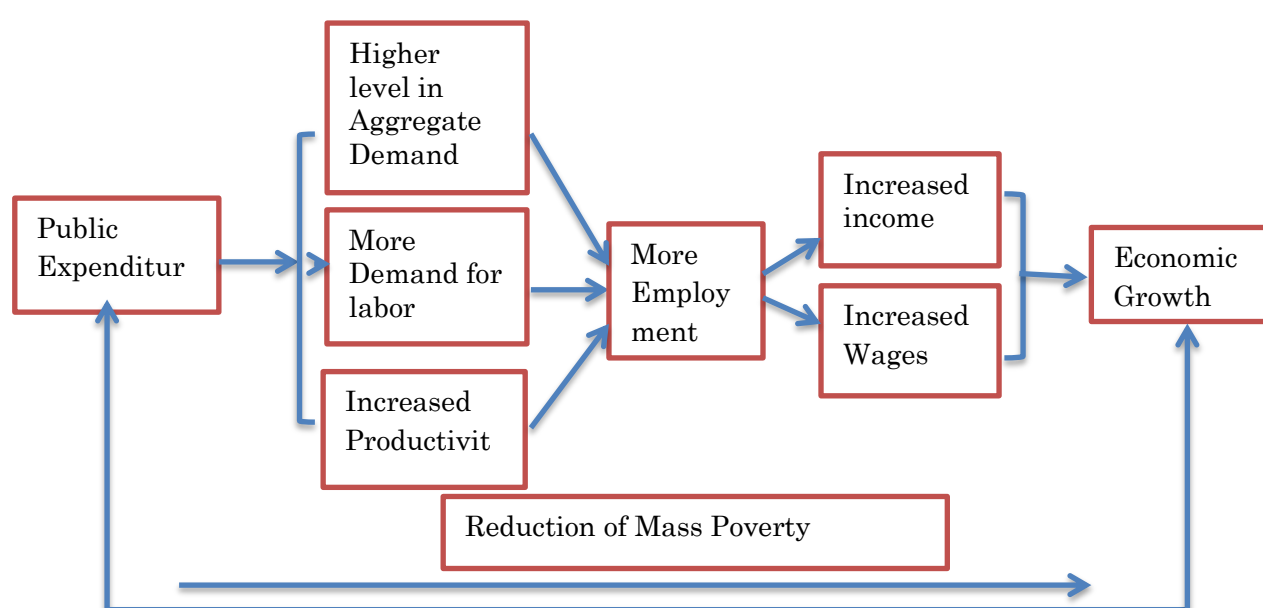
Source: Diagram drawn by author based on information found in Hassan (2007)

Many researchers including Khan (2001, 2004 and 2005) and Islam (2003 and 2004) have

studied the nexus between poverty reduction and the three variables: growth, wage, and

employment that have been discussed above in this chapter. In a study termed as 'Promoting

Employment for Poverty Reduction' conducted under the ILO-UNDP support program Khan

(2005) finds a correlation between public expenditure, growth, and poverty in developing

countries. The study concludes that public expenditure stimulates GDP growth, which

ultimately reduces poverty by creating new employment opportunities and via raising

national wages.

Thinking from the viewpoint of generic reasons of poverty in Bangladesh, scholars and researchers examined the linkages among economic growth, employment, and poverty reduction. Research outcomes presented a micro level framework of demand and supply to indicate the role of wages, employment and the labor market in explaining poverty and reasons that create poverty. It was pointed out that on the demand side of the economy, less productivity of workforce causes low demand for labor which eventually affects households' income and wages negatively to raise their probability of being poor. In this connection, the type of present economic activities, features of the labor market, and employment structure provide useful information in explaining it. On the supply side, constrains such as lack of adequate skills and/or education as well as low intention to participate in the labor force limit the ability of poor people to be integrated into the growth endeavors. Moreover, their inability to create jobs due to their low access to capital and productive assets pushes them fall in poverty (Medhi, Chamnivickorn and Nitithanprapas, 2006).

4.4 Impacts of Public Expenditure

According to the new economic geography models by Fujita et al. (2001), public expenditure can make a roadway to economic growth and poverty reduction through better domestic transport and communication infrastructure. Edward, Paolo and Stephanie (2006) indicates that there are two paths to follow. Firstly, in this process average income in the economy experiences a one-off boost. In a new environment with more public spending and intervention lower transport cost allows firms raise their profit and become able and willing to pay more wages to their employees. Secondly, labor and other resources tend move to a core region where (because of increasing returns of scale) labor productivity is higher. By driving such a cumulative process public expenditure in transport and communication can cause higher economic growth for some years, if not decades. Empirical works by Easterly and Rebelo (1993) and Milbourne et al. (2003) support the above mentioned hypothesis.

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However, according to the said model, the impacts of public expenditure rely on some other factors such as the kind and the amount of expenditure. The economic context in which spending occurs and the initial stock of capital in the economy are two other crucial factors. The sources of public investment and expenditure are also significantly important from the view point of financing. If the resources are obtained from domestic borrowing then, although the fact that any kind of public investment can increase returns of private investment, increased public expenditure can crowd-out private investment by increasing interest rates. On the other hand, if public investment funds are financed from external sources like overseas aid or borrowing from foreign countries it can appreciate the real exchange rate and reduce competitiveness in the economy.

One of the main objectives of public expenditure is to increase the quality and/or quantity of public goods. Edward, Paolo and Stephanie (2006) provides two types of quantity effects of public expenditure from the perspectives of two core sectors of any economy: firms and households.

The first is related to a firm and is termed as the quantity effects of public investment on firms. It assumes that different types of public capitals are effectively fixed. But the firm has entire control on the amount of other resources that are needed in the production processes: labor, capital and other inputs. Then the profit function of an individual firm is written as follows: $\pi_i = f(p_i, G_k, X_j)$ .... (4.3)

where π_i indicates profit made by the firm i; p_i is the prices of various products used and produced by the firm, G_k refers to different public capitals to which the firm has access, and X_j implies other factors that affect the profit amount of the firm. The impact of investment financed by government spending on an individual firm is given by $d\pi_i/dG_k$. Because of the

law of diminishing returns, this effect can rely on the initial amount of public capital and be varied across different sectors of the economy.

The second effect is called the quantity effect of public expenditure on household which indicates that much public investment in productive or social sectors provides direct welfare benefits to households. In an attempt to analyze this hypothesis the following equation of household utility function can be used: $V_h = f(m_h, p_j, Z_k)$………………………………..4.4
For this above equation V_h, m_h, p_j, Z_k represent respectively the utility, disposable income, prices of other goods and services consumed, and the provision of various public goods and services consumed by household h. The direct household welfare impact of various public expenditures can be put mathematically by dV_h/dZ_k. This effect does rely on diminishing marginal utility and household preferences for various public goods.

In developing country contexts an extent of changing prices of various market goods and services has tremendous impact on firms and poor households. It is because the fact that public goods and services provided by the government can be either a substitute or a complement to other goods and services consumed by a household. Moreover, sometimes the goods and services provided by the State are not pure public goods and instead they contribute to achieve efficient private sector production. Returning back to the household utility function equation, it can be shown that the effect can be measured as dV_h/dp_j. The effect is greater if the household's consumption amount of the goods whose price has been changed is relatively larger and/or if it is difficult for the household to substitute consumption away from the said goods. Therefore, especially price effect of public expenditure attracts additional considerations in poverty reduction impacts of public expenditure in a poor society of many developing countries.

4.5 Review of Empirical Literature and Previous Research findings

The effect of government expenditure on economic growth has been examined by many researchers. Their findings suggest that the doctrine of State non-intervention, self-correcting mechanism of an economic system that the classical economists believe is appeared to have failed because it was observed that public expenditure has risen vastly in absolute terms in countries throughout the world. For an instance, Musgrave (1989) and Bailey (2002) claim that even after making allowances for population and price changes, it is found that public expenditure at all levels of government rose over a long period of time. Economist Rostow infers that public expenditure increases as an economy reaches maturity stage and a shift from expenditures on infrastructure to increasing expenditures on education, health and welfare services is appeared. However, there is a long lasting and unresolved debate in explaining the influences of a rise in public expenditure on economic growth and the fact is that whether it could lead to higher growth or not to the contexts of developing countries is still a controversy in the literature.

There are also some researchers who made efforts to check the relationship between public expenditure and some other factors that influence poverty indirectly rather than establishing a direct linkage between them. Foster and Mijumbi (2002), Appleton (2001a and b), Deininger and Okidi (2003) are some of them. While Foster and Mijumbi (2002) focused their research on the relation between public expenditure and government's performance on budget implementation in a list of developing countries, Appleton (2001a and b) investigated the dynamics in poverty changes outcomes. Deininger and Okidi (2003) performed a study to empirically analyze the impact of public expenditure in education, health, and infrastructure on income growth of farmers. They also checked the poverty mitigating effects of public expenditure through these channels.

Robert Barro for the first time was able to formally endogenize government spending in a growth model. Barro (1990) also successfully analyzed the relationship between size of government in term of expenditure as a share of GDP and rates of economic as well as savings growth for a economy. The baseline findings of this study turned a conclusion that spending more public resources is correlated with lower per capita growth when they are devoted to non-productive but possibly utility enhancing government services (Fan, Yu, and Somchai, 2008).

Fiscal policy and government spending are two important aspects in explaining future economic growth of a country which is in a transition stage. After examining the effect of government's consumption expenditure on growth of real output for a sample of 96 developing countries worldwide, Laudau (1983) discovered and came to a conclusion that economic growth is negatively affected by public expenditure.

Taking Thailand as a test case, Komain and Brahmasrene (2007) checked the Granger causality association between government expenditure and economic growth and they found no co-integration. They discovered a positive correlation between government spending and GDP growth. Their results also revealed a unidirectional relationship where causality runs from the earlier (expenditure) to the latter (growth of the country).

The relationship between social progress and growth of economic activity is explained by the so-called Wagner's law. Kalam and Aziz (2009) empirically investigated such a relationship in the Bangladesh economy using a time series data set from 1976 to 2007 within both a bivariate as well as a trivariate framework. Their estimated results provide evidence for a long-run co-integration relation among real public spending and real GDP where public spending is not only progressively tied with real output but also is Granger caused by GDP.

The size of the government in term of its expenditure is a very crucial factor for a country in achieving growth and development. A study was conducted by Gregoriou and Ghosh (2007) to check the relationship between government size and GDP growth in developing countries. By employing the Generalized Methods of Moments (GMM) estimation technique and utilizing a heterogeneous panel, they measured the impact of public expenditure on economic growth. Their findings supported the hypothesis that countries with large government expenditure (i.e. a bigger government) can achieve higher growth. They also discovered that such an effect, however, varies from one country to another.

Government expenditure in different sectors of the economy may impose differential effects. Nurudeen and Usman (2010) employed a disaggregated analysis in an attempt to investigate the impact of various government expenditures on Nigeria's economic growth. With the help of cointegration and error correction methodologies, they checked the relationship between some important expenditure variables such as government's total capital expenditure, total current expenditure, government expenditure on education, and government's rising expenditure on transport and communication. They reported that public expenditures in two key sectors like transport and communication, and health result to maintain a positive influence in economic growth. On the contrary, as the author concluded, all other typical expenditures by the Nigerian government appeared to have no effect at all in economic wellbeing of the country.

An effort has been made by Ketema (2006) to see the impact of various components of government spending (investment, consumption and human capital expenditures) on the growth of real GDP in Ethiopia for the period 1960/61-2003/04 using Johanson Maximum Likelihood Estimation procedure. According to his reporting, it is found that only expenditure on human capital has long-run significant positive impact. Investment

(productive) government spending displays a negative but insignificant impact on growth of real GDP. Finally his base line results suggested that in the short run, all components of government expenditure do not have significant effect in economic growth.

Revenues earned by a government are very crucial for a country's economic growth and poverty reduction. To fulfill budgetary obligation and other development as well as non-development expenditures almost every government in developing countries does rely heavily on revenue incomes and receipts. Utilizing Engle-Granger bivariate cointegration approach, Ewing and Payne (1998) studied the relationship between revenues and public expenditures relative to real GDP in Latin America. They developed and tested two important hypotheses concerning government's revenues and spending namely the fiscal synchronization hypothesis and the tax-spend hypothesis. They found differential results. For the case of two countries like Chile and Paraguay the fiscal synchronization hypothesis became true as there were evidences of bi-directional causality between revenues and expenditures. For countries such as Colombia, Ecuador, and Guatemala the tax-spend hypothesis was appropriate because the researchers found evidence of causality from revenues to expenditures.

There are many studies that have attempted to find the relationship of public expenditure between agriculture growth and poverty reduction. Elias (1985), Fan et al. (2000), Fan et al. (2004), Lopez (2005) are some of them, most of whom found a positive correlation and they reported that government expenditures contributed to agriculture production growth and reduced poverty significantly. However, they also concluded that different types of expenditure would have differential impacts (Fan and Saurkar, 2003 and 2004).

Through various channels public expenditure in a low income country may have two different types of impacts on poverty: direct impacts and indirect impacts. Various programs

(example: The Food for Education in Bangladesh) that are directly targeted to the poor cause direct effects by raising income and employment. Subsidies channeled by the government in some sectors also have direct impact of public expenditure on poor people. In Bangladesh the government continuously provides direct subsidies in sectors such as power and energy, agriculture and irrigation etc. to keep the prices of electricity and fertilizers respectively affordable. In this way government also helps firms to maintain low cost in producing essential goods.

An indirect effect can be achieved by investing in various infrastructure, agricultural research and production, health and education programs etc. In this way the government can stimulate growth of agricultural production which finally leads to cheaper food and creates more employment opportunities for the poor (Fan, Hazell and Thorat, 1998). Fan and Thorat (2000) and Fan, Zhang, and Zhang (2002) used state level data to see the poverty impact of public expenditure by estimating an econometric model in India and China respectively. For an instance in a study titled as Government Spending, Growth and Poverty: An Analysis of Inter Linkages in Rural India, the authors checked the number of poor people who were raised above the official poverty line for every million of Indian Rupees spent on different expenditure items. They also estimated the marginal returns to agricultural productivity gain and poverty reduction from a specific amount of additional expenditure by the Indian government. The authors reported that government spending in productivity enhancing sectors such as agricultural R&D and irrigation, rural infrastructure (including roads and electricity), and rural development targeted directly on the rural poor groups caused reduction of mass poverty in India. And most of the spending has also contributed to growth in agricultural productivity but there were large regional differences in their both poverty and productivity impacts.

4.6 Conclusion

Public expenditure theories suggest two general schools of thoughts: the Wagner's Law and the Keynes' view. Where Wagner postulates that economic growth helps to expand public expenditure, Keynes thinks that greater expenditure can lead to higher growth. Other relevant theories such as the Public Expenditure Theory of Various State Forms and the Theory of Public Choice indicate public expenditure in various development stages of a country as well as the expenditure behavior of governments in an underdeveloped nation.

In a developing country context there is a link among public expenditure, economic growth, and poverty. In Bangladesh growth of income, employment, and wages are three channels through which public expenditure contributes in poverty reduction. Theoretically public expenditure and poverty reduction maintain an important link through two types of quantity effects of public expenditure from the perspectives of two sectors of the economy: firms (quantity effects of public investment on firms) and households (the quantity effects of public investment on households). The impacts, however, rely on the amount of spending, initial stock of capital, and the economic context of the expenditure.

Empirical literature suggests various conclusions and results about public expenditure, economic growth, and poverty in developing countries. We summarize the findings in a tabular form as follow.

Table 4.1: Summary of Selected Literatures Reviewed

Title of the research	Field of study	Methods used	Results
Barro (1990)	Developing countries		Spending more public resources is correlated with lower per capita growth
Laudau (1983)	96 developing countries		Economic growth is negatively affected by public expenditure.
Komain and Brahmasrene(2007)		Co-integration and Granger Causality	-Positive correlation between government spending and GDP growth

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			- Unidirectional relationship, as causality runs from public expenditure to economic growth
Kalam and Aziz (2009)	Bangladesh	Both a bivariate as well as a trivariate framework	A long-run co-integration relation exists among real public spending and real GDP -Public spending is not only progressively tied with real GDP but also is Granger caused in the long run.
Gregoriou and Ghosh (2007)	Developing countries	Generalized Methods of Moments (GMM) estimation technique and heterogeneous panel	-Countries with large government expenditure (i.e. a bigger government) can achieve higher growth. -Such effects vary from one country to another.
Nurudeen and Usman (2010)	Nigeria	Cointegration and error correction methodologies	Public expenditures in two key sectors like transport and communication, and health result to maintain a positive influence in economic growth. -All other typical expenditures appeared to have no effect at all in economic wellbeing
Ketema (2006)	Ethiopia	Johanson Maximum Likelihood Estimation procedure	-Only expenditure on human capital has long-run significant positive impact. -Investment (productive) government spending displays a negative but insignificant impact on growth of real GDP. -In the short run, all components of government expenditure do not have significant meaning in explaining economic growth.
Ewing and Payne (1998)	Countries in Latin America		-For Chile and Paraguay there were evidences of bi-directional causality *between* revenues and expenditures -For Colombia, Ecuador, and Guatemala there was evidence of causality from revenues to expenditures.
Fan and Saurkar (2003; 2004)	India		-Positive correlation between government expenditures and agriculture production growth -Negative association between public spending and poverty.
Fan, Zhang, and Zhang (2002)	China		-Government spending in productivity enhancing sectors caused reduction of mass poverty
Fan, Hazell, and Thorat (2000)	India		Positive relationship between public spending and farmers' income.

ECONOMETRIC ANALYSIS

5.1 Introduction

This chapter presents research methods and results for the econometric analysis. Details of the quantitative tests and econometric estimation procedures, data description and estimation method for the model etc. are discussed separately. The first hypothesis is tested by the results of the econometric tests and regression analysis. Such an analysis has been based upon the measurement of marginal effects of various expenditures in some key sectors in the Bangladesh economy. Here we try to answer some challenging questions that are crucial for the fulfillment of the study's goals. Does public expenditure in Bangladesh really matter to accelerate economic growth of the country? Can we evaluate the present expenditure management system and the effectiveness of relevant policies in reducing poverty in Bangladesh today? We try to make a conclusion of the chapter through answering and justifying the above questions.

One important objective of this study is to trace a relationship between public expenditure and poverty reduction in the context of Bangladesh. The level of growth in real GDP which is considered as an indicator of economic growth is defined as a bridge between them while employment and wages are seen to be the stimulating factors behind poverty reduction. We emphasize that government expenditure in important sectors can reduce poverty by affecting three major variables: growth, employment and wage. In this regard, for the present study sectors such as education, health, infrastructure, power and energy and agriculture have been highlighted in the econometric analysis.

5.2. Defining the Model

The empirical model for this study is obtained using the equation mentioned below:

$$Log(P) = \alpha_0 + \alpha_1 Log(GGDP) + \alpha_2 Log(EMPT) + \alpha_3 Log(WAGER) + \alpha_4 Log(EDEX) +$$

$$\alpha_5 Log(HLEX) + \alpha_6 Log(INFEX) + \alpha_7 Log(ENEX) + \alpha_8 Log(AREX) + \varepsilon_0 \dots\dots\dots\dots\dots\dots \text{ (5.1)}$$

In above equation *(5.1)*, the model intends to hypothesize poverty as a function of GDP growth *(GGDP)*, employment level in the economy *(EMPT)*, national real wage levels *(WAGER)*, and government expenditure in five key sectors: (a) education and religious affairs *(EDEX)*, (b) health and family welfare *(HLEX)*, (c) infrastructure building like transport and communication *(INFEX)*, (d) power and energy *(ENEX)* and (e) agriculture and rural development *(AREX)*. The *a priorie* expected signs of the coefficients are hypothesized as: $\alpha_1, \alpha_2, and \ \alpha_3 >$ 0; $\alpha_4, \alpha_1, \alpha_5, \alpha_6 \ and \ \alpha_7 > or < 0$.

5.3 Data Sources and Estimation

The scope of this paper covers an annual time series set of data ranging from 1980 to 2010 in estimating the specified model. The Bangladesh Government Ministry of Finance, Bangladesh Bureau of Statistics (BBS), Bangladesh Government Ministry of Primary and Mass Education and the World Bank Data Bank act as the main sources of data. Other sources that were utilized are the International Financial Statistics (IFS) and The Bangladesh Bank Statistics Department. The Ordinary Least Square (OLS) regression technique was used to estimate the specified model. Before going to the regression analysis the nature of the data distribution is examined by utilizing the descriptive statistics and various diagnostics tests. One important assumption of the OLS is that residuals behave normal. Therefore, a normality test by the Karnel Density Estimation Technique has been followed. Then the time series property (stationarity) of the data is checked with the help of the Augmented Dickey-Fuller Unit Root Test following Dickey and Fuller (1981). Cointegration, which is the tendency for variables to move together in the long run, is checked using the EG-ADF test following Engle and Granger (1987). The following regression is utilized for the ADF test:

$$\Delta y_t = \alpha + \beta t + \gamma y_{t-1} + \delta_1 \Delta y_{t-1} + \cdots + \delta_{p-1} \Delta y_{t-p+1} + \varepsilon_t$$

Where α is a constant, β is the coefficient on a time trend and p is the lag order of the autoregressive process. Assuming $\alpha=0$ and $\beta=0$ corresponds to modeling with a random walk and in the case only $\beta=0$ implies modeling a random walk with a drift. In order to trace the associated causality among the variables a Granger Causality Wald Test is performed using a VAR model with the help of Stock and Watson (2007) and Green (2008). For this we use the following equations:

$$Y_t = \alpha_0 + \alpha_1 Y_{t-1} + \cdots + \alpha_p Y_{t-p} + b_1 X_{t-1} + \cdots + b_p X_{t-p} + u_t$$

$$X_t = c_0 + c_1 X_{t-1} + \cdots + c_p X_{t-p} + d_1 Y_{t-1} + \cdots + d_p Y_{t-p} + v_t$$

Where *Y* and *X* correspond to dependent and independent variables for the original equation respectively. We test the null hypothesis H_0: $b_1=b_2 =\cdots= b_p=0$, against H_A: 'Not H_0', to check if *X does not Granger-cause Y*. Similarly, testing H_0: $d_1=d_2 =\cdots=d_p= 0$, against H_A: 'Not H_0', allows us to test if *Y does not* Granger-cause *X*. In each case, a *rejection* of the null implies that there is granger causality for the concerned variable.

5.4 Empirical Results

- ***Summary Statistics***

The mean, standard deviations, minimum and maximum for the variables *P, GGDP, EMPT, WAGER, EDEX, HLEX, INFEX, ENEX,* and *AREX* are shown in table below. *P* (Poverty head count rate, %) varied from 31.5 percent to 70.4 percent indicating a Coefficient of Variance (CV) of 19.23 percent. *GGDP* or the annual GDP growth rate (in constant prices, %) presented a minimum and maximum value of 0.8 percent to 6.7 percent having a CV value of 32.52 percent. In the case of *EMPT* or employment to total population ratio (%), the estimated CV is 3.77 percent (the lowest among the variables). The rest of the variables namely *WAGER* (Real Wage Rate), , *EDEX* (Education Expenditure as a share of total ADP

Expenditure, %), *HLEX* (Health Expenditure as a share of total ADP Expenditure, %), *INFEX* (Infrastructure Expenditure, %), *ENEX* (Expenditure for power development and energy, %), and *AREX* (Agriculture and Rural development Expenditure, %) showed a CV value of 21.8 percent, 17 percent, 19.8 percent, 49.5 percent (the highest among the variables), 24.16 percent, 27.28 percent, 25.63 percent, and 29.58 percent respectively.

Table 5.1: Descriptive Statistics of Variables

Variable	Mean	Std. Dev.	Minimum	Maximum
P	48.3471	9.303031	31.5	70.4
GGDP	4.730323	1.538476	0.8	6.7
EMPT	70.78484	2.666398	67.4	75.87
WAGER	118.9355	25.93702	82	181
EDEX	9.552581	0.360285	2.93	16.61
HLEX	7.746774	1.873232	4.56	11.35
INFEX	17.59806	4.809403	9.82	26
ENEX	19.27516	4.94021	12.74	33.52
AREX	14.77645	4.372393	6.88	23

- *Testing for Normality*

The variables were found normally distributed. Referring to the normality test, the Karnel Density Estimation Technique shows evidences of normally distributed data (see appendix). The standardized normal probability plot confirms no non-normality in the middle range of residuals. However, the Quintile-normal plot could not ensure normality in the extreme of the data. Therefore, we also utilized the non-graphical test for normality (the Shapiro-Wilk test) which checks the hypothesis that the distribution is normal. In this model the p-value of 0.67109 indicates that the null hypothesis that the distribution of the residuals is normal cannot be rejected. The Breush-Goodfrey as well as the Durbin-Watson tests for serial correlation confirmed no serial correlation in the data. Therefore, it was unnecessary to correct it by utilizing Cochrane-Orchutt regression. Both the graphical and the Breusch-Pagan test could not detect heteroskedasticity in the model (prob>chi^2=0.2489). The problem for heteroskedasticity is that the model may have wrong estimates of the standard errors for the coefficients and

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therefore their t-values. The model was also checked for an omitted variable bias. Testing for such a bias is important as it tests whether the assumption that the error terms and the independent variable in the model are not correlated (E(e/X)=0). The p-value (p = 0.1099) is higher than the usual threshold and reports no omitted variable bias in our model. Another important assumption is that independent variables are not perfectly multicolinear or in other words, one regressor should not be a linear function of another. The variance inflation factor (VIF) test detected no multi-colinearity in the adopted model.

- ▪ *Stationary Test*

An Augmented Dickey Fuller (ADF) test shows that most of the variables except *GGDP* are found stationary at their first difference (see table). The test statistics for all the regressors with and without trend became significant at 1% level and they clearly reject the null hypothesis of having a unit root. Hence, variables namely *Log(EMPT), Log(WAGER), Log(EDEX), Log(HLEX), Log(INFEX), Log(ENEX) and Log(AREX)* decisively confirm stationarity with an order of I (1). Only one regressior namely *Log(GGDP)* became stationary at its level. The outcome variable *Log(P)* is also found to be stationary at its first difference with and without trend and depicts I (1) order of integration.

Table 5.2: Augmented Dickey Fuller Unit Root Test (for Stationarity).

	Level		First Difference		Comment
	Without Trend	With Trend	Without Trend	With Trend	
Log(P)	-0.457	-1.856	-6.217***	-6.102***	Stationary at first difference
Log(GGDP)	-5.550***	-8.075***			Stationary at level
Log(EMPT)	-1.241	-1.245	-6.330***	-6.978***	Stationary at first difference
Log(WAGER)	-0.430	-1.729	-4.859***	-4.975***	Stationary at first difference
Log(EDEX)	-1.239	-1.665	-6.008***	-5.901***	Stationary at first difference
Log(HLEX)	-1.483	-2.564	-5.926***	-5.820***	Stationary at first difference
Log(INFEX)	-2.699	-2.718	-6.918***	-6.784***	Stationary at first difference
Log(ENEX)	-1.572	-2.426	-5.199***	-5.383***	Stationary at first

					difference
Log(AREX)	-1.307	-1.937	-5.058***	-5.126***	Stationary at first difference

▪ *Cointegration Test*

The EG-ADF test indicates no cointegration in the data. This implies no long run equilibrium relationship among variables. Therefore, we need not to follow a Vector Error Correction Model (VECM). The result is shown in the appendix where the Mackinnon approximate p-value for z (t) was estimated to be 0.2350.The test statistic appeared to be -2.124 where the critical values are -3.750, -3.000, and -2.630 for 1%, 5% and 10% significant level respectively.

• *Granger Causality*

The null hypothesis in the Granger Causality Wald test for this model (*var1* does not Granger-cause *var2*) can be rejected at 1% and 5% significant level respectively for two regressors namely *WAGER* and A*REX* (prob> chi^2 values are: 0.001 and 0.015 respectively). This indicates that Real Wage Rate (*WAGER)* and Agriculture and Rural Development Expenditure (A*REX)* granger cause Povery (*P)*. Other explanatory variables namely GDP Growth (*GGDP),* Employment *(EMPT),* Education Expenditure *(EDEX),* Health Expenditure *(HLEX),* Infrastructure Expenditure *(INFEX)* and Expenditure for Power and Energy Sector (*ENEX)* have been estimated not to granger cause the outcome variable Poverty (*P)*. Test statistics (prob> chi^2 values) for the latter six regressors were: 0.471, 0.122, 0.505, 0.612, 0.805 and 0.842 respectively. On the other hand, the test statistics (p-values = 0.010, 0.362, 0.229, 0.067, 0.073, 0.481, 0.007, 0.100) for the dependent variable *P* show that Poverty *(P)* granger causes only two explanatory variables namely *GGDP* and *ENEX*. *P* does not granger cause rest of the variables namely *EMPT, WAGER, EDEX, HLEX, INFEX, AREX*. Test outcomes for the above empirical results are reported in the appendix section.

5.5 Findings and Discussions

The estimated results for the Ordinary Least Square (OLS) Regression have been reported in Tables 5.3 below. It was found that none of the explanatory variables could appear to impose significant impact on poverty in Bangladesh. Three variables such as Employment as a percentage of total working age population *(EMPT)*, Real Wage Rate *(WAGER)* and Government's Health Expenditure *(HLEX)* had a proper sign but they appeared to have only an insignificant impact on poverty. According to the results, it was revealed that for a rise of one unit in employment rate, the real wage rate index and government health expenditure in the country's poverty head count can be reduced by 0.1886482%, 0.3547846% and 0.056689% respectively. GDP growth *(GGDP)* and sector-wise expenditure for Education *(EDEX)*, Infrastructure *(INFEX)*, Power and energy *(ENEX)*, Agriculture and rural development *(AREX)* showed a coefficient with opposite sign and at the same time they became insignificant.

Table 5.3: Result Summary of OLS Estimates

Dependent variable, *Log(P)*				
Variable	Coefficient	Std. Err.	t-value	p>t
Log(GGDP)	0.0292344	0.0216604	1.35	0.899
Log(EMPT)	-0.1886482	1.471189	-0.13	0.668
Log(WAGER)	-0.3547846	0.2157878	-1.64	0.115
Log(EDEX)	0.0875255	0.0547444	1.60	0.125
Log(HLEX)	-0.056689	0.0864983	-0.66	0.519
Log(INFEX)	0.0501204	0.0286345	1.75	0.095
Log(ENEX)	0.082343	0.0543666	1.51	0.145
Log(AREX)	0.0809314	0.0155924	1.31	0.204

Nobody raises a question about the fact that economic growth can bring about an increase in income of citizens, which eventually raises wages and reduces poverty by pushing many households out of the so called poverty trap in poor countries. An empirical work done by Dollar and Kraay (2002) has checked the relationship between average income of the total population and average income of the poorest quintile of a number of developing countries worldwide. They turned a conclusion that GDP growth of a developing country is good for the

poor because, as they argued, there is a one-to-one correlation between the entire GDP growth of the country and the growth of income of the poor segment of the population. Bhalla (2003) and many other researchers have supported Dollar and Kraay (2002)'s hypothesis.

However, some other scholars denied accepting the above claims without criticism because, according to their views, economic growth cannot be a sufficient condition for poverty reduction. They have rather proclaimed that there is no invariant relationship between the rates of GDP growth and poverty reduction in low income developing countries (examples: Datt and Ravallion, 1992; Kakwani and Pernia, 2002). They advanced that there are three fundamental factors that can affect income of the poor citizens in a developing country. These are namely the growth factor, the elasticity factor and the integrability factor. Growth factors bring a positive or upward shift in the production possibility frontier of the economy due to an expansion of production possibilities/economic activities. Next, the elasticity factor stimulates the economy to achieve an enhanced employment potential for the people especially for the poor segment of the population. Finally, the integrating ability factor makes poor people more capable of taking advantage of an improved economic environment in terms of quality and quantity in the employment structure and labor market of the country (Osmani, 2002; 2003).

Kakwani (1993) and Francois Bourguignon (2002), on the other hand, proposed that high rate of growth does not automatically lead to high rate in poverty reduction. They advanced that only a 'pro-poor' growth can achieve poverty reduction by affecting levels of wages and income in a developing country because such growth can increase income level of the poor more than that of the rich.

Khan (2001) has suggested a model of poverty reduction in Bangladesh that incorporates five explanatory variables. GDP growth ranked to be the first element that helps create more employment in the economy by expanding economic activities. Next were two growth factors

that allow an increase in per capita income and also cause an upward shift in the rate of wages. The fourth element was described as the extent to which poor people are benefited from newly created employment opportunities in their favor. Finally, the fifth factor was a distribution of national income which can confirm an increased total share for the poor people in the nation's aggregate income account.

For achieving an increase in GDP and a reduction in poverty a rise in productivity of labor and capital is to be achieved simultaneously in the economy. Effectiveness of government's education and health expenditures are necessary conditions for that purpose because such spending can acquire human capital that ultimately helps to produce skilled labor. On the other hand, government expenditure in sectors like infrastructure building, power and energy as well as rural development and agriculture contributes to achieve higher physical capital. According to researches by Ratner (1983), Aschauer (1989), and Mitsui and Inoue (1995), substantial macroeconomic productivity can be gained by causing improvement for areas like capital (both physical and human) and infrastructure. Many other empirical studies including Easterly and Rebelo (1993), Barro (1997), and Swaroop and Zou (1996) utilized economic growth theory in their models. It was reported that in the context of a developing country like Bangladesh various public expenditures along with investment, population growth (which acts as a proxy for growth in labor force) play significant role to shift the aggregate production to a new higher level.

Clearly, expenditure shares as a percentage of total ADP spending in all of the five thrust sectors have been emerged not to have any meaningful and/or significant impact in poverty reduction in Bangladesh. The reasons behind this are many and have been discussed broadly in a next part of the chapter by utilizing the results of the PETS-QSDS survey. According to the study's econometric findings, Bangladesh needs to improve expenditure effectiveness in all these sectors.

Although public spending in Bangladesh would probably have been wasted and frittered away, according to our analysis, expenditure in health sector yet has been regarded as one of the important factors. Findings suggest that the impact elasticity of health spending was -0.056689 which indicates a reduction of poverty by 0.056689% for an increased share of 1% in health spending of the government. This finding for the health sector has very important policy implications for a developing economy like Bangladesh.

First, within the last three decades Bangladesh has achieved remarkable progress in some social development indicators. To be more specific, the nation has gained more than most developing countries in improving the status of women. This was happened through: (a) woman entrepreneurship with the help of microcredit finance and other tiny loans provided by several leading NGOs, (b) fertility reduction as a result of successful family planning programs, and (c) increased employment and income for women, thanks to the country's rapid growing textile industry.[12] Therefore, both women income and status in rural as well as urban areas were improved enormously. At present women can contribute to the betterment of their family for the purposes of education, health and meals of their children. In this process child welfare is increased and finally poverty is reduced within the families (The Economist, 2012).

Second, Bangladesh has been showing unusually good performance at raising incomes in the country through the adoption of Green Revolution mechanism and overseas income sent by its expatriate population. Provided that the deepest poverty in the country tends to be rural, such achievements of the economy has helped the very poorest segment of the population and enabled them to spend more resources for the purposes of education and health of their children. The ultimate result is: life standards in poor families have been increased and poverty was reduced.

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[12] In the Ready Made Garments and Textile industry in Bangladesh more than 80% workers are women.

5.6 Conclusion

In this chapter we have tried to answer some challenging questions as a way of the study's conclusion. The discussion started with research findings from the OLS estimates where an independent log-log equation was modeled and tested. Based upon the regression results, the marginal poverty reduction impacts of government spending in several sectors were estimated and checked. Findings of the statistical analysis showed that public expenditure in Bangladesh has not been a determinant of economic development and poverty reduction. Rather valuable public resources would have been wasted in the country. Only a few of the variables that were utilized in our model have been proved to contribute positively in achieving poverty reduction through income growth of people.

SURVEY STUDY

6.1 Introduction

This chapter focuses the survey-related methods and results. A Public Expenditure Tracking Survey (PETS) has been conducted taking the Bangladesh education sector (primary education) as a test case. To understand the levels of accountability and transparency in expenditure in Bangladesh a Quantitative Service Delivery Survey (QSDS) was performed along with the PETS. Primary data was gathered with the help of the above surveys.

In the beginning of the chapter basic facts, essences and background theories of the said surveys will be reviewed. The rationale for conducting the above surveys in the education sector of Bangladesh is noted in a subsequent section. Then details of the major methodological consideration and data collecting strategies are summarized.

In this chapter we are also going to present main findings from the survey study. Do poor people really get their proper share from government's spending in welfare sectors like education? What are the potential factors behind the failure of public expenditure management policies in the country's education sector? Our hypothesis 2 is checked and verified utilizing our primary data and analysis from the PETS-QSDS survey.

The last section of the chapter highlights some experiences from the field work, survey limitations, ethical issues and other challenging factors.

6.2 Background Information and Theories for PETS and QSDS

It is important to understand the theoretical and empirical approaches of delivered public services in developing countries prior to conducting any relevant study in this field of research. Literature of Public Economics offers several models that are frequently used to

analyze service delivery performances and efficiency. The principal-agent model, which emphasizes the relationships between the politicians or policy makers, frontline service providers (agent) and the people (principal), is one of them. For this model, the State plays as an intermediary agent and it can create a situation where principals cannot easily control and evaluate the role and actions of the decentralized agents (service providers like schools in education sector or hospitals in health services). The model's perspective is that principals/citizens willingly elect officials and delegate State the responsibility to manage and provide social services. People (principals) are also willing to pay taxes to cover the necessary expenses incurred. Politicians design appropriate budget and offer incentive systems for service provider organizations in fulfilling people's needs (World Bank, 2003)

Figure 6.1: The Relationship among Various Actors in Education Service Delivery System
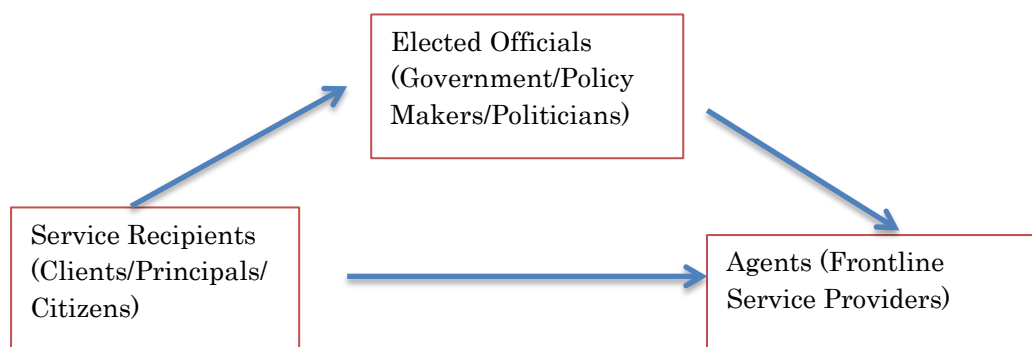
Source: World Bank (2003) and Gauthier (2006)

However agency problem and moral-hazard appear in the process. The wisdom behind the standard moral-hazard and agency problem is that the agent's compensation would link to his/her performance by providing appropriate efforts. In a world with no information asymmetry, citizens would be able to evaluate on their behalf the works done by the agents and/or the government officials. However, in a world with information asymmetry citizens' ability to control agents' behavior is constrained by imperfect information. Hence, gap appears in between them and objectives of various parties do not coincide eventually. This ultimately reaches to a situation of shirking and rent extractions where agents will devote

fewer efforts than that was expected by the principals and divert some portions of public funds to their own benefits (Holmström, 1979).

To give an explanation of information asymmetry in public services we follow Dixit (2002) and Besley and Ghatak (2003). According to them, in reality citizens only have the chance to get information about aggregate output of the production process. Having such barriers, it is quite impossible to indicate the responsible person for the situation they can observe. Both agents and citizens cannot get access to proper information about the performances credited by a politician or a government official related to a public program. Moreover, a service provider has imprecise objectives. To give an example, the ultimate objective of a school facility is to serve and promote quality education for students. But it is practically difficult for anybody to measure such a qualitative variable. To be sure, finding good estimates of performance measure in education (or in other words defining quality education) is hard. Hence, in most public service provider organizations with the lack of information about agents' actions and inputs in the production process, the principal has no other means but rely on aggregate measure to evaluate agents' performances and contribution.

Moreover, Besley and Ghatak (2003) claim that in the provision of public services various actors are directly affected because the process involves the presence of multiple principals. The education sector of a country provides a solid example. Here the principals are citizens, employees, school board, the officials of the related ministry and politicians. These different principals might have different views about outcomes and agents' tasks. Dixit (2002) turned a conclusion that the principal wants the agent to make more efforts in achieving goals that he/she prefers more, but there will be inefficiencies and incidence of failure in the case the incentive schemes are designed in such a manner that they are not capable to maximize the combined benefits of all principals.

Furthermore, Radner and Marschak (1972) and Holmström (1982) found a free rider problem in public service organizations that makes public expenditure management difficult since more than one agent are engaged in a joint production process where a central-provincial-local authority plan is followed in most cases to share the responsibilities in decision making. Moral hazard is appeared in the hierarchy and reinforced in the team when individuals try to shield from accepting all the costs associated to their actions.

In line with the above discussion, it is important to achieve accountability between principals and agents in the routes of service delivery system in order to make sure that public services really work for poor people[13]. The framework of multi-level service delivery system advanced by the World Bank (2006) indicates that there are two layers of accountability in the relationship between principals and agents. The first one is termed as the 'short route of accountability' which emphasizes that citizen (principal) has the obligation to make politicians accountable in order to ensure proper service delivery and appropriate incentives for agents' performances. The other one is called 'the long route of accountability' which incorporates the obligations of policy makers in holding provider organizations (agents) accountable for delivering appropriate services. According to Bernard, Montréal and Reinikka (2007), failure in one or both of the above routes may cause inadequate service delivery in developing countries.

6.2.1 Public Expenditure Tracking Surveys (PETS) in Education

Public Expenditure Tracking Survey (PETS) is a method widely used to understand the flow

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[13] Accountability is a principal-agent relationship which comprises some characteristics and can be defined as follows: "…..It (Accountability) is a principal-agent relationship comprising the following characteristics: delegation of responsibility, financing and enforcement on the part of the principal, and effort and information on the part of the agent…..." On the other hand, according to a study titled as Citizen Based Service Delivery Monitoring: Research into Current Practices commissioned by the Department of Performance Monitoring and Evaluation (DPME) in South Africa, accountability should be both vertical (across spheres of government) and horizontal (within civil society).

of various public funds and other resources disbursed for development activities. It tracks the flow of resources within various government organs in order to measure how much of the originally granted funds actually have reached to the targeted clients while they are passing through the service delivery units like schools or hospitals. It aims to improve the allocation criteria and impacts of various public spending on citizens especially the poor groups of a certain country or society. The method tries to identify weaknesses in the country's public expenditure management system and provides information about failure of policy mechanisms that are followed in making decisions about allocation of resources. The tool is very helpful in a sense that it gathers many data from various sources simultaneously. Later these data can act as the basis for our understanding about the fundamental reasons of malfunctions in service delivery systems or causes of policy failure in a certain economic sector related to government led services. The tool is especially helpful where official accounting system does not provide reliable information about efficiency and effectiveness of government expenditure mainly in developing countries.

During the last two decades PETS have been conducted in many countries in Africa and Asia in order to assess performance and to measure capture of rents in various service deliveries and most of them were conducted in education and health sectors. Majority of PETS were engaged in a task of finding reasons behind the weak relationships between public expenditure and human development outcomes in some developing countries where institutional settings have characteristics of deficient accounting, monitoring and reporting (Reinikka and Svensson, 2006).

A PETS successfully performs as a multi-facet working tool in economic research. The first way it works is categorized as a diagnostic tool which is useful in identifying concrete facts and basic problems such as leakage of funds within the system and service provider

absenteeism. But here it does not suggest any solution for those problems. In some previous PETS conducted in Africa showed that the leakage of non-wage fund, which is defined as the resources originally allocated to but was not finally reached or received by the frontline service provider, was found to be a big problem. The share of ghost on the payrolls and leakage of salaries and allowances are also very common in developing countries[14]. According to Reinikka (2001), it was proved by researchers that leakage is a very common and one of the major policy concerns in a developing country context (Ye and Canagarajah, 2002; Reinikka and Sevensson, 2001; Das et al, 2004).

The second function of PETS is that it works as an analytical tool. After diagnosing the problems in a sector we need to understand the underneath causes so that proper solutions and interventions can be achieved by discovering the causes. And determining the extent of why some schools or schools in some part of the country suffer from high level of fund captures but others do not may act as the starting point in designing public expenditure policies in a concern to the relevant sector.

The third usefulness of PETS is that it acts as an impact evaluation technique to see the effects of a policy intervention that has been already implemented. The method compares pre and post evaluation data in order to identify the changes occurred. A simple preliminary PETS survey is conducted first in order to discover the problems in the sector before policy intervention has been taken place. To examine changes, later another survey with a set of modified research questions is done and results are compared to find any improvement.

6.2.2 Quantitative Service Delivery Surveys (QSDS)

Multi-purpose school surveys became more and more popular recently and are frequently used in examining efficiency of various education public spending in developing countries.

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[14] Payroll ghosts can be defined as imaginary service providers who usually receive salaries for doing nothing, or in other ways, those beneficiaries who are being paid without ever having been in service activities.

Quantitative Service Delivery Surveys (QSDS) is one such quantitative tool that emphasizes on school related data from various dimensions: finance, incentives for staffs, behavior of service providers (teachers), input use, pricing, outputs gain and quality of services etc. QSDS's main concern is that even the resources have been reached to the last unit of expenditure management hierarchy, their usefulness in achieving better outcomes is relied on how efficiently they are used in a service provider unit such as a school or a hospital. From this point of view, a school or a hospital is the main unit of observation in data collecting efforts for a QSDS. However, in many cases a combination of PETS and QSDS is more powerful than a single tool to obtain reliable information about accountability, transparency and equity of public funds at the service provider level. This thesis will follow such a hybrid tool in conducting a primary survey while considering the education sector (more specifically the primary education sub-sector) of Bangladesh as a test case.

6.3 Rationale for the PETS-QSDS and its Fitness to the Present Study

We hypothesize that widespread corruption in resource management practices, leakages of funds or political and bureaucratic capture may lower significantly the welfare effects of public expenditure in various sectors in Bangladesh. In this connection, in order to provide policy makers with appropriate and necessary information about public resources we need to analyze and quantify their performance correctly. For that purpose we should select proper estimation techniques that can offer appropriate measures and reliable results. We follow previous studies to consider that Public Expenditure Tracking Survey (PETS) and Quantitative Service Delivery Survey (QSDS) are two of the most appropriate tools that are helpful to assess the governance quality, efficiency, equity and performances of services delivered by the Bangladesh Government.

During recent years the government of Bangladesh has increased spending amount in the education sector. To fulfill the education MDG and to achieve education for all people by 2021, every year a big portion of the budget is devoted to the sector. To be more specific, official education expenditure in primary and secondary levels is growing very rapidly. However, as it was mentioned in the first chapter only official record of allocating more resources does not imply that the originally allocated public funds finally reach to the frontline service providers (schools in education sector) and/or the final recipients (people).

Although the enrolment rates in primary schools are satisfactory in the country (In 2009 gross and net enrolment rates are reported to be 98 percent and 91 percent respectively), completion ratio is still poor because many of the enrolled students leave the school before completing primary education (To give an instance, it was reported officially that in 2007 the drop-out rate was as many as 50 per cent). Moreover, recently the trend in completion ratio has decreased sharply. More recent data shows that completion rate of primary school in Bangladesh have fallen from 70 per cent in 2000 to only 50 per cent in 2008.

Enrolment as well as completion rates in secondary and higher secondary schools also remain very low in the country. For some evidences, in 2005 the secondary enrolment rate was only 43 percent while in 2008 completion rate from secondary level was only 20 percent (CAMPE, 2009). Thus, it is indicative that only about half of the students pass primary school final grade while only one out of five students who entered can complete secondary schooling in Bangladesh which implies that only 10 percent of students who ever went to the primary school can pass secondary education level in the country.

Bangladesh's low rate of completion is obviously a serious concern for achieving universal primary education because, according to Osmani (2010), there exists a terrible indictment of the educational system in Bangladesh. On the other hand, quality of education (student

teacher ratio) in the country ranks lower than many other Asian nations. Hence, simple question arises about the levels of efficiency, accountability and transparency of government spending in the country in general and the education sector particularly, although there are many other factors behind a low level of success. Here is the reason why the education system offers an ideal field of research in understanding the impediments that hinder higher performances of public expenditures.

6.4 Major Methodological Considerations

Methodological approaches used in PETS and QSDS have significant consequences on their ability to achieve pre-designed research objectives. Designing and implementing them for this thesis thus followed various options related to the choice of proper data collection strategies and estimation.

- *Tracking Resource Flows*

Determining the sector specific financial and quantitative data collection criteria in various administrative levels is crucial for a survey like the PETS-QSDS. In developing country context there are possibilities of leakage in public resources, non-wage funds, and supplies etc. when they pass through the service supply chain. For an example, public resources allocated for teachers' salary payment may be leaked through the emergence of ghost workers who receive remuneration without doing any job. Following Das et al. (2004 and 2004a), this study has chosen to track both wage and non-wage cash flows in various levels that are coming from the government as well as donors. We also included in-kid transfers in our survey questionnaire while collecting data from various service delivery units in the primary education sub-sector. Our attention has been focused mainly on some key issues: (1) whether a primary school receives its allocated amount or share in lump-sum payment and (2) if centralization is an appropriate path to follow in confirming targeted efficiency levels

of fund management. In this connection, this study made an effort to check tracking in most categories of public funds intended to be received by a primary school.

- *Institutional Assessment*

Our second methodological approach became helpful to identify the institutional hierarchy through which necessary resources from the government are allocated and sent to various primary schools. This attempt helped us to achieve research objectives related to institutional assessment phase in the education sector. Quality of data and their consistency could also be justified by this assessment tool. Following Gauthier (2006), we collected information only at the service provider level. Such strategies also helped us to measure resources available for services and know the actual amount that was allocated. However, gathering field data in such a fashion is appeared challenging in Bangladesh because central level accurate information about resource allocation and grants for a primary school located in a remote area was very limited.

- *Sampling Strategy*

Sampling in a proper way is another important component of a PETS-QSDS study because a valid sample represents the universe it intends to describe. In such a survey various approaches can be followed to form the sample. But stratification by levels or categories and random selection sampling are frequently utilized in developing countries. In this thesis, however, informal sampling based upon convenience of facility access or ease of interviewing was followed. This is because of our lacks in necessary resources and time. But in the tracking survey we preferred to interview a greater number of same facilities (primary schools) in only four districts in Bangladesh namely Brahman Baria, Comilla, Dhaka and Gazipur. Here it seems important to remind that survey results will be utilized as an evidence to support our second hypothesis and to make our claims about future policy design more

strong and accurate. The survey itself is not the main focus for this thesis. However, our study specific techniques became helpful to see the differences in various actors' behavior and performances among a number of 50 service delivery units (primary schools) in Bangladesh (Reinikka and Smith, 2004).

- *Survey Instruments*

In a tracking survey, methodological consideration puts greater importance on survey instruments which rely mainly on survey objectives and initial modes of tracking flows. Collecting various types of data may impose greater variances in instruments used in the PETS-QSDS. In our proposed survey and data collection path we did rely on instruments that use proper modules for every level of government expenditure hierarchy including district level administration and lower levels in frontline service provisions at the unit. Nevertheless, our survey instruments and questionnaire appeared to be helpful in collecting proper sets of data that were needed to measure amount of resource allocation in decentralized level and also to triangulate collected information in lower phases of service delivery.

6.5 Survey Findings

- *Facts about Primary Education System in Bangladesh*

Bangladesh's low literacy rate forces the nation to recognize education as a priority sector by all subsequent governments since independence. Consequently, in the country primary education receives significant attention (Nambissan and Ramya, 2003). During early1990s primary education system experienced a great enhancement following the World Conference on Education for All (WCEFA). Since then successive governments of Bangladesh have been taking many initiatives to fulfill the aim of education for all. As a starting point, the Compulsory Primary Education Act of 1993 which made the primary education free for all is regarded as one of the most notable achievements in the education sector of the country.

Later education for girls up to eighth grade was declared completely free in order to encourage female education given that the proportion of illiterate women in the country is much higher than that of men. Moreover, following the WCEFA, donors invested heavily in the education sector and NGOs rapidly increased their participation in order to meet the country's future education related goals in all levels (Kalene et al., 2005).

The Primary education system in Bangladesh incorporates from grade one to grade five and the nation has eighteen million pupils in some 62,000 primary schools. Among the total number of institutions over 65% are government led while the rest are registered non-governmental primary schools that are assisted heavily by the State. While the overall management responsibility of primary education in Bangladesh is borne by the Ministry of Primary and Mass Education (MPME), the Ministry of Education (MOE) formulates and implements policies for secondary and tertiary levels.

Since education in Bangladesh is basically financed by public funds, the entire costs of government led primary schools are borne by the State. The government pays salaries, distributes free books and bears all other education expenses for every single primary school in the country. The State also pays most expenses of non-government registered primary schools. For an example, 90 percent of basic salaries for teachers of these schools are paid by the government. Given the low revenue / GDP ratio in the country the government, however, is heavily dependent on external sources for necessary financing in the sector.

Table 6.1: Basic Facts about Primary Education in Bangladesh

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
1. No. of Primary Schools										
(a) Total			620293	62377	80397	82020	81434	82218	81508	78685
(b) Government & Registered government										
(c) Private			60359	60678	60377	60863	60965	61018	57733	57733
(d) Others			1670	1699	946	1140	973	966	819	666
					19074	20017	19496	20234	22956	20286
2. Student enrolment (in thousand)										
a. Total			15450	15245	16225	16385	16312	16001	16539	16957
b. Boys			7779	7587	8091	8129	8035	7919	8241	8394
c. Girls			7670	7657	8134	8256	8277	8081	8298	8563
3. No. of teachers in government primary schools (in thousand)										
a. Total			255	255	162	162	182	182	361	395
b. Male			158	158	90	86	90	86	204	200
c. Female			96	97	71	75	91	96	157	194

Source: Bangladesh Government Ministry of Primary and Mass Education.

- *General Descriptive Findings*

We surveyed a sample of 50 primary schools in four districts of Bangladesh. Among these schools there were 36 fully government subsidized, 10 registered primary and 4 privately funded schools[15]. Most of the schools were selected from rural areas where there were very limited alternatives for the village people to send their kids for the purpose of education. There were two reasons for such a sampling choice in our survey. Firstly, in Bangladesh majority of the people (about 80%) live in rural areas and most of them live with poverty. Therefore, government education expenses have a big influence in their lives. The second reason, as it was hinted in an earlier section, is related to the easy access of the school facilities for the purpose of interview.

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[15] Expenses for registered primary schools are borne by the government but with notable discrimination. Teachers in such schools have to give the similar services provided by that of a government primary school. However, they are paid only a half of the salaries received by a person who works in a government primary school. Among the 4 privately funded schools one was led by an NGO.

Table 6.2: Type of School (Total 50 Primary Schools in Four Districts)

Category	Number	Percentage of Total
Government run primary school	36	72%
Government run registered primary school	10	20%
Private, government recognized but not aided school	4	8%

Table 6.3: Average Size of School (2012 data and expressed as nearest round figures)

Number of students in class (1-5)	
Number of students in class 1	56
Number of students in class 2	66
Number of students in class 3	70
Number of students in class 4	56
Number of students in class 5	44
Percent of female students	
Percent of female students in class 1	52%
Percent of female students in class 2	44%
Percent of female students in class 3	49%
Percent of female students in Class 4	57%
Percent of female students in class 5	51%
Ave number of teachers per school	4
Ave number of students per school	301
Average student to teacher ratio	75:1

Table 6.4: Schooling Outcomes

Primary School Completion Examination Pass Rate (% of total participants)	93.3
Primary School Completion Examination Pass Rate for female students (% of total female participants)	95.6

Table 6.5: School's Sources of Funding (including funds related to teachers' salary)

National government capitation grants	>94%
Other national government programs (like the Food for Education Program)	<1%
Local govt. support	<1%
PTA fees	0%
Donations (in-kind support)	<2%
NGOs	<2%

Source: Author's own estimation based on survey results

Table 6.6: Share of Fund Receiving Schools (except funds related to salary expenses, %)

Category of Funds	Share of total units who received any fund in 2010 and 2011 (%)
Schools received funds from national government capitation grants	20
Schools received funds from other national government programs	0
Schools received funds from local govt. support	4
Schools received funds from PTA fees	0
Other fees (Donations)	16
Churches/NGOs	4

Table 6.7: School Characteristics (% of the total sample)

School facilities have covered roofs	92
School facilities have at least one class room with a leaked roof	24
School facilities have Benches for students	100
School facilities have blackboards in all classrooms	20
School facilities have at least one toilets for students	96
School facilities have separate toilets for girls	40
School facilities have drinking water source for students	92
School facilities have electricity	20
School facilities have lights and fans in classrooms	12
School facilities have a playground	100
School facilities have a library	4
School facilities have specialized science class room	0
School facilities have computers	0
School facilities have separate Office for head teacher	4
School facilities have a separate staff room	4
School facilities have separate common room for teachers	0

Table 6. 8: Record About Supervision and Accountability (% of total sample)

Facility has never been visited by outside official inspector	0
Facility has been visited by official inspector at least 3 times a year	96
Facility has been visited by official inspector more than 6 but less than 12 times a year	72
Facility has been visited by official inspector more than 12 times a year	20
Schools have no PTA or it has never met	4
Schools had PTA meetings at least 3 times a year	88
Schools had PTA meetings at least 6 times a year	68

We verified our second hypothesis by our findings from the above PETS-QSDS survey and we found it partially true. It was revealed that widespread corruption in resource management practices, leakages of funds or political and bureaucratic capture lowered significantly the welfare effects of public expenditure in the education sector. The situation is severely against

the favor of frontline service providers (school authority). Very few primary schools (less than 30 percent of the sample) had enough teachers to deliver quality education. During FY2008-FY2011 less than 10 percent schools got their allocated funds that were originally sanctioned from the central government. Local politicians always try to control and interfere in everything related to monetary decision of a primary school because school authority has no power at all in budget allocation and other important expense decisions. In this connection, we found agency problem in two layers namely *'between the citizens and politicians'* and *'between citizens and service providers'* appeared in public expenditure management process in the Bangladesh primary education sub-sector.

However, we could not find any free rider problem in primary schools we surveyed. But moral hazard was appeared in the hierarchy and reinforced in the team. In the process a central-local authority plan is followed in most cases to share the responsibilities in decision making about fund disbursement and allocation.

In our survey questionnaire several instruments were used. The questionnaire included eight general sections which were answered by the head teacher. Therefore, we consulted with the head teacher as a primary respondent for our survey. Other teachers also took part in the survey by supporting the head teacher with relevant information and school records. Three separate data sheets were utilized to collect information about funding. The last section of the questionnaire focused on the sources and accuracy of the school records and relevant data.

In the following sub-sections major findings from the survey are discussed based upon our survey questionnaire and from the viewpoints of some public expenditure related variables namely school facilities, school's sources of funding, school's spending of money, value of in-kind support received by the school, and supervision and accountability etc.

Majority of the government resources transferred to the primary schools are mainly for paying salaries of the teachers (over 95%). Very few of the public funds are used for goods and services or administrative expenses. It was interesting that only a few respondents believe that a primary school needs any administrative expenses. For expenses in Goods, a category whose basic items are namely brooms, chalk, pens, binding papers etc., every primary school receives a fixed amount of money in a yearly basis (Government primary schools receive TK.8400 which is equivalent to about US$100, non-government registered primary schools get TK.4600 which is equivalent to US$55, and private schools get no fund at all from the government for Goods expenses)[16]. In total it is a very tiny part (less than 2%) of the entire expenditure for the primary education program in the country. If considered from per student spending on goods and services it is extremely a low figure (TK.24 or US$ 0.28 per student per year in 2010 and 2011) and it is almost nothing compared to total expense account of a primary school. Donations and supports come mainly from the national and local governments, alumni students, and local people. These assistances include both monetary gifts and in-kind supports with text books, tables, chairs, black boards, and ceiling fans etc. Monetary funds are used for other purposes for maintenance of school facilities and purchase of very important consumable goods.

- *Teachers' Salaries and Benefits*

In the primary education sector in Bangladesh teachers' salaries and benefits constitute more than 95% of total expenditure. The researcher eagerly wanted to study in detail about the rate of ghost workers (teachers) who do not teach but receive salaries. But it was not possible because such issues are sensitive in nature and school authorities never disclose such information to the public. At the same time the central government is unwilling to share

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[16] Although the exchange rate of US$ and Bangladesh TAKA continuously fluctuates, for the convenience of analysis, we assume 1 US$ to be equivalent to Bangladesh TAKA 84

payroll rosters. Moreover, during the time the survey was conducted these were very sensitive issues in Bangladesh because a nationwide movement demanding increment in salaries by non-government registered primary school teachers had been held.

Table 6.9: Breakdown of School Expenditures (Average in BDT)

Administrative cost	*0*
Staff-related expenses	
Teachers' salary	418,508
Teachers' bonus	43,227
Teachers' training	0
Facilities Related Expenses	
Rent on property	0
Expenses for scholastic materials (goods and services etc)	3,966

- *Leakage of Resources*

Non-wage Development Funds. The leakage of non-wage funds was estimated from the reporting of primary schools within the sample that received at least some amount of money that was previously allocated for them. Considering the entire sample most schools received very little or no fund at all. It was found that very few schools received non-wage funds in 2010 and 2011 fiscal years (only 10 schools out of 50) and among them majority are registered non-government primary schools (80%). The reason behind this is that registered primary schools are newly built and they need more funds to develop their school infrastructure facilities, especially school buildings and class rooms. Among the 10 fund-receiving school units there were only two (20%) that got the entire amount disbursed from the district education officer. Other eight of them replied that they received only a partial amount of the previously allocated funds. We simply calculated the fraction of leakage in the disbursed funds by utilizing the following formula. We found that on an average only 38% of the total fund finally reached to the school authority and the remaining 62% was leaked, which is very high.

$$\text{Leakage} = \frac{\text{Average capitation grant received by an individual primary school}}{\text{Average fund originally granted for it}}$$

Rule-based and Discretionary Funds. Along with our own estimation techniques it should be noted that leakage has been defined in two ways in the literature. Ablo and Reinikka (1998) has introduced strict definition of leakage appropriate for rule-based expenditure and suggested the following equation in its estimation.

$$\text{Strict leakage} = 1 - \frac{\text{resourss actually received by the facility}}{\text{resources intended originally for the facility}}$$

On the other hand Lindelöw (2006) advanced narrow (or soft) leakage for discretionary funding and proposed the following equation to measure it.[17]

$$\text{Narrow leakage} = 1 - \frac{\text{resourss actually received by the facility}}{\text{resources originally disbursed by a higher authority}}$$

It was revealed that discretionary funds such as (sudden repairmen cost of school facilities which composes more than 60% of the disbursed amount) were leaked more than rule-based funds (like scholarships for female students from the central government) in Bangladesh primary education sub-sector. One probable reason for this situation is a greater discretionary power granted to politicians and local public administration without having proper supervision and adequate incentives programs (Das et al., 2004a).

Salary versus Non-salary Expenditure. The survey results indicated that non-wage resources which are channeled through inter-governmental transfer suffer from higher level of leakage and capture than wage related resources do. An agency problem between local politicians and school authority arises in the process of non-wage resource channeling because government officials and local politicians can use their information advantages to reduce the disbursed fund significantly. In contrast, in Bangladesh salaries and other wage resources are paid as a direct bank transfer from the relevant ministry to a certain worker or teacher at a primary school. Clearer rules and regulation that govern wage funds also contribute to reducing leakage and capture of such funds.

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[17] It is the non-fixed allocation rule flows of fund expenditure which indicates the share of resources sent at a certain level in the hierarchy but not received by the facility level.

Causes of Fund Captures and Leakages (Institutional Assessment and Lack of Information). In Bangladesh most funds (both financial and in-kind) for the education sector expenditures are granted from the central government. About all funds except for the tertiary level education, districts get them and are supposed to pass those funds on to school facilities through the upazilla administration. Local members of the parliament also receive development funds directly granted from the government and can use them freely for development purpose of the locality. In this ground, with the lack of proper oversight by the central government, local politicians as well as district and upazilla officials maintain some degrees of discretion over these resources. They also have better information about the amount of money (which is varied from school to school) transferred for a certain school facility. On the other hand, school authority faces a situation of information asymmetry on disbursement of the capitation grant because of a higher cost associated with obtaining such information from the central government. The ultimate consequence is that allocated funds do not reach to a school facility according to the rules regulated by the central government.

- *Inadequate Funding*

Survey findings indicate that the supply of goods and services, teachers' salaries and other job benefits are not adequate enough. Almost all of the respondents (more than 98%) told that the amount of funds they are granted for a primary school is insufficient to cover the necessary costs. The supplies except text books are so insufficient that whatever they receive for the school becomes very useful.

Poor infrastructure and lack of teachers were two major problems that every head teacher identified in his/her school. Respondents reported that more than 80% primary schools suffer from lacks of necessary funds to repair old class rooms, get electricity connection and build enough number of toilets for students. Supply shortages and inadequacy of public funds

sometimes lead the school authority to raise funds through charity and turn them to local people and other local government organizations like union parishad or upazilla council.

We came to learn that most of the teachers have a second job because teachers' salaries and bonuses are also not enough to maintain their families without having another source of income. On an average, a teacher receives about TK. 9,000 monthly salary including all other benefits which is equivalent to US$108. According to the respondents of this survey, it was not a sufficient amount to fulfill basic needs of a primary school teacher and his/her family.

Figure 6.1: Fund Disbursement Hierarchy in Primary Education in Bangladesh
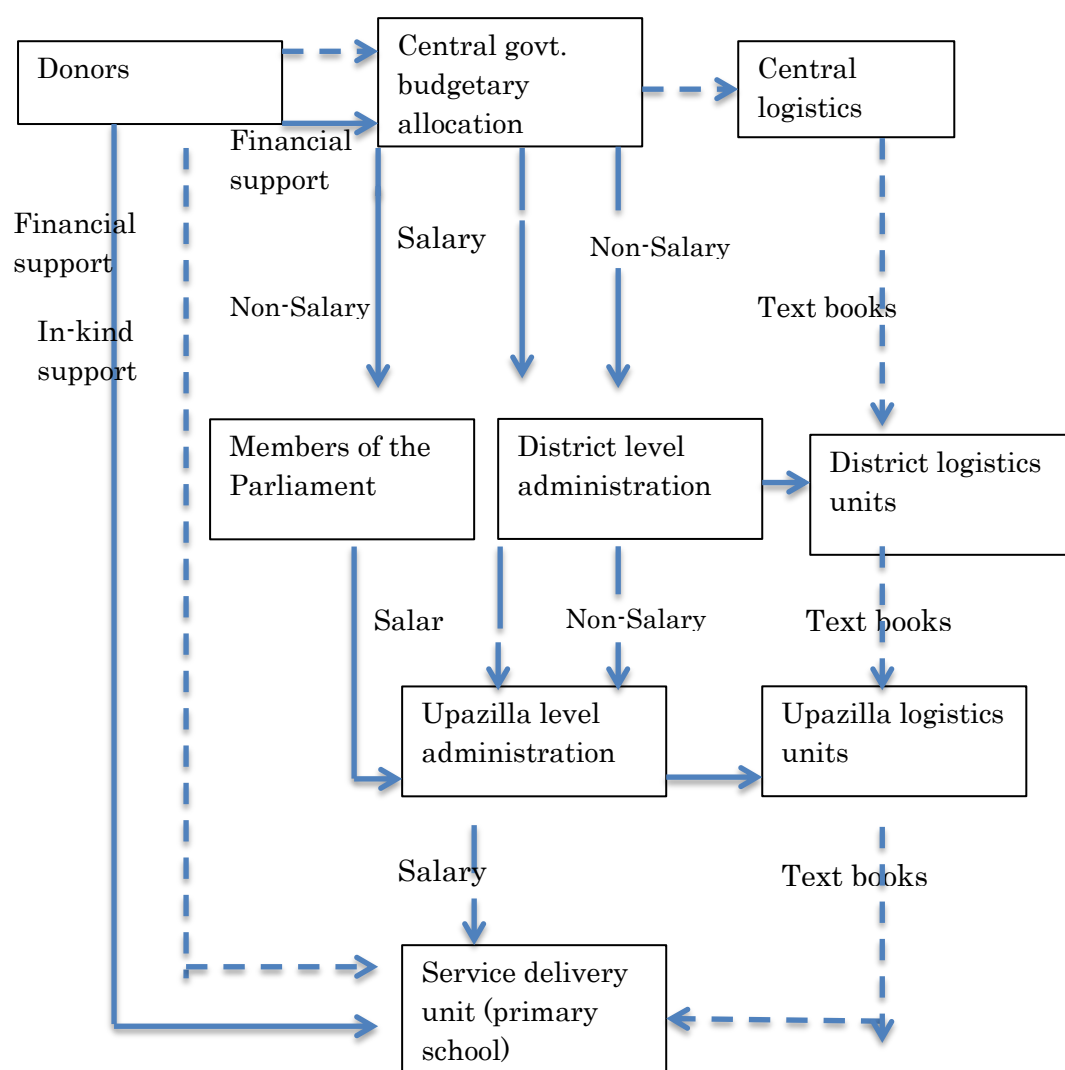
Source: Estimated and drawn by author based upon own observations

- *Evaluating Primary Education Expenditure through Equity*

Equity in public expenditure is an important aspect to judge the performance of the relevant policies. Our equity analysis focused in estimating the value of an additional staff input at the school facility. It was found that per school rule-based expenditure had progressive and better records to have greater per student funding in regions where poorer and rural schools locate. However, government resource allocation was found to be regressive in nature if seen from the viewpoint of staff expenditure per pupil. Such grants were higher in primary schools located in urban and richer areas. Besides, rural schools also have been facing a problem of regressiveness in discretionary expenditures in primary education. The study found that on average poorer schools in rural Bangladesh receive about 43% less per student public funds from the government than that in urban areas. Moreover, regional inequality in public expenditure in Bangladesh, which can also affect equity negatively, is another feature of the current policies.

6.6 Conclusion

The survey started with the task of obtaining the written consent from the relevant authority as a first step. The process incorporated the submission of the research proposal and an explanation of the main purpose of the study. The researcher had to visit local education offices and submit written consent from the Bangladesh Ministry of Primary and Mass Education (MPME). The letter of consent which functioned as a permission to conduct the field study was also brought to the school facilities during the visits.

At the beginning of the interview, school authorities (mainly head masters) were worried about the research results. They were frightened of losing their jobs and falling in to political danger. In every field site some respondents often raised questions about the study's purpose, the researcher's contact address and if the results might be submitted to some government

offices. They also asked question about their benefits from the study and how it could solve the problems in their schools. When they became confirmed that the findings would not harm them in any mean then they seemed to be very helpful in providing necessary information.

We used a combination of interview and questionnaire survey in the data collection process. However, it would be fallacious to generalize the results to the whole population because the field study was limited to a short list of school facilities from only four among 64 districts in Bangladesh. Nevertheless, the findings may become helpful in understanding the features of common problems faced by a primary school and how the school authority thinks about the role of public expenditure in solving the education bottlenecks. Following this discussion we will conclude the study in the next chapter by providing an overview that gives the summary of the entire thesis. We also suggest some of the policy recommendations on the basis of the study's key findings.

Policy Conclusion

7.1 Concluding Summary

Developing countries try to achieve sustainable reduction of poverty and growth in real income and national GDP. Accordingly, fulfilling the overriding objectives of poverty reduction and economic growth require these countries to devote much of their valuable resources in such development endeavors. Given that the private sector has not been developed yet and that there exist many infrastructure bottlenecks, governments in developing countries have to play vital roles in economic development through their fiscal instruments such as public expenditure and other intervention tools. The aim of these government activities is to create a wider base for the economy so that the country could grow substantially and rapidly. Considering above mentioned background and experiences, this thesis investigated the performances of government expenditures in addressing the problem of poverty through GDP, wage and employment growth with an especial care for various government expenditures in the Bangladesh economy. We also evaluated briefly the dynamics and evolution of persistent poverty in Bangladesh because we believe that understanding the causes of poverty is a crucial and preliminary task before suggesting appropriate policies. In this chapter we are going to turn a conclusion for the study. The chapter starts with a summary of the entire thesis and then provides some recommendations of policy perspective for some of the key economic sectors in Bangladesh.

At the beginning of the thesis, main features of the Bangladesh economy have been reviewed in order to get a clear picture of the said economy. Such a revisit was helpful in pointing out the impacting factors of economic growth and poverty in the country. Throughout our discussion which focused mainly on some of the key economic and social indicators, it was

revealed that performances of the economy during last two decades were impressive. Bangladesh has been growing comparatively rapidly and the contribution of major economic sectors to GDP was remarkably good. On the contrary, the country's achievement in raising national savings and investment rates and controlling inflation were showed to be insignificant and unsatisfactory. Bangladesh has been facing poverty and inequality due to low rate of wages, lack of employment and insufficient household incomes.

Comparing data for aggregate level trends in poverty and its spatial variation, poverty gaps indices etc. for 2005 and 2010 showed a notable progress in the country. We also found that although the country could reduce poverty to a certain extent, millions of people in all seven divisions still suffer from the curse of rampant poverty. Moreover, many middle income households who were not counted as poor originally bear a risk of falling back below poverty line in the case the impacts of consumer price indices (CPI) and food price inflation are considered.

In order to fight poverty by causing growth in GDP and creating more employment opportunities, public expenditure in basic economic as well as social sectors were emphasized in Bangladesh. Cost-effective poverty reduction programs were implemented and more government spending in a provision of public goods for pro-poor sectors that are relevant to human and income poverty were achieved side by side. However, public expenditure in the country (at least for sectors such as education and health) appeared to be skewed to some groups who are non-poor. Poor people do not get their proper share in resources spent by the State. They get comparatively less than the richer group of the population and they also receive lower absolute as well as per capita amounts.

We found that the correlations between various public spending and economic growth were absent in Bangladesh. Public expenditure also did not maintain any clear correlation with

poverty rates, although, theory suggests an important link between poverty and public expenditure. The impact, however, depends on the economic context, the country's initial capital base and amount of the spending that was happened.

Considering above findings, the present study has focused on a set of time series data from the Bangladesh Government's ADP expenditure for 31 years and measured the impacts imposed by various public spending in some thrust sectors of the economy. Later underlying causes of policy's failure (to reduce poverty significantly by effective use of public funds) were investigated by using a PETS-QSDS survey undertaken in the primary education sub-sector of the country. Our findings from the econometric tests and regression analysis verified the study's first hypothesis. The results and coefficients of various sector specific public expenditure showed that most of the ADP expenditures in the country has been wasted and flittered away.

Later an effort was made to investigate the reasons behind the situation. Our findings from the PETS-QSDS survey conducted in the primary education sub-sector while considering it as a test case have indicated some of the major impediments in Bangladesh's public expenditure management policies. Widespread corruption in resource management hierarchy, leakages of funds and/or political and bureaucratic capture, and a lack of accountability and transparency in public expenditure management system, lack of equity in fund disbursement practices and insufficient grants appeared to be some of the underlying reasons behind the situation. Agency problems in two layers namely *'between the citizens and politicians'* and *'between citizens and service providers'* also lowered significantly the welfare effects of public expenditure in the sector. These phenomena were checked and verified in the second hypothesis of the thesis by our primary data from the PETS-QSDS survey. In this way we have done a brief evaluation of our main hypotheses as they were presented in chapter one.

7.2 Policy Recommendations and Direction for Future Expenditure Strategies

Findings of the present study have very important policy implications for the government of Bangladesh and its broad strategic priorities regarding public spending. While the country is featured to have achieved notable progress in most economic and social indicators over the last 30 years, major outcomes of public expenditure (more specifically ADP expenditure) in key sectors–education and religious affairs, health and family welfare, infrastructure building (proxied by transport and communication), power and energy, and agriculture and rural development–indicate inefficiencies and a number of structural issues. In order to escape from the trap the country needs to address these challenges in formulating future expenditure policies and provisioning/financing public goods and services through various programs.

Throughout the discussion it was revealed that in Bangladesh public expenditure allocation and distribution in the highlighted sectors representing by education and health indicate a common characteristic–they are skewed towards the non-poor. Moreover management structure, system and budget planning in the said sectors are fragmented in nature, which in most cases, lowered the effectiveness and efficiency of sector policies in the country.

In this part of the chapter we outline general recommendations within a package of sector-specific policy directions to address the above issues. In formulating future expenditure strategies and to achieve a better front in public sectors, current challenges should be overcome. Priorities need to be given and attention must be paid to the following key issues:

Focusing on the needs of poor people. According to our previous analysis for two important sectors (education and health) it is obvious that public expenditure in the country is not pro-poor because only a tiny portion of government resources reach to the poor. For an example, in Bangladesh, 40 percent of the total school-age children come from poor

households and they receive only 32 percent of the total education spending by the government. Moreover, the situation is less pro-poor in secondary and tertiary education. Recent data shows that although total allocated amounts have been raised since independence, there has been no remarkable shift in public education expenditure towards the poor. We suggest that additional attention needs to be given to the portion of students who are poor so that their learning outcomes and quality of education can improve. To do so, government needs to ensure that schools operating in the disadvantaged localities get enough care in terms of funds and support. In this connection, poor children's access to schooling could be improved by proper targeting and enforcement of current stipend and other related programs.

Service Provision to the Poor Must be Improved as a First Task in the Health Sector. This is because reaching the poor and improving their health status remain a big challenge for the government of Bangladesh. Therefore better planning, allocation, and targeting of sector activities and resources are needed. The share of public health spending in poorest districts should be increased and affirmative actions need to be taken in a favor to the poor. Funding share provided by the State at upazila level and below in rural areas needs to be raised so that rural people can get enough access to proper health care facilities.

Emphasizing on Better Management and Higher Level in Accountability. Public expenditure in the education sector is extremely centralized. Decentralizing financing directly to schools could potentially lead to less fund capture and smaller leakage. Such initiative can improve effectiveness and efficiency in resource management practice in the education sector. However, provided that corruption is also high even in the lower level, the school authority has to be monitored and supervised by stronger and more accountable management bodies.

Achieving Improvement in Equity Levels for Public Spending. In the education sector quality of education and greater access to schooling, especially at primary and secondary

stages, require higher overall allocation of funds for the sector. It is acknowledged that demand-side interventions are necessary, but the equity goals of the State should not be ignored. Government's ongoing funding norms should be reviewed to provide more equity in public expenditure and financing. In this regard, similar incentive programs should be offered to teachers in all government and non-government registered primary schools. A similar postulation is necessarily true for the health and family welfare sector as well as the power and energy sector.

Strengthening Quality of Sector Management Needs to be Taken Care of. To utilize valuable public resources properly and efficiently, administration and management systems within the sectors must be strengthened. Level in transparency and accountability is to be increased by proper monitoring and evaluating functions. Better planning and execution of budget should be maintained through superior staffing of vacant posts. For an instance, leadership and governance in the key sectors should be improved by more involvement of the relevant ministry. This is needed because in managing and regulating the country's public expenditure with better performance indicators, there is a room for the line ministries to play more active roles.

Realignment of Expenditure Allocations with Pre-designed Policies in Major Sectors Should be Achieved. In theory, sector policy frameworks in Bangladesh seem to be appropriate for all important sectors but they do not play their proper roles in expenditure allocations and uses. For an example, the objective of the infrastructure sector's transport strategy is to build up a balanced and integrated transport system, however in practice, the government in all levels focus mainly on road expansion. Allocation of resources should be matched by an expenditure policy that emphasizes on quality of road services by improving road safety and maintenance. Another example comes from the health sector from a different angle. While government spending on the administration of health and family welfare related

services is continuously rising, expenditure amount in curative care needs of the people is experiencing continuous shrinkages.

On the other hand, present management of the power and energy sector uses valuable public resources to cover their operational losses. The sector receives funds from the government as subsidies, injects them in loss projects and contributes to build up contingent liabilities for the people instead of creating meaningful economic values.

We suggest that improving quality of large capital investment portfolios in sectors such as transport and communication, power and energy and agriculture and rural development require particular attention.

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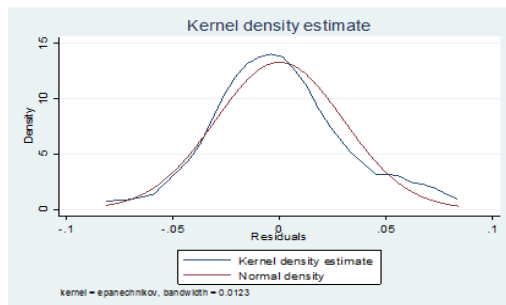
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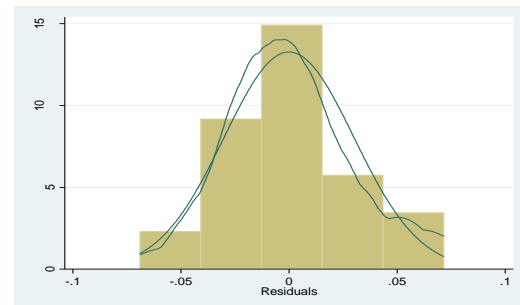
Appendices

Appendix 1: Test Outcomes from the Econometric Analysis

- ***Normality Check using Graphs***

(a) kdensity, normal

(b) histogram, kdensity normal

(c) Standardize normal probability plot (pnorm)
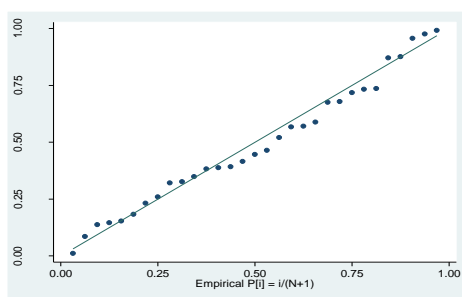
(d) Quintile-normal plots (qnorm)
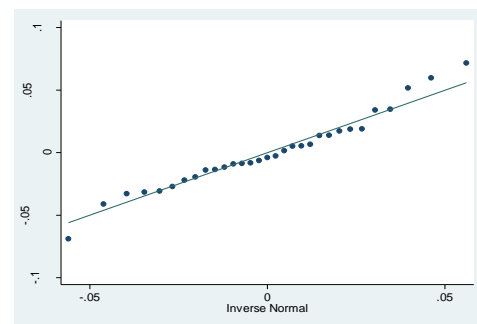
- ***Normality Check by the Shapiro-Wilk Test***

```
. swilk e
```

		Shapiro-Wilk W test for normal data			
Variable	Obs	W	V	z	Prob>z
e	31	0.97521	0.808	-0.443	0.67109

- ***EG-ADF Test Result for Cointegration***

```
. dfuller e1, lags(10)
```

Augmented Dickey-Fuller test for unit root　　　　Number of obs　=　　20

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-2.124	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.2350

- *Testing for Serial Correlation*

. estat dwatson

Durbin-Watson d-statistic(9, 31) = 1.969233

. estat durbinalt

Durbin's alternative test for autocorrelation

lags(p)	chi2	df	Prob > chi2
1	0.002	1	0.9678

H0: no serial correlation

. estat bgodfrey

Breusch-Godfrey LM test for autocorrelation

lags(p)	chi2	df	Prob > chi2
1	0.002	1	0.9608

H0: no serial correlation

- *Testing for Heteroskedasticity*

. hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
        Ho: Constant variance
        Variables: fitted values of logp

        chi2(1)   =   1.33
        Prob > chi2 =   0.2489

- *Testing for Omited Variable Bias*

. ovtest

Ramsey RESET test using powers of the fitted values of logp
        Ho: model has no omitted variables
                F(3, 19) =   2.30
                Prob > F =   0.1099

- *Regression Results*

. regress logpdiff logggdp logemptdiff logwagerdiff logedexdiff loghlexdiff loginfexdiff logenexdiff logarexdiff

Source	SS	df	MS
Model	.004098151	8	.000512269
Residual	.005721165	21	.000272436
Total	.009819316	29	.000338597

Number of obs = 30
F(8, 21) = 1.88
Prob > F = 0.1176
R-squared = 0.4174
Adj R-squared = 0.1954
Root MSE = .01651

logpdiff	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
logggdp	.0292344	.0216604	1.35	0.191	-.0158109	.0742796
logemptdiff	-.1886482	1.471189	-0.13	0.899	-3.248153	2.870857
logwagerdiff	-.3547846	.2157878	-1.64	0.115	-.8035398	.0939706
logedexdiff	.0875255	.0547444	1.60	0.125	-.0263216	.2013727
loghlexdiff	-.056689	.0864983	-0.66	0.519	-.236572	.1231939
loginfexdiff	.0501204	.0286345	1.75	0.095	-.0094283	.109669
logenexdiff	.082343	.0543666	1.51	0.145	-.0307185	.1954044
logarexdiff	.0809314	.0617648	1.31	0.204	-.0475155	.2093783
_cons	-.0284799	.0155924	-1.83	0.082	-.060906	.0039463

- *Granger Causality Tests*

```
Granger causality Wald tests
```

Equation	Excluded	chi2	df	Prob > chi2
p	ggdp	1.5071	2	0.471
p	ALL	1.5071	2	0.471
ggdp	p	9.2421	2	0.010
ggdp	ALL	9.2421	2	0.010

```
Granger causality Wald tests
```

Equation	Excluded	chi2	df	Prob > chi2
p	empt	4.2076	2	0.122
p	ALL	4.2076	2	0.122
empt	p	2.0312	2	0.362
empt	ALL	2.0312	2	0.362

```
Granger causality Wald tests
```

Equation	Excluded	chi2	df	Prob > chi2
p	wager	13.821	2	0.001
p	ALL	13.821	2	0.001
wager	p	2.9492	2	0.229
wager	ALL	2.9492	2	0.229

```
Granger causality Wald tests
```

Equation	Excluded	chi2	df	Prob > chi2
p	edex	1.3683	2	0.505
p	ALL	1.3683	2	0.505
edex	p	5.4107	2	0.067
edex	ALL	5.4107	2	0.067

```
Granger causality Wald tests
```

Equation	Excluded	chi2	df	Prob > chi2
p	hlex	.98216	2	0.612
p	ALL	.98216	2	0.612
hlex	p	5.2415	2	0.073
hlex	ALL	5.2415	2	0.073

```
Granger causality Wald tests
```

Equation	Excluded	chi2	df	Prob > chi2
p	infex	.43424	2	0.805
p	ALL	.43424	2	0.805
infex	p	1.4622	2	0.481
infex	ALL	1.4622	2	0.481

```
Granger causality Wald tests
```

Equation	Excluded	chi2	df	Prob > chi2
p	enex	.34463	2	0.842
p	ALL	.34463	2	0.842
enex	p	9.8828	2	0.007
enex	ALL	9.8828	2	0.007

```
Granger causality Wald tests
```

Equation	Excluded	chi2	df	Prob > chi2
p	arex	8.3572	2	0.015
p	ALL	8.3572	2	0.015
arex	p	4.6108	2	0.100
arex	ALL	4.6108	2	0.100