United International University
QUEST FOR EXCELLENCE

Project Report On

The impact of government expenditure on the economic growth of Bangladesh.

Prepared for:

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LETTER OF TRANSMITTAL

June 7, 2018

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Subject: Submission of the Project Report

Dear Madam,

It is my pleasure to submit this report entitled “The impact of government expenditure on the economic growth of Bangladesh" which was assigned to me as the fulfillment of Project Work requirement. I have tried my level best to make an enriched report and now I am glad to submit you this for better judgment. The writing of this report was a great experience as it provided me with exposure to the real life and practical experience.

Thank you for your guidance and constant supervision to fulfill this report.

Sincerely Yours,

Md.Akram Hossain

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Signature: _____

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Executive summery

The examination of the relationship among the variables such as between GDP, general government expenditure and military expenditure. The essence of the study is that it identifies the factors those working to the development of the growth of the country and those are not. Also, the components of the government expenditure accelerating the GDP of the country. It is important to conduct several functional areas in order to reach the conclusion of the relationship among the variables.

It is arguably important to collect the data and run the econometric model. Data from the world bank and Bangladesh bank revealed the following results when conducting the regression analysis

Different tests and different results are used to conclude the findings. Firstly, it can be easily said that independent variables are clearly explaining the dependent variable. From the enough study it has also been recognized the independent variables are enough to explain the dependent variable. From the tests and results, it has been found that changes in the independent variables cause change in the dependent variable indicating if GGE and ME rise then GDP rise in the same direction whereas if the GGE and ME decrease then GDP decreases. From the Johansen test of co integration it has been clear that there is no co integrating equation among the variables and from the result of the granger causality test it has been established that independent variables cause the dependent variable.

In connection with the numeric analysis, there are also several theoretical analyses all are implying a positive relationship among the variables. The theoretical understanding of the concepts and other areas helped a lot to the congruence of the result found in case of numeric analysis.

Once again, the final aim is to find the relationship between government expenditure and economic growth which has been revealed as positive. Indicating that if the government expenditure rises the GDP increases and vice versa. So, to enhance the GDP of Bangladesh it is recommended to increase the level of expenditure. The policymakers should emphasize in this sector for a better future of the country.

ACKNOWLEDGEMENT

First and foremost, I would like to thank the Almighty Allah for giving me good health to complete this project. Then I would like to thank my supervisor Senior Lecturer Nusrat Farzana for her relentless support, advice and guidance throughout the entire preparation of this report. Completion of this report has made me grateful to a number of people especially those who took the time to share their thoughtful guidance and suggestions to improve the report. Without the support and help of those people, I would have not been able to complete this study.

Finally, I state that I tried my best to complete this project paper with my best effort and efficiency. There might be some mistakes due to limited aptitude. In this regard, I would like to apologize and therefore request every reader of this report to forgive any kind of mistakes.

Chapter 1: Introduction

1.1: Introduction:

This paper focuses on evaluating the impact of the most likely fiscal policy scenario on Economic growth in Bangladesh rather than defining optimal, sustainable fiscal rules suitable for the country. One of the policy options considered by the authorities is to continue to scale up expenditure, in particular in the area of infrastructure. Upon the completion of key Infrastructure projects, the authorities intend to scale down capital expenditure significantly. Also, the authorities intend to raise the level of public sector wages and pensions and social Benefits upfront with the understanding that the real growth of wages and transfers will also slow significantly over the medium term. To the successful completion of the research study there is the help from a variety of sources to the study. Here, data on different related studies are used as the input to the research study. I have used data from the world bank and other necessary documents to the successful completion of the research study. Finally, there is the input of the regression model which is enough to the evaluation of the effectiveness of the government expenditure on the economic growth of the country.

1.2: Objective of the report:

There are several objectives of the report. The main objective is to introduce the learners with economic aspects those are useful to the full understanding of the economy. Also, the learners will be introduced on the regression analysis based on which econometric models are done. Objectives of the report are as follows

- ✓ Understanding the economic condition of the country
- ✓ Introduction to the government expenditure

- ✓ The true impact of the government expenditure on the economic growth of the country
- ✓ The implications of the results on the policies to be taken
- ✓ Time series analysis
- ✓ Cross sectional analysis
- ✓ Data analysis
- ✓ Ways of taking decisions based on data
- ✓ Understating the theoretical aspects

1.3: Scope of the report:

The report is mainly focusing on the impact of the government expenditure on the economic growth of the country. Here time series data are analyzed properly to reach the decision. Statistical software will be used to make the results of the tests. There are association with the other areas those are important to learn both in the academic and professional life.

1.4 Methodology:

In the whole analysis, there will be both quantitative and qualitative data analysis. Data are to be collected from a variety of sources. The main focus of the study is to know the relationship among the variables whether the independent variables are causing the dependent variables. Regression analysis will be conducted to know the relationship among the variables. In case of the whole analysis GDP is selected as the dependent variable and General government expenditure and Military expenditure have been selected as the independent variables. For the regression to have run, Stata will be used. There will be other theoretical understandings those are useful to the full disclosure of the analysis.

1.4.1: Data collection and analysis:

Data Collection Procedure:

In order to make the report more meaningful and presentable, two sources of data and information has been used widely. I have used data primarily from the secondary sources. I have used the data of the World bank, Bangladesh Bureau of statistics and other necessary areas to the successful completion of the study. So far as, most of the data have been collected from the secondary sources to the completion of the study.

The use of the secondary data source helps me to know about the various data on the research study. I have used and analyzed those to the research question. Though there are some limitations to the use of the secondary data source I have used those as nothing alternative to the secondary data source was available to me while doing the analysis.

Data processing:

The given data will be processed based on the Microsoft word, excel and other computerized software. There will be used proper methods of processing the data. Basically, data will be processed through the use of the stata software. There will be use of tables, graphs and other charts useful to proper presentation of the data. Based on data of different tests, policies will be suggested.

1.5: Limitation:

There are several limitations of the study as follows

- ✓ Finding the actual data
- ✓ Heavy reliance on the secondary data
- ✓ Based on a single analytical model
- ✓ Higher chances of the manipulation of the data
- ✓ Limitation of the time
- ✓ No personal contact with the officials

1.6: Conclusion:

The proper analysis of the study will reveal an understanding of the impact of government expenditure on the economic growth of Bangladesh. There is the input of the regression model which is enough to the evaluation of the effectiveness of the government expenditure on the economic growth of the country.

Chapter 2: Introduction to the economic condition.

2.1: Introduction

Economic growth and development are interrelated. Due to one another is accelerated. Growth of gross national output or per capita output is an indicator of economic growth. Economic Development is a process whereby an economy's real national income increases over a long period of time. In this chapter there will be preliminary discussion on the relationship between the economic growth and development. The relationship will be helpful in order to make recommendations or to make the understanding of the proper economic condition.

2.2: Economic growth:

Economic growth is an increase in the capacity of an economy to produce goods and services, compared from one period of time to another. It can be measured in nominal or real terms, the latter of which is adjusted for inflation. Traditionally, aggregate economic growth is measured in terms of gross national product (GNP) or gross domestic product (GDP), although alternative metrics are sometimes used. In simplest terms, economic growth refers to an increase in aggregate productivity. Often, but not necessarily, aggregate gains in productivity correlate with increased average marginal productivity. This means the average laborer in a given economy becomes, on average, more productive. It is also possible to achieve aggregate economic growth without an increased average marginal productivity through extra immigration or higher birth rates.

2.3: Relationship between growth and development:

2.3.1: Economic growth:

The term economic growth refers to the quantitative aspect of economic progress of a country. According to Paul Baron, “Economic growth may be defined as an increase over time in per capita output of material goods.” In other words, growth of gross national output or per capita output is an indicator of economic growth.

We know human wants are unlimited and they are increasing over time. Man is never satisfied with what he has. However, our resources are very limited. Therefore, we should try to satisfy our wants. Hence, we should try to increase the production of goods and services. Thus, economic growth signifies the growth in the volume of goods and services.

Economic growth can be attained from the following methods: -

(a) To raise total output

(b) To check increase in population

(c) To ensure capital formulation

(d) To raise entrepreneurship.

2.3.2: Economic Development:

According to Promit Chowdhury, “Economic development is an increase in real output goods and services that is sustained over a long period of time, measured in terms of value added.” According to Meier and Bladwin, “Economic Development is a process whereby an economy’s real national income increases over a long period of time. “According to Prof. Todaro, “Economic development is a multi-

dimensional process involving major changes in social structures, popular attitudes and national institutions as well as the acceleration of economic growth, the reduction of inequality and the eradication of absolute poverty". Economic development is a much broader concept than economic growth. In simple sense, Economic development. = Economic Growth + Standard of Living.

2.4: Conclusion:

From the analysis it has been found that economic growth and development are interrelated. Due to one another is accelerated. Growth of gross national output or per capita output is an indicator of economic growth. Economic Development is a process whereby an economy's real national income increases over a long period of time. In this chapter there was the preliminary discussion on the relationship between the economic growth and development. The relationship will be helpful in order to make recommendations or to make the understanding of the proper economic condition.

Chapter 3: Literature review

3.1: Introduction

The literature review section discusses on the scholarly analysis. In this segment, there are analysis on different argument and counter argument. From the argument and counter argument, the close relationships among the variables are properly analyzed. From the analysis it would be clear whether or not government expenditure and military expenditure are incurring the GDP of the country. This section of analysis shows the findings from various scholars in the research areas on the given topic which is the matter of discussion in this whole analysis.

Research study shows that with the development of economy, the government's expenditure tends to increase with the increase of economic activities. The Growth of a country may be different from other country. There are three major contributory factors towards the growth in government expenditure.

1. Wagner's law refered to in Likita (1999:45-46) states that ``as per capital pay of an economy develops, there will be increment in the quantity of urban focuses with the related social indecencies, for example, wrongdoing which requires the intercession of the legislature to keep up lawfulness and these mediations by the administration have heaps of suggestions, prompting the expansion in broad daylight use in the economy``.

2. This could be broke down with condition Y = AK1-aGa this as indicated by Barro (1992) infers that the total of open administrations g can be spread in a non-equal way finished the majority of the n makers. In light of this non-contention, the peripheral result of open administrations is the impact of progress in G total yield, Y = yen. profitable effectiveness. Wagner says, (1999:46) that there is a positive connection between the per capital salary of the nationals in a nation with government spending to such an

extent that the pay versatility of government consumption is constantly more prominent than one. In any case, different specialists have found that the relationship isn't generally sure in light of the fact that there are periods when government consumption in relations to the national wage will decay when the flexibility of wage to government use is short of what one (inelastic).

3. Rostow – Musgrave display (1999:46) did an examination on development of open use and inferred that, at the beginning periods of economic improvement, the rate of development of open use will be high since government gives the essential infrastructural offices (social overheads) and a large portion of these tasks are capital serious, in this manner, the spending of the administration will increment relentlessly. The interest in instruction, wellbeing, streets, power, water supply are necessities that can dispatch the economy from the specialist stage to the take off phase of monetary advancement, making government to invest and expanding sum with energy keeping in mind the end goal to build up a libertarian culture.

Samuelson (1995:514) contributed therefore "it is a method for isolating out commitments of the diverse patterns amid watched development". In this, open consumption will develop in sensitivity to accomplish development in labor (L) and this will include increment in instruction costs; development in capital (K) all these will accompany through investment funds or borrowings and mechanical advancement (Tn), consequently Q = F (K,L, Tn).1. Peacock – shrewd man's model (1999), this hypothesis additionally took a gander at expanding open use from the social-political point of view. Government consumption will increment as wage increments but since the pioneers need reelection into political workplaces, so more foundations must be given with a specific end goal to persuade the electorate that their advantages are being provided food for by the general population they voted into control. Be that as it may, the natives of the nation are less ready to pay assess. The obstruction of the care of the legislature in type of expanded spending to maintain a strategic distance from social emergencies in the economy. The protection from pay impose by the general population will make the

state to have low income subsequently the cost of demonstrating more offices is borne by the administration, making government consumption to increment quickly.

There are a few neoclassical development models taking into account the effect of government tasks on asset assignment and development. These models depend on different mixes of suspicions in regards to the legislature, including the nearness of singular amount or distortionary charges, the consideration of government buys and exchanges to families, the joining of open merchandise or open capital in the generation work or the family utility capacity. A few models try to determine ideal government consumption or tax assessment ways (writing surveys in Ljungqvist and Sargent, 2004; and Barro and Sala-I-Martin, 2004). Others plan to examine distinctive monetary strategy rules (e.g., Judd, 1985; Barro, 1989; and Baxter and King, 1993). The two sorts of models were connected to the examination of open funds with regards to oil-creating nations (e.g., Engel and Valdés, 2000; and Takizawa, Gardner, and Ueda, 2004). Drawing on the ramifications of hypothetical models, observational investigations in people in general back writing concentrated on the effect of government utilization and open speculation on development. The lion's share of creators finds solid negative connections between the extent of government utilization (i.e., costs on products and enterprises, and compensation) and financial development for different gatherings of nations (Barro, 1991). Be that as it may, there is critical contention on the effect of open speculation (i.e., capital use) on development. A few investigations found that open speculation had a comparative or substandard effect on development contrasted and private venture (e.g., Barro, 1991; Calderon, 2004; and Khan and Kumar, 1997).

3.2: Public finance system and sustainability:

Every legislature ought to characterize "sustainability" for itself. A few governments may stress one of ICLEI's three bases over the others or underline specific components

inside a base. The goal is to achieve a common comprehension of what manageability implies, while giving a definition what is sufficiently particular to apply to a given venture, program, or arrangement. Governments ought to likewise elucidate whether their meaning of manageability applies just to the association or to the network that the administration serves. Obviously, a more extensive definition will be additionally testing to actualize and will have distinctive ramifications for which procedures are chosen. The fund officer can add to this discussion by featuring the need to adjust the points of ecological, social, and financial supportability with the need to utilize assets effectively.

3.3: Conclusion:

The literature review section discussed on the scholarly analysis. In this segment, there were analysis on different argument and counter argument. From the argument and counter argument, the close relationships among the variables were properly analyzed. From the analysis it would be clear that government expenditure and military expenditure are incurring the GDP of the country. This section of analysis showed the findings from various scholars in the research areas on the given topic which is the matter of discussion in this whole analysis.

Chapter 4: Descriptive statistics of the government expenditure.

4.1: Introduction.

In this there will be discussion on the statistical analysis of the government expenditure. Here, basically the amount of the government expenditure of Bangladesh will be shown. From the given data a trend of the government expenditure will be found either the expenditure follows increasing or decreasing trend. For the proper elaboration the actual data are required. Let' explore the statistical analysis

4.2: Descriptive statistics of the government expenditure.

4.2.1: Data collection Bangladesh Government Spending 2003-2016 | Data | Chart | Calendar

Government Spending in Bangladesh increased to 823.97 BDT Billion in 2015 from 702.09 BDT Billion in 2014. Government Spending in Bangladesh averaged 390.65 BDT Billion from 2003 until 2015, reaching an all-time high of 823.97 BDT Billion in 2015 and a record low of 115.31 BDT Billion in 2003. Government Spending in Bangladesh is reported by the Bangladesh Bureau of Statistics**.**

Government Spending refers to public expenditure on goods and services and is a major component of the GDP. Government spending policies like setting up budget targets, adjusting taxation, increasing public expenditure and public works are very effective tools in influencing economic growth. This page provides - Bangladesh Government Spending - actual values, historical data, forecast, chart, statistics, economic calendar and news. Bangladesh Government Spending - actual data, historical chart and calendar of releases - was last updated on May of 2016.

Bangladesh Government	Last	Previous	Highest	Lowest	Unit
Government Debt to GDP	18.00	18.90	44.90	18.00	percent
Government Budget	-4.70	-4.00	-2.00	-4.70	percent of GDP
Government Budget Value	70623.00	-41476.00	70623.00	-41476.00	BDT Billion
Government Spending	823.97	702.09	823.97	115.31	BDT Billion
Government Revenues	169045.00	146732.00	169045.00	15008.00	BDT Billion
Fiscal Expenditure	239668.00	216222.00	239668.00	22013.00	BDT Billion

Bangladesh Government	Last	Previous	Highest	Lowest	Unit
Government Spending To GDP	16.60	16.01	16.60	12.16	Percent
Credit Rating	40.00				

Balance of payments [Monthly Data]

(In million US$)

Items	2014-15 July-Feb	2015-16R July-Jan	2015-16P July-Feb	% Changes 4 over 2
1	2	3	4	5
Trade balance	-4069	-3753	-4058	
Export f.o.b.(including EPZ)	20013	18787	21576	7.81
Of which : Readymade garments	16551	15761	18128	9.53
Import f.o.b (including EPZ)	24082	22540	25634	6.44
Services	-2185	-1491	-1738	
Credit	2001	2038	2305	15.19
Debit	4186	3529	4043	-3.42
Primary income	-1882	-1400	-1556	
Credit	53	48	52	-1.89
Debit	1935	1448	1608	-16.9
Of which: Official interest payments	261	242	270	
Secondary income	10335	8912	10062	
Official transfers	36	34	35	
Private transfers	10299	8878	10027	-2.64
Of which : Workers' remittances(current a/c portion)	9836	8523	9635	-2.04
Current Account Balance	2199	2268	2710	
Capital account	325	279	298	
Capital transfers	325	279	298	
Financial account	528	840	905	
Foreign direct investment (net)	1140	1312	1450	27.19
Portfolio investment (net)	328	8	25	

Of which : Workers' remittances(financial a/c portion)	84	132	155	
Other investment (net)	-940	-480	-570	
Medium and long-term (MLT) loans	1495	1505	1738	16.25
MLT amortization payments	658	517	557	-15.35
Other long term loans (net)	53	-39	-61	
Other short term loans (net)	-142	-180	-344	
Trade credit (net)	-2040	-996	-1287	
DMBs and NBDCs (net)	352	-253	-59	
Assets	82	163	-147	
Liabilities	434	-90	-206	
Errors and omissions	-829	-711	-764	
Overall Balance	2223	2676	3149	
Reserve Assets	-2223	-2676	-3149	
Bangladesh Bank (net)	-2223	-2676	-3149	
Assets*	2210	2410	3327	
Liabilities	-13	-266	178	
Memorandum Items: Gross reserves (before valuation adjustments)	23718	27435	28353	
Valuation Adjustment During the Period	-686	-296	-294	
Gross reserves (after valuation adjustments)	23032	27139	28059	
In months of imports of goods and services	7.08	7.8	8.1	

4.3: Conclusion:

In this there were discussions on the statistical analysis of the government expenditure. Here, basically the amount of the government expenditure of Bangladesh were shown.

From the given data a trend of the government expenditure has been found and the data indicate that there is an upward trend of spending. The increase of expenditure accelerates the growth of the country.

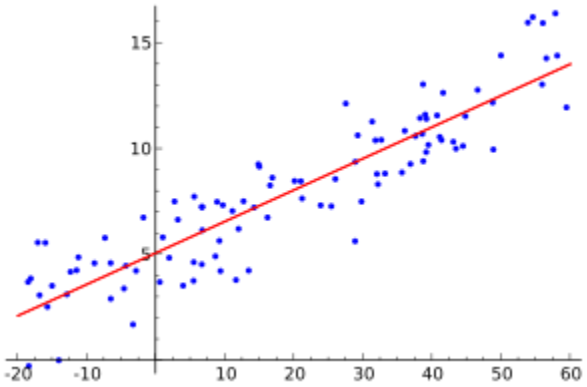
Chapter 5: Selection of model

5.1: Introduction

This chapter is based on the specific model based on which data will be properly analyzed and a proper conclusion of the key analysis can be done. According to the model there are two types of variable such as dependent and independent variable. Dependent variable is dependent on the outcome of the independent variable. Here, GDP is the dependent variable and general government expenditure and military expenditure are regarded as independent variable.

5.2: Regression model:

In statistical **modeling**, **regression analysis** is a set of statistical processes for estimating the relationships among variables.



Regression analysis is a form of predictive modelling technique which investigates the relationship between a **dependent** (target) and **independent variable (s)** (predictor). This technique is used for forecasting, time series modelling and finding the causal effect relationship between the variables. For example, relationship between rash driving and number of road accidents by a driver is best studied through regression.

With the help of the following equation we will draw our conclusion

Y=a+b1X1+b2X2+…….

Here, Y is the dependent variable and X1and X2 are the independent variables. The values of Y are dependent onX1and X2 respectively. For different values of X1and X2 the value of Y will be determined. Here, b1 and b2 are the co efficient of the independent variables.

05.3: Variables:

Once again there are two types of variables used in the regression analysis. One is dependent and other is independent variable. For the clear simplification of the model, GDP has been selected as the dependent and the general government expenditure and the military expenditure have been selected as the independent variable.

5.3.1: Dependent variable: GDP:

The gross domestic product (GDP) is one of the primary indicators used to gauge the health of a country's economy. It represents the total dollar value of all goods and services produced over a specific time period; you can think of it as the size of the economy. Usually, GDP is expressed as a comparison to the previous quarter or year. For example, if the year-to-year GDP is up 3%, this is thought to mean that the economy has grown by 3% over the last years.

5.3.1.1: GDP measure by expenditure method:

This measures the total expenditure incurred by all entities on goods and services within the domestic boundaries of a country. GDP (as per expenditure method) = C + I + G + (X-IM) C: Consumption expenditure, I: Investment expenditure, G: Government spending and (X-IM): Exports minus imports, that is, net exports.

5.3.2: Independent variable: General government expenditure:

General government (excluding social security) expenditure on health refers to expenditures incurred by central, state/regional and local government authorities, excluding social security schemes. Included are non-market, non-profit institutions that are controlled and mainly financed by government units.

5.3.3: Independent variable: Military expenditure:

A military budget (or military expenditure), also known as a defense budget, is the amount of financial resources dedicated by a nation to raising and maintaining an armed forces or other methods essential for defense purposes.

5.4: Conclusion:

This chapter was based on the specific model based on which data will be properly analyzed and a proper conclusion of the key analysis can be done. According to the model there are two types of variable such as dependent and independent variable. Dependent variable is dependent on the outcome of the independent variable. Here, GDP is the dependent variable and general government expenditure and military expenditure are regarded as independent variable.

Chapter 6: Regression analysis

6.1: Introduction:

This chapter is the most important chapter of the whole analysis. Different findings based on the output of the regression analysis will be discussed here. To me, this is most important part of the whole analysis. The reason behind this is that findings from the regression analysis will discuss on the true relationship between the variables. The analysis of the regression analysis will show what the suggestions and recommendations will be applicable in case of our country. There are different tests I have done through the use of the Stata software like as linear regression test, Johansen tests of co integration, Granger casualty test etc. Details of the tests are to be discussed

here and then the suggestions and recommendations based on the tests. Here, all the analysis is based on Bangladesh perspective.

6.2: Regression model:

The regression models entail the use of the Stata software and numeric data from the perspective Bangladesh to conduct the study. The variables of the numeric study have been done here

Variables

Dependent	Independent
Gross domestic Product (GDP)	Military expenditure, General government expenditure

Analysis of the whole model:

Time variable: Year, 1988 to 2013

Delta: 1 year

Number of observation: 24

Dependent Independent

Gross domestic Product (GDP) Military expenditure, General government expenditure

```
. regress GDP ME GGE

      Source |       SS       df       MS              Number of obs =      26
-------------+------------------------------           F(  2,    23) =18633.17
       Model |  2.4898e+14     2  1.2449e+14           Prob > F      =  0.0000
    Residual |  1.5367e+11    23  6.6812e+09           R-squared     =  0.9994
-------------+------------------------------           Adj R-squared =  0.9993
       Total |  2.4914e+14    25  9.9654e+12           Root MSE      =   81738

------------------------------------------------------------------------------
         GDP |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          ME |   14.69747    2.72568     5.39   0.000      9.05897    20.33597
         GGE |   15.91565   .6285164    25.32   0.000     14.61546    17.21583
       _cons |   101192.3   25409.36     3.98   0.001     48629.01    153755.5
------------------------------------------------------------------------------
'
```

This regression analysis clearly defines the analysis on coefficient, standard error, adjusted R squared and other necessary variables. At first, I am talking on the dependent and next on the independent variables. Once again, the dependent variable is GDP and the independent variables are general government expenditure and military expenditure. From the co efficient analysis it has been observed that all the co efficient is positive in all cases indicating a positive relationship between the dependent and the independent variables. The co efficient analysis shows that if the independent variables are rising then the dependent variable is also rising and vice versa. So, the data is good fitted with the model. R squared indicates how much we can explain the dependent variable with the independent variables. From the linear regression the R squared has been founds as 99.94% implying that we can explain 99.94% of the dependent variable from the independent variable. Only remaining .06% is due to the error term of the model. This error implies that other variables expect general government expenditure and military expenditure is contributing to the GDP of Bangladesh.

In order to test the changes of the results on variables, we can make hypothesis analysis

Null hypothesis: Independent variables are causing/impacting the dependent variables.

alternative hypothesis: Dependent variables are not causing/not impacting on the dependent variables.

From a true standpoint we can say that dependent variable is totally dependent on the independent variables which has been measured from the F value which is less than 5 actually it is 0. It has been known that if the F value is less than 5% then the

independent variables are causing the dependent variables. So, null hypothesis cannot be rejected rather it has been accepted.

6.3: Johansen test of co integration:

This test is done whether or not there are co integration among the variables. For conducting the study, I have selected the variables as before.

Time variable: Year, 1988 to 2013

Delta: 1 year

Number of observation: 24

Dependent Independent

Gross domestic Product (GDP) Military expenditure, General government expenditure

Johansen tests for cointegration

Trend: constant Number of obs = 24
Sample: 1990 - 2013 Lags = 2

maximum rank	parms	LL	eigenvalue	trace statistic	5% critical value
0	12	-765.79038	.	46.6586	29.68
1	17	-753.74175	0.63361	22.5613	15.41
2	20	-746.18085	0.46745	7.4395	3.76
3	21	-742.46108	0.26654		

From the test of Johansen co integration we can see maximum rank, parms, eigenvalue at the 5% critical value. The data presented in the table is based on the three variables tested before. Here, I am inclined to know on the relationships among the variables. For the reaching to the conclusion it is important to refer the null and the alternative hypothesis. O means the null hypothesis and henceforth there is no more relationship among the variables. Alternative hypothesis shows that there are no relationships among the variables. However, in order to reach the conclusion, it is important to know the trace static and if it is higher than 5% critical value then null hypothesis is not

accepted and if test static is more than the critical value then the alternative hypothesis is accepted. Form the test it has been found that test static 46.56 is higher than the critical value of 29.68. So, there is co integration among the variables.

Secondly 2 means the null hypothesis meaning there is one co integration equation among the variables and alternative hypothesis assumes that there is no co integration equation among the variables. Here if the test static is less than the critical value then the null hypotheses is accepted and in the reverse case alternative hypotheses is accepted. Form the test it has been found that test static 22.56 is higher than the critical value of 15.41. Due to result it has been reached that there is no association with the variables as no co integrating equation among the variables. As no more integration I do not need to test VECM test

maximum rank	parms	LL	eigenvalue	max statistic	5% critical value
0	12	-765.79038	.	24.0973	20.97
1	17	-753.74175	0.63361	15.1218	14.07
2	20	-746.18085	0.46745	7.4395	3.76
3	21	-742.46108	0.26654		

I have conducted another test. Conclusion can be drawn as before.

For the reaching to the conclusion it is important to refer the null and the alternative hypothesis. O means the null hypothesis and henceforth there is no more relationship among the variables. Alternative hypothesis shows that there are no relationships among the variables. However, in order to reach the conclusion, it is important to know the trace static and if it is higher than 5% critical value then null hypothesis is not accepted and if test static is more than the critical value then the alternative hypothesis is accepted. Form the test it has been found that test static 24.09 is higher than the critical value of 20.97. So, there is co integration among the variables.

Secondly 1 means the null hypothesis meaning there is one co integration equation among the variables and alternative hypothesis assumes that there is no co integration equation among the variables. Here if the test static is less than the critical value then the null hypotheses is accepted and in the reverse case alternative hypotheses is accepted. Form the test it has been found that test static 15.12 is higher than the critical value of 14.07. Due to result it has been reached that there is no association with the variables as no co integrating equation among the variables.

6.4: Granger causality test:

In case of the granger causality test variables have been selected as before. GDP is the dependent and general government expenditure and the military expenditure have been selected as the independent variables. Here, all the data are regarded as stationary and so n need to make unit root test. As the test requires stationary data and our data are stationary we can proceed the equation. In order to the granger causality tests, the following three equations are important

GDP= C1*GE t-i+ C2*GGEt-j+C3*GDPt-k+U1t

GDP= C4*GE t-i+ C5*GGEt-j+C6*GDPt-k+U2t

GDP= C7*GE t-i+ C8*GGEt-j+C9*GDPt-k+U3t

Here, all the variables are regarded as stationary.

Summary of the result of the granger causality test is given below

Equation	Excluded	F	df	df_r	Prob > F
GDP	ME	5.3843	2	17	0.0154
GDP	GGE	1.0922	2	17	0.3579
GDP	ALL	2.8243	4	17	0.0578

To reach on the conclusion it is required to make the hypothesis test.

Null hypothesis: ME does not cause the GDP.

Alternative hypothesis: ME causes the GDP.

From the result of the test it can be said that GE causes GDP as F is less than 5% and henceforth we cannot accept the null hypothesis and so alternative hypothesis is selected in this case of the granger causality test.

Another two results are to be explained for the full understanding of the granger causality test

ME	GDP	4.4366	2	17	0.0282
ME	GGE	3.0261	2	17	0.0751
ME	ALL	7.2407	4	17	0.0014

Null hypothesis: GDP does not cause the ME

Alternative hypothesis: GDP causes the ME

. From the result of the test it can be said that GDP causes ME as F is less than 5% and henceforth we cannot accept the null hypothesis and so alternative hypothesis is selected in this case of the granger causality test. Lags have been selected as 2.

Finally, the third variable,

GGE	GDP	1.5701	2	17	0.2368
GGE	ME	.17916	2	17	0.8375
GGE	ALL	1.8389	4	17	0.1679

Null hypothesis: GDP does not cause the GGE

Alternative hypothesis: GDP causes the GGE

. From the result of the test it can be said that GDP causes GGE as F is more than 5% and henceforth we can accept the null hypothesis and so alternative hypothesis is not selected in this case of the granger causality test rather the null hypothesis is selected. So, it can be concluded that GDP does not cause the GGE. Here, lags are two.

6.5: Findings:

Different tests and different results are used to conclude the findings. Firstly, it can be easily said that independent variables are clearly explaining the dependent variable. From the enough study it has also been recognized the independent variables are enough to explain the dependent variable. From the tests and results, it has been found that changes in the independent variables cause change in the dependent variable indicating if GGE and ME rise then GDP rise in the same direction whereas if the GGE and ME decrease then GDP decreases. From the Johansen test of co integration it has been clear that there is no co integrating equation among the variables and from the result of the granger causality test it has been established that independent variables cause the dependent variable. Also, the regression model is best fitted with the analysis

of the data. Finally, it can be argued that there is enough dependency of the dependant variable on the independent variable.

6.6: Conclusion:

This chapter is the most important chapter of the whole analysis. Different findings based on the output of the regression analysis were discussed here. To me, this is most important part of the whole analysis. The reason behind this is that findings from the regression analysis discussed on the true relationship between the variables. The analysis of the regression analysis will show what the suggestions and recommendations are applicable in case of our country. There are different tests I have done through the use of the Stata software like as linear regression test, Johansen tests of co integration, Granger casualty test etc

Chapter 7: The policy Recommended

7.1: Introduction:

Policies are to be taken based on the results. Good policies are always appreciable. From adaptation of the policies will lead to the optimum success of the countries. In this chapter, different policies based on the results will be discussed. Basically, in case of the national perspective, a long-term policy is considered to have been implemented. Here, policies will be based on the dependent and independent variables. The notion of the relationship among the variables will dictate the policies to be developed. Let's have the discussion of the proper policies based on the regression analysis

7.2: Recommended policies:

As it has been found that changes in the independent variables cause change in the dependent variable indicating if GGE and ME rise then GDP rise in the same direction whereas if the GGE and ME decrease then GDP decreases, it is recommended to increase the general government expenditure and military expenditure in order to increase the GDP of the country. There are several tests and results from the Stata results are also indicating the same as such Johansen tests of co integration, granger causality test and others. So, what comes to be recommended are to increase the level of expenditure on the specific areas. But in reality, it has been found that the resources of the government are limited. So, it is not possible to incur large expenditure only on these two sectors rather any optimum balance is to be.

The high authority of the government can allocate the resources according to the priority. The government should prioritize the expenditure in different sectors and should allocate the highest in the most important. The important sectors will be determined based on the urgency in those sectors. So, in order to increase the GDP of the country,

it is recommended to increase the level of general government expenditure and military expenditure.

7.3: Impact of the growth:

Growth is dependent on the level of expenditure in the government. A high level of expenditure will ensure high level of growth and vice versa. The growth of the GDP will increase the level of satisfaction and development of the country. An increase in growth will ensure the level of economic and social development. So, it is argued to increase the level of expenditure in the economy.

7.4: Conclusion:

Due to the proper policies the development of the economy will be done. Policies are to be taken based on the results. Good policies are always appreciable. From adaptation of the policies will lead to the optimum success of the countries. In this chapter, different policies based on the results will be discussed. Basically, in case of the national perspective, a long-term policy is considered to have been implemented. Here, policies will be based on the dependent and independent variables. The notion of the relationship among the variables dictates the policies to be developed.

Conclusion:

The impact of the government expenditure was examined during the whole report. In order to the completion of the study there were working with several areas. Both the quantitative and qualitative data were analyzed in order to reach the conclusion. Stata software was used for the conducting of the regression analysis. Data were used form the world bank and Bangladesh bank. The findings from the whole analysis revels that there is a positive relationship among the variables.

It can be easily said that independent variables are clearly explaining the dependent variable. From the enough study it has also been recognized the independent variables are enough to explain the dependent variable. From the tests and results, it has been found that changes in the independent variables cause change in the dependent variable indicating if GGE and ME rise then GDP rise in the same direction whereas if the GGE and ME decrease then GDP decreases. From the Johansen test of co integration it has been clear that there is no co integrating equation among the variables and from the result of the granger causality test it has been established that independent variables cause the dependent variable

Finally, it is argued that if the government expenditure of our country increases day by day it will increase the level of benefit of the people of our country. So, the government of Bangladesh should emphasize on this issue to increase the level of well-being of the country.

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Appendix:

Data

	Year	**GDP(Inmillion)**	**ME(In Million)**	**GGE(In million)**	
	1988	**829265**	**9104**	**34542**	
	1989	**923893**	**10563**	**38378**	
	1990	**1039585**	**11143**	**42137**	
	1991	**1105182**	**12071**	**45714**	
	1992	**1195425**	**14396**	**53211**	
	1993	**1253694**	**16105**	**62106**	
	1994	**1354123**	**19021**	**66124**	
	1995	**1525178**	**21582**	**70614**	
	1996	**1899334**	**23076**	**89791**	
	1997	**2060032**	**25863**	**101003**	
	1998	**2269299**	**28436**	**116317**	
	1999	**2465089**	**31277**	**124231**	
	2000	**2685034**	**33377**	**133530**	
	2001	**2913370**	**34020**	**141172**	
	2002	**3142804**	**34105**	**157852**	
	2003	**3483202**	**36150**	**178629**	
	2004	**3832940**	**39630**	**198331**	
	2005	**4270741**	**43005**	**221234**	
	2006	**4823370**	**49420**	**262395**	
	2007	**4597997**	**56745**	**294663**	
	2008	**6286822**	**61055**	**325549**	
	2009	**7050718**	**75095**	**359146**	
	2010	**7975387**	**98380**	**404777**	

	2011	**9158288**	**116995**	**466839**	
	2012	**10552040**	**130995**	**531753**	
	2013	**11989232**	**142015**	**613385**	

```
. regress GDP ME GGE

      Source |       SS       df       MS              Number of obs =      26
-------------+------------------------------           F(  2,    23) =18633.17
       Model |  2.4898e+14     2  1.2449e+14           Prob > F      =  0.0000
    Residual |  1.5367e+11    23  6.6812e+09           R-squared     =  0.9994
-------------+------------------------------           Adj R-squared =  0.9993
       Total |  2.4914e+14    25  9.9654e+12           Root MSE      =   81738

------------------------------------------------------------------------------
         GDP |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          ME |   14.69747    2.72568     5.39   0.000     9.05897    20.33597
         GGE |   15.91565   .6285164    25.32   0.000    14.61546    17.21583
       _cons |   101192.3   25409.36     3.98   0.001    48629.01    153755.5
------------------------------------------------------------------------------
```

```
                       Johansen tests for cointegration
Trend: constant                                         Number of obs =      24
Sample:  1990 - 2013                                             Lags =       2
-------------------------------------------------------------------------------
                                                         5%
maximum                                      trace    critical
  rank    parms       LL       eigenvalue  statistic    value
    0      12    -765.79038         .        46.6586    29.68
    1      17    -753.74175     0.63361      22.5613    15.41
    2      20    -746.18085     0.46745       7.4395     3.76
    3      21    -742.46108     0.26654
-------------------------------------------------------------------------------
                                                         5%
maximum                                       max     critical
  rank    parms       LL       eigenvalue  statistic    value
    0      12    -765.79038         .        24.0973    20.97
    1      17    -753.74175     0.63361      15.1218    14.07
    2      20    -746.18085     0.46745       7.4395     3.76
    3      21    -742.46108     0.26654
-------------------------------------------------------------------------------
```

Equation	Parms	RMSE	R-sq	F	P > F
GDP	7	67023.3	0.9997	8502.205	0.0000
ME	7	2302.01	0.9973	1033.584	0.0000
GGE	7	5682.04	0.9991	3168.9	0.0000

	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
GDP						
GDP						
L1.	1.220672	.2538434	4.81	0.000	.6851094	1.756235
L2.	-.4534416	.2756437	-1.65	0.118	-1.034999	.1281158
ME						
L1.	16.73091	5.164813	3.24	0.005	5.834105	27.62771
L2.	-12.90597	5.088546	-2.54	0.021	-23.64186	-2.170076
GGE						
L1.	2.834824	3.374642	0.84	0.413	-4.285048	9.954696
L2.	2.313007	4.098749	0.56	0.580	-6.334598	10.96061
_cons	-4441.575	39939.54	-0.11	0.913	-88706.64	79823.49
ME						
GDP						
L1.	.0188514	.0087186	2.16	0.045	.0004568	.0372461
L2.	.0016771	.0094674	0.18	0.861	-.0182973	.0216515
ME						
L1.	1.334219	.1773926	7.52	0.000	.9599532	1.708484
L2.	-.9773716	.1747731	-5.59	0.000	-1.346111	-.6086326
GGE						
L1.	-.2327269	.1159067	-2.01	0.061	-.4772686	.0118149
L2.	-.0143799	.1407772	-0.10	0.920	-.3113937	.282634
_cons	-1445.325	1371.778	-1.05	0.307	-4339.524	1448.875
GGE						
GDP						
L1.	.0182187	.0215201	0.85	0.409	-.0271847	.0636221
L2.	.0151173	.0233683	0.65	0.526	-.0341855	.06442
ME						
L1.	.1055413	.4378576	0.24	0.812	-.8182575	1.02934
L2.	-.2460387	.4313919	-0.57	0.576	-1.156196	.6641187
GGE						
L1.	.9735776	.2860922	3.40	0.003	.3699758	1.577179
L2.	-.4647593	.3474799	-1.34	0.199	-1.197878	.2683591
_cons	-6302.01	3385.956	-1.86	0.080	-13445.75	841.7334

Granger causality Wald tests

Equation	Excluded	F	df	df_r	Prob > F
GDP	ME	5.3843	2	17	0.0154
GDP	GGE	1.0922	2	17	0.3579
GDP	ALL	2.8243	4	17	0.0578
ME	GDP	4.4366	2	17	0.0282
ME	GGE	3.0261	2	17	0.0751
ME	ALL	7.2407	4	17	0.0014
GGE	GDP	1.5701	2	17	0.2368
GGE	ME	.17916	2	17	0.8375
GGE	ALL	1.8389	4	17	0.1679