Impact of Annual Budgets in Economic Development of a Country: Special Reference to Bangladesh

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Abstract
This study examined the impact of annual budget on the economic development of Bangladesh using a time frame of 2000 to 2015. Secondary data were employed for the study. The study used descriptive analysis, correlation analysis and regression analysis to estimate the model for testing the hypotheses. The result indicated that if more funds are allocated through budget to the economic and social service sectors, the accelerated economic development of the country will be ensured. On the other hand, the government expenditures allocated on the administrative sector is negatively associated with the development prospect of the country. Therefore, it is recommended that the government should ensure rational allocation of sector wise fund based on the developmental needs of the country.

Keywords: Budgets; Impacts; Development; Funds; Expenditure.

1.0 Introduction
Every country typically prepares annual budgets in order to appropriately direct their economy for development purposes. It is usually a valuable guide for collection and spending of fund. The national budgets are even more important to developing countries of the world which are committed to speedy national development (Olarewaju and Obisesan, 2015).
Budget is a numerical expression of plan. A budget is an important economic instrument of national resource mobilization, allocation and economic management. It is an important tool for facilitating and realizing the vision of government in a given fiscal year. A budget has to be well-designed, effectively and efficiently implemented, adequately monitored (Olarewaju and Obisesan, 2015). The budget is also an instrument for measuring the performance of the economy. This is because it provides adequate control for monitoring expenditure for proper financial management. It is also used to measure the performance of the economy by indicating the performance of the economy in the previous year, making it possible to account for any gap between the expected and exact targets projected under the budget (Olarewaju and Obisesan, 2015).

Bangladesh has prepared its annual budget since independence. One of the main goals of these budgets has been to lessen poverty and to accelerate the rate of development of the economy. Bangladesh has successfully been able to increase the rate of growth of the economy through ready-made garments industry and inflows of remittances. Figure 1 presents the trend in growth of the economy from 1981-2014 (Adopted from Rana and Wahid, 2017).

Figure 1: Growth in real GDP in Bangladesh.

Bangladesh’s successive budgets have been in most cases recording deficit. The country is facing many socio-economic problems which include high inflation, poverty, unemployment, income inequality, adverse balance of payments and low standard of living. Although, deficit budget is deliberately undertaken by the government, so as to stimulate economic activities in the country, but in most cases the reverse is what is being witnessed. Therefore, there is a serious need to continuously determine the impact of annual budgets on economic development of the country.

2.0 Impact Analysis

2.1 What is Impact Analysis?
An impact analysis (IA) examines the effect of an event on the economy in a specific area, ranging from a single country to the whole globe (Erkin, 1988). The economic event analyzed can include implementation of a new policy or project. An impact analysis is commonly conducted when there is public concern about the potential impacts of a proposed project or policy. It typically measures or estimates the change in activity between two scenarios, one assuming the event occurs, and one assuming it does not occur (Mitchell, 2005).

One method of assessing whether public resources have been used appropriately and effectively is to try to gauge the impact that expenditures have had in relation to the desired outcomes. Although measuring outputs requires an effective data collection system, it is a relatively straightforward exercise. Evaluating the impact, or outcomes, of expenditure is much more difficult and requires the capacity to identify the value added from a particular government policy or program. Measuring how effective public spending has been in reaching desired outcomes requires the government to identify appropriate indicators of impact and collect and correctly interpret the data on these indicators. Unfortunately, most developing countries have not instituted systems to comprehensively measure the impacts of their budgets, and many lack the capacity to implement such systems. Although measuring impact of government spending is challenging, it is critical to public finance systems that use scarce public resources to meet the needs of its people (Gregoriou and Ghosh, 2007).

2.2 Types of Impacts
Impact analyses often estimate multiple types of impacts. An output impact is the total increase in revenue. A more conservative measure of economic activity is the value added impact, which estimates the increase in the study region’s gross regional product. The gross regional product (GRP) is very similar to the nation’s gross domestic product (GDP), and represents the total size of the local economy. This impact estimates the increase in local employee wages plus local business profits. However, the value added impact may overstate local profits when they are transferred overseas (such as in the form of dividends or investments in foreign facilities).

An even more conservative measure is the labour income impact, which represents the increase in total money paid to local employees in the form of salaries and wages. The increases in income may come in the form of raises and/or increased hours for existing employees or new jobs for the unemployed. A similar measure is the employment impact, which measures the increase in the number
of total employees in the local region. Instead of measuring the economic impact in terms of money, this measure presents the impact on the number of jobs in the region. Another measure of economic impact is the property value impact, measuring the increase in total property values, and is a reflection of generated income and wealth, both personal and business.

2.3 Sources of Impacts
Each impact can be decomposed into different components, depending on the effect that caused the impact. Direct effects are the results of the money initially spent in the study region by the business or organization being studied. This includes money spent to pay for salaries, supplies, raw materials, and operating expenses. The direct effects from the initial spending create additional activity in the local economy. Indirect effects are the results of business-to-business transactions indirectly caused by the direct effects. Businesses initially benefiting from the direct effects will subsequently increase spending at other local businesses. The indirect effect is a measure of this increase in business-to-business activity (not including the initial round of spending, which is included in the direct effects). Induced effects are the results of increased personal income caused by the direct and indirect effects. Businesses experiencing increased revenue from the direct and indirect effects will subsequently increase payroll expenditures (by hiring more employees, increasing payroll hours, raising salaries, etc.). Households will, in turn, increase spending at local businesses. The induced effect is a measure of this increase in household-to-business activity. Finally, dynamic effects are caused by geographic shifts over time in populations and businesses.

2.4 Measurement of Impacts
A number of different metrics and methods have been devised to evaluate impacts. These are based on different measurement systems. Measuring direct and indirect impacts requires quantitative and in many cases qualitative indicators. The OECD defines an indicator as a "Quantitative or qualitative factor or variable that provides a simple and reliable means to measure achievement, to reflect the changes connected to an intervention, or to help assess the performance of a development actor." An indicator may be data used by analysts/companies and organizations to describe situations that exist or to measure changes or trends over a period of time. They are descriptions of conditions or of performance that may provide insights into matters of larger significance beyond that which is actually measured. Indicators should reflect both positive and negative impacts resulting from business activities. When choosing appropriate indicators for measurements, companies are encouraged to map out the linkages between the key direct impacts and subsequent knock-on or indirect impacts.

Impact analyses usually employ one of two methods for determining impacts. The first is an input-output model (I/O model) for analyzing the regional economy. These models rely on inter-industry data to determine how effects in one industry will impact other sectors. In addition, I/O models also estimate the share of each industry's purchases that are supplied by local firms. Based on this data, multipliers are calculated and used to estimate economic impacts. Examples of I/O models used for economic impact analyses are IMPLAN, RIMS-II, and EMSI. Another method used for impact analyses are economic simulation models. These are more complex econometric and general equilibrium models. They account for everything the I/O model does, plus they forecast the impacts caused by future economic and demographic changes. One such is example is the REMI Model.

3.0 Research Questions
Based on research gap in the previous literature, the following two research questions have been addressed:

a) What type of relationship exists between annual budgets and economic development?

b) What is the influence of sector wise annual expenditure allocation on economic development of Bangladesh?

4.0 Objectives of the Study
a) To investigate the relationship between annual budgets and economic development.

b) To analyze the influence of sector wise annual expenditure allocation on economic development of Bangladesh.

5.0 Research Hypotheses
Based on objectives of the study, the following two research hypotheses have been developed.

H1: There is no significant relationship between annual budgets and economic development of Bangladesh.

H2: Sector wise annual expenditure allocation has no significant effect on economic development of Bangladesh.
6.0 Literature Review

A number of researchers have examined the impact of government budget on the economic development of both developed and developing countries.

Landau (1983) examined the impact of government consumption expenditure on the economic development for a sample of 96 countries and found a negative impact of government expenditure on economic development.

Ram (1986) investigated the relationship between government budgetary expenditure size and economic growth for a group of 115 countries during the period of 1950-1980, using both cross-sectional and time series (panel) data. The study found a positive effect of government expenditure on economic growth.

Fama (1986) carried out a study on one hundred countries to measure the impact of annual budget on the economic growth. The findings revealed that government expenditure have significant positive effect on economic development of those countries.

Barron (1991) conducted a study on 98 developed and developing economies and found a positive, but weak correlation between public expenditure and economic growth over the years 1960-1985.

Devarajan et al. (1993) conducted a study to find out the positive and negative effect of government budget on the economic development of OECD countries. The findings indicated that expenditure allocated on education and defense, government officials (vacation allowance, car allowance, etc.) did not have any positive impact on the economy. On the other hand, they found a significant positive influence of the government expenditure on the economic development of the OECD countries.

Lin (1994) used a sample of sixty-two countries and found that non productive spending has no impact on economic development in developed countries, but a positive impact in less developed countries.

Erkin (1998) investigated the relationship between government budgetary expenditure and economic growth for New Zealand and found that higher government budgetary expenditure does not impact consumption, but rather raises private investment which in turn increases economic growth. Al-Yousif (2000) examined the impact of government expenditure on economic development of Saudi Arabia. He found a significant positive impact.

Gemmel and Kenner (2001) provide empirical evidence on the influence of fiscal policy on long run growth for European countries. They use panel and time series econometric techniques. The findings revealed that while some public investment spending influences positively on economic development, but consumption and social security spending have zero or negative growth effects.

Loizides and Vamvouks (2005) used the causality test to investigate the relationship between public expenditure and economic growth in Greece, United Kingdom and Ireland. It was found that government size causes economic development in all countries, they studied. The findings also revealed that economic development is influenced by public expenditure in Greece and United Kingdom.

Mitchell (2005) investigated the effect of government spending on economic development in developed countries. The study concluded that a large and growing government is not favorable to better economic performance. The researcher argued that reducing the size of government would lead to higher incomes and improve competitiveness.

Komain and Brahmasrene (2007) investigated the relationship between public expenditure and economic growth in Thailand, by using the Pair wise Granger causality test. The findings indicated that public expenditure and economic development are not co-integrated which implies that in the long run, a relevant relationship might not lie in between them, but there exists at the short run, a significant positive influence of public expenditure on economic growth.

Gregoriou and Ghosh (2007) examined the influence of government expenditure on economic growth using panel data. The findings indicated that countries with large government expenditure in terms of annual budgets tend to experience higher economic growth, but the impact varies from one country to another.

Hussain and Haque (2017) opined that fiscal deficit is good for economic development of Bangladesh if the borrowed money is spent on beneficial projects, provided the return from such investments go beyond the funding cost.

Rana and Wahid (2017) conducted an econometric study of the influence of government budget deficits on the economic development of Bangladesh. A time-series analysis was employed using ordinary least squares estimation, vector error correction model, and granger causality test. The findings revealed that the government budget deficit has statistically significant negative effect on economic development of Bangladesh.

From the above literature review it is evident that the relationship between annual budget and
economic development has been a researchable interest to so many researchers in both developed and developing economies and it is imperative to conduct a study on Bangladesh context to deeply examine the impact of annual budget on economic development.

7.0 Methodology
The study is mainly based on secondary data. Secondary data were collected from the annual budget of Bangladesh from 2000 to 2015. The collected data were analyzed using descriptive analysis, correlation analysis and multiple regression analysis. A multiple linear model (by employing the technique of ordinary least square regression analysis) was developed to examine the causal-effect relationship between sector wise annual expenditure allocations and economic development as measured in terms of total capital expenditure in the country.

7.1 Model Specification
To measures the influence of annual budgets on the economic development of Bangladesh, The following model is used (adopted from Olarewaju and Obisesan, 2015):

\[ Y_t = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + U_t \]

Where:
- \( TCE \) = Total capital expenditure (proxy of annual budget)
- \( TE \) = Total economic development.
- \( U \) = Stochastic error term.
- \( \beta_0 \) = intercept
- \( \beta_1, \beta_2, \beta_3 \) are the slope coefficients of the variables \( X_1, X_2, X_3 \) measures Total economic development.
- \( X_1 \) = ESE/TE which is the ratio of Economic Sector Expenditure (ESE) to Total Expenditure (TE)
- \( X_2 \) = SSSE/TE which is the ratio of Social Service Sector Expenditure (SSSE) to Total Expenditure (TE)
- \( X_3 \) = ASE/TE which is the ratio of Administrative Sector Expenditure (ASE) to Total Expenditure (TE)

8.0 Analysis and Findings
8.1 Descriptive Analysis
The descriptive statistics consist of the mean, standard deviation, minimum, maximum, skewness and kurtosis statistics corresponding to each of the variables.

| Table 1: Descriptive Statistics of Variables (n=16) |
|-----------------|-----------------|-----------------|-----------------|
|                | TCE             | ESE/TE          | SSE/TE          | ASE/TE          |
| Mean           | 833,905.4       | 0.252981        | 0.021894        | 0.089912        |
| Median         | 820,934.6       | 0.339476        | 0.055890        | 0.066092        |
| Maximum        | 2,39,054,32     | 0.528051        | 0.338533        | 0.238400        |
| Minimum        | 1,17,230,6      | 0.084467        | 0.055721        | 0.011620        |
| Std. Dev.      | 1,004,328,0     | 0.100895        | 0.078032        | 0.055021        |
| Skewness       | 2.540721        | 0.390541        | 2.099482        | 0.332201        |
| Kurtosis       | 4.754091        | 2.090543        | 6.088420        | 2.550270        |

The descriptive analysis revealed that the minimum and maximum values of total capital expenditure are 1,17,230,6 and 2,39,05,432 respectively. For ratio of economic sector expenditure to total expenditure the table indicated minimum and maximum values of 0.084467 and 0.528051 respectively. For ratio of social service sector expenditure to total expenditure the table reported minimum and maximum values of 0.055721 and 0.338533 respectively. For ratio of administrative sector expenditure to total expenditure the table reported minimum and maximum values of 0.011620 and 0.238400 respectively. From the table it was observed that all the variables are skewed to the right, given the corresponding skewness statistics of 2.540721, 0.390541, 2.099482, 0.332201 for TCE, ESE/TE, SSSE/TE, ASE/TE, respectively.

8.2 Correlation Analysis
The strength and direction of the linear relationship between two variables is described by correlation (Pallant, 2001). Similarly, the degree of correlation expresses the strength and significance of relationship among variables. For obtaining this, the bivariate association was done which computes Pearson’s correlation coefficient with significance levels. Pearson correlation take only one value in between -1 to 1. Ignoring the sign, the magnitude of the absolute value means the strength of the relationship between two variables.

The correlation coefficients between variables included in the model are tabulated in table 2.

| Table 2: Correlation Matrix |
|-----------------|-----------------|-----------------|-----------------|
|                 | TCE             | ESE/TE          | SSE/TE          |
| TCE             | 1               | 0.4068432       | 0.2279430       |
| ESE/TE          | 0.4068432       | 1               | 0.2730489       |
| SSE/TE          | 0.2279430       | 0.2730489       | 1               |
| ASE/TE          | -0.2895820      | 0.4509002       | 0.4022719       |

Table 2 indicated that there is positive correlation between ESE/TE and SSE/TE with TCE. On the other hand, there is negative correlation between ASE/TE and TCE. The reported correlation between the
variables does not indicate any evidence for multicollinearity among the variables.

8.3 Regression Analysis

8.3.1 Checking of Regression Assumptions

There are some assumptions that must be fulfilled before using OLS regression model. OLS linear regression model is based on four principal assumptions - Linearity, Normality of residuals, Homoscedasticity and Multicollinearity. If any of these assumptions is violated, then the results of regression model may be inefficient, or seriously biased or misleading.

1. Linearity
The assumption of linearity implies that there is a straight-line relationship between dependent and independent variables. In the present study linearity has been checked through residual plot. The graphs for checking linearity of each independent variable indicate that some of the independent variables in the model do not have linear relationship with the dependent variable. However, the presence of non linearity is common in the majority of prior studies.

2. Normality of Residuals
This assumption implies that residuals should be normally distributed. The present study has employed both graphical (Q-Q plot, P-P plot and histogram) and numerical method (Shapiro-Wilk W test) to check the normality of residuals. Both graphical and numerical method suggest same result that errors or residuals are normally distributed which is considered necessary for doing hypothesis testing about regression parameters.

3. Homoscedasticity of Residuals
The Homoscedasticity of residuals implies that variance of the residuals is constant for each observation. The present study has employed both graphical (residual plots where residuals are plotted against predicted value) and numerical method (Breusch-Pagan test) to check the assumption of Homoscedasticity of residuals. Both graphical and numerical method suggest same result that current data does not meet the assumption which means it suffers from Heteroscedasticity.

4. Multicollinearity
Multicollinearity refers to the strong linear relationship between two or more independent variables. With multicollinearity, the variables are very highly correlated (say, 90 and above). According to Murrary (2006), multicollinearity tends to create difficulty in differentiating the individual effect of explanatory variables. As a result, the estimates for a regression model cannot be uniquely computed and therefore may be biased. The present study has applied VIF (Variance Inflation Factor) with tolerance value to assess the problem of multicollinearity. The results of VIF and tolerance values indicate that there is no unacceptable level of multicollinearity. Based on these results, it can be concluded that there is no potential multicollinearity problem in the present study.

Based on the results of the above graphical and numerical methods, it can be said that there are some violations of OLS regression assumptions. The results indicate non-linearity for some independent variables in addition to the problem of heteroscedasticity. Furthermore, the residuals are found to be normally distributed. The results of VIF confirm that there is no multicollinearity. The majority of prior studies have employed several forms of transformation to overcome the problems of not satisfying the linear regression assumptions. So transformation has been decided to be employed in the present study to overcome the problem of assumptions’ violation.

8.3.2 OLS Regression Analysis Results

The results of the OLS regression analysis are documented in Table 3.

Table 3: OLS Regression Result

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>T-Statistics</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>-5390671</td>
<td>18209346</td>
<td>-0.390458</td>
<td>0.6940</td>
</tr>
<tr>
<td>ESE/TE</td>
<td>41904467</td>
<td>34905827</td>
<td>1.119347</td>
<td>0.0011</td>
</tr>
<tr>
<td>SSE/TE</td>
<td>10926845</td>
<td>1.22E+07</td>
<td>0.213803</td>
<td>0.0183</td>
</tr>
<tr>
<td>ASE/TE</td>
<td>-2.11E+07</td>
<td>1.38E+07</td>
<td>1.529045</td>
<td>0.0409</td>
</tr>
<tr>
<td>R-Square</td>
<td></td>
<td></td>
<td>0.449021</td>
<td></td>
</tr>
<tr>
<td>F-statistics</td>
<td></td>
<td></td>
<td>15.21774</td>
<td></td>
</tr>
<tr>
<td>Prob.</td>
<td></td>
<td></td>
<td>0.001572</td>
<td></td>
</tr>
</tbody>
</table>

The reported R-square value of 0.449021 which indicates that about 44% of the variation in the extent of economic development can be explained by variation in the ratio of economic sector expenditure to total expenditure, ratio of social service sector expenditure to total expenditure, and ratio of administrative sector expenditure to total expenditure. However, the reported f-statistics and the corresponding probability statistics indicates that the ratio of total expenditure that is directed to economic, social service and administrative sectors
of the country jointly and significantly impact the extent of economic development in the country. It is revealed from Table 3 that the ratios of expenditure to economic and social service sectors produce positive influence and the ratios of expenditure to administrative sector produce negative influence on the level of economic development of Bangladesh. Specifically, the result shows coefficient estimates of 41904467, 10926845, -2.11E+07 for ESE/TE, SSE/TE, ASE/TE respectively. Thus the findings indicate that as more government expenditure are assigned through annual budget to the economic sector and social services sector of Bangladesh, the more the economic development of Bangladesh will be achieved.

9.0 Conclusion
The study examined the effect of annual budget on economic development of Bangladesh. Specifically, the study investigated the impact of sector wise expenditure allocation in the budget on economic development of Bangladesh. The major findings indicate that there is a positive relationship between annual budget and economic development of Bangladesh. Expenditure on economic sector and social service sector have significant positive influence on the extent of economic development whereas expenditure on administrative sector has significant negative influence on the extent of economic development. Based on the findings of the study, it can be concluded that effective annual budget plays an important role in the economic development of Bangladesh. However, it is to be noted that better allocation of expenditure across different sectors of the country can ensure greater economic development. So the government should take necessary steps to ensure rational allocation of sector wise expenditure based on the developmental needs.

10.0 Limitations of the Study
The major limitation of the study is that it has considered only three sectors of the country and used data from annual budget so as to measure the influence of each sector on the economic development of Bangladesh. Incorporating other sectors’ data could provide more comprehensive picture of the effect of annual budget on the economic development.

11.0 Suggestions for Future Research
This study is limited to investigate the influence of annual budgets on the economic development of Bangladesh using a time frame of 2000-2015. However, future researchers can extend this type of research by investigating the influence of budgetary control, infrastructural development, government expenditure and public debt on the economic development and growth of a country.

References


