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The Determinants of the Education Expenditures in Sri Lanka from 1980 to 2015

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Abstract

Education plays a major role in the development of the country. The government allocation of the education expenditure has determined by some variables. The government has some complicated issues for dividing expenditure among all educational factors. The purpose of this study builds on the established theories of public policy analysis, economics, and public finance to empirically investigate and analyse the determinants of public expenditure on education in Sri Lanka. In this study, the empirical results are presented for equation using the time-series data for 36 years, from 1980 to 2015. For this analysis, Eviwes 8 statistical package was used. The findings of the research show the following result. Gross domestic product is positive and it is significant, indicating that GDP positively determines the total expenditure on education in Sri Lanka number of government Schools (GS) has an insignificant and negative coefficient, Number of government school students (GSS) and a number of government teachers (GST) also has a significant and positive coefficient. That seems to significantly determine the total educational expenditure. The results seem to send a signal that policymakers hardly take into account the above factors in policies.

Keywords: Gross Domestic Product (GDP), Public finance, Public expenditure, Education expenditure

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1. Introduction

Education is an important investment of the country to contribute the economic development. Human capital development must need factor for the nation. Therefore, Investment on education plays a major role in government spending. The success of a nation may well depends on the knowledge, skills and competencies of its people. A nation with highly educated and skilled people would likely enjoy a better economic development (Yun, 2017).

According to a UNDP report published in 2016 on the global expenditure on education, on average countries around the world are spending 5.0 percent of GDP on education. Sri Lanka spending 1.6 percent of GDP on education. Government expenditure on education, total (% of government expenditure) in Sri Lanka was 10.95 as of 2015(Central Bank Report, 2016). Compare to the global average Sri Lanka still spending a little amount for the education. Therefore, identifying determinates of the government expenditure in education makes clear identification on education expenditure pattern. This will help to policy reforms in the country.

2. Objective

To identify the determinants of public expenditure on education in Sri Lanka

3. Research Methodology

The annual data on government expenditure from 1980-2015 were utilized. The data analysed by using a regression model and the regression analysis is employed using Eviews version 8. This Each type of educational expenditure is calculated as a percentage of GDP in order to provide a comparable indicator. First, economic variables, including the growth of GDP per capita, inflation, and unemployment should have direct and significant impacts on the total educational expenditure. This is because as the economy grows governments tend to increase their public expenditure, especially on education. Further, a higher rate of employment may force people to obtain more education and also put pressures on the government to increase public expenditure in order to stimulate the economy.

Second, demographic variables should be incorporated into the equation. This includes all of the demographic

variables, which are population, enrolment rate, number of students, number of teachers, number of schools, and student/teacher ratio. As suggested in the conceptual framework, a number of studies clarify that demographic factors and educational factors can affect the expenditure on education.

Regressing the variables separately for each type of equations can identify the possible counteracting determinants of educational expenditure. The total educational expenditure equation will incorporate every independent variable. Each type of educational expenditure will incorporate different sets of independent variables according to the characteristic of the expenditure. The total educational expenditure determination can be illustrated as the following functions

$$TEX = f(GDP, INF, UNEM, POP, GS, GSS, GST) \quad (1)$$

TEX denote total educational expenditure GDP, INF, UNEM, POP, GS, GSS, GST donate Gross domestic product, Inflation rate, Unemployment, Population, Number of School, Number of the student, Number of teachers

4. Literature Review

Fernandez (1997) examine the determinants of public education expenditures: evidence from the USA. The research was done by using panel data set for the US states over the period 1950-1990 and use it to assess the effects of growth in personal income and number of students on expenditure on primary and secondary education. This analysis suggests that the share of non-public financial gain dedicated to education is roughly constant, implying that per-student education expenditures grow at roughly the same rate as personal income per student.

Verbina (2004) evaluates determines public education expenditures in Russia. They suggest that the allocation of expenditures in education is important for growth. The state of public education defrayal in several transition economies highlights the requirement for AN assessment of the character of education expenditures in these countries. This research attempts to fill up this gap in the literature by estimating the determinants of education expenditures in the Russian. Results from panel information analysis show that revenue and also the student population quantitative relation have a positive impact on education expenditures whereas the impact of population density is negative. Three regional variables also show a significant impact. The financial gain and worth physical property of public education expenditures are calculable to be zero.57 and - 0.18,

respectively, a result comparable to studies from other countries. The results presented here provide insight into how financial institutions and the structure of the political process in Russia may affect the degree of resource allocation in the education sector during the transition process.

Edame (2014) has analyzed the determinants of public expenditure on educational infrastructural facilities and economic growth in Nigeria. The research problem of this study in Nigeria poor financial resources to the educational sector has been a major problem in the educational system. Poor funding of the academic sector has resulted to poor attending, poor quality of students, inadequate preparation by teachers at all levels and low morale of teachers as a result of the low basic condition of services and low salaries. The major objective of this study is to look at the Determinants of public expenditure on Infrastructural facilities in education and economic process in Federal Republic of Nigeria supported statistic information on variables thought-about relevant indicators of economic process and public expenditure. A public expenditure model was created and tested exploitation the normal statistical method (OLS) technique. Data for the study was obtained from the financial organization of Federal Republic of Nigeria, NBS and the World Bank. Results of the analysis showed that public expenditure on education contains a vital impact on economic process. But expenditure on education is completely different between regimes however not vital.

Yun (2017) examine Determinants of Public Education Expenditure in Malaysia: A Time Series Analysis The main objective of this study is to analyze the determinants of the public education expenditure in Malaysia during the period of 1982 to 2015. The determinants of education expenditure modeled using time series data within the Co-integration technique. The results portray a rather strong support of the Wagner's law in determining Malaysia's public education expenditure, as implied by a positive relationship between economic growth and public education expenditure. However, the finding of a positive relationship between the inflation rate and public education expenditure contradicted the Keynesian Counter- Cyclical Theory. This study proved that Malaysia's education expenditure is determined by real gross domestic product, inflation rate, unemployment rate, and younger population age less than 65.

5. Results and Interpretation

The determinants of the variables in this study represent economic demographic variables. The significance of these variables is the key to explaining the policy determinants of public education expenditure. Some variables may affect total expenditure while some others may indeed affect its composition. The same

variable may have different effects on expenditure on education.

Economic development is considered a very crucial determinant of the levels of public expenditure. In the development process of any developing countries, governments tend to invest immensely in infrastructure as well as education in order to create human capital. In this study, economic growth measured by the Gross Domestic Product per capita (GCAP) is used for the analysis. GDP per capita can be a good reflection of how the economy performs in general or on average in a given period of time. A number of students, Numbers of teachers Number of Schools and unemployment rates are considered as a determinate of government expenditure on education in Sri Lanka. Other variables were omitted to avoiding multicollinearity problem in the equation.

In this study, the empirical results are presented for all equations using the time-series data for 36 years, from 1980 to 2015, to provide the specific answer for research objective. The results obtained can serve as an explanation of what actually determined the allocation of educational expenditure in Sri Lanka during the past 36 years. These empirical results are accompanied by the interpretation, as well as a discussion, of the probable underlying reasons for the estimated results, especially when the results are not consistent with expectation. Table 1 below presents the descriptive statistics of all of the variables incorporated in this study. It shows the mean values as well as the maximum and the minimum values of all the variables in this study

TABLE 1: Descriptive Statistics of all the variables

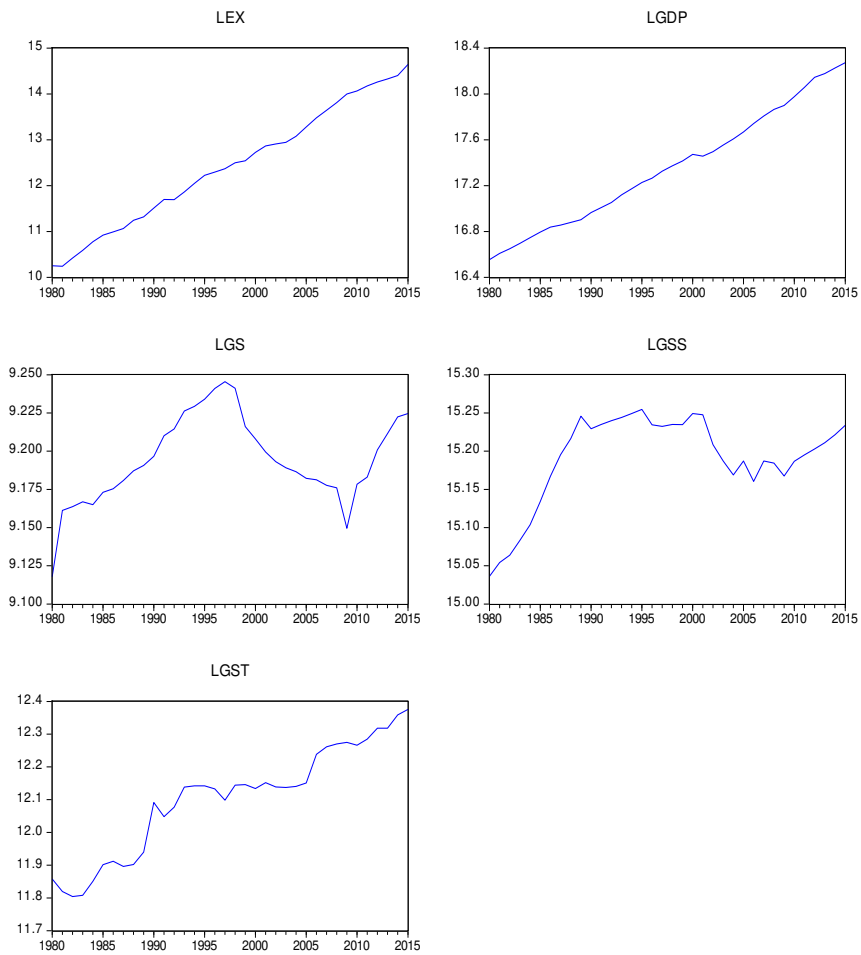
Variable	Maximum	Minimum	Mean	Standard error
LEX	14.644	10.240	12.420	1.323
LGDP	18.272	16.553	17.357	0.512
LGS	9.245	9.117	9.1944	0.028
LGSS	15.254	15.036	15.191	0.058
LGST	12.375	11.804	12.102	0.167
LUNEM	2.890	1.386	2.235	0.471

Source: Computed by researcher, 2017

The empirical in this estimation, this study attempts to identify the problem of multicollinearity, which is a statistical phenomenon in which two or more predictor variables in a multiple regression model are highly correlated. In effect, including the same or almost the same variable, they can create multicollinearity.

This study considers both examining the correlations and using the VIF value. Before moving on to the multiple regression analysis, the problem of multicollinearity is to be tested. Using Pearson correlations, VIF, and the Tolerance value, it was found that a number of independent variables had significant correlations. According to the correlation, test multicollinearity occurs in the model. Therefore, highly correlated variables were removed from the equation

FIGURE 1: Line Graph of variables included in the study to analyze the determinates of public expenditure on education in Sri Lanka



Multiple Regression Analysis

The multiple regression analysis in this part of the present study provides an estimation of the six independent variables. Interpretations are provided for each independent variable, as it is necessary to understand what independent variables can determine the dependent variables. The statistical significances are provided with the explanation to see whether these estimations are meaningful. The multiple regressions are considered an appropriate technique to deal with the issue of the determinants of educational expenditure in Sri Lanka given the data set in a time-series format and with a various independent variable. The results of the following regressions can later be analyzed to provide useful policy implications and recommendations.

An investigation from the multiple regression analysis was needed, as presented below. The important statistics are illustrated to provide how well the equation can explain and predict the pattern of total educational expenditure. This is followed by a graph showing the goodness of fit of the model.

TABLE 2: OLS Estimates of LEX

Variable	**Coefficient**	**Std.Error**	**t-Stat**	**Significant level**
LDGP	2.15288	0.2087	10.312	0.0000 **
LGS	-3.1507	1.0134	-3.109	0.0041*
LGSS	1.9615	0.4903	4.000	0.0004**
LGST	1.0878	0.3795	2.865	0.0075*
LUNEM	-0.0439	0.1331	-0.330	0.7436
C	-38.843	5.2591	-7.3858	0.0000**
R2 = 0.996	**Adj R2 = 0.9957**	**F-Stat = 166.03**	**DW= 0.814**	

** Significant at 1% * Significant at 5%

The estimated equation for the model fit as follow

$$\underset{t = (-7.38)}{\underset{(5.25)}{LEX = 38.84} + \underset{(10.31)}{2.15LGDP} - \underset{(-3.10)}{\underset{(1.01)}{3.15LGS}} + \underset{(4.0)}{\underset{(0.49)}{1.96LGSS}} + \underset{(2.86)}{\underset{(0.37)}{1.08LGST}} - \underset{(-0.33)}{\underset{(0.13)}{0.04LUNEM}}}$$

The above equation can be accepted as a sound explanation of the determinants of government expenditure on education based on its statistical significance as shown by the F-statistic being significant at more than 95 percent. The R2 adjusted-R2 value also indicates that the movement of the total educational expenditure determined by this set of independent variables by about 99 percent. This value of the adjusted-R2 implies that the independent variables can explain the change in the dependent variable up to 99 percent. The first variables in the equation LGDP reflect how economic factors can determine the level and the allocation of total educational expenditure. First of all, the coefficient of the Gross domestic product (LGDP) is positive and it is significant, indicating that GDP positively determines the total expenditure on education in Sri Lanka. This result could go in line with the Solow growth model.

Secondly, as for the number of government Schools (GS) has an insignificant and negative coefficient, implying that the total expenditure on education is insignificantly determined by the number of schools. This is a very complicated result because if the government does not take expenditure decisions based on schools it will affect the all educational development of the country. Therefore, policymakers have taken into account the issue.

The number of government school students (GSS) and the number of government teachers (GST) also has a significant and positive coefficient. That seems that seems to significantly determine the total educational expenditure. The results seem to send a signal that policymakers hardly take into account the above factors, particularly the demand from the educational sector, as the important factors to determine the level of expenditures. In other words, the government may have overlooked these factors when making decisions on educational expenditure.

As for unemployment, the unemployment (UNEM) has an insignificant and negative coefficient, implying that the total educational expenditure is insignificantly determined by unemployment. It is possible that policymakers do not take into account the issue of unemployment

6. Summary

Having discussed the estimations of the equation at the macro level, time series analysis, a summary of the determinants of educational expenditures from the above equation should also be made in order to simply illustrate the practical results of the analysis in this chapter. Table 3 presents a summary of the variables affecting educational expenditures in Sri Lanka.

TABLE 3: Summary of the Determinants of Expenditure on education

	Determinants	Expected Sign	Actual Sign
Total Expenditure on Education	Gross Domestic Product	+	+
	Number of Government Schools	+	_
	Number of Government Students	+	+
	Number of Government Teachers	+	+
	Unemployment (Insignificant)	+	_

Source: Computed by researcher, 2017

The significant relationship as indicated by the gross domestic product, number of government schools and number of government teachers proved that these variables are essential determinants that should be taken note by policy makers when deciding on the education allocation. This can serve as an explanation that is beneficial both in terms of theoretical application and policy notification for policymakers.

7. References

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