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Do Governance Indicators Matter for public spending? The Case of Sri Lanka

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ABSTRACT

The study examined whether governance determines public spending's efficacy in improving education outcomes employing time series data in Sri Lanka. Augmented Dickey-Fuller unit root test, Johansen's co-integration tests, and the Vector Error Correction Model were employed to find the study objective. The results detected that governance determines public spending's efficacy in improving educational status in the long run, whereas it does not determine in the short -run. When estimated without the interaction of governance indices, the results of education spending have a positive relationship with the outcome of education. In contrast, when estimated without the interaction of corruption, it showed a negative relationship on the outcome of education in the long- term. Though, the results of public spending with the interaction with political stability and the absence of violence revealed that it has virtually no impact on education outcomes. However, in the short run, the results found that when estimated without the interaction of governance indices and with the interaction of governance indices, public education spending is not significant on the outcome of education. The study shows that the government should improve the efficiency of using education expenditures with good governance and, promote the positive effect of government education expenditures as the state of governance is not influence educational status positively.

Keywords: Public Spending, Educational attainment, Governance

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1. Introduction

In developing countries, the principal responsibilities of the Government are to reconcile and implement sound public policies to boost economic growth, promote the outcomes of government work, and maintain excellent public services for people (Albassam, 2020; Laffin, 2016; Rajkumar and Swaroop, 2008; Wildavsky, 1961). The Government's outlays constitute a significant proportion of domestic output directly influencing public policy involving services, namely education, health, public transportation, welfare, and protection (Khan and Murova, 2015). Correspondingly, as a portion of the financial management system, public spending's efficacy and efficiency impact the quality of public services and programs introduced to beneficiaries in the nation (Schick, 1998).

Public spending is associated with economic development due to the complex character of public expenditure and changes in people's demands. Especially in developing economies, considering the scarce resources, enhancing the budget allocations' effectiveness, ineffective governance, and restricting public fund waste are

the principal focuses of public policies (Khan and Murova, 2015). Thus, the efficacy of government spending has been connected with acceptable governance practices and the quality of institutions (Abushamsieh et al., 2014; Borge et al., 2008).

Governance matters, such as corruption, political instability, the rule of law, violence, voice and accountability, government effectiveness, and regulatory quality continue to be a severe problem in Sri Lanka. If the government is ineffectual, public services are inefficient, corrupt, and function under political pressure (Vinayagathasan and Ramesh, 2019). According to control of the World Bank's corruption record, from 2005, Sri Lanka shows worsened scenario. Notably, in 2017, the World Bank Governance Indicators revealed the low governance status of Sri Lanka, which is evident when we look at all indicators of the governance dataset (The World Bank Data, 2021).

Despite a significant improvement because of the end of the domestic war in 2009, it is also noteworthy that politically prompted violence and government instability remain to some extent. There has been an improvement in the rule of law and voice and accountability in this line. However, the progress was not as much in Sri Lanka according to WGIs, which are a significant precondition for any nation to improve people's quality of life (Vinayagathasan and Ramesh, 2019).

Sri Lanka has become the highest standard country among South Asian Countries, although the efficacy of public expenditure on human development in Sri Lanka has become a widely arguable issue (Vijesandiran & Priyatharsiny, 2018). There is a wide variation in public spending across countries (Rajkumar and Swaroop, 2008). In this line, Sri Lanka is a lower-middle-income country; however, its government spending on education as a share of GDP has been steadily lower than that of its regional and income peer nations (Budget Brief: Education Sector Sri Lanka 2019; The world bank, 2020). Since the percentage of Government expenditure on education, the total (% of GDP) of lower-middle-income countries was 4%, while that in Sri Lanka was 2.1 in 2018. The government education expenditure as a share of total government expenditure is lower than that of other peers (Budget Brief: Education Sector Sri Lanka, 2019). For illustration, lower-middle-income nations, namely Bhutan, Eswatini, Nepal, and Pakistan, spent 26.3, 24.8, 17.0, and 13.2 percent respectively in 2018, whereas Sri Lanka spent 11. 3 percent.

Moreover, governance influences public spending, and government expenditure repeatedly does not attain the anticipated development in human development outcomes, including educational outcomes (Rajkumar and Swaroop, 2008). The impacts of public spending depend on its absolute values and composition and the efficiency of this expenditure (Abdelsalam et al., 2014). Budget allocation for public services is of public concern as they impact the effectiveness of services to people (Albassam, 2020). Thus, if the government involving the budget formulation, implementation, and monitoring are malfunctioning, barely allocating public resources for the suitable goods and services may not lead to public services' desirable outcomes (World Bank, 2003). And poor budgetary management has been pointed to as one of the leading causes of difficulty involving government expenditure transformation into effective implementation in developing countries (World Bank, 2003).

In this backdrop mentioned above, the problem of the study is to be 'the inefficiency of governance matters becomes a barrier in attaining the expected development in educational outcome through public spending.' The study is motivated to carry out in Sri Lanka to fill the research gap existing in this topic with the research problems. Therefore, the study seeks to empirically examine the influence of governance in determining public spending efficacy in improving educational outcomes. The study will specifically address the association between government expenditure and education outcomes and investigate how these relationships are affected by the governance of Sri Lanka.

2. Literature Review

Researchers have been worked on a significant number of studies on the association between public spending and outcomes. Some preceding scholars (Kulkarni, 2016; Anyanwu and Erhijakpor, 2009; De and Endow, 2008; Al-Samarrai, 2003; Doryan, 2001) have investigated the link between public expenditure and outcomes, especially those prior studies involving the impact of public spending on economic growth or other health and education outcomes. Besides, studies on public spending and economic growth, have been conducted by scholars (Zhang & Zou, (1998), Ventelou & Bry, (2006). Nketiah-Amponsah, (2009), Yasin, (2011), Kouassi, (2018)).

Similarly, studies also examined the relationship between public spending on education and the outcome of education, which revealed mixed analysis results. The researchers revealed that public spending on education has a statistically significant impact on improving expenditure outcomes (Tomic, 2015 Shafuda & De, 2020). In contrast Hanushek, (1995) has revealed that increased spending for U.S. public schools has not improved student performance. However, the scholar emphasized that the results were that schools use resources inefficiently. Correspondingly, Bexheti & Mustafi (2015) have explored the negative effect of public spending on education whereas, Craigwell et al. (2012) found the expenditure has no significant influence on either primary or secondary education. Therefore, even the government increases the spending, and other essential external factors could influence the outcome of both education and health.

Besides this, only a few researchers studied institutional quality and public spending and the outcome. Among the empirical studies scholars Dzhumashev, (2014), Morozumi & Veiga, (2016). Khan et al. (2020), Arawomo & Adeoye (2020) Thanh et al. (2020) have studied the links between governance, public expenditure, and the outcome.

Dzhumashev (2014) analyses how the quality of governance, public spending, and economic development impact the link between bureaucratic corruption and economic growth. The finding revealed that the interaction between corruption and governance shapes the efficiency of public spending, limiting the growth effects of corruption. Similarly, Thanh et al. (2020) found that good governance is vital in improving government expenditure's impact on economic growth.

The only exception is the literature by Rajkumar and Swaroop (2008), which analyzed the relationship between public spending, governance, and the outcome of both health and education. The study found that public spending increased primary education attainment in good governance countries. In addition, public spending in poorly governed countries does not influence education outcomes.

Meanwhile, even if the scholars (Rajkumar and Swaroop, 2008) conducted a study with the same objective in terms of both education and health outcomes, it was not carried out in Sri Lanka. There were no empirical studies conducted to examine the influence of governance in determining public spending and its effect on education in Sri Lanka. Therefore, the current research aims to fill the gap by seeking the outcome of this study objective in Sri Lanka.

3. Methodology

The study examines the impact of government spending on educational outcomes. However, unlike previous scholars, the chosen model analyzes the interaction between public spending and governance indicators in assessing this impact. The empirical study draws on the time series data of 2009 to 2019 is employed to analyze the study objective. Those annual time-series data were collected from the World Bank data set, Economic and social statistics of Sri Lanka, Central Bank of Sri Lanka, and Transparency International. Government spending on Higher education and higher educational attainment (number of graduates) have been taken as a proxy for government spending on education and educational attainment. Moreover, the

Corruption perceptions index (CPI), Political Stability and Absence of Violence (PS) were employed to measure Sri Lanka's governance indicators.

In the following model, examine the impact of public education spending on educational attainment by taking governance into account.

$$ln\ EA_t = \alpha + \alpha_1 ln\ (EHE)_t + \alpha_2 ln\ (UA)_t + \alpha_3 G_t + \alpha_4 G_t * ln\ (EHE)_t + BX + \varepsilon_t$$

The dependent variable is education attainment (EA) measured by the number of graduates. Independents variables are EHE represents the government expenditure on higher education, UA which denotes new university admission for basic degrees, and G represents a measure of governance indicators.

B is a vector of coefficients of X, and ε is an error term is error term capturing the effect of the unobserved factors. X is a vector of other related factors which may affect educational outcomes.

In addition, the variable governance (G) was entered into the model both as an independent variable and interacted with the share of government education spending to examine the direct and the indirect effects that governance indicators may have on educational attainment.

As an initial step of the analysis, time series values are to be converted into their logarithms to interpret the variables' elasticity. Then, to establish the order of integrating the variables, the Augmented Dickey-Fuller unit root test is utilized. The unit-roots test is performed to avoid spurious models due to trending variables since the use of non-stationary variables in the time series analysis leads to misleading inferences (Muthamia and Muturi, 2015). If all variables are being non-stationary, it follows to find the existence of a co-integrating relationship. Johansen's co-integration multivariate procedure is employed to show whether the variables are co-integrated in the long run (Muthamia and Muturi, 2015). Finally, the Vector error correction model is employed to investigate the proposed objective of the study.

Measuring the efficacy of public education spending

The results of the ADF unit roots test are presented the table 01 showing all variables incorporated in the study are stationary at the first difference I (1). As unit roots test statistics of selected variables in the study are found to be higher negative values and MacKinnon p-value also established to be significant at one percent and five percent level. According to the results, the null hypothesis that no unit root can be rejected for the variables incorporated into the study as they are non-stationary but become stationary at first difference 1(1).

Table 01: Results of ADF unit roots test

Variables	Test statistics (first difference)	Order of Integration	MacKinnon p-value
Educational attainment: Number of Graduated (lnEA)	-5.067	I(1) ***	0.0000
Government Expenditure on Higher Education, (lnEHE)	-4.458	I(1) ***	0.0002
New University Admission for basic Degrees (lnUA)	-10.558	I(1) ***	0.0000
Government expenditure on higher education × Corruption perceptions index (EHE*CPI)	-3.669	I(1) ***	0.0046
Government expenditure on higher education × Political stability and absence of violence (EHE*PS)	-3.209	I(1) **	0.0195

**** And ** indicate one percent and five percent significant level respectively*

Table 02: Results of Johansen tests for cointegration

Model 01: Efficacy of public education spending					
Maximum Rank (r)	Parms	LL	Eigenvalue	Trace statistic	5% critical value
0	3	11.293638	.	32.3159	29.68
1	8	24.003997	0.77583	6.8952*	15.41
2	11	27.432862	0.33195	0.0374	3.76
3	12	27.451578	0.00220		
Model 02: Efficacy of public education spending with governance					
0	4	-399.39766	.	52.6255	47.21
1	11	-384.66681	0.82325	23.1638*	29.68
2	16	-376.6395	0.61108	7.1092	15.41
3	19	-373.3943	0.31736	0.6188	3.76
4	20	-373.08492	0.03574		

Table 02 shows the outcomes of the Johansen cointegration test. According to the estimated results of model 01, the trace statistics r = 0 of 32.3159 surpasses the critical value of 29, leading to strongly rejecting the null hypothesis that no co-integrating equations among the variables. In contrast, the study accepts at r = 1 results that there is one cointegrating vector equation among the variables due to trace statistics being higher than the 5% critical value.

The max rank (1) and rest of the max ranks (2, 3) results also found are co-integrated vector equations among the variables, and those variables have been moving together. Therefore, the Johansen cointegration test revealed that the selected variables are cointegrated. The existing long-run relationship between the variables showing government expenditure and new university admissions would determine the educational attainment in the long term. Similarly, the outcomes of model 02 also show that at the first level (r- 0), the study strongly rejects the null hypothesis of no cointegrating equations among the variables. However, the present study accepts the null hypothesis at r = 1 that cointegrating vector equations exist among the variables. In particular, the max rank (1, 2 &3) results found that there are co-integrated equations among the variables, and those variables have been moving together. Therefore, the Johansen tests of cointegration discovered that the selected variables are cointegrated. The long-run relationship between the variables showing government education expenditure with governance indicators (corruption, political stability, and absence of violence) would determine the educational attainment in the long term.

Meanwhile, the variables of both models are found to have a cointegrating relationship, as a consequence the Vector Error Correction method is employed to investigate the dynamic interrelationship among the stationary variable in the order I (1).

Table 03: Results of Johansen normalized cointegration coefficients

Model 01: Efficacy of public education spending				
Variables	coefficients	Standard Error	t- statistics	p- statistics
lnEA	1.000	-	-	-
lnEHE	-3.134743***	0.4871744	-0.643	0.000
lnUA	7.616165***	1.076887	7.07	0.000
constant	-54.78066			
Model 02: Efficacy of public education spending with governance				
lnEA	1.000	-	-	-
EHE*CPI	7.84e-07**	3.67e-07	2.13	0.033
EHE*PS	2.14e-06	0.0000195	0.11	0.913
lnUA	-5.135457***	0.5911092	-8.69	0.000
Constant	37.56179			

**** And ** indicate one percent and five percent significant level respectively*

Table 03 represents the results of normalized cointegration coefficients to show the relationship of selected variables in the long run. According to the results, the models for public education spending and public education spending with governance can be specified as follows. The model comprises the signs of the coefficients, which were reversed as the study utilized Johansen's method.

Model 01: $lnEA_t = 54.78066 + 3.134743 lnEHE_t - 7.616165 lnUA_t$

Model 02: $lnEA_t = -37.56179 - 7.84e\text{-}07\ EHE*CPI_t - 2.14e\text{-}06\ EHE*PS + 5.135457 lnUA_t$

The results of model 01 explore that government expenditure on higher education positively impacts the higher educational attainment at the one percent of significant level. Thus, the coefficient for government expenditure on higher education reveals that if the government expenditure on higher education is 10%, there will be a 31.35% increase in educational attainment. In addition, the new university admission for basic degrees negatively impacts higher educational attainment at the one percent level and a 10% increase in government expenditure with the interruption of governance is likely discouraging the educational attainment by 76.1%.

Therefore, according to the normalized cointegration coefficients, government expenditure on higher education without the interruption of governance positively impacts educational achievement in the long - run.

Meanwhile, model 02 reveals that government expenditure on higher education with corruption negatively influences the higher educational attainment in Sri Lanka at five percent of significant level and indicating 78% educational attainment increase in association with a 10% in government expenditure with corruption. Although, government expenditure on higher education with political stability and the absence of violence is not significant with higher educational achievement. In addition, the new university admission for basic degrees positively impacts the higher educational attainment at one percent of the significant level. Thus a 10% increase in government expenditure with the interruption of governance is likely promoting the educational attainment by 51.3%.

Hence, the results found a negative impact of expenditure with corruption on educational attainment in the long run. However, government expenditure on higher education with political stability and the absence of violence does not influence educational attainment.

Table 05: Results of vector error correction model

Model 01: Efficacy of public education spending				
Variables	α coefficients	Standard Error	t- statistics	p-statistics
lnEA	0.015149	0.046471	0.33	0.744
lnEHE	0.0337852	0.0265666	1.27	0.203
lnUA	-0.1630298***	0.0307406	-5.30	0.000
Model 02: Efficacy of public education spending with governance				
lnEA	-0.0350259	0.0632703	-0.55	-0.580
EHE*CPI	-45219.47	78431.12	-0.58	0.564
EHE*PS	-432.2782	1758.283	-0.25	0.806
lnUA	0.2163352 ***	0.0445304	4.86	0.000

*** *indicates one percent significant level respectively*

Table 05 shows the results of the Vector Error Correction Model of Johansen's method. According to the outcomes, both scenarios include the influence of governance and, without the influences of governance, the government expenditure of education does not influence the educational attainment in the short-run as the

coefficient values are insignificant with educational attainment in the short run. Moreover, the new university admission for basic degrees positively impacts the higher educational attainment without the governance indices. However, the new university admission for basic degrees negatively impacts the higher educational attainment when the governance indicators influence the expenditure in the short - run.

4. Conclusion

The objective of this study was to investigate whether governance determines public spending's efficacy in improving educational outcomes in Sri Lanka. The results detected that governance determines public spending's efficacy in improving educational status in the long run, whereas it does not determine in the short -run.

Johansen's normalized cointegration coefficients show a long-run positive relationship between government expenditure and educational attainment without the interaction of governance in Sri Lanka. Besides, the results also found a negative impact of expenditure with its interaction of corruption on educational attainment in the long run. However, government expenditure on higher education with its interaction of political stability and the absence of violence does not influence educational attainment in the long term. Although in the short-run, both scenarios include the influence of governance indices and, without the interaction governance, the government expenditure of education does not influence the educational attainment, the results of the Vector Error Correction Model confirmed.

These findings have important implications for enhancing public spending on education development effectiveness. In Sri Lanka, where public expenditure on education is comparatively low, the state of governance is not influenced educational status positively. Therefore, the study shows that the government should improve the efficiency of using education expenditures with good governance and promote the positive effect of government expenditures on education.

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