Government Spending On Education As Correlate Of Education Outcome: A Time Series Analysis Between 2010 To 2020 On Liberia

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Abstract:

Government spending on education is an indication of society commitment to equip its citizen with sound knowledge, skills, and values for them to effective function in society. For this reason, after World War II, International cooperation in education had compelled governments to invest in education to increase universal access to quality education. Despite adopting these international treaties, declarations and recommendations, many countries seem to still be lagging in meeting the recommended threshold of least 4-6 percent of GDP or 15-20 percent of total public spending on education. Even though there seems to be little improvement in education funding across the world, but there is still a wide gap between the anticipated and the actual investment. The purpose of this paper was to examine the trend in government of Liberia spending on education and how it correlates with educational outcome of school enrollment at every level. Data were obtained from the World Bank GDP estimates and UNESCO statistics on education expenditure. The results in this paper show that the government of Liberia expenditure on education is far below other sub-Saharan African countries as well as other low-income countries. Public expenditure on education is significantly skewed towards recurrent cost with almost no funds for educational development. Generally, government expenditure on education and recommendations are provided to help policy makers and actors to take urgent action.

Key words: school enrollment, government expenditure, recurrent and development

Date of Submission: 09-06-2023

Date of Acceptance: 19-06-2023

I. Introduction

Despite regarding education as a public good and governments commitment to education as number one priority for human capital development, investment in education is relatively small and far below the recommended threshold in the world especially in least developed countries. From the public view, the relatively small investment in education can be looked at as potential cause of the low transition and completion rate across educational levels, huge over age enrollment and low attainment of learning outcomes in sub-Saharan Africa and the world at large. Education is one of the major determining factors of the economic growth in a country and many countries have regarded education as a public good that demand meaningful investment. Government investment in education gives citizens the chance to access quality education and acquire actionable knowledge, skills and attitude that leads to economic growth and development for the individuals and the society at large (Zarate & Gomez, 2011).

The recognition that government expenditure in education as an important tool for social and economic peace and that adequate spending on education positively lead to desirable learning outcomes, governments were compelled to invest in education amid competing priorities. Government investment in education has led to increase in school enrollment rates and completion rates, but evidence show the transition rate is low in the region (World Bank, 2020). However, government spending on education varies by levels and countries. According to the Africa Economic Outlook (2020), sub-Saharan countries have the lowest education spending efficiency despite increasing investment in education. Another concern about government spending on education is the impact it has on learning outcomes. Research evidence show that despite governments increasing investment in education in the region, there is poor learning outcomes in many countries. There is huge learning attainment gap among countries in the region and between other regions of the world (UNESCO, 2020).

Liberia continues to experience educational, health, social, economic, environmental, and political crises that stand to impede economic and social advancement of citizens and the country at large. The educational system has been affected by array of issues ranging from poor infrastructure, lack of teaching and learning materials, lack of updated textbooks, poor sanitary conditions, inadequate trained professional teachers, and poor learning outcomes such as high overage enrolment, high illiteracy, low transition rate, and high dropout rates. On the other hand, the health system and security sectors remain fragile with citizens at risk of multiple diseases and insecurity threat. The justice system has been described as weak and not trusted to respond to the increasing human rights and injustices occurring in the country for the past two decades. As indicated by PNUD (2021 cited in Villela & Paredes, 2022), these issues and related crises in a country may lead to inequalities, poverty, and imbalances in public finances. In 2020, Liberia GDP per capital was -4.1 which is far below countries in the sub-Saharan region, Latin America and countries like Honduras, Haiti, and Guatemala. More importantly, Liberia has been rubbed of requisite resources by acts of massive corruption that is described as a systemic problem and continues to break the fabric of the country and undermine development efforts. Corruption has not spared the education system, it has diminished government efforts to adequately invest in the human capital development of the people of Liberia necessary to promote improvement in knowledge, skills and competencies for productivity and economic gains for individual and the country.

For the past two decades, the Liberian government investment in education is below other countries in the region and accounts for one of the lowest per capita incomes and human capital indices in sub-Saharan Africa. Between 2010 and 2014, the government of Liberia spending on education as percent of gross domestic product was 2.3% below other countries in sub-Saharan Africa with 3.5% and other low-income countries at 3.3%. In the same period, the government of Liberia expended 13.5% of its national budget on education and 2.3% of its gross domestic product, which are still far below the recommended thresholds. The Liberian government spending declined from 3.4% in 2010 to 2.2% in 2014 as percent of the GDP and 13% in 2010 to 10.6% in 2014 as percent of its national budget spending on education (UNESCO, 2015).

Having expressed in emphatic terms and describing the problems facing the education system of Liberia, this study aimed to create awareness on the importance of public investment in education and stressed the urgent need for strong advocacy for increased and robust spending on education if Liberia will achieve Sustainable Development goal four by 2030. The findings of this study provide empirical information to help policy makers, educators, and parents to implement appropriate reforms and leverage huge investment at every level of education with the aim to develop human capital of citizens that will translated into economic growth and development. In view of the afore mentioned, this study sought to examine the relationship between public spending on education and school enrollment between 2010 and 2020 by utilizing extracted data from UNESCO, the World Bank and the EMIS reports relevant to Liberia.

II. Background

Prior to World War II, there was little or no international cooperation in education development. Every country made efforts to set the agenda of their own education system and support the system. However, the need for international cooperation was amplified after World War II (Thomas, 2020). An inter-agency group: UNESCO, The World Bank, UNICEF & UNDP, share vital role of addressing educational development in the world and led major education campaigns in the world to brought to the fold right based and human and social capital approach to education with the aim to eradicate poverty and reduce inequality (Carbonnier, Carton, & King, 2014). They believed that education was the surest way to achieve this goal. Given the human right approach, governments and development partners needed to work together to ensure that everyone regardless of status have the right to quality education. From the human and social capital approach, it was believed that to invest in individual, governments and partners must invest heavily in education.

The inter-agency group adopted the Universal Declaration of Human Rights in 1948, which defined education as a fundamental human right, declared the Education for All (EFA) in 1990, adopted the Millennium development goals in 2000, and derived the sustainable development goals translated into the framework for Action Agenda 2030. These declarations and treaties have compelled countries across the world to begin to rethink education and consider making necessary reforms aim at providing education as a human right and human capital development for social inclusion. Many countries signed these declarations and treaties and agreed to allocate the recommended threshold of least 4-6 percent of GDP or 15-20% percent of total public spending on education (UNESCO, 2015). Government expenditure on education values between 4% to 6% of GDP means that the country meets the benchmark and a disaggregation by level of education shows that government policy is spread across all levels of education (UNESCO, 2022).

Despite adopting the Universal Declaration of Human Rights, the Education for All (EFA), the Millennium development goals, and the sustainable development goals translated into the framework for Action, many countries are still lagging behind in meeting the recommended threshold of least 4-6 percent of GDP or 15-20 percent of total public spending on education. Even though there seems to be little improvement in education funding across the world, but there is still a wide gap between the anticipated and the actual investment. Consequently, this research explored how government spending on education meet the recommended thresholds and impact learning outcomes in Liberia.

III. Objectives

This paper seeks to shine light on these issues by examine the extent to which government spending on education meet the recommended thresholds and the impact on learning outcomes in Liberia between 2010 to 2021. Specific objectives are to:

- 1. Determine the trends on education spending by GOL in comparison to sub-Saharan countries and Lowincome countries as percent of GDP
- 2. Examine the impact of government of Liberia spending on school enrollment

IV. Literature review

Global quest for free and compulsory quality education had necessitated the need for governments across the world to accelerate investment in education at every level. However, the recommended threshold of least 4-6 percent of GDP or 15-20 percent of total national spending was set for all countries to achieve by 2030. Given the threshold, all countries regardless of level of development are expected to invest hugely in education so that more children can access and complete school under the free and compulsory education policy and other global establishment. On average, globally public spending on education was around 4.7% of the world's GDP and the sub-Saharan countries with 5.0% of the GDP on education. Additionally, developed countries had spent on average 4.8% of the Gross Domestic Products (GDP) while developing countries managed to spend the average of 3.2% on education (UNESCO, 2011, Al-Samarrai, Cerdan-Infantes, & Lehe, 2019). As the result of increased investment in education, both developed and developing countries have witnessed higher enrollments at every level of education. According to Sejake (2021) government spending on education in developed countries is skewed towards secondary and tertiary education while developing countries spending is largely at the primary school level.

In sub-Saharan Africa, education is largely provided by the public sector mainly at the lower levels of education. Education as a public good often account for major component of government expenditure, but in the context of limited resources couple with competing priorities in the region, governments tend to make hard decisions about spending on education and at the same strive towards meeting the recommended global thresholds. By 2008, on the average, sub-Saharan countries had spent 5% of gross domestic product on education only second to North America and Europe with 5.3% (Al-Samarrai et al., 2019). On average, sub-Saharan countries had spent 18.3% of their national budget on education by 2008. However, the absolute amount spend on education was relatively small as compared to other regions. According to Farayibi and Folariin (2021) study that examined the impact of government spending on education on learning outcomes in 31 sub-Saharan African countries between 2000-2019, found that the government spending on education sparsely unfunded. Evans and Ghost (2008) also found that in developing countries including African countries, government prioritized investment in education at the lower level of the education ladder.

Villela and Paredes (2022) evaluated the relationship between public expenditure on education human capital development on economic growth in Honduras from 1990 to 2020. Using the instrumental variables method and econometric approach, their study found no correlation between public expenditure on education, human capital, and economic growth. On the contrary, Ziberi et al (2022) study in North Macedonia found a positive relationship between public expenditure on education and economic growth between 1917 to 2020. In Nigeria, Okerekeoti (2022) examined the impact of public education spending on economic growth from 1999 to 2020. Applying regression analysis on the data, the study found a positive impact of public education spending and the country economic growth as expressed in the gross domestic product. In the same period, Nuta et al. (2022) investigated the impact of public spending on education on economic growth across about eleven Eastern European countries. The study gathered mixed results with five countries no relationship between public spending on education and economic growth while six countries demonstrated strong relationship in both short- and long-term investment. Gheraia et all. (2021) study in the Kingdom of Saudi Arabia found a positive impact of public expenditure on education on economic growth between 1990 to 2017.

Similarly, Osiobe (2020) panel unit root test and panel cointegratiin analysis of the association between public expenditure in education and economic growth in eight Latin American countries found a positive and significant association between public spending on education and economic growth in those countries between 2000 to 2014. Around the same period, Shafuda and De (2020) investigated the impact of public expenditure in education on human development indicators and economic growth in the Republic of Namibia between 1980 to 2015. The analysis of the data revealed mixed findings with positive relationship between public spending on education with enrollment rates at the primary and tertiary levels in the long run. Using the least squares analysis method to verify whether public investment in education correlates with development in the Republic of Czech between 1995 to 2018, Linhartova (2020) found that both expenditure on education and health contribution to human capital development rank between third or fourth.

Idrees, Khan and Omar Fauzee (2021) worked together to analyze the role of government through its expenditure on education to determine the effect it has on school enrollment in Pakistan. They used secondary data between 2000 to 2017 and performed descriptive analysis and method of least squares on the data. They found that national income and government spending on education have significant positive effects on school enrollment. Shayan (2015) qualitative studies between 2002 to 2012 found that public spending on education has positive impact on schooling. However, Craigwell et al. (2012) previously found that contrary to significant impact of health spending on health status, education spending has no significant impact on school enrollment in many countries of the Caribbean.

In view of the literature, there is trends that indicate that investment in education correlates strongly with economic growth and human capital development, but very little is known about government investment impact on educational outcomes. The benefits that come along with spending on education go beyond individual to the larger society. Therefore, in the context of Liberia, it was necessary and relevant to replicate this kind of research to examine the extent to which government spending on education meet the recommended thresholds and the impact on education outcome in Liberia especially if the country will achieve the sustainable development goal number four by 2030.

V. Theoretical framework

Human capital describes the knowledge, skills, values, and functional qualities that human beings possess as productive capacities. So, investing in education will enhance these capacities for future productivity of the individual. Therefore, this study is grounded on human capital investment theory earlier developed by Becker in the 91960s (Teixeira, 2014). The human capital investment theory emphasis the pivotal role of education on human development. It explains the interactions between public expenditure and human capital development. Proponents of the theory espoused that an increase in national revenue or people income compel government or people to invest more in education to increase access while ensuing quality (Obi, Ekesiobi, Dimnwobi, & Mgbemena, 2016). This theory is support by the United Nation Development Program and the World bank who maintain that in other to invest in people, governments must expand investment in education (World Bank (2020). The central idea of the human capital theory is that educating an individual is an investment in human capital, which has future benefits for the individual and the society. In this case, investing more financial resources on education will be a way of developing the potential of citizens through providing access to better quality education, which translate into achieving better educational outcomes and citizens demand for education in the future. Therefore, if government failed to invest in education, many school-aged children will not have access to education and parents might tend to push their children towards the labor market earlier than if they had access to quality education. Failure to allocate adequately for human capital development, parents might tend to prioritize which child will access education and, children from low-income families and those in the rural areas may tend to dropout or quite education at earlier ages to make living in the non-formal sector.

VI. Methodology

In this paper, the time series data between 2010 to 2020 were derived from the World Bank GDP estimates and UNESCO statistics on education expenditure as well as the Government of Liberia annual budget expenditure. They measure total government expenditure on education (all levels of government and all levels of education), given as a shared of Gross Domestic Product (GDP). In their analysis, general government expenditure on education (current, capital, and transfers) is expressed as a percentage of GDP, which in this case includes expenditure funded by transfers from international sources to government. General government usually refers to local, regional, and central governments. Government expenditure on education is calculated based a given financial year expressed as percentage of the gross Domestic Product (GDP) for the same financial year. Data on education are collected by the UNESCO Institute for Statistics from official responses to its annual education survey. All the data are mapped to the International Standard Classification of Education (ISCED) to ensure the comparability of education programs at the international level. The reference years reflect the school year for which the data are presented. In some countries the school year spans two calendar years; in these cases, the reference year refers to the year in which the school year ended. Statistically, their analysis of government expenditure on education, that is % of GDP is calculated by dividing total government expenditure for all levels of education by the GDP and multiplying by 100 (UNESCO, 2020).

Data was extracted on the predictor variables GDP per capital, GDP per capital growth, government expenditure as percent of GDP and national budget while the outcome variable was school enrollment disaggregated according to levels as Early Childhood Education, lower basic education, upper basic education, and senior secondary education. The extracted data was entered into the Statistical Package for Social Science (SPSS) and analyzed based on the two research questions. For the first question, a trend analysis was performed that produced the results in the form of graph and frequency tables. The second question was analyzed using a correlational analysis that produced results on the relationship between government spending on education outcomes specifically school enrollment at all education levels using a one-tailed confident level of significance at 0.05.

VII. Results

The findings of the study are presented in this section with interpretation. The first portion provide the findings on the trends analysis of education spending by the government of Liberia in comparison to sub-Saharan countries and Low-income countries as percent of GDP and the second portion focus on the relationship between government of Liberia spending on education and learning outcomes and economic growth.

Public spending on education as percent of GDP, percent of budget and type

Figure 1 compares government of Liberian spending on education as percent of GDP and percent of total national budget spending between 2010 to 2021. Fiscal year 2010 recorded the highest government spending as percent of GDP with 3.5% and 2012 to 2013 recorded the lowest with less than 2%. Government spending on education as percent of the total national budget spending show that in 2015, 2019 and 2020, government spending on education reached 13% of the national budget. However, 2021 recorded the least expenditure of government on education against total government spending for the year with 6.9%. This might be due to the COVID-19 pangamic that brought shock to the national purse and shifted government priorities in many ways.

Given government expenditure on education from the two perspectives, on average government has spent 2.3% and 10.2% on education as percent of GDP and percent of total budget spending respectively between 2010 to 2021. This is an indication that the government of Liberia expenditure on education though, encouraging but had not reached the recommended threshold of between 4 to 6% of GDP and 20% total national budget respectively.



Figure 1. GOL spending on education as % of GDP and total spending Source: UNESCO Institute for Statistics (UIS) www.apiportal.uis.unesco.org/bdds.

Table 1 displayed government recurrent and other expenditure on education between 2013 to 2020. The result shows that public expenditure on education is mostly towards recurrent cost with 99% as compared to other government spending in the education sector with just 1%. The result show that government of Liberia actual spending is on recurrent cost that is related to salary and renumeration for staff in the employ of the government of Liberia. There is almost little money allocated to cover other expenses in education necessary to add quality to the sector and provide school supplies and improve school quality.

	Fiscal Year										
Type of spending	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21			
Recurrent	68136	68251	68246	76340	79248	72833	70969	78717			
Development	697	0	0	0	2600	1571	0	1000			
Total	68833	68251	68246	76340	81848	74404	70969	79717			
% Development	1.0	0.0	0.0	0.0	3.2	2.1	0.0	1.3			

Table 1.Public expenditure on education by type of spending 2013-2020, 000 USD

Source: National budget, MFDP

Trends of public spending on education between Government of Liberia, sub-Saharan Africa, and Low-income countries

Figure 2 shows education spending in Liberia, the sub-Saharan and low-income countries as percent of Gross Domestic Products (GDP) between 2010 to 2020. In 2010, the government of Liberia expenditure on education was around 3.5% of the GDP but decreased drastically to 1.7% in 2013. There was an upward spending trend in 2014 but flattened between 2015 to 2016 most likely because of the Ebola crisis and other challenges in the country. In 2017, the government of Liberia investment in education reached 2.7% but dropped between 2018 to 2020.

In comparison with other sub-Saharan countries, government of Liberia spending on education as percent of GDP is far below other countries in the region. This is the case when compared to other low-income countries. However, the Liberian government spending in education as percent of GDP show an upward trend while there is seen downward trend across sub-Saharan and low-income countries as of 2020.



Figure 2. Trend of education spending by GOL in comparison to SSCs and LICs as % of GDP Source: UNESCO Institute for Statistics (UIS) www.apiportal.uis.unesco.org/bdds.

Impact of government of Liberia spending on education and GDP per capital on school enrollment in Liberia.

Table 2 shows the correlation between predictor variables government of Liberia spending on education as percent of GDP, percent of national budget, average spending as expressed in recurrent and development

expenditure and GDP per capital and outcome variables school enrollment at the early childhood education (ECE), lower basic education (LBE), upper basic education (LBE), upper basic education (UBE) and senior secondary education (SSE). The results show no statistically significant relationship between government of Liberia spending on education as percent of GDP, percent of national budget, GDP per capital and average spending on school enrollment at the first four levels of education with p>0.05. This means that regardless of the amount of money spend whether as percent of GDP or percent of national budget does not necessarily increase or reduce school enrollment. However, a significant correlation was found between GDP per capital and lower basic education with r = -0.925, p = 0.03. There was also a statistically significant relationship between government of Liberia average spending between 2014 to 2020 and lower basic education with r = 0.948, p = 0.02. That is an increment or reduction in average spending on education (constituting recurrent and other expenses) and GPD per capital is likely to lead to increment or reduction in school enrollment at the lower basic education level.

		GOL expending as % of GDP	GOL spending as % of Budget	ECE	LBE	UBE	SSE
GOL expending as % of GDP	Pearson Correlation	-	-	-0.58	-0.443	0.403	0.319
	Sig. (2-tailed)	-	-	0.305	0.455	0.501	0.601
	N	-	-	5	5	5	5
GOL spending as % of Budget	Pearson Correlation	-0.613	-	0.437	-0.034	-0.22	-0.167
	Sig. (2-tailed)	0.271	-	0.462	0.957	0.722	0.788
	Ν	5	-	5	5	5	5
GOL average spending	Pearson Correlation	-	-	0.637	.948*	-0.774	-0.785
	Sig. (2-tailed)	-	-	0.247	0.014	0.125	0.115
	Ν	-	-	5	5	5	5
GDP per capital	Pearson Correlation	-0.179	-0.34	-0.602	-0.925*	0.642	0.613
	Sig. (2-tailed)	0.773	0.576	0.283	0.025	0.243	0.272
	N	5	5	5	5	5	5
GDP growth rate (%)	Pearson Correlation	0.069	-0.599	0.253	0.76	-0.43	-0.455
	Sig. (2-tailed) N	0.912 5	0.285 5	0.682 5	0.136 5	0.47 5	0.441 5

Source: Central Bank of Liberia (CBL) and International Monetary Fund (IMF) Economic Outlook database October 2021 GDP data protections and UN Population Division 2019 revision population projection (medium variant).

VIII. Discussion

There is evidence that all countries have recognized the importance of education and the dividend that comes along with providing access to inclusive and quality education. On average government has spent 2.3% and 10.2% on education as percent of GDP and percent of total budget spending respectively between 2010 to 2021. This is an indication that the government of Liberia expenditure on education though, encouraging but had not reached the recommended threshold of between 4 to 6% of GDP and 20% total national budget respectively. This might be due to the COVID-19 pangamic that brought shock to the national purse and shifted government priorities in many ways.

Between 2013 to 2020, public expenditure on education is mostly towards recurrent cost with 99% as compared to other government spending in the education sector with just 1%. The result show that government of Liberia actual spending is on recurrent cost that is related to salary and renumeration for staff in the employ of the government of Liberia. There is almost little money allocated to cover other expenses in education necessary to add quality to the sector and provide school supplies and improve school quality. Comparing education spending in Liberia, the sub-Saharan and low-income countries as percent of Gross Domestic Products (GDP) between 2010 to 2020, the result show that government of Liberia spending on education as percent of GDP is far below other countries in the region as well as other low-income countries. This was confirmed by UNESCO 92011) and Al-Samarrai, Cerdan-Infantes, and Lehe, (2019) finding that developing countries managed to spend the average of 3.2% on education and sub-Saharan countries had spent 5% of gross domestic product on education only second to North America and Europe.

Mixed results were found in the correlation analysis between the predictor variables government of Liberia spending on education as percent of GDP, percent of national budget, average spending as expressed in recurrent and development expenditure and GDP per capital and outcome variables school enrollment at the early childhood education (ECE), lower basic education (LBE), upper basic education (LBE), upper basic education (UBE) and senior secondary education (SSE). Significant correlation was found between GDP per capital and

average government spending between 2014 to 2020 and lower basic education implying that an increment or reduction in the predictor variables may likely lead to increment or reduction in school enrollment at the lower basic education level. Sejake (2021) found similar results that government spending on education was skewed towards primary education in developing countries as well as Evans and Ghost (2008) finding that in developing countries including African countries, government prioritized investment in education at the lower level of the education ladder. Similarly, Farayibi and Folariin (2021) found that the government spending on education was mainly focused at the primary and secondary levels. Idrees, Khan and Omar Fauzee (2021) found that national income and government spending on education have significant positive effects on school enrollment. Shayan (2015) found that public spending on education has positive impact on schooling. Ziberi et al (2022) found a positive relationship between public expenditure on education and economic growth. Okerekeoti (2022) found a positive impact of public education spending and the country economic growth as expressed in the gross domestic product. Gheraia et all. (2021) found a positive impact of public expenditure on education on economic growth. Osiobe (2020) found a positive and significant association between public spending on education and economic growth in those countries. On the contrary, Villela and Paredes (2022) found no correlation between public expenditure on education, human capital, and economic growth. Craigwell et al. (2012) found no significant impact of education spending on school enrollment in many countries of the Caribbean. However, Nuta et al. (2022) found mixed results with five countries no relationship between public spending on education and economic growth while six countries demonstrated strong relationship in both short- and long-term investment. Shafuda and De (2020) revealed mixed findings with positive relationship between public spending on education with enrollment rates at the primary and tertiary levels in the long run.

IX. Conclusion

Given the results in this paper, it can be concluded that the government of Liberia expenditure on education though, encouraging but had not reached the recommended threshold of between 4 to 6% of GDP and 20% total national budget respectively and is far below other sub-Saharan African countries as well as other low-income countries. Public expenditure on education is significantly skewed towards recurrent cost with almost no funds for educational development. Generally, government expenditure on education does not seem to influence school enrollment at almost all levels except for the lower basic level where there seems to be some correlation with government investment.

Recommendation

- 1. The Government of Liberia and stakeholders should reimage education in the 21st century and perform strategic budgeting prioritizing the foundational levels in the system to get on par with countries in the region and meet the recommended threshold for government spending on education.
- 2. The Government of Liberia should expand the investment envelop on education and reduce the spending gap between recurrent and development to ensure quality in the system by providing all the necessities to facility quality education delivery at all levels in Liberia.

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