GOVERNMENT SPENDING EFFICIENCY IN NIGERIA: A COMPARISON OF ECONOMIC SECTORS FROM 2010 - 2022

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ABSTRACT: This paper assessed the efficiency of government expenditure of five economic sectors in Nigeria from 2010–2022, both in relation to each other and compared across time using Data Envelopment Analysis. The aim is geared toward examining the efficiency of government spending on the health, education, administration, transport and communication and agricultural sectors in Nigeria. The study employs the output-oriented Variable Return to Scale (VRS) approach using government expenditure as a percentage of GDP as input while the contribution of each sector to GDP (expressed as a percentage of GDP) was used as output. The result of the inter-sector analysis showed that on average the economic sectors are inefficient with an average output efficiency score of 0.45 while the input efficiency score is 0.49. Among the five sectors, public administration, health and education were found to be inefficient. However, when each sector was taken individually and efficiency scores analysed across time, the result revealed an average high efficiency score of 0.90 for public administration, 0.88 for health, 0.94 for education, 0.91 for agriculture and 0.93 for transport and communication. The study recommends improving working incentives, curtailing bureaucratic processes and corruption and improving labour productivity as measures of improving efficiency in the public sectors.

Keywords: Public Spending Efficiency; Health Public Spending; Education Public Spending; Agriculture; Transport and Communication; Data Envelopment Analysis (DEA)

INTRODUCTION

The efficiency of public spending is an unavoidable economic issue and is now an integral concept in public finance. This is because the efficient use of resources is one of the basic economic problems of society. As such, the government, in its public spending, desires to ensure that all her spending is efficiently utilized, especially as the government is answerable to its citizens. Hence, the government is now more interested in the efficiency of its spending than in the size of such spending (Adeboye & Akinyele, 2022; Afonso *et al*, 2013; Cubi-Molla, Buxton & Devlin, 2021; 2011; Heimberger, 2020).

Even though the benefit of leaving economic decisions to the private sector cannot be under looked, the government intervention is also needed when the benefits of collective decision making outweigh the loss of decentralized individual decision making. Hence, government intervention in economic activities becomes necessary due to market failure. Government intervention in economic activities is mostly expressed through public expenditure, and these expenditures go to the various public sectors of the economy.

Therefore, governments are mostly seen as producers of public goods and engage in the production of different outputs by combining labour with other inputs (Jibir & Aluthge, 2019). For example, governments, through the educational and health sector, fund teachers and purchase stationaries to reduce illiteracy and pay for medical facilities and personnel to increase

their population's life expectancy. It also engages and finances other activities through other economic sectors, such as agriculture, defence, and transport. All else being equal, any public sector that produces more outputs while spending less on inputs can be viewed as more efficient than a sector that produces less output and uses more inputs (Aluthge, Jibir & Musa, 2021). Hence, efficiency can be seen as the ability to avoid waste either by producing as much output as technology and input usage allow or by using as little input as required by technology and output production (Koku, 2015). This means that efficient either means that we produce a maximal possible amount of output from given amount of input or that we use a minimal possible amount of input to achieve certain desired level of output. Therefore,

The government in Nigeria, as it is obtained in any other country, performs its activities by directing it expenditure into various sectors of the economy, such as the transport, agriculture, communication, and services sectors. All these various sectors of the economy receive public expenditure as inputs, and in the process, they produce outputs that serve as economic outcomes. Therefore, assessing and comparing the efficiency of government expenditures on the various sectors in Nigeria can help provide more comprehensive analyses of government spending efficiency in Nigeria. Therefore, this study sheds lighter on the efficiency of public spending vis-à-vis various sectors of the Nigerian economy.

The sectoral allocation of public spending in Nigeria (i.e., on infrastructure, defence, health, education, agriculture, etc.) becomes very important and necessary because the government cannot concentrate its activities and spending on only one sector of the economy (Jibir *et al.,* 2023). This approach will not ensure that growth is balanced and that the government significantly touches every economic agent in the country. Since the government is faced with financial and budgetary capacity constraints due to limited resources available to adequately fund these important sectors, ensuring the efficiency of the allocated resources to these sectors becomes highly important (Hallaert & primus, 2022). Against this background, there are a number of studies focusing on some public sectors of the economy, with empirical assessments of public spending efficiency (Ahec Šonje *et al.,*2018; Auci *et al.* 2021; Ouertani, Naifar *et al.,* 2018). However, these empirical papers on public spending efficiency have generally focused on comparing efficiency among countries, making it difficult or nearly impossible to extend the conclusions of these studies to the analysis and comparison of government spending efficiency among economic sectors within a country. To the best of our knowledge, there are no studies centred on inter-sectoral comparison of efficiency within a country especially within the Nigerian context. Therefore, this study fills this gap by addressing the research question relating to whether there is efficiency among the economic sectors in Nigeria as regards government expenditure disbursed to these sectors.

The detailed analysis of sector-specific spending efficiency and inter-sector comparison will help in ensuring the simultaneous growth development of all the economic sectors in Nigeria by the government. In addition, the study contributes to the literature on public expenditure efficiency on two main grounds. First, we assess the relative sectorial public spending efficiency of the Nigerian government and suggest ways in which the government can improve the efficiency of these sectors. Second, this study is useful for informing citizens about public sector management and comparing the performances of various public sectors in relation to public expenditure.

Following the introduction, the remainder of the paper is organized as follows: Section 2 reviews the literature. Section 3 describes the data and empirical methodology. Section 4

reports the empirical findings and discussion of the results. The last section concludes and gives recommendations.

LITERATURE REVIEW

Conceptual Review

Public Spending: Bista (2023) defines public spending as a fiscal measure to counter macroeconomic crises and fluctuations in the economy to achieve the expected macroeconomic objectives: raising national income, generating employment and ensuring macroeconomic stability. Similarly, Jelilov and Akyuz (2022) see public spending as the part of fiscal tools that hugs and judiciously puts use, all revenue generated from all the economy as whole. On the other hand, Wardhani, Rossieta and Martani (2017) define public spending as the amount of money that government spends in a particular period for the activities which include government consumption, investments, and transfer payments. This means that public spending includes all spending on the procurement of goods and services, maintenance, official travel, loans, subsidy spending, grants, social assistance and other operational spending and capital spending. They further explain that the goal of public spending is to achieve the overall prosperity of society.

Public Spending Efficiency: Public spending efficiency is defined as the ability of the government to maximize its economic activities given a level of spending or the ability of the government to minimize its spending given a level of economic activity (Chan & Karim, 2012). In line with the above definitions, it is therefore highly important for the government to spend the resources generated from taxpayers efficiently, as they are accountable to their citizens, and because the efficiency of government spending can be used as an indicator to evaluate the effectiveness of government policy implementation on administration, education, health, income distribution, and economic stability.

Theoretical Review

Wagner's Law

Wagner's Law is the first model of public expenditure in the history of public finance. The model suggested that that in the process of economic development, the share of public spending in national income lean towards increments (Wagner, 1883). Thus, change in public expenditure is an outcome of economic growth. Wagner's law (1883) suggests that during the process of economic development, the share of public expenditure/GDP tends to expand. The reasons varied: public functions to replace private activities; when the development leads to an expansion of spending on culture and welfare public intervention might be necessary to manage natural monopolies (Magazzinoo, 2012). Thus, the expansion of public spending can be seen as a product of the economic development, and not the other way round (Bird, 1979).

In essence, Wagner's law of "increasing expansion of public and state activities" states that as real national income augments, there is a long-run tendency for the share of public expenditure to go up relative the income. This was based on the observation made by the German economist Adolph Wagner (1835–1917) that public expenditure increases as national income rises. This hypothesis is tightly linked to industrialization as the law predicted that the development of an industrial economy will be accompanied by an increased share of public expenditure in gross

national product. This means the emergence of modern industrial society would bring about increasing political pressure for social progress and increased allowance for social consideration by industry (Peacock & Scott, 2000).

The law implies that welfare states evolve from free-market capitalism because the population votes for ever-increasing social services as income grows. As progressive nations industrialize, the share of the public sector in the national economy grows continually. The increase in public expenditure is required based on three main reasons. Wagner himself identified these as (i) social activities of the state, (ii) administrative and protective actions, and (iii) welfare functions. The state's social functions expand over time due to retirement insurance, natural disaster aid (either internal or external), environmental protection programs, etc. Also, science and technology advance, consequently there is an increase of state assignments into the sciences, technology and various investment projects, etc. The state could resort to government loans for covering contingencies, and thus the sum of government debt and interest amount grow; i.e., it is an increase in debt service expenditure.

Peacock-Wiseman Hypothesis

Peacock and Jack Wiseman (1961) advanced the study of growth of public expenditure and the hypothesis was named after them as Peacock-Wiseman Hypothesis. This was based on their study of public expenditure at Great Britain during the period of 1890 to 1955. Peacock-Wiseman Hypothesis focused on the pattern of public expenditure and argued that public expenditure does not follow a smooth or continuous trend but the increase in public expenditure takes place in jerks or steps. They cited three separate concepts to justify the hypothesis, they are: displacement effect, inspection effect and concentration effect.

According to Peacock-Wiseman hypothesis, due to some social or other disturbance in an economy, there is need for increased expenditure as the existing public revenue cannot solve the disturbance. The fiscal activities of the government rise step by step to successive new higher level during the span of decades to meet successive social disturbances. The displacement effect refers to when a social disturbance occurs and the government raises taxes to increase revenue and increase public expenditure to meet the social disturbance. This creates a displacement effect by which low taxes and expenditures are replaced with higher taxes and expenditure levels. However, after the disturbance ends, the newly emerged level of tax tolerance makes the people willing to support higher level of public expenditure since it is capable of bearing heavier tax burden than before. As a result, the new level of public expenditure and public revenue stabilize but are soon destabilized by another new disturbance which causes another displacement effect (Peacock & Wiseman, 1961).

Even if there is no new disturbance there is no strong motivation to return to lower level of taxation as the increased revenue can be used to support a higher level of public expenditure. Therefore, the government expands its fiscal operations partly due to disturbance and partly to expand economic activity and take up new functions that were earlier neglected. This is known as Inspection effect (Peacock & Wiseman, 1961). According to Peacock and Wiseman (1961), when an economy is experiencing economic growth, there is a tendency of central government economic activities to grow at a faster rate than that of state and local government activities. This is known as the concentration effect. It is related to the political set-up of the country.

The Peacock-Wiseman hypothesis of government spending trend is more convincing than Wagner's hypothesis. The natural course of advancement and structural changes in the economy leads to constant and systematic expansion of public expenditure. An increase in public expenditure can also be accredited to urbanization, population growth, and awareness of civil rights, awareness of duties by the state government etc.

It is Peacock-Wiseman hypothesis is also regarded as the spend-and-tax hypothesis states that changes in public expenditure bring about changes in public revenue. It is featured by one-way causality from public expenditure to government revenue. A severe crisis that initially makes government expenditure more than tax or public revenue has the potential to change public attitudes concerning the proper size of government. The upshot is that some of the tax increases, originally justified by the crisis situation, will eventually become permanent tax policies. In other words, temporary increases in government expenditures due to economic and political crises can lead to permanent increases in government revenues from taxation; this is often called the "displacement effect" (Bhatia, 2003; Chang, 2009).

Empirical Review

So far, there are various studies which have assessed the efficiency of government expenditures in some sectors, mostly education, health or both. On the other hand, some assess the efficiency of general public spending. Gupta and Verhoeven (2021); Mohanty and Bhanumurthy (2018): Sikayena *et al*., (2022): Ouertani, Naifar *et al.,* (2018) study the public spending efficiency of both education and health sectors and all found that the public expenditure in these two sectors were inefficient. In addition, Gupta and Verhoeven (2021) reported that on average, countries in Africa are less efficient than countries in Asia and the Western Hemisphere. Similarly, Fonchamnyo and Sama (2016) analyse the efficiency of public expenditure on education and health sectors in three CEMAC countries (Cameroon, Chad and Central African Republic) using the nonparametric DEA method over the period 2000–2012. The authors also examine the impact of several nondiscretionary variables (institutional and economic factors) that might influence inefficiency by means of Tobit and Logit regression techniques. These findings reveal that Cameroon is the best in terms of efficiency in spending on education and health, and Chad is the worst in terms of public spending on education, despite spending more on education than the other countries. The Central African Republic is the least efficient in public spending on health. The authors suggested that decision makers should fight against corruption and assess the quality of budgetary and financial management to improve the efficiency level of these sectors.

In addition, Afonso and Aubyn (2004) analyse the efficiency of expenditures in education and health sectors in some OECD countries via the use of the nonparametric approaches DEA and FDH. Their main findings show very low spending and low education attainment results. It can therefore be considered as the "origin" of the efficiency frontier.

However, Yi-Chang Hsu (2013) used the DEA approach to assess the public spending efficiency of only the health sector for 46 European and Central Asian countries. He found that these countries could produce more outputs by approximately 2.1% while maintaining the same level of inputs. Similarly, Olanubi and Osade (2017) examine the efficiency of public funds allocated to human resources for health (HRH) during 6 regimes in Nigeria over the period 1966 to 2016. Their results showed that government spending on human resources for health (HRH) in Nigeria has been mostly inefficient and therefore suggest that Nigeria should pay

more attention to the development of health input. On the other hand, Ahec Šonje *et al*. (2018) focus their study on the educational sector by examining the efficiency of public expenditure on secondary and higher education in the new Member States (NMS) in the EU. Using DEA to assess the relative technical efficiency of public spending on secondary and higher education in new Member States, the results showed that inefficiency is high for public spending on education in Croatia. Gavurova *et al.,* (2017) also focus their study on the educational sector only by assessing the efficiency of government expenditure on secondary education in European countries using the DEA approach. Their findings showed that the average efficiency score was 0.955, which suggested that the efficiency in the evaluated countries was relatively high.

On the other hand, several studies assess the efficiency of public sector spending in general without concentrating on any particular sector(s) (i.e., The aggregate efficiency of public spending). Using DEA techniques, Afonso and Kazemi (2017) studied the efficiency of public spending in 20 OECD countries for the period 2009 to 2013 using DEA techniques. The results showed that the only countries performing at the efficiency frontier were Switzerland, Canada, Japan, Luxembourg and the United States, which were also more efficient. The average input-oriented efficiency value is 0.732. That is, states were able to reduce public spending by an average of 26.8% and still achieved the same public performance. The average efficiency-based score is 0.769, which means that the countries in the sample increased their performance by an average of 23.1% using the same public spending. However, Kimaro *et al.* (2017) examine the impact of government expenditure and its efficiency on economic growth Sub Saharan African low-income countries from 2002 to 2015 using Generalized Methods of Moments (GMM). Their findings revealed that increasing government expenditure accelerates economic growth but when government expenditure interacts with government, there was no evidence that government efficiency has an impact on economic growth. Afonso *et al*. (2020) measured public sector efficiency by sampling 36 OECD countries over the period between 2006 and 2017. Their findings show that the average efficiency score throughout the period is approximately 0.6 for the 1-input and 1-output models and approximately 0.7 for the alternative models and that some possible efficiency gains could be achieved with approximately 30% less government spending, on average, without changing the PSP outputs. Auci *et al.* (2021) use DEA to measure efficiency and estimate the impact of the public sector's size on the technical efficiency of 15 countries from 1996 to 2006 by using the true random effects model. Their findings reveal that the effect of public sector size on efficiency is positive, while the type of public expenditure may have both positive and negative impacts.

Similarly, Wandeda *et al.* (2021) analysed the efficiency of public spending among Sub-Saharan African countries using panel data for 23 Sub-Saharan African countries covering the period 2006-2018 and found that the average bias-corrected inefficiency score was 48% between 2006 and 2018, while the uncorrected inefficiency was 32.3%. Adegboye and Akinyele (2022) also assess the efficiency of public sector spending in Africa and examine the drivers of government spending efficiency. Their results showed that the governments of African countries are inefficient in terms of government spending in the public sector. The study also revealed that the level of government spending and colonial legacy affect the efficiency of government spending in Africa. The authors recommend the need to improve the efficiency of government spending to situate a framework for African development. Afonso and Fraga (2024) assess the public efficiency of 20 Latin American countries over the period of 2000 -2019 using data envelopment analysis. Their main findings revealed that public spending during the period under study increased, but the overall governments were not

efficient, as they could use 27% less spending to achieve the same level of output. Their result further reveals that Chile, Guatemala, Panama and Paraguay were the most efficient countries while Bolivia, Venezuela, Nicaragua, Suriname, and Brazil were the least efficient countries

The literature reviewed above revealed that most of the previous studies on public spending efficiency were centred on either education, health or both with few including infrastructure. In addition, most of these studies have focused on assessing and comparing public spending efficiency across countries, either regionally, in developed or developing countries or combinations of developing and developed countries. Hence, the conclusions drawn from these studies cannot be directly extended to the analysis and comparison of the efficiency of spending within a country in relation to several economic sectors. Therefore, this study will add to the body of knowledge by providing inter inter-sectoral comparison of public spending efficiency in Nigeria.

DATA AND METHODOLOGY

Data Envelopment Analysis (DEA)

To estimate the technical efficiency score, this study used nonparametric Data Envelopment Analysis (DEA). The DEA is a non-parametric linear programming method for evaluating the efficiency of a set of peer units called Decision Making Units (DMUs) that are converting inputs into outputs (Labasse, 2020) Here the various public sectors are the decision-making units (DMUs). The study aims to analyse and compare how efficiently the various sectors of the economy use the public funds allocated by the government as input. The advantages of using DEA include (a) the inefficiency results can be evaluated without specifying a normally unknown threshold function (b) The DEA approach can also be used with multiple inputs and multiple outputs (c) The DEA technique helps evaluate and compare how efficient DMUs use available resources to generate a range of results.

This study employs the output-oriented Variable Return to Scale (VRS) model based on the assumption that the DMUs (i.e. The various public sectors) try to maximizes output in each economic sector with a given fixed amount of input expenditure (i.e. The government funds allocated to them). Thus, the DEA construct an efficiency frontier that envelopes all available observations, and any deviation from this frontier is interpreted as an inefficient combination of outputs. In this regard, sectors that are not on the efficient frontier are inefficient sectors while those that lie on the efficient are regarded as the most efficient sectors.

Therefore, the model used to evaluate the technical efficiency of Nigeria's public spending in various public sectors are:

$$\theta^* = \text{Max}\theta \qquad\qquad\qquad\qquad (1)$$

$$\lambda\theta$$

Subject to

$$\sum_{j=1}^{n} \lambda_j x_{ij} \leq x_{j0} \;\; ; \quad i = 1, \dots, m \qquad\qquad (2)$$

$$\sum_{j=1}^{n} \lambda_{tj} y_{rj} \geq \theta y_{j0} \;;\; r = 1, \dots, s \tag{3}$$

$$\sum \Lambda_j = 1 \quad (VRS) \tag{4}$$

$$\Lambda \geq 0$$

$$j = 1, \dots, n$$

Here

θ: is a scalar and $1/\theta$ is the output-oriented efficiency score and satisfies $0 < 1/\theta \leq 1$.

θ^*:   represents the distance of each sector DMU from the efficient frontier.

Y_j: is a vector of outputs for the DMU j.

X_j is a vector of inputs for the DMU j

Λ: is (j × n) dimensional vector of constants that measure the weights used to compute the location of an inefficient DMU if it were to become efficient.

This study mainly used data from the Central Bank of Nigeria Statistical Bulletin (2022) to analyse its objectives. The data comprises different public sectors and is covering the period of 2010 -2022. The different public sectors considered for this research based on the availability of data are Agriculture, Health, Education, Transport and Communication and public administration. For analysis and comparison of efficiencies among sectors, the sectors are required to have a certain homogeneity of production technology. Hence, the main inputs used are government expenditure allocated to various economic sectors expressed as a percentage of total government expenditure. The economic indicator used as output in this research is the contribution of each sector to GDP (expressed as a percentage of GDP).

RESULTS AND DISCUSSION

The DEA Technical efficiency scores of government expenditure of various economic sector under consideration in Nigeria are presented and discussed in this section.

The DEA results and the ranking of each economic sector are reported in Table 2. In addition, the peers of each economic sector that is not in the efficiency frontier (production possibility frontier) are also indicated.

Table 1: Public Spending Efficiency Scores of Five Economic Sectors in Nigeria

Sectors	OUTPUT VRSTE	Rank	INPUT VRSTE	Rank	Peer Output/Input	CRSTE	Output target	Input Target
Admin.	0.153	3	0.020	5	T&C/Agric	0.007	23.894	3.200
Edu.	0.063	4	0.165	4	T&C/Agric	0.025	23.894	3.200
Health	0.025	5	0.285	3	T&C/Agric	0.017	23.817	3.187
Agriculture	1	1	1	1	Agric/Agric	1.000	10.165	0.908
T & C	1	1	1	1	T&C/T&C	0.667	23.894	3.2
Mean	**0.448**		**0.494**			**0.343**		

Note: *VRSTE: Variable Return to Scale Technical Efficiency Score, CRSTE: Constant Return to scale Technical Efficiency Score*

The result shows that on average, the output efficiency score is 44.8 percent while input efficiency score is 49.4 percent. This means that sectors can increase their performance by 55.5 percent with the same level of inputs or can achieve the same level of outcome using 50.6 percent less spending input. This result revealed a very low efficiency scores in Nigeria implying that public spending among the various sectors were not efficiently utilized. This could be attributed to some inherent factors such as corruption, red tape and ambiguous bureaucratic process, lack of proper incentives and supervision in the public sectors and general labour ineffectiveness due to lack of interest among public servants Nigeria. The low efficiency scores obtained should be a major concern to the government and its agencies as this has indicated a significant wastage of public resources that could have been better utilize.

The result further revealed that agricultural sector and transportation & communication ranked the first on the efficiency which shows that they are the most efficient sectors among the sectors under evaluation. Sectors like the public administration, education and health are inefficient sectors. The public administration is ranked the 3rd (output-oriented scores) in terms efficiency among the five economic sectors with a low output efficient score of 15.3% while the input efficient score is 2%. The peers indicate the target of the sector if it wants to radially move to the efficient frontier. If the public administration sector wants to improve output or input, her target peer will be transportation & communication or Agricultural sector respectively. The output target for the sector to reach the peer sector on the efficient frontier is to increase its output by 23.894 (billion).

The education and the health sectors are ranked the 4th and the 5th with an output oriented technical efficiency score of 6.3% and 2.5% respectively. Communication & transportation is the output peer for this sector while Agriculture is the input peer. For Education and health sectors to move to efficiency frontier, output has to increase by 23. 894 for education and 23.817 for health or input has to decrease by 3.200 (billion) for education and 3.187(billion) for health.

Furthermore, the efficiency of government spending on each economic sector is also estimated across time in other to assess the performance of each sector against itself over the periods of time 2010 to 2022. The technical efficiency scores of each sector over time is presented in table 2.

Table 2: DEA Public Spending Technical Efficiency Score of Five Economic Sectors in Nigeria from 2010 to 2022

Periods	Public Administration VRSTE	Health VRSTE	Education VRSTE	Agriculture VRSTE	Transport & Communication VRSTE
2010	0.946	0.694	0.944	0.977	0.981
2011	1	0.732	0.837	0.912	0.902
2012	0.854	0.725	0.841	0.902	0.908
2013	0.872	0.803	0.882	0.859	0.906
2014	0.911	0.841	0.940	0.828	0.915
2015	0.792	0.933	0.987	0.853	0.954
2016	0.868	1	1	0.867	0.940
2017	0.807	0.945	0.939	0.862	0.859
2018	1	1	1	0.880	0.886
2019	0.786	0.938	0.926	0.905	0.978
2020	0.998	0.829	0.962	1	0.993
2021	1	1	0.998	0.984	0.954
2022	0.917	1	1	1	1
mean	**0.904**	**0.880**	**0.943**	**0.910**	**0.937**

Note: *VRSTE: Variable Return to scale Technical Efficiency Score*

When compared across time, the efficiency of each sector shows much higher scores than when assessed among the sectors. The mean efficiency score for each sector is close to unity ranging from 0.880 to 0.943. The public administration is operating at 90.4% efficiency level showing 9.6% level of inefficiency. The education sector has an efficiency score of 0.880 indicating that the sector's performance level is 88%. Hence, there is 22% level of efficiency. Similarly, the Health, Agriculture and Transportation & Communication have high levels of average efficiency scores operating at 94.3%, 91% and 93.7% efficiency respectively. This finding is consisted with the findings reported by Affonso and Aubyn, (2005) and Ouertani *et al,* (2018) who reported a relatively high efficiency scores in relation to health and education sectors.

Conclusion

Government everywhere serves as a producer of public goods and also perform regulatory activities in the economy. The government does these activities by allocating resources in form of expenditure to the various sectors of the economy. These sectors have to ensure that the resources allocated to the inform of public spending are efficiently utilizes. Hence this paper assesses the efficiency of government expenditure on various economics sectors such as public administration, Education, Health, Agriculture and Transportation & communication over the period 2010 to 2022. The empirical result from the DEA technical efficiency scores reveals that Agriculture and transportation & communication are the most efficient economic sectors in terms using public funds while public administration, Education and health have very low efficiency scores of 0.153, 0.063, and 0.025 respectively. This implies that the Public Administration, Education, and Health are relatively very inefficient. This indicates that more public funds for Agriculture and Transport and Communication could be more efficiently used.

Furthermore, the empirical result also shows that the government expenditure efficiency of these five sectors when estimated against itself across time is relatively very high than when the sectors are compared against each other. Therefore, government should develop good institutional policy to ensure better allocation, utilization and good management of public funds in these sectors. These measures include:

1. Fighting corruption in the public sectors so as to ensure public resources are not being siphoned.
2. Providing proper work incentives such as better salaries, bonusses, promotions and award in the public sectors. This will help in improving labour interest and productivity among public servants.
3. Instituting better supervision measures especially in sectors like the education and administration.
4. All bureaucratic process and red tape that slow down the effective working of public sector should be curtailed and controlled.

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