

CAPITAL GRANTS UTILIZATION IN THE NIGERIAN EDUCATIONAL SECTOR: DATA ENVELOPMENT ANALYSIS

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Abstract

The study investigated the efficiency of capital fund utilization among the federal educational institutions as Decision Making Units (DMUs) in the education sector in Nigeria. Secondary data were sourced from the Annual General Warrants from the office of the Accountant-General of the Federation, office of the Auditor-General of the federation and Audited financial statements of the Public Sector entities. Sample size of the study comprised twenty-five (25) DMUs out of the population of fifty-five (55) from major Federal Ministries of education of four (4) geo-political Zones and Abuja. Data were analyzed using Data Envelopment Analysis Model (DEA). The results of the average efficiency scores from both Banker, Charnes and Cooper (BCC) and Charnes, Cooper and Rhodes Model (CCR) on the DMUs showed that the sector was marginally inefficient. The summary of the overall results therefore revealed that the DMUs under education sector performed averagely well in the utilization of capital grants allocations with the application of both CCR and BCC models. The study recommended that a central monitoring team be set up jointly by the Federal Ministry of Finance and Accountant-General's office to ensure full utilization of capital fund releases to the DMUs. Only the continuous assessment and periodic appraisal of the capital grants utilization by the central authority can guarantee full efficiency and flatten the curve of inefficiency in the utilization of capital grant releases among the federal educational institutions in Nigeria.

Keywords: *Efficiency, Decision Making Units (DMUs), Education sector, DEA, Nigeria.*

JEL Classification: *H2, H11, H83, CI, H5.*

1. Introduction

The general concern of the populace on the activities of the public sector entities especially the federal educational institutions has been how to improve the efficiency of fund utilization in the sector. This concern hinges on achieving the minimum acceptable standards obtainable in the private sector entities on effective fund (Zafiropoulos and Vrana, 2008). The dilemma of the various stakeholders in the education sector is how to evolve a system that will improve the capacity of the Decision-Making Units (DMUs) to speed up growth through efficient public fund management. Also, how best to utilize

the capital grant releases by the central authority for the infrastructural developments in the entity.

The efficiency of federal educational institutions in capital fund utilization is sometimes affected by the weak dispositions and pervading corruptive tendencies that characterize the environment where the entities operate. Also, the general instability in governance through incessant and frequent political changes equally affect the process of efficiency in the sector (Bonaccors, Daraio, 2009, Nazarko, Kuzmicz, Szubzda, & Urban, 2009). The Public sector entities (PSEs) are the public organizations that provide general services among the citizenry through the public pool of wealth available in the domestic economy (Kara, 2012). Generally, these entities are grouped into three divisions based on their reliance on federal authority's funding. The first category is the fully funded PSEs. The activities of this group of public entities are fully funded by the central government. The entities are not expected to keep part of the IGR generated by the entities. They are expected to remit all the revenue accruable to them to the central treasury. The second is the partly funded public sector entities. Operations of these entities are not fully funded by the central government. They generate own revenue internally to cushion the effect of shortfalls from the central government's releases. However, major activities of these entities are funded by the federal government in form of monthly financial releases to the DMUs. Such releases are personnel cost releases for the payment of staff salaries, capital grant releases for capital development and investment and overhead cost releases for financing recurrent expenditure.

All the federal educational institutions under education sector fall into this category. Third category is the non-funded public sector entities. None of the activities of these entities is funded by the central authority. They are financially independent of federal government's funding. They generate enough revenue that fund all their operating activities. Most of the literature on public sector entities' efficiency are anchored on both productive efficiency and dynamic efficiency (Farrel, 1957, Besley, 2011). However, the aspect of public sector service efficiency and allocative efficiency that focus on the efficiency of the PSEs in the utilizations of various financial releases to the DMUs by the central authority are often not fully covered. This aspect of allocative efficiency is the focus of this study. The purpose of the paper is therefore to evaluate the efficiency of federal educational institutions in the utilization of capital grant releases allocated to Decision Making Units in line with other previous works on public sector entities' efficiency (Kempkes and Pohl, 2018, Warning, 2005). Most of the popular techniques adopted to assess the efficiency of the public sector entities is the Data Envelopment Analysis (DEA). This model is applied to assess the efficiency of the DMUs. The model has been rated above the traditional ratio analysis because of the

inability of the latter to provide quality information when firms' estimations of overall efficiencies are measured. The usage of ratio analysis is limited to measuring firms' performance when its activity is restricted to managing a single input to generate a single output on a linear frontier. The application of DEA therefore over ratio analysis in assessing the entities' efficiency domiciled in its ability to measure sectors' relative efficiency by using multi-inputs and multi-outputs variables of the two or more sectors. This study is therefore organized in this order: Following the introductory part, section 2 reviewed the relevant literature while section 3 focused on research methods. Section 4 discussed the results while section 5 concluded the paper with salient policy recommendations.

2. Literature Review

The introduction of the Data Envelopment Analysis (DEA) model came up in the famous seminar paper on measurement of productive efficiency by Farrell (1957). He centered his idea of DEA's model on a radial model which is limited to the DMU's efficiency scores' measurement alone. Its usage was limited to contracting inputs and/or expanding output variables where either of the two occurs proportionately during production processes. It was Charnes, Cooper and Rhodes (1978) that exemplified the DEA models by presenting the model of two orientations of input and output in line with Farrell's original proposition. The CCR model was later coined after the names of the proponents. It was originally built on the assumption of Constant Returns to Scale (CRS). However; this was later modified by Banker, Charnes and Cooper (BCC) (1984). BCC model differs from the CCR model because of the inclusion of dimension of Variable Returns to Scale (VRS) assumption to fit into real life situation. The adoption of DEA's models has been popular with many scholars as a meaningful tool for evaluating entities' efficiency. The Frontier's technique used in appraising corporate's efficiency are either parametric or non-parametric.

DEA approach is a non-parametric technique. It assumes no prior functional form for the frontiers except the assumption of linear connection between variables (Novickyte and Drozolz, 2018, Tahir and Yusuf, 2011). Alikhan, Kunt and Parupati (2011) applied Window Data Envelopment Analysis to examine the financial statements during production process of thirty-three firms to analyze the variables. It was concluded that DEA was reliable in evaluating corporate financial health of a going concern as an efficient measurement tool. Also, Karimi, Pirasteh and Zaledikerapea (2008) examined the efficiency of cultivation processes among Khozestan, Hamedan and Eastern Azerbaijan provinces by employing Interval Data Envelopment Analysis and Window Data Envelopment Analysis. The results of the findings showed that DEA was effective in the determination of entity's efficiency. The application of DEA is famous among the efficiency authors who have

used the technique in measuring the corporate efficiency of entities. (Fethi and Pasiouras, 2010, Titko, Lace and Stanleviciene, 2014, Paradi and Zhui, 2013, Asmild and Zhu, 2016; Tuskan and Stojanovic, 2016; Cvetkoska and Savic, 2017). As a financial tool, DEA is often employed by many researchers in finance, economics and accounting in assessing the efficiency of higher education management and the change in productivity in public educational institutions (Aoki, 2010, Agasisti and Pohl, 2011, Abramo and D'Angelo, 2011, Leitner, Prikoszovits, Schaffhauser- Linzatti, Stowasser, Wagner, 2007, Inua and Maduabum, 2014, Chen and Chen, 2011). DEA's application model is originally designed for measuring efficiency assessment of public sector – schools and hospitals – because of the difficulty of measuring their inputs and outputs in specific units (Wei, Chen, Li, Tsai, and Huang, 2012). Erkut and Hatice (2007) examined the super slack- based model of DEA to assess the performance of 500 industrial enterprises in Turkey. They employed 2 inputs and 3 outputs. Their research findings revealed that only 9 firms were efficient out of the total of 500 firms. The use of DEA as a tool for measuring efficiency is not limited to public sector entities' efficiency alone.

Sufficient literature has shown how the application of DEA is preferred above the traditional ratios analysis because of its use of multiple inputs and outputs in public sector (Cheng, Cai, Tai, Lin. Lin & Zuo, 2016, Hernandez & San, 2014). Aghimen (2016) in his own application of DEA examined the level of efficiency of forty-three (43) Gulf Cooperation Council (GCC) banks on both technical efficiency and pure technical efficiency using DEA. The results revealed that many GCC banks operated within an optimal level of efficiency during the research period. Also, Abedin (2017) investigated the effect of efficiency and profitability on Bangladesh economy. He employed CCR model. The results of his findings revealed a positive relationship between efficiency and profitability on the country's economy. Hussainey, Ismail and Ahmed (2017) in their work on efficiency, carried out an extensive study on the impact of efficiency on the performance of Islamic banks. They concluded that there is a positive relationship between the Islamic bank's efficiency and banks performance.

Also, Chen, Cheng, Lee and Chi (2019) investigated the efficiency of inputs factors for thirty-nine operating banks in Taiwan between 1999 and 2011 using DEA. They concluded that most of the banks were inefficient. The use of DEA has been frequently employed in the determination of efficiency assessment of many schools, hospitals and healthcare centres (Buchner, Hinz and Schreyogg, 2016, Fragkiadakis, Doumpos, Zopounidis and Germain, 2016). In Nigeria, numerous authors have employed DEA in the determination of technical efficiency of educational institutions (Igbiosa, 2008, Abdulkareem & Oyeniran, 2011, Agasisti & Johnes, 2009) from the extensive literature on efficiency, both in private and public sector entities, some caveats

are clearly created in the various works and studies of the scholars. Most of the works on efficiency focused on productive efficiency theory, technical efficiency theory, dynamic efficiency theory and distributive efficiency theory. The aspect of allocative efficiency theory is scarcely adopted in various works and studies. This is because most of the previous works on efficiency centered on firms' productive and service efficiency in the private sector, but the allocative efficiency theory dwells largely on public sector entities' efficiency than private sector's efficiency.

Therefore, the allocative efficiency theory is the anchor of this study. The paper therefore focuses on the efficiency of the federal educational institutions in the utilization of capital fund allocations to the Decision -Making Units in Nigeria.

3. Methodology

The study employed panel data of (25) twenty-five federal educational institutions in Nigeria. Taro Yamane technique was used to calculate the sample size out of the entire population of DMUs who derived their capital grant allocation from the central authority. Both CCR (1984) models and BCC (1984) models were applied on the capital grant data obtainable for the comparative analysis of the efficiencies. The study adopted both constant and variable inputs and outputs. Out-put oriented model measures the capacity of Decision-Making Unit to achieve the level of output. Whereas, the input-oriented model measures the capacity of a DMU to maintain the maximum level of production. In output-oriented version, the efficiency score ranges from 1 to infinity. Whereas, in the input -oriented version, efficiency score is between 0 and 1. The efficiency score is estimated as the ratio of weighted outputs to weighted input (Charnes *et al.*, 1978). Weights are selected from each variable of every analyzed unit in order to maximize its \efficiency score. The efficiency rate for each unit of the reference set of $j = 1, \dots, n$. DMU is evaluated in relation to other set members (Charnes *et al.*, 1978). The maximal efficiency score is 1, and the lower values indicate the relative inefficiency of the analyzed objects.

The Data Envelopment Analysis model with m inputs variables, s outputs variables, and u DMU's, the envelopment form of the input-oriented model is given by (Charnes *et al.*, 1978) and Cooper *et al.* (2007) in their proposition as follows:

$$\max h_0(u, v) = \frac{\sum_r u_r y_{r0}}{\sum_i v_i x_{i0}}$$

Subject to:

$$\frac{\sum_r u_r y_{rj}}{\sum_i v_i x_{ij}} \leq 1 \text{ for } j = 1, \dots, n, \quad (1)$$

$$u_r, v_i \geq 0 \text{ for all } i \text{ and } r$$

The proposition developed by (Charnes and Cooper, 1962) was employed for linear fractional programming. This proposition then selects a combination of solution of (u, v) for which $\sum_{i=1}^n v_i x_{i0} = 1$ and results into the equivalent linear problem in which the variance of variables from (u, v) to (μ, ν) is a direct result of the application of DEA model as propounded by “Charnes-Copper” transformation which can be re-written as:

$$maxz = \sum_{r=1}^s \mu_r y_{r0}$$

Subject to:

$$\sum_{r=1}^s \mu_r y_{rj} - \sum_{i=1}^m v_i x_{ij} \leq 0 \tag{2}$$

$$\sum_{i=1}^m v_i x_{i0} = 1$$

$$u_r, v_i \geq 0$$

For which the linear programming dual problem is

$$\Theta^* = \min \Theta$$

Subject to:

$$\sum_{j=1}^n x_{ij} \lambda_j \leq \Theta x_{i0} \quad i = 1, 2, \dots, m;$$

$$\sum_{j=1}^n y_{rj} \lambda_j \geq y_{r0} \quad r = 1, 2, \dots, s; \tag{3}$$

$$\lambda_j \geq 0 \quad j = 1, 2, \dots, n.$$

This expressional transformation is the original DEA model and commonly referred to as the “Farell model” by a wide range of finance and economic scholars. It is otherwise referred to as the output-oriented model that aims at maximizing outputs of a given DMU with the given input level at a particular time.

The second is the input-oriented model, which also aims at minimizing inputs at a given output level (Cooper *et al.*, 2007; Zhu, 2009):

$$\min \Theta - \varepsilon (\sum_{i=1}^m S_i^- + \sum_{r=1}^n S_r^+)$$

Subject to:

$$\sum_{j=1}^n \lambda_j x_{ij} + S_i^- \leq \Theta x_{i0} \quad i = 1, 2, \dots, m;$$

$$\sum_{j=1}^n \lambda_j y_{r0} + S_i^+ = y_{i0} \quad r = 1, 2, \dots, s; \tag{4}$$

$$\lambda_j \geq 0 \quad j = 1, 2, \dots, n$$

$$\sum_{j=1}^n \lambda_j = 1$$

Where, x_{ij} indicates the i th input of the j th DMU, y_{rj} indicates the r th output of the j th DMU, and λ_j and u_r , indicate the weight of the j th DMU while v_r is the efficiency score of DMU $_j$.

If the constraint $\sum_{j=1}^n \lambda_j = 1$ is adjoined, they are then referred to as the Banker, Cooper and Charnes model (BCC model) (Banker *et al.*, 1984). The BCC model is also otherwise referred to as the Variables Return to Scale

(VRS). The VRS assumption is different from the CCR assumption which is referred to as the Constant Returns to Scale (CRS model). The VRS assumption or BCC model considers the variation of efficiency with respect to the level or scale of operation and measures pure technical efficiency arising from the variables. The BCC model or the VRS assumption is used to measure the scale efficiency which is determined as follows:

$$\text{Scale Efficiency} = \frac{\text{Technical efficiency from CRS}}{\text{technical efficiency from VRS}} \quad (5)$$

The determination of adequate model variables (inputs and outputs) was the second important consideration used in measuring efficiency of the public entities. Also, Cooper *et al.* (2011) and Paradi, David and Fai (2018) indicate that the number of DMUs should be at least three times the total number of inputs plus outputs used in the models. Cook, Kaoru and Joe (2014) suggested a similar rule in order to set a minimum number of DMUs in relation to the number of variable inputs to have a meaningful result with a clear set of efficient and inefficient units which are expressed as follows:

$$n \geq \max\{m \times s, 3(m + s)\}, \quad (6)$$

Where $m, s,$ and n are the numbers of inputs, outputs and DMU's respectively.

The study made use of single input variable and single output variable to measure the relative efficiency of selected twenty-five (25) federal educational institutions. The input variable is the capital grant allocations to each institution while the output variable is the value of non-current assets such as plant and machinery, office equipment, motor vehicles, furniture and fittings etc and infrastructural development such as internal road, Land and buildings etc in the entities.

4. Results and Discussion

Table 1 presents the results of both overall and average efficiency scores in the utilization of capital grants releases among the sampled educational institutions in Nigeria using CCR model. The summary of the average efficiency scores shows that none of the DMUs was efficient in capital fund utilization after 2011. Budget reform was introduced to the entities in 2011. In the pre-capital budget reform, capital allocations were paid directly into the DMUs designated accounts where disbursements into the various projects were channeled. However, inefficiency in the capital fund allocation was evident from the post-capital budget reform when the allocation and disbursement from the DMUs capital account was centrally monitored by both the budget office and the Accountant -General's office. Therefore, from the post-capital budget reform year and the average efficiency scores, all the DMUs are inefficient in the capital fund allocations to the various entities at various degrees of inefficiency. It therefore implies that the DMUs under education sector either underutilized the capital resource allocations or kept

idle capital fund unspent at the end of each year which could have been spent on infrastructural developments among the entities.

TABLE 1: EFFICIENCY SCORES IN CAPITAL GRANTS UTILIZATION AMONG THE SAMPLED EDUCATIONAL INSTITUTIONS FOR THE 25 SAMPLED MDAs IN EDUCATION SECTOR USING CCR MODEL

S/N	DMU	2008	2009	2010	2011	2012	2013	2014	2015	2016	AVERAGE
1	UNIAB	1	0.83	1	0.301	0.206	0.291	0.005	0.17	0.882	0.521
2	FLVB	1	0.83	1	0.305	0.231	0.333	0.003	0.17	0.882	0.528
3	FUTA	1	0.83	1	0.307	0.352	0.304	0.005	0.17	0.882	0.539
4	WAEC	1	0.83	1	0.306	0.259	0.291	0.004	0.172	0.882	0.527
5	JAMB	1	0.83	1	0.306	0.345	0.299	1	0.322	0.882	0.665
6	UNIABUJA	0.918	0.763	0.9185	0.307	0.206	0.156	0.005	0.17	0.882	0.481
7	NOUN	0.807	0.671	0.8076	0.308	0.266	0.304	0.005	0.162	0.882	0.468
8	FPI	1	0.83	1	0.306	0.469	0.303	0.005	0.17	0.882	0.56
9	YCT	1	0.83	1	0.306	0.185	0.46	0.006	0.17	0.882	0.54
10	FCEAB	1	0.83	1	0.307	0.279	0.304	0.003	0.252	0.747	0.53
11	FCEAR	1	0.83	1	0.297	0.307	0.291	0.005	0.17	0.747	0.52
12	NEN	1	1	1	0.308	0.328	0.588	0.004	0.154	0.747	0.57
13	FCEOKENE	1	0.83	1	0.155	0.166	0.304	0.005	0.281	0.747	0.50
14	FCEONDO	1	0.83	1	1	0.398	0.304	0.005	0.17	0.747	0.61
15	FCEOYO	1	0.83	1	0.113	0.236	0.303	0.005	0.168	0.747	0.49
16	UI	1	0.83	1	0.296	0.302	0.304	0.003	0.17	0.747	0.52
17	UNILAG	1	0.83	1	0.307	0.301	0.306	0.005	0.17	0.882	0.54
18	OAU	1	0.83	1	0.297	0.265	0.288	0.004	0.17	0.882	0.53
19	UNIBEN	1	0.83	1	0.307	0.304	0.292	0.005	0.17	0.747	0.52
20	UNILORIN	1	0.83	1	0.446	0.383	0.303	0.005	0.17	0.747	0.55
21	FEDPOLYADO	1	0.83	1	0.299	0.295	0.304	0.005	0.297	0.747	0.53
22	FEDPOLYOKO	1	0.83	1	0.307	0.172	0.304	0.004	0.278	0.747	0.52
23	FEDPOLYOFA	1	0.83	1	0.295	0.083	0.298	0.006	0.17	0.747	0.50
24	FEDPOLYEDE	1	0.83	1	0.295	0.912	0.355	0.005	0.2	0.747	0.60
25	FEDPOLYAUCHI	1	0.83	1	0.307	0.127	0.291	0.005	0.17	0.747	0.50
	MEAN	0.99	0.83	0.99	0.31	0.30	0.32	0.05	0.20	0.81	0.54

Source: Author's Computation (2019)

Table 1 shows the average efficiency scores of the sampled DMUs among the educational institutions. The summary of the average efficiency scores indicate the inefficiency of the DMUs in capital fund utilization in the sector. Figure 1 shows the ranking of average efficiency scores on capital grant usage among the 25 sampled DMUs in the education sector. JAMB had the highest

average efficiency score in the overall class of scores with 66.5% and therefore came top of the ranking while NOUN recorded the lowest average performance of 46.8%. Summary of the ranking of the average efficiency scores shows that the sector needs some push to drive the efficiency among the DMUs.

Figure 1: Ranking of efficiency scores for capital grants utilization among the sampled educational institutions Using CCR MODEL

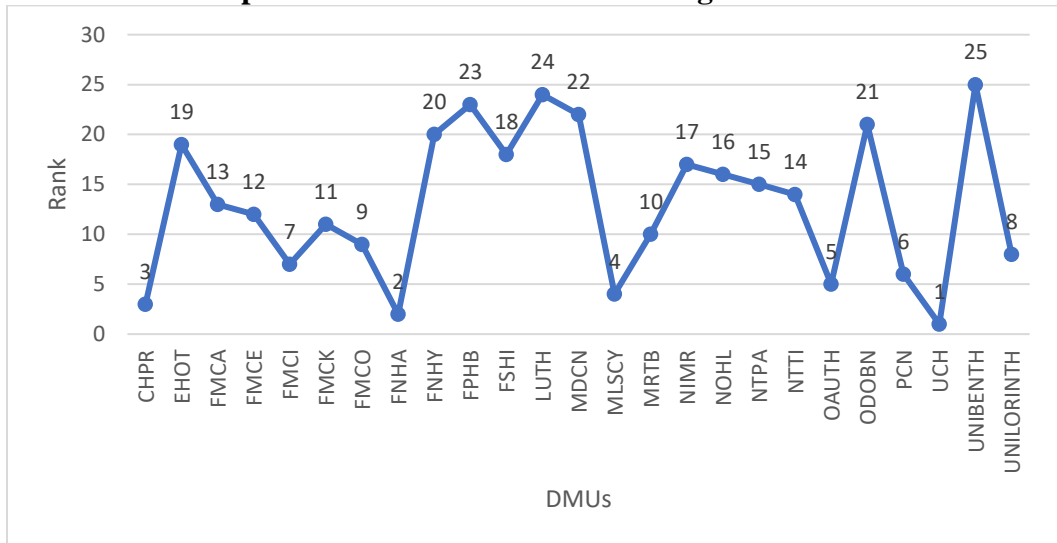


Figure 1 shows the rank of efficiency scores in capital fund utilization among the educational institutions Using CCR model approach. The summary of the efficiency scores show that the DMUs performance in the capital fund utilization was unimpressive

Table 2 shows the results of average efficiency scores in capital expenditure spending using BCC model for twenty- five sampled DMUs in Education. The sector shows an overall average efficiency score of 61.9% with only (8) eight DMUs operated above the overall average efficiency scores. NLN recorded the highest average efficiency scores of 87.4% among the DMUs while the lowest mean efficiency of 50% was attached to NOUN. The performance efficiency of the pre-capital budget fund among the DMUs was evidently better than the post-capital budget era. In the pre-capital budget era, some of the DMUs were efficient in the utilization of the capital fund allocation with the efficiency scores of 1 or 100%.This signifies that total capital allocations were exclusively expended on capital goods. However, on the average therefore, the sector’s average efficiency performance on capital fund utilization was slightly above average signifying the need for radical improvement in utilizing the capital fund releases among the DMUs.

TABLE 2: EFFICIENCY SCORES IN CAPITAL GRANTS USAGE AMONG THE SAMPLED DMUs IN EDUCATION SECTOR USING BCC MODEL

S/N	DMU	2008	2009	2010	2011	2012	2013	2014	2015	2016	AVERAGE
1	UNIAB	1	0.927	1	0.614	0.419	0.421	0.039	0.17	0.992	0.620
2	FLVB	1	0.849	1	0.41	0.503	0.513	0.031	0.17	0.985	0.607
3	FUTA	1	0.831	1	0.388	0.655	0.453	0.048	0.17	0.992	0.615
4	WAEC	1	0.9	1	0.335	0.262	0.31	0.005	0.172	0.992	0.553
5	JAMB	1	0.861	1	0.333	0.345	0.345	1	1	0.992	0.764
6	UNIABUJA	0.918	0.772	0.9185	0.397	0.419	0.235	0.056	0.17	1	0.543
7	NOUN	0.807	0.68	0.8076	0.311	0.34	0.4	0.028	0.162	0.962	0.500
8	FPL	1	0.842	1	0.309	0.513	0.393	0.028	0.17	0.979	0.582
9	YCT	1	0.841	1	0.309	0.251	0.627	0.045	0.17	0.998	0.582
10	FCEAB	1	0.837	1	0.322	0.454	0.417	0.016	0.313	0.847	0.578
11	FCEAK	1	0.911	1	0.557	0.427	0.409	0.033	0.17	0.836	0.594
12	NLN	1	1	1	0.939	1	1	0.483	0.614	0.826	0.874
13	FCEOKENE	1	0.832	1	0.253	0.35	0.417	0.029	0.281	0.847	0.557
14	FCEONDO	1	0.867	1	1	0.516	0.417	0.029	0.178	0.847	0.650
15	FCTOYO	1	0.836	1	0.169	0.355	0.442	0.032	0.168	0.834	0.537
16	UI	1	1	1	1	0.59	0.456	0.042	0.17	0.841	0.678
17	UNILAG	1	0.83	1	0.396	0.589	0.485	0.06	0.17	0.992	0.614
18	OAU	1	0.984	1	0.884	0.493	0.432	0.041	0.17	0.992	0.666
19	UNIBEN	1	0.83	1	0.396	0.566	0.438	0.06	0.17	0.841	0.589
20	UNILORIN	1	0.957	1	0.882	0.711	0.453	0.053	0.17	1	0.692
21	FEDPOLYADO	1	0.831	1	0.382	0.343	0.447	0.033	0.493	0.831	0.596
22	FEDPOLYOKO	1	0.841	1	0.307	0.327	0.419	0.032	0.444	0.823	0.577
23	FEDPOLYOFA	1	0.992	1	0.932	0.148	0.416	0.043	0.17	0.847	0.616
24	FEDPOLYEDE	1	0.987	1	0.899	1	0.475	0.032	0.2	0.831	0.714
25	FEDPOLYAUCHI	1	0.84	1	0.309	0.272	0.391	0.041	0.17	0.827	0.539
	MEAN	0.99	0.88	0.99	0.53	0.48	0.45	0.1	0.26	0.91	0.630

Source: Author's Computation (2019)

Table 2 shows the spread of efficiency scores and average efficiency scores of sampled DMUs among the educational institutions in Nigeria. Summary of the average efficiency scores shows that the DMUs in education sector need drastic improvement to drive their capital fund efficiency.

Figure 2 shows the average efficiency scores in capital grant utilization among the 25 sampled DMUs in the education sector. NLN came first on the ranking list with the highest average efficiency score in the overall class of scores of 87.4% while NOUN recorded the lowest average performance of 50% and

came last on the ladder. The average efficiency scores performance of other DMUs were stated in between the high and low average efficiency scores performance. The average efficiency performance shows fairly good capacity of the DMUs in capital fund usage across the DMUs.

Figure 2: Ranking of efficiency scores in capital fund utilization among the 25 Sampled DMUs in Education Sector Using BCC Model

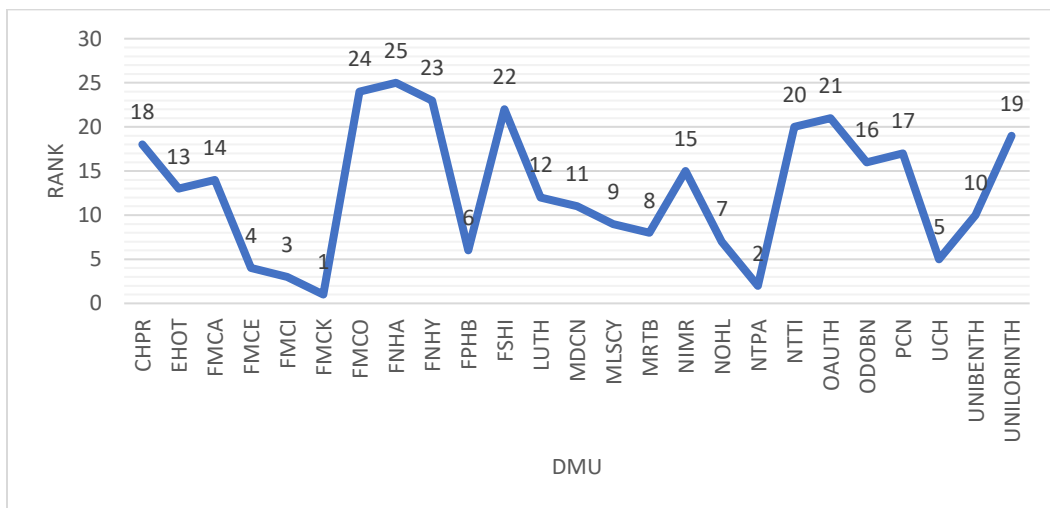


Figure 2 shows the rank of average efficiency scores in Capital fund utilization among the 25 Sampled DMUs in Education Sector Using BCC model approach.

5. Conclusion

The objective of this paper is to evaluate the efficiency of the capital grants utilization among the educational institutions in Nigeria. Therefore, the results of the finding clearly reveal that many DMUs were only efficient in the pre-capital budget reform era when the capital fund releases were channeled directly to the DMUs designated accounts with the Money Deposit Banks without control from the central authority. However, post – capital budget reform brought tight control and effective monitoring on capital fund releases to the DMUs with the resultant effect of marginal inefficiency among the entities. Many possibilities could account for this puzzle. One, it is likely that the efficiency in the pre-capital budget reform era was an artificial stimulation and a shadow of a reality since the capital fund releases were paid directly to the DMUs covers. Warehouse of the surplus fund is possible without accountability. Two, the true reflection of the DMUs’ efficiency in capital grants utilization was clearly manifested after the implementation with the oversight control by the central authority. With this development, DMU could no longer manipulate the unspent capital fund balances by either warehousing

it with the various Deposit Money Banks or diversion into private accounts and personal projects. Three, the inefficiency of the DMUs in the utilization of capital releases can sometimes be tied to the bureaucratic procedures attached to the DMUs access to the capital fund before the expiry period. Four, the DMUs' inefficiency can sometimes be as a result of late releases of capital project fund towards the end of the capital budget year. In conclusion therefore, it is only a continuous assessment and evaluation of the capital fund releases on a regular basis that can guarantee a full efficiency in the utilization of capital fund and flatten the curve of inefficiency among the federal educational institutions in Nigeria.

6. Policy Recommendation

In order to achieve a full-efficiency frontier in the capital fund allocations among the federal educational institutions, the following recommendations become imperative:

The DMUs should either reduce their capital project plans in direct proportion to the annual approved envelop available or expanding the size of their capital project development to accommodate enhanced capital fund releases. Capital grants allocation should be based strictly on the need for capital project requirements of the DMUs and ability for capital fund absorption. Capital grants audit should be regularly carried out among the DMUs to stem the tide of capital fund leakages in the public sector entities. There should be a direct linkage between capital fund releases and the needs assessment based on the level of infrastructural developments of the DMUs. Time of releases of capital grants should not be close to the end of the window period for the effective utilization of the fund. This will enhance adequate access to the fund. All unnecessary bureaucracies and bottlenecks that stifle the process of easy access to the capital fund should be removed by all relevant authorities.

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