

Effect of Electricity Tariff on the Performance of Small – Medium Enterprises in North Central Nigeria

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Abstract

Electricity prices generally reflect the cost to build, finance, maintain, and operate power plants and the electricity grid. Accordingly, electricity tariffs vary by type of customer, typically by residential, commercial, and industrial connections so as to supply steady power to consumers. The study assessed the effect of electricity tariff on the performance of small and medium scale enterprises in North Central, Nigeria. The study covered 5 years (2014 to 2018). With these, a lot of attention has been giving to electricity tariff to help SMEs perform better, yet SMEs are not performing well in the North Central. The study adopted a survey research design. The population of small and medium enterprises (SMEs) in this study is 9586 in North Central Nigeria, and it was reduced using the Taro Yamane's formula to determine the sample size of 384 owners of SMEs in North Central, Nigeria. The method of data collection used in this study was a questionnaire that was administered to the respondents. The statistical tools used were multiple regression. The findings revealed that electricity tariff has a positive and significant effect on the performance of SMEs in North Central, Nigeria. Other findings were that two-part tariff has a positive and significant effect on the performance of SMEs in North Central, Nigeria. Also, power factor tariff has a positive and significant effect on the performance of SMEs in North Central, Nigeria. The study recommended that SMEs in North Central, Nigeria should continue to request for the electricity tariff in the forms of fixed and running charges. They should continue to pay their electricity tariff since it is significant in affecting performance of SMEs in North Central, Nigeria. SMEs in North Central, Nigeria should continue to use power factor tariff since it contributes to performance of SMEs in North Central, Nigeria. They should ensure that they pay for electricity tariff to generate more profit.

Keywords:

Electricity Tariff,
Two Part Tariff,
Power Factor Tariff,
Performance and
Efficiency

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Background to the Study

Over the years and in the current global economy, it has been proven empirically that Small and Medium Enterprises (SMEs) are the engine that drives world economies and the stepping-stone to industrialisation, both for developing and developed economies, as the businesses account for 95% of all businesses in developing countries thereby signifying their importance (Fjose, Grunfeld & Green, 2010). The role of small and medium scale enterprises in driving economic growth in nations, the world over, is well documented. Empirical evidences suggest that the foundation of the prosperity of the industrialized nations of the world was laid by small and medium scale enterprises. For example, the industrial revolution in Britain in the 19th century did not start with large-scale enterprises, but with inventions in small-scale enterprises that boosted productivity in the textile industry. Also, the fashion industry in Italy was founded on its cottage industries and China, which is presently regarded today as the workshop of the world is anchored on low-tech manufacturing activities. With small and medium scale enterprises, these nations were able to tackle the problem of unemployment, reduce poverty, increase productivity and achieve overall economic prosperity. (SMEDAN & NBS, 2013)

More so, for the past fifteen years, the SME sector has been attracting enough attention based on its potentials in the economic transformation of the country. For example, (Kanu, 2015) expressed that SMEs are generally known for their labour intensive activities and also for their use of local resources in the creation of valuable items that are most important in the society. Kamara (2017) added that support for SMEs is a common theme because it is recognized that SMEs contribute to the national and international economic growth. This is why SMEs are considered widely as the engine room of any performing economy in the world. For instance, SMEs is observed to have possessed a larger percentage of contribution in economic sustainability of the North Central part of Nigeria today. Lassana and Abdoulaye (2013) argued that SMEs use a combination of innovation and improvisation to develop local products and services for local needs using a reliable electric power supply. Scott, Darko, Lemma, and Rud, (2014) believed that electricity tariff if energy (electricity) supply is stable, is vital to the operations of most SMEs. Also, Kwabla (2015) added that SMEs impact on their local activity radius through employment, procurement and sales. These SMEs may be successful in their local activity radius as a result of reliable electric power supply.

Accordingly, there is a symbiotic relationship between electricity tariff and SMEs. Over one billion people do not have access to electricity (Abeberese, 2016), and according to the World Bank, the same number do have access but receive electricity services that do not meet adequate reliability standards, (Abotsi, 2016). One of the areas that is arguably the most affected by poor electricity tariff services is SMEs performance. World Bank Enterprise Surveys (2016) data report that 12% of business owners in developing economies (Adair-Rohani, et al., 2013) perceive electricity (or lack thereof) as the biggest obstacle for their SMEs activities.

There have been concerns with how tariffs are set in the electricity market and not how they impact SMEs since demand for energy inputs is often seen as inelastic. (Alcott, Collard-Wexler & O'Connell, 2014) Nonetheless, a limited but growing body of research is examining the impact of electricity tariffs on firm behaviour, as business performance is sensitive to the cost of indirect inputs (Eifert, Gelb, & Ramachandran, 2008) and electricity bills can make up to 30% of operating costs for an average company (Jewell, 2006). Therefore, it is conceivable that electricity tariffs impact SMEs behaviour and performance. Scott, Darko, Lemma and Juan-Pablo (2014), for instance, establish that in less developed countries the combined absence of service reliability and high end-user tariffs for most SMEs undermines firms' operations.

With various electricity tariffs being put in place, providing solutions for SMEs performance and development of their business is commonly expected as enterprises are able to grow from being small sized firms to medium, large and sustainable business entities. According to the National Bureau of Statistics (2012), every SME has the potential to die within the first two to five years of operation due to lack of accessible credit and inadequate finances to acquire technological capability for business growth. With these, a lot of attention has been given to electricity tariffs to help SMEs perform better, yet SMEs are not performing well in the North Central.

The general objective of this study was to examine the effect of electricity tariffs on the performance of small and medium enterprises in North Central Nigeria. Other specific objectives include: To evaluate the effect of Two-part tariff on the performance of SMEs in North Central Nigeria and to determine the effect of power factor tariff on the performance of SMEs in North Central Nigeria.

In line with the objective of the study the following hypotheses are stated in a null form, they are:

H₀₁: Two-part Tariff has no significant effect on the performance of SMEs in North Central Nigeria

H₀₂: Power factor Tariff has no significant effect on the performance of SMEs in North Central Nigeria

Previous studies such as (Khobai, Mugano, & Le Roux, 2017; Tapsin, 2017; Chiaroni, Chiesa, Franzo, Frattini & Vito, 2017; Sama & Tah, 2016; and Enu & Havi, 2014) investigated electricity prices and economic growth, industry value added and electricity consumption, electricity tariffs and economic reform, Energy Consumption on Economic Growth and electricity consumption influences economic growth, in South Africa, in Turkey, Italy, Cameroon and in Ghana. And using multivariate framework over the period 1985-2014 and autoregressive distributed lag (ARDL) bounds test, Johansen cointegration test and error correction model. Using the Generalised Method of Moments technique, and Augmented Dickey-Fuller test, Cointegration test, Vector Error

Correction Model and Granger Causality test. However, none of these studies used primary source of data and Two-part tariff and power factor tariff as measures for electricity tariff. Therefore, this research fills the gap by examining the effect of electricity tariff on the performance of SMEs in North Central Nigeria from 2014 to 2018.

Concept of Electricity Tariff

Electricity pricing (sometimes referred to as electricity tariff or the price of electricity) varies widely from country to country and may vary significantly from locality to locality within a particular country. Many factors go into determining an electricity tariff, such as the price of power generation, government subsidies, local weather patterns, transmission and distribution infrastructure, and industry regulation. Electricity prices generally reflect the cost to build, finance, maintain, and operate power plants and the electricity grid (Phillip, 2014). Some utilities are for-profit, and their prices will also include a financial return for shareholders and owners. Electricity tariffs vary by type of customer, typically by residential, commercial, and industrial connections. Electricity price forecasting is the method by which a generator, utility company, or large industrial consumer can predict the wholesale prices of electricity with reasonable accuracy. The cost to supply electricity varies minute by minute. (Phillip, 2014)

Tariff (electricity) is actually a name used for two different types of tariff structures. The first one being one that charges a flat fixed price for every kWh consumed. This means that variation in costs to the consumer is directly linked to their own consumption (NAPEE, 2009). The second is the amount of money frame by the supplier for the supply of electrical energy to various types of consumers. In other words, the tariff is the methods of charging a consumer for consuming electric power. The tariff covers the total cost of producing and supplying electric energy plus a reasonable cost (Ignacio, 2010). The actual tariffs that the customer pay depends on the consumption of the electricity. The consumer bill varies according to their requirements. The industrial consumers pay more tariffs because they use more power for long times than the domestic consumers. The electricity tariffs depend on the following factors:

Type of load; Time at which load is required; The power factor of the load and the amount of energy used (Ignacio, 2010).

Two-part Tariff; In such type of tariff, the total bill is divided into two parts. The first one is the fixed charge and the second is the running charge. The fixed charge is because of the maximum demand and whether the electricity is consumed or not the payment will be made. While the second charge (running) depends on the energy consumption by the load. That is the more the consumer consumes the power the more he/she pays (Watkins, 1915)

Power factor Tariff; The tariff, which depends on the power factor of the load is known as the power factor tariff. The power or load factor is defined as the average load divided by the peak load in a specified time period. (Watkins, 1915) It is a measure of the utilization

rate, or efficiency of electrical energy usage; a high load factor indicates that load is using the electric system more efficiently, whereas consumers or generators that underutilize the electric distribution will have a low load factor.

Concept of Small and Medium Enterprises

Small and Medium Scale Enterprises (SMEs) can be defined based on certain criteria including, turnover, number of employees, profit, capital employed, available finance, market share and relative size within the industry. The definition can be based on either some quantitative or qualitative variables. Quantitative definitions mainly express the size of enterprises, mainly in monetary terms such as turnover, asset value, profit, as well as quantitative index like number of employees (Etuk, Etuk & Baghebo, 2014).

The 1975 companies Act in the United Kingdom states that an enterprise with a turnover of less than £ 1.4 million was small, those with turnover between £1.4 and £5.7million were medium, while those enterprises having turnover above £5.7 million were large. It also went further to classify the enterprises based on number of employees – those with fewer than 50 workers being small, between 50 and 250 workers being medium and those employing above 250 workers were described as being large (Etuk, Etuk & Baghebo, 2014).

The European Union (EU) in 1995, defined SMEs as any enterprise employing less than 250 employees, and went further to break down the SMEs into micro (less than 10 employees, small (from 10 to 49 employees) and medium (between 50 to 249 employees). Small and Medium Enterprises as defined by the National Council of Industries in Nigeria refers to business enterprises whose total costs; excluding land, is not more than two hundred million naira (N200, 000,000.00) only (Onugu, 2005). Also, Onugu (2005) assets that country such as USA, Britain and Canada; small-scale business is defined in terms of annual turnover and the number of paid employees (Ekpeyong & Nyang, 1992). In Britain for example, small-scale business is conceived as that industry with annual turnover of 2 million pound or less with fewer than 200 paid employees. It is conceptualized in Japan as a type of industry with a paid-up capital and number of employee (Bakare & Babatunde, 2014)

Concept of Performance

Operational performance is focused on improving efficiency and effective systems, which are reliable and can ensure excellent which exceed customer expectations. To get such sustainable operational results, operations strategy is developed which supports the organization in ensuring the key operational aspects of the firm are met; cost reduction, speed of product development and production, flexibility of the production system and quality assurance for the product (Wiley, 2010). As business organizations compete in the market place where prices are driven by the market forces, most of the firms seek to device other means of influencing customers to buy their products. This will call for methods like lowering product cost, reducing lead times, improving quality of product, showing sincere attention to safety and environmental protection etc.

However, Russell and Russell (2011) argue that most organizational performance can be grouped into one of the following six general categories. In line with that, certain organizations normally develop their own categories as appropriate depending on the organization's mission: a) Effectiveness: A process characteristic indicating the degree to which the process output (work product) conforms to requirements of the organization; b) Efficiency: A process characteristic indicating the degree to which the process produces the required output at minimum resource cost; c) Quality: The degree to which a product or service meets customer requirements and expectations; d) Timeliness: Measures whether a unit of work was done correctly and on time. However, the criteria must be established to define what constitutes timeliness for a given unit of work. The criterion is usually based on customer requirements; e) Productivity: The value added by the process divided by the value of the labour and capital consumed; and f) Safety: Measures the overall health of the organization and the working environment of its employee.

Performance is defined using the 3E, which are efficiency, effectiveness and economies. Ristea (2002) is of the opinion that the three concepts of efficiency, efficacy and economy can be associated with performance. This approach to performance was named by the academician as being the equation of the 3Es, and mathematically represented as:

$$\text{PERFORMANCE} = \text{EFFICIENCY} + \text{EFFICACY} + \text{ECONOMIES}$$

An entity can be said to be successful when it is efficient, effective and economical. Hence for success the combination of all three variables, which reflects the performance level of an entity, is essential. Efficiency is achieved if a given resource leads to higher result or if a reduced quantity of resource gives a predetermined result. Economies are achieved if an activity is performed at minimal cost using necessary means and resources. When a predetermined result of an activity is achieved or exceeded by developing the activity efficacy is said to be determined (Avram & Luminita, 2013).

Empirical Review

Khobai, Mugano, and Le Roux (2017) explore the relationship between electricity prices and economic growth in South Africa within a multivariate framework over the period 1985-2014. The autoregressive distributed lag (ARDL) bounds test is implemented to determine long run relationship among the variables. The findings of the ARDL model suggest that there is a long run relationship between electricity supply, economic growth, electricity prices, trade openness, employment and capital. Specifically, the empirical findings reveal that electricity prices negatively affect economic growth while electricity supply; trade openness, capital and employment have a positive impact on economic growth. These findings bring a fresh perspective for creating electricity policies that will enhance economic growth in South Africa. This is a current work from Khobai, Mugano, and Le Roux (2017) that explore the relationship between electricity prices and economic growth in South Africa. The scope of the study was stated, the tool of analysis was stated and the measures for economic growth was also stated. But the study failed to state the statistical package that was employed to test the data. For example, the error correction model, stata, vector error correction model or ordinary least square regression technique.

Tapsin (2017) analyze the link between industry value added and electricity consumption in Turkey for the years between 1970 and 2015. The sectoral distribution of net electricity consumption has been obtained from Turkey Electricity Distribution and Consumption Statistics on GWh basis while industry value added data have been obtained from World Development Indicators' data bases on dollar basis with the fixed prices of the year 2012. The correlations between the variables have been examined by means of Johansen cointegration test and error correction model. According to the results of the study, it has been seen that there exists bidirectional relationship between the electricity consumption and value-added variable in the long term. On the other hand, in terms of the Error Correction Model used for a short-term relationship, no short-term relationship has been identified between the variables. The above study of Tapsin (2017) is current and used the Johansen cointegration test and error correction model, which was very good. The study also stated the scope of the study, how the data were obtained being a secondary study and the country in which the study was conducted. But he failed to state the measures for both variables.

Chiaroni, Chiesa, Franzo, Frattini and Vito (2017) investigate the impact that the electricity tariff reform is likely to have on investments in renewable energies (i.e., photovoltaics) and the adoption of energy efficiency measures (i.e., installation of heat pumps and efficient home appliances) in the residential market in Italy. The study develops detailed cost comparisons and simulations considering two different investment scenarios (before and after the reform) to conclude that the reform will: (i) have a negative impact on investments in photovoltaic systems; (ii) favor the adoption of energy efficiency measures, such as efficient home appliances. The above study is current and would have been a nice study if they had employed all the necessary properties such as tools of analysis, scope etc. that would have been needed in the study. But above all, the study of Chiaroni, Chiesa, Franzo, Frattini and Vito (2017) that investigated the impact that the electricity tariff reform is likely to have on investments in renewable energies was weak and mostly theoretical in nature.

Sama and Tah (2016) determine the Effect of Energy Consumption on Economic Growth in Cameroon from the period of 1980 to 2014. The energy sources used to test for this relationship were Petroleum and electricity. The study made use of secondary time-series data. Using the Generalised Method of Moments technique, the results obtained shows that Gross Domestic Product (GDP), population growth rate and petroleum prices, have a positive relationship with petroleum consumption. Also, there was an established positive relationship between Gross Domestic Product (GDP), population growth rate, electricity prices and electricity consumption. Again, the study found a positive and significant relationship between petroleum consumption, electricity consumption, Gross domestic investment (GDI) and population growth rate and economic growth. Furthermore, the empirical result revealed that the rate of inflation and economic growth are positively related. Good study from Sama and Tah (2016) that determine the Effect of Energy Consumption on Economic Growth in Cameroon. The scope of the study was mentioned; the study also used Generalised Method of Moments technique as its statistical tool of analysis, which was good and the measures of both variables were stated.

Enu and Havi (2014) examine the extent to which electricity consumption influences economic growth in Ghana and also determine, if it is electricity consumption that causes economic growth in Ghana or otherwise. The study employed Augmented Dickey-Fuller test, Cointegration test, Vector Error Correction Model and Granger Causality test. The study revealed that, in the long term, a hundred percent increase in electricity power consumption will cause real gross domestic product per capita to increase by approximately fifty-two percent. However, in the short run, electricity consumption negatively affects real gross domestic product per capita. The study again revealed that unidirectional causality run from electricity consumption to economic growth meaning that any policy actions taken to affect the smooth consumption of electricity in Ghana will definitely affect her gross domestic product per capita. Therefore, the current load shedding policy due to low supply of electricity will definitely affect the Ghanaian economy negatively, that is lower production levels, high inflation, and high rates of unemployment and lower standard of living. The above study was conducted in Ghana, which was good. The study employed Augmented Dickey-Fuller test, Cointegration test, Vector Error Correction Model and Granger Causality test. The measures for both variables were stated and the findings of the result were well constructed, but the study failed to mention the scope of the work that is from what year to what year.

Theoretical Framework

The Balanced Scorecard Theory

The balanced scorecard (BSC) suggests that managers should consider the organization's performance from four dimensions, financial perspective, customer perspective, innovation and learning perspective, internal perspective (Kaplan & Norton, 1996). BSC integrates financial and non-financial measures into one measurement system. The objectives and standards of BSC are obtained from the organization's vision and strategy. The Balanced Scorecard provides managers with a comprehensive framework that translates a company's vision and strategy into a coherent set of performance measures. Kaplan and Norton (1996) showed that the balanced scorecard not only allows the monitoring of present performance, but also tries to incorporate information about how well the organization is positioned to perform in the future. In addition, the Balanced Scorecard has evolved to become a core management tool, in that it helps the management of firms to clarify, communicate and manage strategy. In practice, companies use the BSC approach to accomplish four critical management processes, clarify and translate vision and strategy, communicate and link strategic objectives and measures, plan, set targets, and align strategic initiatives and enhance strategic feedback and learning.

The BSC is most relevant to SMEs performance in the sense that for SMEs to perform better, they have realized that the success of their business relies or depend heavily on efficient energy and constant power supply. Therefore, no matter the amount imposed on electricity tariff, as long as the supply of power is constant, it boosts the performance of SMEs.

Methodology

The study adopted the survey research design and this is because the information or data needed for the study required the use of structured questionnaire that will be administered to the respondents who are the owners or MDs of the SMEs businesses in the North Central zone of Nigeria. Also, the population of the study consists of all the registered SMEs in the North Central of Nigeria. According to Small and Medium Enterprises Development Agency Nigeria (SMEDAN) and National Bureau of Statistics (NBS) (2013) collaborative survey, there are 9586 registered SMEs businesses in North Central, Nigeria. The population of the SMEs in the North Central is listed in the table below as follows:

Table 1: Selected SMEs in North Central, Nigeria

State	Small	Medium	Total
ABUJA (FCT)	2244	446	2690
BENUE	1146	22	1168
KOGI	827	17	844
KWARA	164	62	226
NASARAWA	1098	22	1120
NIGER	1258	100	1358
PLATEAU	2070	110	2180
TOTAL	8807	779	9586

Source: SMEDAN & NBS Survey (2013)

Thus, the population of small and medium enterprises (SMEs) in this study is 9586 in North Central Nigeria and this will be reduced using the Taro Yamane (1967) formula as stated below:

$$n = N / (1 + N(e)^2)$$

Where N is the population size

e is the margin error (assume 5%)

1 = constant

e = 0.05

$$n = 9586 / (1 + 9586(0.05)^2)$$

$$n = 9586 / (1 + 9586(0.0025))$$

$$n = 9586 / (1 + 23.965)$$

$$n = 9586 / 24.965$$

$$n = 383.9 \text{ or } 384$$

Therefore, the sample size of the study will be 384 of the SMEs in North Central Nigeria. Furthermore, the study will use a purposive sampling technique in selecting the 384 from 9586 SMEs in North Central, Nigeria. The researcher will consider a purposive sampling method by using proportional method in selecting sample in each of the states of the North Central Zone and these are:

Table 2: Proportion of Small and Medium Enterprises in North Central, Nigeria

STATE	Population	Proportion	Sample
ABUJA (FCT)	2690	2690 x 384/9586	108
BENUE	1168	1168 x 384/9586	47
KOGI	844	844 x 384/9586	34
KWARA	226	226 x 384/9586	9
NASARAWA	1120	1120 x 384/9586	45
NIGER	1358	1358 x 384/9586	54
PLATEAU	2180	2180 x 384/9586	87
TOTAL	9586	-	384

Source: Researchers Computation (2019)

From the above table 2, the sample size for each of the states in the North central zone will be to apportion copies of questionnaires each as it appears on the proportion index. For example, FCT has the highest number of registered SMEs population in the North Central of 2690 and after the proportion applied, it will receive a total of 108 copies of questionnaires that will be administered to the SMEs operators in FCT. The same will be applied to other six states in the North Central zone.

Furthermore, the method of data collection will be questionnaire administered to the respondents. The reason for using primary sources of data is that, it is crucial in presenting a study of this nature and other research data that is based on original data produced by the respondents that are actually involved in the subject area of research. It shall be designed in a five (5) point Likert type scale questionnaire to collect data from the respondents. The question provides information on the effect of electricity tariff on the performance of SMEs in North Central Nigeria. However, copies of the questionnaire were administered to the respondents using simple random sampling method.

Finally, the study used the Ordinary Least Square (OLS) simple regression method to determine the effect of the independent variable on the dependent variable. The ordinary least squares method is one of the most popular and widely used methods for regression analysis. The SPSS software of 23.0 will be used for this study. The statistical test of parameter estimates shall be conducted using their standard error, t-test, F-test, AR, and R². The economic criteria shall show whether the coefficients of the variable conform to the economic a priori expectation, while the statistical criteria test will be used to assess the significance of the overall regression.

$$Y = \alpha + \beta_1 x$$

Where y = dependent variable, α = intercept, β_1 is coefficient and x is the independent variable. However, the above model is expressed as:

$$PSME = \alpha + \beta_1 TPT + \beta_2 PFT + \mu \dots \text{equation 1}$$

Where: PSME = Performance of SMEs (measured as efficiency) , β = Coefficient, α = Intercept, μ = Error terms, TPT= Two-Part Tariff and PFT= Power Factor Tariff

Data Analysis

Table 2: Assessment of Two Part Tariff

Items	5 (SDA)	4 (DA)	3 (UN)	2 (SA)	1 (A)
Owners of the SMEs businesses in the North Central zone of Nigeria always paid for electricity fixed charges	90(23.44)	89(23.18)	45(11.72)	78(20.31)	82(21.35)
Owners of the SMEs businesses in the North Central zone of Nigeria always paid for electricity running charges	101(26.30)	78(20.31)	71(18.49)	51(13.28)	83(21.61)
The owners of SMEs frequently paid both running and fixed charges of electricity used.	108(28.13)	112(29.17)	52(13.54)	56(14.58)	56(14.58)

Source: Survey, 2019

From the above table, it was discovered that majority of the respondents strongly agreed (23.44%) and agreed (23.18%) to the statement that owners of the SMEs businesses in the North Central zone of Nigeria always paid for electricity fixed charges. 20.31% strongly disagreed and 21.35% disagreed with the said statement while only 11.72% were undecided.

It was also observed that the majority of the respondents, 26.30% and 18.49% strongly agreed and agreed respectively that owners of the SMEs businesses in the North Central zone of Nigeria always paid for electricity running charges. 13.28% and 21.61% strongly disagreed and disagreed respectively, while only 18.49% were undecided.

From the table also, the majority of the respondents 28.13% and 29.71% strongly agreed and agreed respectively that owners of SMEs frequently paid both running and fixed charges of electricity used. 14.54% and 14.58% strongly disagreed and disagreed respectively, while 13.54% were undecided.

Table 3: Mean of Two Part Tariff

Variables	5	4	3	2	1	FX	N	Mean	Remarks	Ranking	Sectorial mean
Fixed charges	90	89	45	78	82	1179	384	3.07	High	2 nd	3.12
Running charges	78	78	71	51	83	1100	384	2.86	Low	3 rd	
Fixed and running charges	108	112	52	56	56	1312	384	3.42	High	1 st	

Source: Author Computation, 2019

The above table shows that the two-part tariff in terms of fixed charges, running charges and fixed as well as running charges which was ranked first, second and third ranked.

This implies that owners of SMEs businesses in the North Central zone of Nigeria are charge with fixed and running cost of using electricity. The charges are both running charges and fixed charges.

Table 4: Assessment of Power Factor Tariff

Items	5	4	3	2	1
Owners of the SMEs businesses in the North Central zone of Nigeria always are charge with utilization rate	88(22.92)	113(29.43)	56(14.58)	51(13.28)	76(19.79)
Owners of the SMEs businesses in the North Central zone of Nigeria always experience efficiency in electrical energy usage	120(31.25)	110(28.65)	62(16.15)	72(18.75)	20(5.21)
Owners of SMEs frequently experience low load charges in the used of electricity	114(29.69)	119(30.99)	60(15.63)	59(15.36)	32(8.33)

Source: Survey, 2019

From the above table, it was discovered that majority of the respondents strongly agreed (22.92%) and agreed (29.43%) to the statement that owners of the SMEs businesses in the North Central zone of Nigeria always are charge with utilization rate. 13.28% strongly disagreed and 19.79% disagreed with the said statement while only 14.58% were undecided.

It was also observed that the majority of the respondents, 31.25% and 28.65% strongly agreed and agreed respectively that owners of the SMEs businesses in the North Central zone of Nigeria always experience efficiency in energy usage. 18.75% and 5.21% strongly disagreed and disagreed respectively, while only 16.15% were undecided.

From the table also, the majority of the respondents 29.69% and 30.99% strongly agreed and agreed respectively that owners of SMEs frequently experience low load charges in the used of electricity. 15.36% and 8.33% strongly disagreed and disagreed respectively, while 15.63% were undecided.

Table 5: Mean of Power Factor Tariff

Variables	5	4	3	2	1	FX	N	Mean	Remarks	Ranking	Sectorial mean
utilization rate	88	113	56	51	76	1238	384	3.22	High	3 rd	3.47
efficiency in energy usage	120	110	62	72	20	1390	384	3.62	High	1 st	
low load charges	114	119	60	59	32	1376	384	3.58	High	2 nd	

Source: Author Computation, 2019

The above table shows that the power factor tariff in terms of utilization rate, efficiency in energy usage and low load charges which was ranked first, second and third ranked. This

implies that owners of SMEs businesses in the North Central zone of Nigeria experience efficiency energy.

Table 6: Assessment of performance (efficiency)

Items	5	4	3	2	1
owners of the SMEs businesses in the North Central zone of Nigeria effectively utilize their input such as raw materials	90(23.44)	117(30.47)	60(15.63)	67(17.45)	50(13.02)
The output of SMEs in North Central Nigeria is improving	111(28.91)	121(31.51)	72(18.75)	44(11.46)	36(9.38)
SMEs in North Central Nigeria experience decline in output	101(26.30)	114(29.69)	64(16.67)	39(10.16)	66(17.19)

Source: Survey, 2019

From the above table, it was discovered that majority of the respondents strongly agreed (23.44%) and agreed (30.47%) to the statement that owners of the SMEs businesses in the North Central zone of Nigeria effectively utilize their input such as raw materials. 17.45% strongly disagreed and 13.02% disagreed with the said statement while only 15.63% were undecided.

It was also observed that the majority of the respondents, 28.91% and 31.51% strongly agreed and agreed respectively that output of SMEs in North Central Nigeria is improving. 11.46% and 9.38% strongly disagreed and disagreed respectively, while only 18.75% were undecided.

From the table also, the majority of the respondents 26.30% and 29.69% strongly agreed and agreed respectively that SMEs in North Central Nigeria experience decline in output. 10.16% and 17.19% strongly disagreed and disagreed respectively, while 16.67% were undecided.

Table 7: Mean of Performance (Efficiency)

Variables	5	4	3	2	1	FX	N	Mean	Remarks	Ranking	Sectorial mean
Input	90	117	60	67	50	1282	384	3.34	High	3 rd	3.50
Increase in output	111	121	72	44	36	1379	384	3.59	High	1 st	
Decline in output	101	114	64	39	66	1297	384	3.58	High	2 nd	

Source: Author Computation, 2019

The above table shows that performance in terms of efficiency (increase in output, input and decline in output) which was ranked first, second and third ranked. This implies that there is effective utilization of input, and increase in output but no decline in output.

Table 8: Descriptive Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Psme	384	1.00	5.00	3.3698	1.43937
TPT	384	1.00	5.00	3.1693	1.14486
PFT	384	1.00	5.00	3.8984	1.23381
Valid N (listwise)	384				

Source: SPSS version 20.00

The table 8 revealed that the result of descriptive statistics which indicated the mean and standard deviation as well as the minimum and maximum value of the variables. The mean value of two-part tariff (TPT) is 3.36, power factor traffic (PFT) is 3.16, the mean value of performance (PSME) is 3.89. The table also recorded the standard deviation of the variables.

Table 9: Regression Analysis

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.955 ^a	.912	.911	.42843

a. Predictors: (Constant), PFT, TPT

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	723.556	2	361.778	1970.986	.000 ^b
	Residual	69.933	381	.184		
	Total	793.490	383			

a. Dependent Variable: Psme

b. Predictors: (Constant), PFT, TPT

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.818	.073		-11.196	.000
	TPT	.528	.050	.420	10.466	.000
	PFT	.645	.047	.553	13.790	.000

a. Dependent Variable: Psme

Source: Econometric output, 2019

Decision rule: 5%

The regression result shows that the model is fit for the study since the f-statistics is significant at 5% level of significance. The result also shows that two-part tariff has a positive and significant effect on the performance of SMEs in North Central, Nigeria while power factor tariff also has a positive and significant effect on the performance of SMEs in North Central, Nigeria. These effects are significant since the P-values are less than 5%. Thus, the study rejects the null hypothesis and concluded that two-part tariff has a positive and significant effect on the performance of SMEs in North Central, Nigeria. Also, power factor tariff has a positive and significant effect on the performance of SMEs in North Central, Nigeria.

The $R^2 = 0.91$ indicates that only 91% of variation on electricity traffic can be used to explain by the performance of SMEs in North Central, Nigeria but 9% can be explained by other factors not noted in the regression model which is referred to as error term.

Discussion of Findings

The study found out that electricity tariff has a positive and significant effect on the performance of SMEs in North Central, Nigeria. Other findings were that two-part tariff has a positive and significant effect on the performance of SMEs in North Central, Nigeria. Also, power factor tariff has a positive and significant effect on the performance of SMEs in North Central, Nigeria. The finding is an indication that no matter the charges or high electricity tariff placed by power supply, as long as electricity supply is constant and available for SMEs operators in North Central to make use of, they (SMEs) will continue to pay for the consumption of the electricity because it has proven to improve the performance of their businesses. Furthermore, to support the performance of SMEs to a larger extent in the North Central by constant provision of electricity supply, electricity tariff can be properly set or positioned in such a way that it will play a catalytic role in rapid SMEs industrial take off and performance in North Central Nigeria. None of the study is in line with the findings of this study, but the finding is not in agreement with the findings of Khobai, Mugano, and Le Roux (2017) who found a negative relationship between electricity prices and economic growth in South Africa. The study is in line with balanced scorecard (BSC) which suggests that managers with a comprehensive framework can translates a company's vision and strategy into a coherent set of performance measures.

Conclusion and Recommendations

The performance of the small and medium enterprises was analyzed and the study unraveled that electricity tariff has a positive and significant effect on the performance of SMEs in North Central, Nigeria. Other findings were that two-part tariff has a positive and significant effect on the performance of SMEs in North Central, Nigeria. Also, power factor tariff has a positive and significant effect on the performance of SMEs in North Central, Nigeria. Therefore, having found electricity tariff as an improvement of SMEs performance, there should be consistent policies that electricity be supplied and constant to the SMEs operator.

From the findings, the study recommended that:

Electricity authority should ensure that restrictive policies are implemented to guarantee that the electricity tariff to the SMEs sector is reasonable, accessible, affordable and sustainable. This will ensure a greater productivity in the performance of SMEs in the North Central as these SMEs accounts for greater contribution to gross domestic product (GDP).

SMEs in North Central, Nigeria should continue to request for the electricity tariff in the forms of fixed and running charges. They should continue to pay their electricity tariff since it is significant in affecting performance of SMEs in North Central, Nigeria. Finally, SMEs in North Central, Nigeria should continue to used power factor tariff since it contributes to performance of SMEs in North Central, Nigeria. They should ensure that they pay for electricity tariff to generate more profit.

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