EFFECT OF ELECTRICITY SUPPLY ON THE PERFORMANCE OF SMALL BUSINESSES IN NIGERIA

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Abstract

The study examines the effect of electricity supply on the performance of small businesses in Nigeria using Abuja, FCT. The study used survey research design using structural questionnaire administered to the respondents who are Small business owners across the six area councils in Abuja, FCT. The population of the study is 2690 and sample size was 348 using Taro Yamane formula to derive it. The study used regression analysis and correlation as statistical tools to analyse the data. The study found that there was a significant effect of electricity supply on performance of Small business in Abuja, FCT with a probability value of less 0.05. The study recommended that Abuja Electricity Distribution Company(AEDC)should ensure that they continue to improve on electricity supply by making it reliable, less cost of supply and solving electricity outage problems in order to enhance the performance of small businesses in Abuja. The Abuja Electricity Distribution Company(AEDC) should ensure that the cost of power supply is minimize and the supply electricity reach all the six area councils in Abuja, FCT.

Keywords: *Electricity supply, electricity outage, cost of electricity, reliability of electricity and performance*

Introduction

Electricity is an important factor input for many energy services that can contribute to small business performance, and therefore access to electricity and its cost play a role in the viability and growth of small business. Electricity has become a major source of survival of small

business in Nigeria since they generate power the small business use in producing their goods and services. The power supply helps to reduce the overhead cost of production and the burden of such cost does not transfer the end-users since there is availability of power supply as well as reliability of such supply. A Small business is faced with inadequate and inefficient utilities such as electricity supply, which tend to escalate costs of operation as small businessesare forced to resort to private provisioning of such utilities. The high costs of production have compelled many small businesses to either shut down or relocate to neighboring countries thereby deterring domestic and international investment. In addition, apart from its direct fiscal effects, the power sector is strategic for increasing the competitiveness of the Nigerian economy by reducing overall energy costs and to facilitate the modernization of the technology used by economic agents and businesses. Adenikinju(2005) estimated the marginal cost of power outages to be in the range of $0.94 to $3.13 per kWh of lost electricity. Given the poor state of electricity supply in Nigeria, Adenikinju (2005) concluded that power outages imposed significant costs on business. Small-scale operators were found to be most heavily affected by the infrastructure failures. The high cost of electricity generation from private electricity power generators is one of the major challenges of SMEs in Nigeria (Onugu, 2005, Aremu&Adeyemi, 2011) as a result of the inadequate and erratic supply from the national grid.

Over the years, electricity supply in Nigeria especially Abuja has been encourage by the government to improve in order to enhance the performance of small businesses. Yet, small businesses in Abuja are deteriorating and dying in Abuja.

The main objective of the study is to examine the effect of electricity supply on the performance of small businesses in Abuja. The specific objectives are to:

i. examine the effect of reliability of electricity supply on theperformanceof small businesses in Abuja.
ii. evaluate the effect of cost of electricity supply on the performanceof small businesses in Abuja.
iii. examine the effect of electricity outage on the performance of small businesses in Abuja.

The study is restricted to the effect of electricity supply on the performance of small business in Abuja. The period of study is 17 years (from 1999 to 2016). The reason for using this period is that a

democratic era emerge in Nigeria and privatization was introduced during their period. The period is also long enough to assess the effect of electricity supply on the performance of small business in Abuja. The study is limited to Abuja and is not considering other small businesses in Nigeria. The study is limited to electricity reliability, cost of electricity and electricity outage as well as growth as indicators of the variables. The study also considered other factors that may affect the growth of small businesses apart from electricity supply such as inflation and exchange rate.

Concept of Electricity

Bloomberg (2016) defined electricity as generated at a power station by electromechanical generators which are primarily driven by heat engines and fuelled by chemical combustion or nuclear fission. It is also generated by other means such as kinetic energy of flowing water and wind. The Concise Oxford Dictionary defines electricity as a form of energy resulting from the existence of charged particles (like electrons and protons), either statically as an accumulation of charge or dynamically as a current (Thompson, 1995). Québec (2011) defines electricity as an invisible phenomenon created by the movement of electrons in a conductor. The study conceptualized electricity supply to means reliability of electricity, cost of electricity and electricity supply.

Reliability of electricity supply can be defined as the ability to meet the electricity needs of customers even when unexpected equipment fails or other conditions reduce the amount of available power supply (Beaty& Wayne, 1978). It is a measure of the capability of electricity networks to withstand sudden disturbances or unanticipated losses in system components. This can be caused by natural or man-made events. Reliability also means maintaining adequate resources to provide customers with round-the-clock supply of electricity at the proper voltage and frequency. Reliability also involves quick response to power outages. Providing reliable electricity supply is however very difficult and requires continuous control of thousands of generators(Payne, 2008).

An energy source is deemed reliable if it generates electrical output and meets demand even at peak time (Croft & Summers, 1987). However all energy sources have weaknesses and strengths therefore electrical utility companies need to have different sources of energy to enhance electricity reliability. This is referred to as the energy mix. Energy mix is a

combination of alternate energy sources such as wind, gas, solar, nuclear, coal and hydro. The greater the quantity of intermittent sources of generation, the greater the level of reliability and efficiency (McNeil, 1990). electricity reliability differs for different customers due to exposure to storms, environment e.g. dense vegetation and strong winds, location of the supplying substation, overall length of the distribution line, number of underground versus overhead power lines and the age and condition of infrastructure. Customers experience frequent power outages, power surges that damage electric equipment and even electrocution among its employees and the public due to exposed wires and lack of following safety processes (Kemibaro, 2013). On top of this, the system operation teams are not quick enough to respond to emergencies. The reasons for the unreliability are old infrastructure, overhead lines that affected by strong winds, heavy rains and fallen trees, inadequate number of substations, inadequate supply of electricity from generating substations and slow response from emergency teams.

Electricity outage in this research work refers to fluctuation and persistent cut in electricity supply by the PHCN. It can also mean total disruption of power supply for a long period. What the term stands or infer the unsustainability of power generation, and distribution, such that supply is consistently and reliably adequate to foster the creation and growth of small, medium and large business enterprises necessary for the development of a nation via mass investments. A power outage (also power cut, blackout, or power failure) is a short- or long-term loss of the electric power to an area. There are many causes of power failures in an electricity network. Examples of these causes include faults at power stations, damage to electric transmission lines, substations or other parts of the distribution system, a short circuit, or the overloading of electricity mains.

The cost of electricity supply is a calculation of the cost of generation at the point of connection. It includes capital/waste disposal costs, cost of operation, government levies, fuel costs and maintenance costs. Some of these costs are beyond the company's control such as fuel costs and government levies (Kenya Power Tariffs, 2013-14).The Energy Regulatory Commission plays a major role in cost determination. Its roles are to provide such information and statistics to the Minister as he may from time to time require, collect and maintain energy data, prepare indicative national energy plan, perform any other function that is incidental or

consequential to its functions under the energy act or any other written law, regulate the electrical energy, petroleum and related products, renewable energy and other forms of energy, protect the interests of consumer, investor and other stakeholder interests, maintain a list of accredited energy auditors as may be prescribed and to monitor and ensure implementation of, and the observance of the principles of fair competition in the energy sector, in coordination with other statutory authorities. It is evident that some factors that affect the cost of electricity are beyond the company's control(Reuters, 2009).Therefore it is difficult to regulate the cost of electricity internally.

Concept of Performance

Performance in organizations takes many forms depending on whom and what the measurement is meant for. Different stakeholders require different performance indicators to enable them make informed decisions (Manyuru, 2005). According to Richard et al. (2009) organizational performance encompasses three specific areas of firm outcomes: (a) financial performance (profits, return on assets, return on investment, etc.); (b) product market performance (sales, market share, etc.); and (c) shareholder return (total shareholder return, economic value added, etc.) Mahapatro (2009) defines organizational performance as the ability of an organization to fulfill its mission through sound management, strong governance and a persistent rededication to achieving results. Performance is defined in this study as ability of the firm to enhance it growth in the business.

Growth of a business is a complex concept and takes two broad forms namely; organic (expanding by increasing overall customer base, output per customer and new sales) and inorganic (expansion through mergers, acquisitions or takeovers) (Robert, 2009). According to Penrose (2006), growth is the product of an internal process in the development of an enterprise and an increase in quality and/or expansion. Growth is defined as a change in size during a determined time span" (Dobbs & Hamilton, 2007). According to Janssen (2009), a companýs growth is essentially the result of expansion of demands for products or services. "It first results in a growth in sales and consequently in investments in additional production factors to adapt itself to new demands" (Janssen, 2009,). Brush et al. (2009) define growth as "geographical expansion, increase in the number of branches, inclusion of new markets and clients, increase in the number of products and services, fusions and

acquisitions". Growth is the business increase in size and length in order to improve its product quality and services as well as internationalized the business.

Concept of Small Business

A small-scale businesses are businesses with total assets excluding land but including working capital of less than N1 Million but not exceeding N10 million with a labor size of not exceeding 15 workers (National Council of Industry, 1996). Ojukwu (2001) define small business enterprises as those that operate with a capital outlay or investment of between 1,018, 336.07 to 10, 183,361.46 NGN which is equivalent to 6,791.171 USD to 67,911,715 USD. The Central Bank of Nigeria (CBN) (2005) defined small-scale enterprise as an enterprise that have an investment and working capital not exceeding N750, 000. Bamidele (2005) defines small scale industries as those industries whose fixed asset and cost of new investment does not exceed N10 million. In the new industrial policy in Nigeria, Small-scale enterprise are defined as those enterprise the total investment of between N100, 000 and N2 million excluding the cost of capital and including working capital. Small business is defined as the business operated with limited capital of not more than N500, 000 thousand Naira.

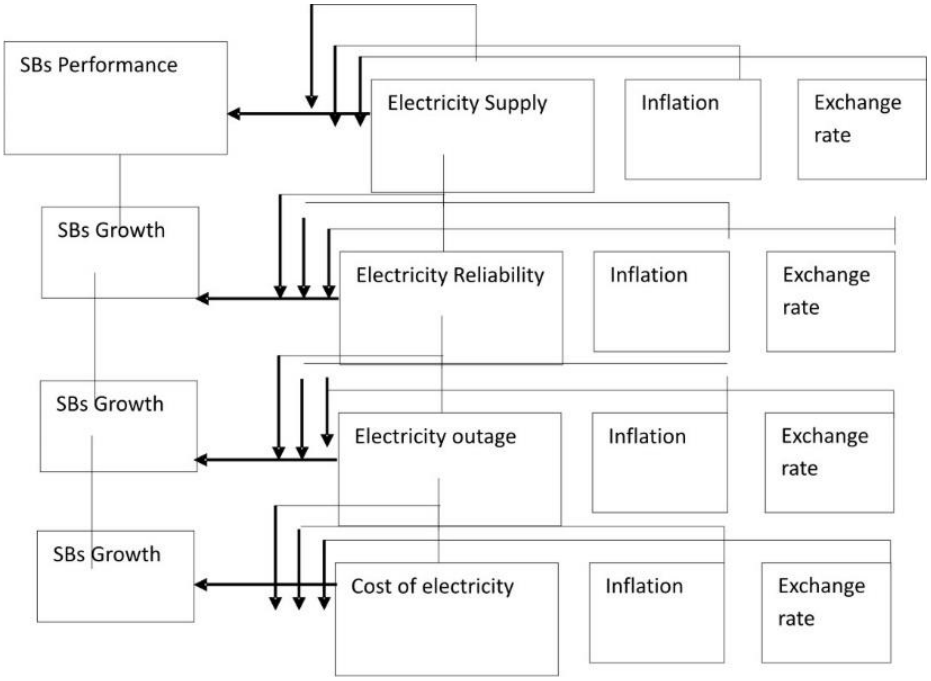
Control Variables

Exchange rate implies the price of one currency in terms of another. Exchange rate is the ratio between a unit of one currency and the amount of another currency for which that unit can be exchanged at a particular time (Ngerebo-a &Ibe, 2013). In other words, exchange rate is the price of one currency vis-à-vis another and is the number of units of a currency required to buy another currency (Mordi, 2006). Exchange rate of currency is the link between domestic and foreign prices of goods and services. In addition, exchange rate can either appreciate or depreciate. Appreciation in the exchange rate occurs if less unit of domestic currency exchanges for a unit of foreign currency while depreciation in exchange rate occurs if more unit of domestic currency exchanges for a unit of foreign currency.

According to Campbell and Stanley (2005), inflation is a rise in the general level of prices. Inflation according to Andrew (2001) depicts an economic situation where there is a general rise in prices of goods and

services, continuously. It could be defined as a continuous rise in prices as measured either by an index of Consumer Price Index (CPI) or by the implicit price deflator for Gross National Product (GNP).Miller and Benjamin (2004), described inflation in economics term as a decline in the value of money, in relation to the quantity growth rate can be adversely affected. The study conceptualized inflation to mean increase in the price of goods and services produce and marketed by small business.

Model of Electricity Supply



Source: Researchers Model, 2019

The above model is conceptualized to explain how performance of small business is a function of electricity supply. This means that electricity supply contribute to performance of small business. The term electricity supply is used to enhance performance in terms of business growth. The explanation of what constitute business growth and electricity supply is indicated in the
chart below:

SBS Growth	Electricity Supply
• Increase in the number of branches • Inclusion of new markets and clients • Increase in the number of products and services, fusions and acquisitions • Geographical expansion	• Electricity Reliability • Electricity outage • Cost of Electricity

However, electricity supply components such as electricity reliability, electricity outage and cost of electricity may enhanced small business growth (SBs growth) in terms of increase in the number of small business branches, inclusion of new markets and clients, increase in the number of products, services, fusions and acquisitions and geographical expansion. Electricity supply may affect SBs growth negatively or positively. They may be time when there is no electricity supply to be used by SBs in growing their business, therefore, the business may record slow growth or failure since the ineffective power supply. The model also indicates that there may be other factors that may affect the growth of small businesses such as inflation and exchange rate. The double-digit inflation in Nigeria and high exchange rate in Nigeria also affect small businesses growth in Nigeria.

Contrast Theory

According to this theory of contrast, when actual product performance falls short of consumer's expectations about the product, the contrast between the expectation and outcome will cause the consumer to exaggerate the disparity (Yi, 1990). The Contrast theory maintains that a customer who receives a product less valuable than expected, will magnify the difference between the products received and the product expected (Cardozo, 1965). This theory predicts that product performance below expectations will be rated poorer than it is in reality (Oliver &DeSarbo, 1988). In other words, the Contrast theory would assume that outcomes deviating from expectations will cause the subject to favourably or unfavourably react to the disconfirmation experience in that a negative disconfirmation is believed to result in a poor product evaluation, whereas positive disconfirmation should cause the product to be highly appraised (Oliver, 1977).

Empirical Studies

Modi and Adamu (2016) investigated the impact of power (electricity) supply on the performance of small and medium scale enterprises in Mubi. Primary data were used and the data were generated through questionnaire. The questionnaires were coded and the variables used are the monthly turnover of small and medium scale enterprises in Mubi, KV supplied to SMEs by the power distribution company in Mubi, number of employees, tax, wages and salaries, years of business and the expenditure on alternative power supply. Monthly turnover was used as

a proxy to performance while KV was used to proxy power supply. The study employed descriptive analysis, correlation analysis as well as the regression analysis. The results of the analyses revealed that power supply and the performance of small and medium scale enterprises are negatively correlated. However, the regression result showed that power electricity supply has a positive impact on the performance of small and medium scale enterprises in Mubi.

Doe and Asamoah (2014) studied the effect of electric power fluctuations on the profitability and competitiveness of SMEs, using SMEs operating within the Accra business district of Ghana as a case study. This research is a cross-sectional survey and it adopted a mixed method approach. A sample of 70 Ghanaian SMEs was selected using a systematic sampling approach. Inclusion criterion for the selection of the SMEs was their location within the business district of Accra as well as their use of electricity in their main business operation. Data was collected with an interviewer-administered structured questionnaire which focused on the effect of power fluctuation on the operations of SMEs, especially on the profitability and its resulting effect on the firms' competitiveness. The SPSS statistical package was used to group and analyse the data. The study is a single-factor analysis of the exogenous problems facing the Small and Medium Enterprise sector. The study found that without reliable energy supply, SMEs are unable to produce in increased quantities and quality leading to poor sales hence low levels of profitability. It is established that low profitability negatively affects Return on Assets (ROA) and Return on Investment (ROI) of SMEs. Consequently, if the level of profitability is high, it is expected that ROA and ROI will be high and vice versa. With high profits, SMEs are able to increase their competitiveness.

Eric, Paul, Isaiah and Eric (2018) examined the causative relationship amongst electricity consumption and industrial growth in Ghana for the period of 1971 to 2014. The results of the ARDL bounds test showed that long-run relationship exists among the variables. The error correction term was also significant and negatively signed providing further evidence of long-run relationship. Contrary to the widespread belief that electricity consumption spurs productivity, the study reveals that electricity consumption has a negative impact on manufacturing sector output in Ghana.

Frederick and Josephine (2016) analysed the effect of power supply on the performance of SMEs: a comparative analysis between two regions in Ghana where Small and Medium firms are located. The study uses the current World Bank 2013 Enterprise Survey on Ghana, which consist of 710 firms. The study employs both chi-square and t-test to do pattern analysis. In addition, ordinary regression analysis (OLS) was employed to regress firm performance variable on electricity supply variable and other covariates. The results show that, the presence of power outages, thus, the number of times power outages experienced and hours of power outages negatively affected firms performance (profitability). In addition, it was further revealed that power outage (power interruptions) severely affects SMEs located in the Northern part of Ghana than SMEs located elsewhere.

Ologundudu (2015) investigated the causal and long-run relationship between electricity supply, industrialization and economic development in Nigeria from l972-2010. To achieve this, the paper employed the Granger Causality test and the ARDL bounds test approach to cointegration. In order to determine the time series characteristics of variables used in the regression, the paper adopted the approach of NG and Perron modified unit root test. The Granger Causality results showed that there is a feedback causal relationship between GDP per capita and electricity supply. Unidirectional relationship is seen between capital employed and GDP percapita without a feedback effect, running from capital to GDP per capita. The same unidirectional relationship is observed between electricity supply and capital; the causality runs from capital to electricity supply. The causality result also revealed a unidirectional relationship without feedback effect between labour and electricity supply. The Granger causality test found no causal link in the case of industrial output and GDP per capita. The results of the long run and error correction model showed that industrial development, electricity supply, technology and capital employed are important determinants of economic development. Stability tests were also conducted using CUSUM and CUSUMQ and the Jarque-Bera normality test.

Quarshie, Benjamin and James (2017) aimed at Power Outages on Performance of Selected Manufacturing Firms on the Ghana Stock Exchange. The paper measured the effect of power outage on the performance of manufacturing firms in Ghana. The population used was all manufacturing companies on the Ghana Stock Exchange for the period

2007-2013. The data was analysed quantitatively, using descriptive statistics, T statistics, averages and standard deviations to make conclusions. It was discovered that ROE(Return on Equity) in power outage and no-power outage years, this difference is not significant and that power outage does not affect ROE of manufacturing firms. Power outage has effect on asset management ratio or asset turnover ratio of manufacturing firms. ROA (Return on Asset ratio) of manufacturing firms is higher in no-power outage periods than power outage periods.The paper concluded that power outages in the short run, do not explain much of the gap in productivity, and that manufacturing firmsin the long run maybe affected by power outages.

Ezeh and Kenneth (2016) examined the impact of deficient electric power supply on the operations of small-scale businesses operating in north east of Nigeria. From the population of small-scale businesses, a sample was selected through the use of stratified random sampling to ensure the effective representation of the population of small-scale businesses in north east Nigeria. Results from data analysis indicates the severity of electricity supply outages and the costs imposed by power supply outages on the operation of this class of businesses in the region

Akiri, Ijuo and Apochi (2015) examine the impact of electricity supply (EGI) on the productivity of manufacturing industries in Nigeria between 1980 and 2012. The variables in the model include, manufacturing productivity index (as dependent variable) while electricity generation, capacity utilization rate, government capital expenditure on infrastructures and exchange rate (represent the explanatory variables). The study employed the ordinary least square multiple regression to analyze the time series data between 1980 and 2012. The result of the study shows that electricity generation and supply in Nigeria under the viewed periods impacted positively on the manufacturing productivity growth, but the coefficient is very low due to inadequate and irregular supply of electricity especially to manufacturing subsector in the economy resulting from government's unnecessary spending on non-economic and unproductive sectors

Theophilus, Christopher and Paul (2016) examined the impact of electricity supply on industrial output in Nigeria. Data for the period 1980 to 2014 were obtained from CBN and WDI and analysed using a double-log linear formulation. The results show that electricity supply and trade

openness impact industrial production negatively in Nigeria. They were also not statistically significant.

Research Methodology

The study adopted survey research design. The population of this study according to Small and Medium Development Agency of Nigeria(SMEDAN) (2013) is 2690 owners of Small Scale enterprise in Abuja(Kwali, Municipal, Abaji, Gwagwalada, Bwariand Kuje Area councils). The sample size was determined using Taro Yamane formula as follows:

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

Where N is the population size

E is the margin error (assume 5%)

1= constant=

e =0.05

$n=2690/1+2690(0.05)^2$

$n=2690/1+2690(0.0025)$

$n=2690/1+6.725$

$n=2690/7.725$

$n=348$

However, the sample size of 348 is considered in this study and 348 copies of questionnaire were administered to the respondents in the study. The method of data collection is questionnaire. A designed questionnaire is employed and the questionnaire is designed in a five (5) point Likert type scale such as strongly agreed (5), agreed (4) undecided (3), strongly disagreed (2) and disagreed (1). The copies of questionnaire are administered to the respondents using convenience-sampling method. The reason for employing convenience-sampling method shall be due to accessibility and proximity to the researcher. The questionnaire is administered to all small businesses in Abuja across the six area councils in Abuja. The six area councils respondents obtained their questionnaire in a pro rata based.

The questionnaire is subjected to test to ensure its reliability. Reliability is used to test the extent of questions accuracy in the instrument and most convenient method for testing for the internal consistency is the Cronbach's Alpha, which is computed with the following model below:

$$\alpha = \frac{Nr}{1+r(N-1)}$$

Where:

α= Cronbach Alpha

N= the number of items in the scale

r= the mean inter-item correlation

A minimum Cronbach's Alpha value of 0.7 is stated to be reliable (Ritter, 2010)

The variables used in this study are tested for reliability to ascertain the Apha value of 0.6 or above.

Table 1: Reliability test

Variables	**Number of items**	**Cronbach's Alpha**
Reliability of electricity	3	0.83
Cost of electricity	3	0.81
Electricity outage	3	0.82
SBs Growth	3	0.80

Source: researcher computation (2019)

Therefore, the Alpha values are reliable.

The study used simple percentages, correlation and regression to study the variables. Correlation is used to ascertain the strength or degree of the relationship between the dependent and independent variables.

Correlation Model

$$r = \frac{n\sum xy - \sum x\sum y}{\sqrt{\{(n\sum x^2) - (\sum x)^2\ (n\sum y^2) - (\sum y)^2\}}} \quad \text{.....equation 1}$$

Where:

r = Correlation Coefficient

x = proxies for independent variable

y = proxies for dependent Variable

n = number of observations

The study used OLS multiple regressions to determine the effect of the independent variable on the dependent variable.The SPSS software 25.0 is used in this study. The multiple regression models are stated below:

$SBG = \alpha + ß_I LES + ß_I IN + ß_I EXR + \mu$ .....equation 1

$SBG = \alpha + ß_I CES + ß_I IN + ß_I EXR + \mu$ .....equation 2

$SBG = \alpha + ß_I EO + ß_I IN + ß_I EXR + \mu$ .....equation 3

Where:

SBG= Small Business Growth

RES = reliability of electricity supply
CES = cost of electricity supply
EO= Electricity Outage
IN= Inflation
EXR = exchange rate
ß = Coefficient
α = Intercept
μ = Error terms

However, this model is logged to ensure good result according to Koutsoyannis (1971) who asserted that when a model is logged, the data is reduced to the same level of measurement. The logged model is given as:

$LSBG = \alpha + ß_l LLES + ß_l LIN + ß_l LEXR + \mu$ .....equation 4

$LSBG = \alpha + ß_l LCES + ß_l LIN + ß_l LEXR + \mu$ .....equation 5

$SBG = \alpha + ß_l LEO + ß_l LIN + ß_l LEXR + \mu$ .....equation 6

Where:
LSBG= logged of Small Business Growth
LRES = logged of reliability of electricity supply
LCES = logged of cost of electricity supply
LEO= logged of Electricity Outage
LIN= logged of Inflation Rate
LEXR= logged of Exchange rate

Discussion and Findings

Table 2: Reliability of Electricity

Items-Reliability of Power Supply	**5**	**4**	**3**	**2**	**1**
The capability of electricity networks in Abuja is very poor	119(35.84)	101(30.42)	33(9.94)	44(13.25)	35(10.54)
There are inadequate resources to provide electricity at proper voltage and frequency in Abuja	114(34.34)	112(33.73)	22(6.63)	72(21.69)	12(3.61)
There is poor electricity supply which ensure frequent customers complained in Abuja	121(36.45)	100(30.12)	44(13.25)	45(13.55)	22(6.63)

Source: field survey, 2019

Table 2 indicates the respondent percentage on each question relating to reliability of electricity supply in Nigeria. It shows that majority of the respondents agreed and strongly agreed on various questions. The percentage is in bracket while the number of respondents is outside the bracket. The implication of this table is that majority of the respondents believes that there is poor reliability of power supply in Abuja, FCT.

Table 3: Cost of Electricity Supply

Items- Cost of electricity Supply	**5**	**4**	**3**	**2**	**1**
the cost of generating power to the Small businesses in Abuja is transfer to the owners	114(34.34)	124(37.35)	3(0.90)	71(21.38)	20(6.02)
There is high cost of maintaining electricity in Abuja by Small business owners	122(36.75)	119(35.84)	5(1.51)	61(18.37)	25(7.53)
Small business owners experience high cost of power connection and re-connection fees in Abuja	115(34.65)	112(33.73)	19(5.72)	69(20.78)	17(5.12)

Source: Field survey, 2019

Table 3 indicates the respondent percentage on each question relating to cost of electricity power supply in Abuja. It shows that majority of the respondents agreed and strongly agreed on various questions. The percentage is in bracket while the number of respondents is outside the bracket. The implication of the above table is that the cost of electricity supply in Abuja is very high and the small business owners in Abuja hardly generate profit because of high cost of power connection and re-connection fees in Abuja and high cost of maintaining electricity in Abuja by Small business owners.

Table 4: Electricity Outage

Items-Electricity Outage	**5**	**4**	**3**	**2**	**1**
There is frequent damage to electric transmission lines in Abuja	132(39.75)	111(33.43)	7(2.11)	56(16.87)	26(7.83)
There is frequent damage to substations or other parts of	112(33.73)	108(32.53)	33(9.93)	49(14.76)	30(90.36)

the distribution system in Abuja					
There is total disruption of electricity supply for a long period of time	129(38.86)	122(36.75)	21(6.33)	56(16.86)	4(1.20)

Source: survey, 2019

Table 4 indicates the respondent percentage on each question relating to electricity outage in Abuja. It shows that majority of the respondents agreed and strongly agreed on various questions. The percentage is in bracket while the number of respondents is outside the bracket. The implication of this table is that frequent damage to electric transmission lines in Abuja, frequent damage to substations or other parts of the distribution system in Abuja and There is total disruption of electricity supply for a long period of time.

Table 5: Inflation

Items-Inflation	**5**	**4**	**3**	**2**	**1**
The prices of small businesses goods and services have increased drastically in Abuja	133(40.06)	119(35.84)	18(5.42)	59(17.77)	3(0.90)
The income levels of consumers have a bearing on the sales of small businesses goods and services	114(34.34)	111(33.43)	21(6.33)	65(19.58)	21(6.32)
The small businesses have experienced an unfavorable change due to the inconsistency in the value of money.	117(35.24)	101(30.42)	20(6.02)	71(21.29)	23(6.93)

Source: survey, 2019

Table 5 indicates the respondent percentage on each question relating to inflation in Nigeria. It shows that majority of the respondents agreed and strongly agreed on various questions. The percentage is in bracket while the number of respondents is outside the bracket. The implication of this table is that there is high inflation in Abuja which affected the activities of small business in Abuja, FCT.

Table 6: Exchange Rate

Items-Exchange Rate	**5**	**4**	**3**	**2**	**1**
There is less unit of domestic currency exchange for a unit of foreign currency in Nigeria	89(26.81)	114(34.34)	51(15.36)	32(9.64)	46(13.86)
There is more unit of domestic currency exchanges for a unit of foreign currency in Nigeria	123(37.05)	122(36.75)	21(6.33)	61(18.37)	5(15.06)
Exchange rate in Nigeria is very high compare to other countries	133(40.06)	113(34.04)	4(12.05)	58(17.47)	24(7.23)

Source: survey, 2019

Table 6 indicates that the respondent percentage on each question relating to exchange rate in Nigeria. It shows that majority of the respondents agreed and strongly agreed on various questions. The percentage is in bracket while the number of respondents is outside the bracket. The implication of this table is that exchange rate in Nigeria is very high which affect small business activities in Abuja, FCT.

Table 7: Growth of Small Business in Abuja

Items-Electricity Outage	**5**	**4**	**3**	**2**	**1**
There is frequent increase in the number of branches of small business in Abuja	13(3.92)	16(4.82)	76(22.89)	118(35.54)	109(32.83)
There is frequent increase in the number of products and services, fusions and acquisitions in Abuja	11(33.13)	18(5.42)	50(15.06)	102(30.72)	151(45.48)
There is geographical expansion of small business and inclusion of new markets as well as clients in Abuja	21(6.33)	29(8.73)	49(14.76)	122(36.75)	111(33.43)

Source: survey, 2019

The above table indicates the respondent percentage on each question relating to small business growth in Abuja. It shows that majority of the respondents disagreed and strongly disagreed on various questions. The percentage is in bracket while the number of respondents is outside the bracket. The implication is that small business in Abuja are not growing in terms of branches, increase in the number of products and services,

fusions and acquisition in Abuja and there is no geographical expansion of small business and inclusion of new markets as well as clients in Abuja.

Table 8: Correlation between small business growth and Reliability of Electricity in Abuja

Correlations

		SBG	LES	IN	EXR
SBG	Pearson Correlation	1	.264*	.140	-.046
	Sig. (2-tailed)		.027	.248	.703
	N	332	332	332	332
LES	Pearson Correlation	.264*	1	.079	-.018
	Sig. (2-tailed)	.027		.151	.750
	N	332	332	332	332
IN	Pearson Correlation	.140	.079	1	-.029
	Sig. (2-tailed)	.248	.151		.602
	N	332	332	332	332
EXR	Pearson Correlation	-.016	-.018	-.029	1
	Sig. (2-tailed)	.713	.750	.602	
	N	332	332	332	332

*. Correlation is significant at the 0.05 level (2-tailed).

SPSS, 25.00, 2019

Table 8 indicates that there is a positive association between the dependent variable and independent variables in the study. This implies that there is a weak positive association between small business growth and reliability of electricity in Abuja. Also, there is a weak positive association between small business growth and inflation rate in Nigeria and there is strong positive association between small business growth and exchange rate in Nigeria.

Table 9: Correlation between small business growth and Cost of Electricity Supply in Abuja

Correlations

		SBG	CES	IN	EXR
SBG	Pearson Correlation	1	-.050	.140	-.046
	Sig. (2-tailed)		.679	.248	.703
	N	332	332	332	332
CES	Pearson Correlation	-.050	1	.014	.043
	Sig. (2-tailed)	.679		.800	.431
	N	332	332	332	332
IN	Pearson Correlation	.140	.014	1	-.029
	Sig. (2-tailed)	.248	.800		.602
	N	332	332	332	332
EXR	Pearson Correlation	-.046	.043	-.029	1
	Sig. (2-tailed)	.703	.431	.602	
	N	332	332	332	332

SPSS, 25.00, 2019

Table 9 indicates that there is a positive association between the dependent variable and independent variables in the study. This implies that there is a strong positive association between small business growth and cost of electricity supply in Abuja. Also, there is a weak positive association between small business growth and inflation rate in Nigeria and there is strong positive association between small business growth and exchange rate in Nigeria.

Table 10: Correlation between small business growth and Electricity Outage in Abuja

Correlations

		SBG	EO	IN	EXR
SBG	Pearson Correlation	1	-.125	.140	-.046
	Sig. (2-tailed)		.304	.248	.703
	N	332	332	332	332
EO	Pearson Correlation	-.125	1	-.033	-.026

	Sig. (2-tailed)	.304		.555	.634
	N	332	332	332	332
IN	Pearson Correlation	.140	-.033	1	-.029
	Sig. (2-tailed)	.248	.555		.602
	N	332	332	332	332
EXR	Pearson Correlation	-.041	-.026	-.021	1
	Sig. (2-tailed)	.711	.631	.612	
	N	332	332	332	332

Table 10 indicates that there is a positive association between the dependent variable and independent variables in the study. This implies that there is a weak positive association between small business growth and electricity outage in Abuja. Also, there is a weak positive association between small business growth and inflation rate in Nigeria and there is strong positive association between small business growth and exchange rate in Nigeria.

Regression Results

Model 4 result

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.356[a]	.711	.671	.16349

a. Predictors: (Constant), logEXR, logLES, login

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.257	3	.086	3.201	.029[b]
	Residual	1.764	329	.027		
	Total	2.021	332			

a. Dependent Variable: LogSbG

b. Predictors: (Constant), logEXR, logLES, login

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.551	.144		3.837	.000
	logLES	.410	.150	.317	2.742	.008
	Login	-.220	.162	-.158	-1.354	.181
	logEXR	-.200	.161	-.145	-1.244	.218

a. Dependent Variable: LogSbG

Decision rule: 5%

The analysis indicates that the coefficients for reliability of electricity is significant in enhancing Small business growth in Abuja while the coefficient for inflation and exchange are insignificant in enhancing the growth of small business in Abuja. The p-value and t-statistic values of the one independent variable is significant at probability value of 0.000 and two variables inflation and exchange rate are insignificant. However, the f-statistic value of 3.201 is significant at p statistic value of 0.02, it indicates that the model is a good fit. The R^2 = 0.71 indicates that only 71% of electricity supply (reliability of electricity, inflation and exchange rate) embarked upon by Small businesses in Abuja can be explain by growth but 29% can explained by other factors not noted in the regression model which is refer to as error term. However, there is significant relationship between reliability of electricity supply and growth of small business in Abuja.

Model 5 Result

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.166[a]	.480	.321	.17126

a. Predictors: (Constant), logEXR, login

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.056	2	2.028	.950	.032[b]
	Residual	1.965	330	.029		
	Total	2.021	332			

a. Dependent Variable: LogSbG

b. Predictors: (Constant), logCES, logEXR, login

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	.551	.144		3.837	.000
	logLCES	.410	.150	.311	1.142	.00
	Login	-.220	.162	-.151	-1.151	.113
	logEXR	-.200	.161	-.111	-1.241	.201

a. Dependent Variable: LogSbG

The analysis indicates that the coefficients for cost of electricity is significant in enhancing Small business growth in Abuja while the coefficient for inflation and exchange are insignificant in enhancing the growth of small business in Abuja. The p-value and t-statistic value of the one independent variable is significant at probability value of 0.000 and two variables inflation and exchange rate are insignificant. However, the f-statistic value of .950 is significant at p statistic value of 0.03, it indicates that the model is a good fit. The R^2 = 0.48 indicates that only 48% of electricity supply (cost of electricity supply, inflation and exchange rate) embarked upon by Small businesses in Abuja can be explain by growth but 52% can explained by other factors not noted in the regression model which is refer to as error term. There is significant

relationship between cost of electricity supply and growth of small business in Abuja.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.166[a]	.028	-.017	.17255

a. Predictors: (Constant), logEXR, logEO, login

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.056	3	.019	.624	.002[b]
	Residual	1.965	329	.030		
	Total	2.021	332			

a. Dependent Variable: LogSbG

b. Predictors: (Constant), logEXR, logEO, login

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.734	.153		4.808	.000
	logEO	.006	.149	.005	.040	.000
	logIN	-.194	.171	-.139	-1.134	.001
	logEXR	-.156	.170	-.113	-.918	.002

a. Dependent Variable: LogSbG

The analysis indicates that the coefficients for electricity outage is significant in enhancing Small business growth in Abuja while the coefficient for inflation and exchange are insignificant in enhancing the growth of small business in Abuja. The p-value and t-statistic value of the one independent variable is significant at probability value of 0.000 and two variables inflation and exchange rate are insignificant. However, the f-statistic value of .950 is significant at p statistic value of 0.03, it indicates that the model is a good fit. The R^2 = 0.48 indicates that only

48% of electricity supply (cost of electricity supply, inflation and exchange rate) embarked upon by Small businesses in Abuja can be explain by growth but 52% can explained by other factors not noted in the regression model which is refer to as error term. However, there is significant relationship between electricity outage and growth of small business in Abuja.

Discussion of Findings

From the analysis, there is a positive association between electricity supply and performance of Small business in Abuja. Also, there is positive association of reliability of electricity, cost of electricity and electricity outage on the performance of Small business in Abuja. The study also found that there is significant relationship between electricity supply and performance of Small business in Abuja. Also, there is significant relationship between reliability of electricity and growth of small business in Abuja. The study also found that they there is a significant relationship between cost of electricity and growth of small business in Abuja. The study found that there is significant relationship between electricity outage and growth of small business in Abuja. The finding is in tandem with the findings of Modi and Adamu (2016) who found that there is a significant relationship between variables. The study also is in line with the Contrast Theory.

Conclusions and Recommendations

The study concluded power supply is very effective to performance of small business which cannot be overemphasized. Availability and access to reliable electricity supply has a rippling effect on growth and performance of small business. Turning to the small and medium enterprises (SMEs, hereafter also known as firms), power supply serves as an indispensable input in their activities. Apart from its necessity for running many industrial machines, its role to performance is enormous. Virtually, all business activities, especially industrial units, require constant and effective flow of electricity. Similarly, serving as an input in production processes, electricity also contributes greatly to product marketing. In many cases, availability of power supply plays important role in storing finished goods ahead of demand, and therefore enhances consumers' satisfaction by assisting in making the goods available to consumers when needed. This, also helps in building firm's image and protects firm's reputation as a result of customer's trust being sustained

on having their demand met. The study suggested that Power Holding of Nigeria under the sub leadership of Abuja Distribution Company should ensure that they continue to improve electricity supply by making it to be reliable, less cost of supply and solving electricity outage problems in Abuja in order to enhance the continues growth of small business in Abuja. The Abuja Electricity Distribution Company (AEDC) should ensure that the cost of power supply is minimize and the supply electricity reach all the six area councils in Abuja, FCT.

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