SMEs' Menace and Energy Deficiency in Lagos, Nigeria: Can Renewable Energy Reduce the drain?

Olatunde J. Omokanmi [1], David M. Oke[2] and Lanre I. Ridwan[2]
[1]*Department of Economics, Kings University, Ode-Omu, Osun State, Nigeria*
[2]*Department of Economics, University of Lagos, Nigeria*

Abstract
The role of small and medium scale enterprises (SMEs) in the growth and development process of any economy can never be overemphasized. This is premised on the ground that, SMEs have recorded an unprecedented success in reducing unemployment, allocating resources efficiently, and making growth inclusive. However, the performances of SMEs tend to be relatively low and insignificant in developing economies like Nigeria owing to several factors inhibiting its growth and effective operation of which energy deficiency is conspicuous. Energy deficiency in Nigeria which involves incessant poor quality of electricity supplies, voltage fluctuation, and power outages has pervasively halted production, damaged equipment, and reduced profitability of SMEs. This paper analyses the roles of renewable energy in salvaging the incidence of energy deficiency embattling SMEs in Nigeria with particular reference to the metropolitan areas of Lagos State. A sample of 500 SMEs were selected using systematic sampling approach. Data were collected with a small enterprise structured questionnaire (SESQ) which centered on the effects of power fluctuation, unstable supply and high billing on the operations of SMEs, especially on the operating costs, profitability and its ensuing influence on the firms' competitiveness. While the data collected was based on discrete analysis, the Logistic Regression was the main analysis. The study finds that renewable energy positively correlates with SMEs performance in terms of Return on Assets (ROA) and Return on Investment (ROI) while energy deficiency negatively affects it. An incentive-based policy on adopting renewable energy is paramount for SMEs to thrive in Nigeria and favorably compete globally.

Introduction

The role of small and medium scale enterprises (SMEs)[1] in the growth and development process of any economy can never be overemphasized. This is premised on the ground that, globally, SMEs have recorded unprecedented success in reducing unemployment, allocating resources efficiently, and making growth inclusive. The relative significance of SMEs as an engine of economic growth is more expedient given the fact that they are characterized as labour-intensive which serve as a source of job creation for the unemployed population, saves capital as they require little and affordable capital for start-up, and constitute a strong indicator for the successful co-existence of large enterprises. Therefore, an attempt to undermine the roles of SMEs is analogous to underestimating the developmental need of evolving and developing economies. In a collaborative assertion, Erdem and Erdem (2011); Alaye-Ogan, (2012) opine that "small businesses irrefutably remain critical to the development of any nation's economy as they are an excellent, source of employment generation, help in the development of local technology, and develop indigenous entrepreneurs.

The potential growth contribution of SMEs to the economy of developing nations has been well attested to in the literature. For instance, in the case of Kenya, Kombo, Justus, Murumba & Edwin (2011), asserts that "SMEs have contributed greatly to the growth of Kenyan economy, accounting for 12-14% of GDP, through creating employment opportunities, training entrepreneurs, generating income and providing a source of livelihood for the majority of low-income households in the country". In Senegal, the industrial sector contributes approximately 20 percent to GDP and employs around 12% of the labor force (YENIYF[2], 2009). The 300,000 SMEs in Ghana, are found to have contributed towards the employment of more than 80 percent of the workforce and contribute about half of the country's GDP and therefore have catalytic impacts on the economic growth, income, and employment" (Mensah, 2004). They equally make up 91 percent of formalized businesses in South Africa (Folabi, 2015).

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[1]There is no generally defined specification for what makes up small and medium scale businesses. However, a glance through the numerous perspectives gives an idea of what range the concept lies within which may include in terms of a capital base; between N500, 000 and N5,000,000 and staff strength of between 11 and 150 workers.

[2]YENIYF: The Youth Employment Network and the International Youth Foundation

Despite the foregoing, the performances of SMEs tend to be relatively low and insignificant in the case of Nigeria owing to many factors inhibiting its growth and effective operation of which energy deficiency is conspicuous. Energy deficiency in Nigeria which involves incessant poor quality of electricity supplies, voltage fluctuation, and power outages has pervasively halted production, damaged equipment, and reduced profitability of SMEs. Alluding to this undesirable performance, CBN (2014) notes that "in Nigeria, the gross underperformance of small businesses has undermined their contributions to the nation's economic growth and development. As far as energy deficiency defined by the low quality and unavailability of power supply in the context of this research is concerned, the constraint it puts on SMEs has been well affirmed. Scott, Darko, Lemma & Rud (2014) note that "access to a reliable electricity supply is widely considered to be vital to the operations of small and medium-scale businesses.

Surveys suggest that, in middle and lower-income countries, firms themselves consider access to electricity to be one of the biggest constraints to their businesses. Without an exception to Nigeria, Ogunjuyigbe (2016), observes that the main challenge facing the growth of many microenterprises in developing nations such as Nigeria is incessant power failure as a result of inadequate power generation, weak and old transmission lines, and inefficient distribution network system. This scenario leaves new and existing businesses which desire to remain in business with no option than resolving to self-generation of power to meet up with daily targets and compete favorably in the business environment despite the depleting effects it has on the profitability of the enterprise. In agreement with this, Ayodele, Ogunjuyigbe & Opebiyi (2017), assert that "meeting the electrical power requirement of the microenterprise has become a major issue; resulting into self-generation that reduces productivity and declined profit margin of business". The incessant increase in the cost of fueling generators (gasoline and diesel) to provide needed energy for businesses as observed by (Foster, 2009; Eberhard et al., 2008) may further reduce the profit margin thereby forcing many operators out of business.

Worthy of note is that, despite series of efforts by the Federal Government to address the challenge of energy deficiency, the situation has remained persistent and no meaningful success has been recorded. However, in recent times, more strategic efforts have surfaced through the reforms in the power sector which have taken stages such as; unbundling and privatization of the electricity sector, allowing Independent Power Projects (IPPs) to generate and sell to the national

grid, and the development of Renewable Energy Master Plan (REMP), among others. These initiatives have metamorphosed into the increasing demand for alternative energy supply with much prominence given to renewable energy in the supply mix. In a related point of view, it is noted that the development of REMP and the growing demand for increased penetration of renewable energy sources (RESs) into the Nigeria electricity supply mix (Oyedepo, 2012; Sambo, 2008), are attributable to the availability of abundant and diverse RESs, such as solar, wind, hydroelectric, tidal and biomass in the country(Dada, 2014).The adoption of renewable energy is seen as one of the ways of ameliorating the challenges of deficient power supply in Nigeria with its attendant pervasive outages and fluctuations.

The adoption of renewable energy supply would not only serve as an alternative power supply but is also perceived as instrumental in curtailing the environmental threat associated with fossil fuel and the self-generating energy sets which have evolved in the country. Therefore, a roadmap towards a stable, available, quality, and clean power supply is unachievable without giving due credence to renewable energy supply. Considering the emergence of renewable energy which has taken the center stage of alternative energy sources, this paper analyses the roles of renewable energy in salvaging the incidence of energy deficiency embattling SMEs in Nigeria with particular reference to Lagos State. An attempt is made to probe the questions of whether energy deficiency has a causal impact on SMEs returns on asset (ROA); whether the return on investment (ROI) is affected by an energy deficiency and to establish if renewable energy has significant impacts on SMEs' ROA and ROI.

The inquiry contributes to the stock of academic discussion on the electricity-SMEs nexus in two major ways as follows: first, the voluminous empirical works which have evolved on the discussion have taken a narrow analysis of the impacts of electricity supply on SMEs, MSMEs, or microenterprise. Much of these discussions despite having affirmed the negative nexuses between the two variables especially in the context of developing countries like Nigeria have failed to give credibility to the role of renewable energy. Thus, this study did not only identify the most recent trend of the relationship between the electricity supply and SMEs in Lagos, Nigeria but also explicate the practical ways in which the available alternative source can be fully exploited through renewable energy

supply. Second, we further contribute to knowledge by employing the logistic regression model (LRM) in the analysis.

The choice of Lagos State as the study location was influenced by some considerations. First, Lagos State is a former capital city accommodating people of diverse ethnic backgrounds and is one of the top ten cities in the world with megacity status in the pipeline for which electricity is expected to play the roles of enhancing convenient livelihood, boosting prospects of businesses most especially SMEs, and drawing foreign investors to the state. Second, it is also expected that the outcomes of the study undertaken in Lagos State, can be extrapolated to other regions in Nigeria in particular and other Africa cities in general.

Literature Review
In the empirics, some authors have examined the impacts of electric power supply on SMEs at varying levels. For instance, Ayodele *et al.* (2017) examine the incidence of electrical energy poverty among micro-enterprises in Ibadan by developing indices that could evaluate the purpose. Prominent results which emanate from the study reveal that micro-enterprises in the city of Ibadan are doing well in terms of possession of electrical devices. However, electricity availability is poor with a significant negative effect evident on business productivity. Another insightful result from the study is that the developed indices can suggest the areas that need improvement to improve overall electrical energy poverty within and beyond the state of study.

Forkuoh and Li (2015) investigate the impacts of power insecurity on the growth of SMEs with a particular study on cold-store operators in Asafo Market of Kumasi in Ghana. The study finds that power outages hinder SMEs' growth, while the cost of operating businesses saw a significant increase in power outages. The cost of alternative sources of power also significantly pushes the operation cost of businesses high. Scott et al (2014), probe the impacts of electricity insecurity on businesses in low and middle-income countries. Analysis from the inquiry supports previous findings that electricity insecurity negatively affects the total factor productivity and labor productivity of manufacturing SMEs. It was further noted that in four of the six countries, the association between outages and productivity is negative. However, this is not found in all circumstances, and in two countries SMEs affected by electricity insecurity have marginally higher productivity. Friedrick and Selase (2014) analyze the effect of electric power fluctuations on the profitability and competitiveness of SMEs using a sample of 70 SMEs in the city of Accra business district of Ghana as a case study. Results

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reveal 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.

Akpan, Essien and Isihak (2013) examine the impact of rural electrification through the extension of the existing grid on rural micro-enterprises in Niger Delta, Nigeria using purposive sampling to bating data through structured questionnaires and personal interviews with the owners of the micro-enterprises. Empirical fallouts from the study suggest that connection to the electricity grid is not statistically significant in explaining the variation in profitability of micro-enterprises as depicted by the value of 16.2% profit margin between the enterprises connected and those not connected to the grid. Another incisive result from the study is that the use of generating sets in providing backup electricity has the twin dimensional effect on micro-enterprises by raising the profitability of the enterprise on one hand and at another point increasing the running. In each case, the former seems to outweigh the latter. Cissokho and Seck (2013) evaluate the impact of electricity outages on firms' productivity in Senegal, using cost technical and allocative efficiency scores on a survey of 528 businesses. Results from the study reveal that power outage duration has a positive significant effect on cost and technical efficiencies, and SMEs were more successful in doing so than larger ones. Further, power outages' frequency, duration, and their perceived severity have negative effects on scale efficiency.

The aforementioned empirical works put several lights of scrutiny on the depth of discussions and reliability of results that emanate. One, asides from the works of Ayodele et al. (2017) and Akpan et al. (2013), most of the other works failed to justify the intuition that influences the choice of the study area couple with a number minimal understanding of the area. In analyzing qualitative research which is inevitably built around dummy variables, a logistic regression model has been found to prove high credibility in terms of analytical results. This constitutes a major setback for many of these papers. While most of the existing literature has identified insecure electricity as a major setback for SMEs growth, the alternative option which is costs minimizing and reliable in supplying the needed power for the successful operations of best has been largely neglected and undermined in the literature. Given the foregoing, this study considers most of the issues raised and

controls for the weaknesses noted. For instance, for robustness, we consider mixed methods in order to treat every inquiry with the best technique, and equally, the choice of Lagos State becomes expedient as the state accounts for the largest number of commercial activities in Nigeria.
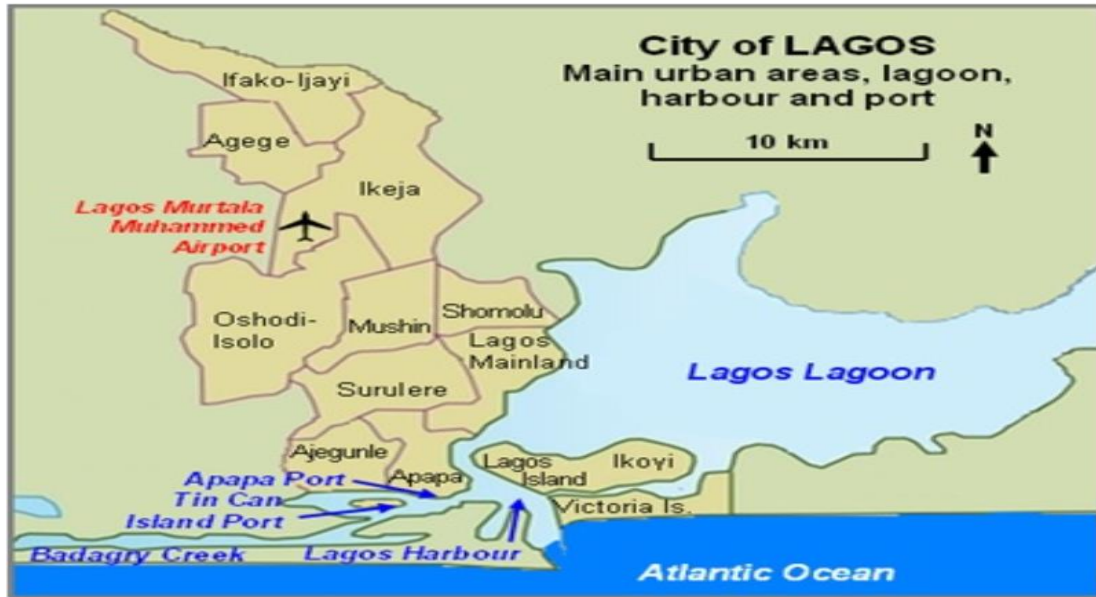
The Study Area
Lagos sometimes referred to as Lagos State to distinguish it from Lagos Metropolitan Area is a state located in the southwestern geopolitical zone of Nigeria. Lagos State is arguably the most economically important state of the country (Ekundayo, 2013). Its territorial divisions in terms of local government areas and local development areas are estimated at 57 (LGAs and LCDAs). However, the thrust of this paperis based on the metropolitan region of the state of which; Surulere, Lagos Island, Oshodi-Isolo, and Ikeja are sampled. Surulere is a residential and commercial Local Government Area located on the mainland of Lagos in Lagos State, Nigeria, with an area of 23 km². At the last census in the year 2006, there were 503,975 inhabitants, with a population density of 21,864 inhabitants per square kilometer. It is home to the Lagos National Stadium (capacity 60,000) built-in 1972 for the All-Africa Games. The stadium has been allowed to become increasingly dilapidated since 2002 (Guardian Newspapers, 2006). However, in preparation for the 2009 Under 17 FIFA World Cup, the facilities were improved and the event kicked off successfully in October 2009 (Nwoke, 2009; Okeleji, 2009). Lagos Island is the principal and central-local government area in Lagos Metropolitan Area in Lagos State. It is part of the Lagos Division. As of the preliminary 2006 Nigerian census, the LGA had a population of 209,437 in an area of 8.7 km². The LGA only covers the western half of Lagos Island; the eastern half is under the jurisdiction of the LGA of Eti-Osa.

Oshodi-Isolo is a Local Government Area (LGA) within Lagos State. It was created by the second republic Governor of Lagos State, Alhaji Lateef Kayode Jakande, and the first Executive Chairman of the Local Government was late Sir Isaac Ademolu Banjoko. The LGA is part of the Ikeja Division of Lagos State, Nigeria. At the 2006 Census, it had a population of 621,509 people and an area of 45 square kilometers. The area includes two constituencies of the National House of Representatives. The geographical boundaries within these regions are known for massive commercial activities.

Ikeja is the state capital of Lagos State. Before the emergence of military rule in the early 1980s, Ikeja was a well-planned, clean and quiet residential and

commercial town with shopping malls, pharmacies, and government reservation areas. It has an estimated population size of 313,196 as at the last census conducted in 2006.

Figure 1: Map Showing the Study Area
Source: Rexparrym Sydney, 2015

Methodology
Survey Method and Sampling Strategy
The survey method was adopted in this study with the population comprising of all the small and medium scale enterprises in Lagos State, Nigeria. However, for precision, samples were drawn from SMEs operators in manufacturing, commerce, industry, and services in the selected metropolitan area of Lagos State like Surulere, Lagos Island, Oshodi-Isolo, and Ikeja. The method for collecting empirical data for the statistical analysis was an interview. 500 structured interview questionnaires were purposefully administered to respondents selected from the list of registered businesses in the state with 2020 as the reference year.

The research instrument adopted for collecting data in this study is the small enterprise structured questionnaire (SESQ). The questionnaire consists of five

aspects of SMEs. Section 1seeks information on demographic data of SMEs operators(age, gender, educational attainment, marital status, years of service), section 2 focuses on information relating to the business (sector, type, size, legal status, ownership, management, years of existence, etc.), section 3 is based on the statement of items on the nexus between SMEs and electricity supply (electricity usage, source of electricity supply, self-generation, outages, etc.), section 4 captures sources of revenue (governments grants, bank loans, personal savings, etc.) and section 5 focuses on the impacts of renewable energy on the business (power availability, costs, profitability and return on investments). The response of the research instrument was rated on an ordinal scale while the Yes/No responses were rated on a 0–1 nominal scale.

The feedback questionnaires constitute 66.67% of the total administered instruments of 750. Subsequently, the study was able to proceed further with analysis giving that the number of completed questionnaires from the respondents was statistically large (>N30).

Estimation Techniques and Model Specification
The study employs a qualitative approach in its estimation methods. First, frequency counts and percentages were used to analyze the demographic data of the employees through the descriptive analysis, and second, the stated hypotheses were tested using the Logistic Regression Model (LRM). The logit model was employed to analyze the probability of an event's occurrence that a particular factor influences another on a dichotomous variable. The benefit in using this model lies in the fact that it does not presuppose any strict adherence to the assumptions of normality, linearity, equal variance, and covariance of error terms as prominent in the quantitative analysis. Hence, the logistic relies heavily on the assumptions about the features of the choice probabilities, tagged the independence from irrelevant alternatives (IIA) property. According to this property, for any two alternatives i and k, the ratio of the logistic probabilities do not hinge on any alternatives other than i and k.

Drawing from Thomson (2015), the model is specified as thus;
Let $p(X)$denote the probability that Y equals one when independent variables assume the values of X then

$$p(X) = p(Y = 1) \qquad\qquad (1)$$

And

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$$1 - p(X) = p(Y = 0) \qquad (2)$$

The odds ratio is defined as

$p(X)/1 - p(X)$ and the log odds ratio is given as $R = \ln\{p(X)/[1 - p(X)]\}$. As noted above, the logistic model assumes log-odds which can be expressed as a linear combination of values of independent variables;

$X = (X_1, X_2, ... X_k)$ that is, R= $\sum_l^k X_i \beta_i = X\beta$, where k is the number of independent variables such as renewable energy power, electricity costs, source and usage, and b the regression coefficients. The parameters which denote the contribution of the ith independent variable of the logarithm odds ratio will be estimated. In determining the probability of the levels of each independent variable and its impact on the returns on investments and profitability of the SMEs, let $A = (a_1, a_2, ...a_p$ be the vector corresponding to the respondents. Substituting $X = A$ in equation 3 gives $A = \exp(A)/[1 + \exp(A)]$

Results and Discussion
Descriptive Statistics
To gain a better insight into the characteristics of SMEs, features relating to personnel quality in businesses are examined. First, the sex distribution of SMEs' managers was undertaken and analysis of the survey reveals that more men are managing the operations of enterprises than do women. This supports the disparity in labor participation rates between men and women as prevalent in Africa where most women are traditionally meant to serve their family and rely on streams of income from their husbands. In all, 79.6% of the SMEs are managed by men while 20.4% are under the tutelage of women as exhibited in figure 1. This result is further supported by the recently available data which puts the percentage of firms with female participation in ownership at 36% for Africa and 16% for Nigeria (World Development Indicators, 2016). A similar study conducted by Akpan et al (2013) also adjudges that more men own businesses than women in Nigeria as evident in the Niger Delta.

Fig. 1: Distribution of SMEs Managers by Sex

20.4

79.6

- Male
- Female
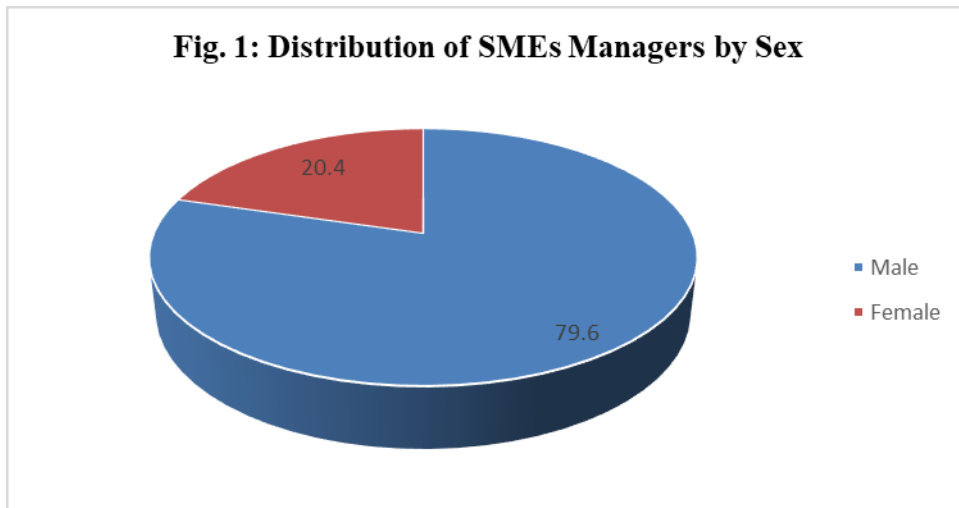
Source: Survey data, 2020

In terms of years of existence proxy by owners' years of experience, analysis of survey data from the fieldwork reveal that 56.4% of firm owners have been in operation for 9 years and above. This is indicative of the fact that SMEs in Nigeria have gained more prominence in the economy for decades. This assertion is traceable to various economic program policies on small and medium scale businesses which emanated as part of implementation for the 1986 Structural Adjustment Program (SAP).
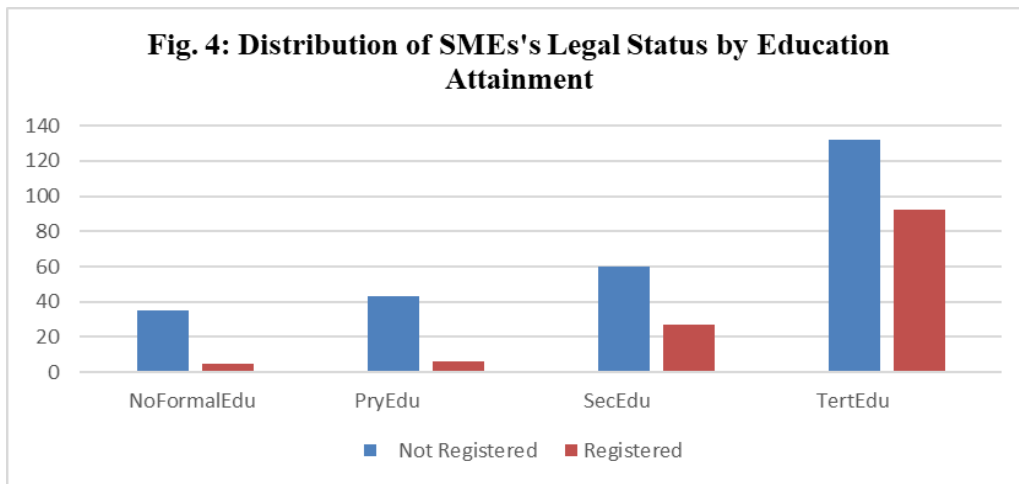
Fig. 2: Distribution of SMEs Managers by Years of Experience

56.4

13.6

14.2

15.8

0 & 2   3 & 5   6 & 8   9 & ABOVE
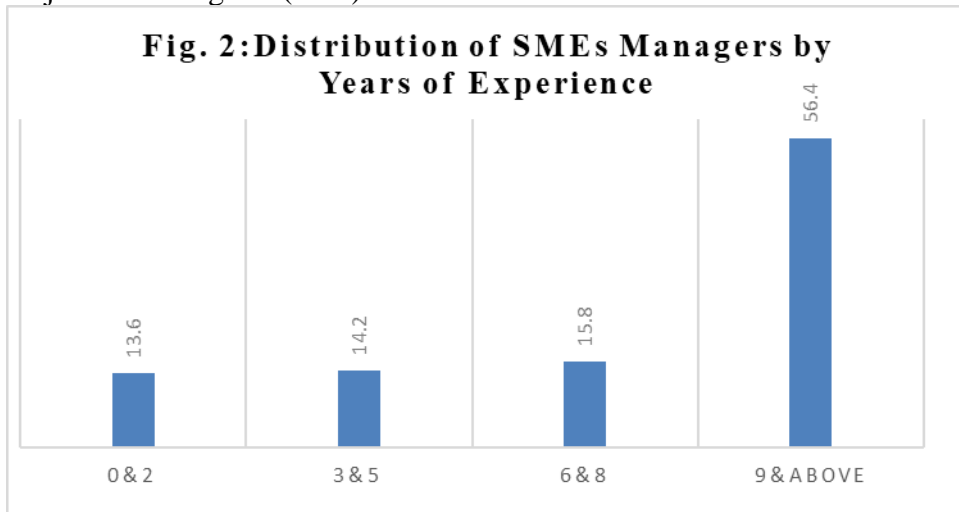
Source: Survey data, 2020

On educational qualification, figure 3 depicts that for all groups of businesses except the artisan, persons with tertiary education are more in the ownership of SMEs than their counterparts with lesser education attainment. This brings to mind, the relative importance of education in the unlocking of private initiatives to new opportunities and capacity building for the administrative task involved in managing SMEs. Another imperative feedback from the survey is the fact that, in recent times, the graduates of higher institutions are massively buying into the idea of farming and other agriculture activities. The key factors that can be attributed to this may include; the national agenda on value orientation to shift from oil dependence (mono-economy) to other sectors through diversification of national resources; the NYSC-agro collaboration scheme which aims at empowering serving youth corps members on salient practices in the agriculture sectors to develop the industry; and the ongoing N-power scheme by the Federal Government of Nigeria which aims at employing and empowering thousands of Nigerian youth in the agriculture industry. Figure 4, shows that most small and medium businesses are not registered with the Corporate Affairs Commission to be awarded the legal status to operate as an entity that can sue and be sued. Similarly, education level seems to play a key role in the registration process as more businesses owned and managed by persons with high qualifications are registered than others.
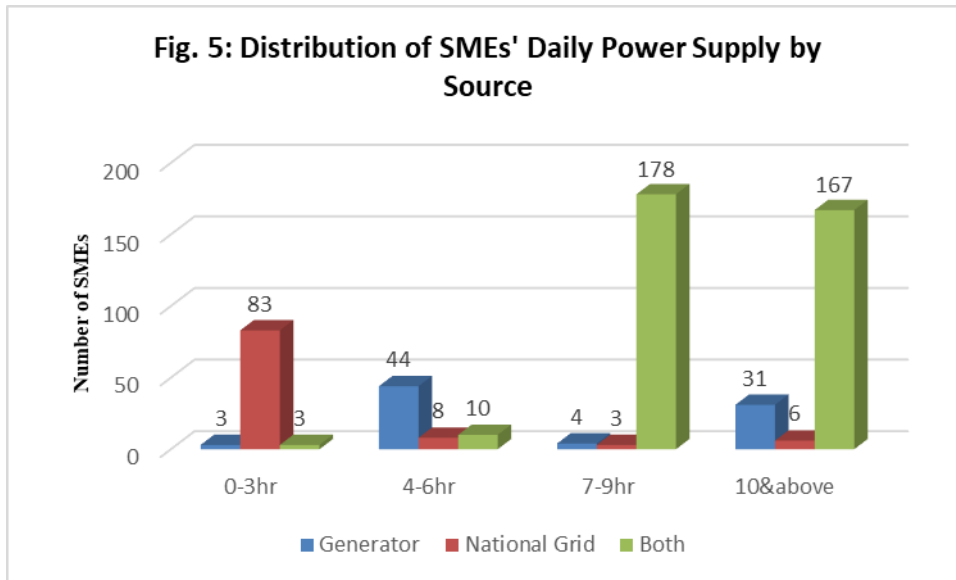

Fig.3: Distribution of SMEs's Business Type by Education Attainment
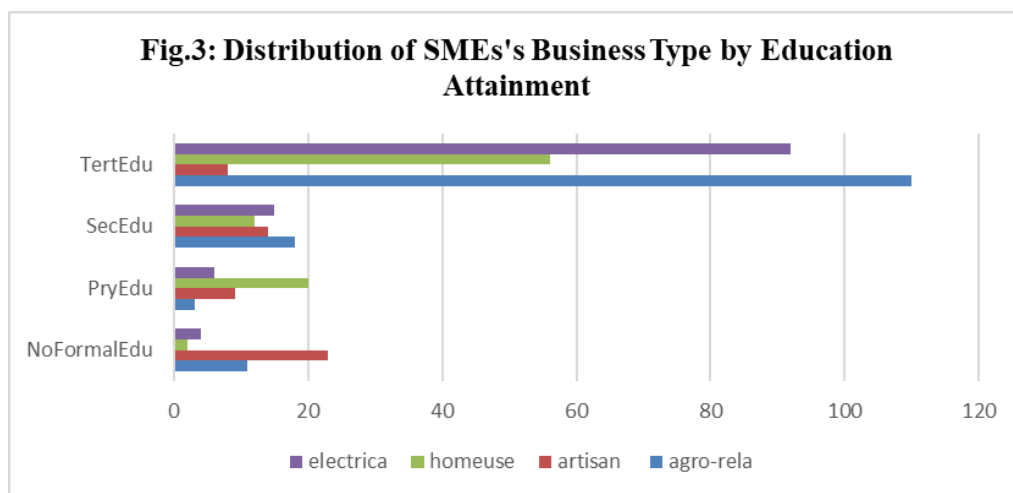
Source: *Survey data, 2020*

To assess the daily usage of electricity in running daily business activities, in figure 5, we examine the power supply from three different sources; self-generating set, national grid, and a combination of both. By and large, 83 businesses that rely only on the national grid use electricity between 0-3 hours; 8 firms use between 4 & 6 hours, and 6 uses between 10hours and above. Firms that rely solely on generating rate have 3 of them using between 0&3hours daily, 44 uses between 4&7 hours, and 31 uses 10hours and above. The power supply increased with a combination of both sources for about 178 and 167 firms having access to electricity use for 7-9hrs and 10 hours and above respectively.


Fig. 4: Distribution of SMEs's Legal Status by Education Attainment

Source: *Survey data, 2020*

Fig. 5: Distribution of SMEs' Daily Power Supply by Source

Source: Survey data, 2020

Figure 6 indicates that, among other things, bank loans constitute the highest source of income for firms with Agro related and electrical types of businesses taking the lead. More importantly, going by the schema in figure 6, the larger percentage of government grants go to the agriculture industry as a way of encouraging investments in that sector.

Fig. 6: Distribution of SMEs' by Source of Fund and Business Type
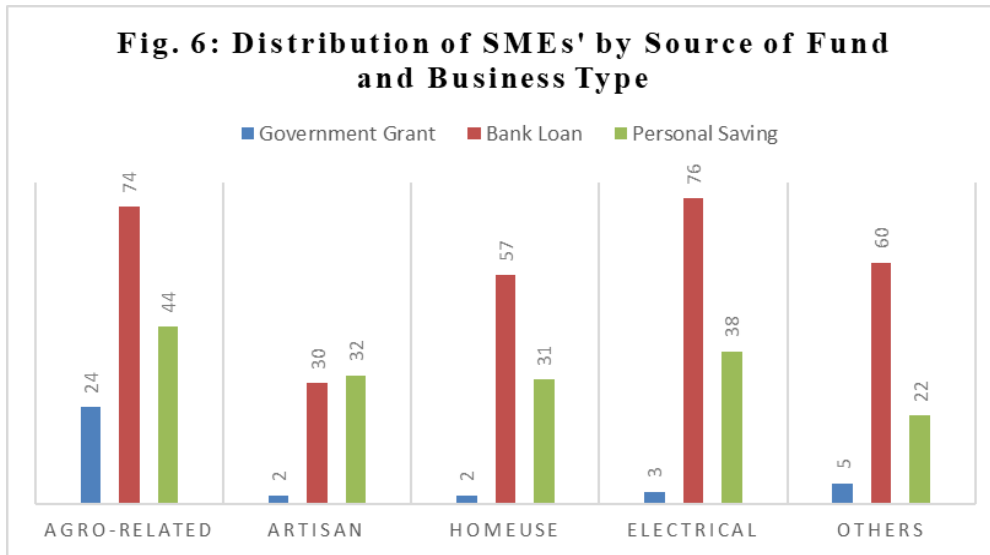
Source: Survey data, 2020

Empirical Results

Table 1: Nexuses among Renewable Energy, Energy Deficiency, and SMEs' ROA

Logistic regression			Number of obs =	500
		LR chi2(4) =	47.67	
		Prob > chi2 =	0.0000	
Log likelihood = -285.71408			Pseudo R2 =	0.0770
ptr	**Odd Ratios**	**Std. Err.**	**Z**	**P=1/1-e^-xb**
respower .	.010	.024***	4.43	0.00
electricost	-.078	.018***	-4.69	0.00
electriout	.023	.116	0.20	0.84
electriuse	.009	.047	0.19	0.85
_cons	-1.71	.615	-2.77	0.01

Note: ***, ** & * indicate level of significance at 1%, 5 % and 10% levels of significance. Null hypothesis: There is no significant relationship among the interacting variables. ROA implies Return on Assets.
Source: Survey data, 2020

One of the key research objectives for this study is to understand the impacts of energy deficiency on SMEs performance in the Nigerian economy under currently erratic electricity insecurity that has overshadowed the prospective growth of many sectors of the country's economy. For this reason, after conducting the survey, it became explicit how damaging and dangerous the energy crisis is to the growth and performance of SMEs in Lagos state metropolitan areas.

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In the analysis as presented in table 1, the likelihood ratio chi-square of 47.67 with a p-value of 0.0000 implies that the model as a whole is statistically significant, that is, it fits significantly better than a model with no predictors. In addition, the power supply from Renewable Energy Supply (RES) is positive and statistically significant at a 1% level of the standard error value of 0.024. This by implication implies that a unit increase in one standard error term will result in a 24% increase in SMEs return on the asset which serves as a key performance indicator of the enterprise's growth and strength of market competitiveness. Contrarily, energy deficient as embedded in non-renewable energy (electricity) impedes the performance of SMEs. This is evident from the negative and statistical significance impacts of electricity costs. Hence, a one standard error increase in the cost of electricity will result in an 18% decrease in SMEs returns on the asset.

Table 2: Nexuses among Renewable Energy, Energy Deficiency, and SMEs' ROI

Logistic regression			Number of obs =	500
		LR chi2(7) =	29.43	
		Prob > chi2 =	0.0001	
Log likelihood = -321.38019			Pseudo R2 =	0.0438
roi	**Odd Ratios**	**Std. Err.**	**z**	**P=1/1-e^-xb**
respower	.035	.020	1.73	0.084
Costonele	-.113	.046	-2.46	0.014
costoffelec	.0801	.052	1.53	0.127
Electricost	-.765	.184	-4.15	0.000
Electriout	-.132	.134	-0.98	0.325
Electrisour	-.175	.198	-0.88	0.376
electriuse	.112	.056	2.00	0.045
_cons	2.350	1.414	1.66	0.097

Note: ***, ** & * indicate level of significance at 1%, 5 % and 10% levels of significance. Null hypothesis: There is no significant relationship among the interacting variables. ROI implies Return on Investments.
***Source:** Survey data, 2020*

In the output from table 2, the likelihood ratio chi-square of 29.43 with a p-value of 0.0001 implies the model as a whole is statistically significant. That is, it fits significantly better than a model with no predictors. In addition, the probability values of the predictors on energy deficiency such as; the cost of running a business on (costonele), and off (costoffelec) the national grid both exert negative and statistically significant influence on SMEs returns on investments. The negative impacts in the case of the off-grid are understandable as enterprises will

have to incur additional costs on running another source of the power supply when it is not supplied by the service provider (PHCN)[3]. However, in the case of on-the-grid when the power is supplied, most often the charges are usually very exorbitant and form part of the extra cost of running a business. Asides, the high bill, some enterprises engage in unofficial dealings with some staff of the PHCN where supply will be given in full voltage and long hours based on a certain amount which is not usually officially reported. Additionally, fluctuations in the power supplied are another impediment to SMEs' operation oftentimes. Other components of energy deficiency like; the cost of electricity supply (electricost), electricity outage (electricout), and source of electricity supply (electrisour) exert negative statistically insignificant impacts on SMEs performance. The positive and significant value of renewable energy on returns on investments (ROI) further corroborates its inevitable and inestimable impacts on the successful management of SMEs across the country. Empirical findings such as Wang (2002); Arnold et al. (2008); Cissokho, (2013); and Friendrick (2014) attest to the negative impacts of energy deficiency (in its varying forms) on the performance of SMEs while the findings of Kooijman-van Dijk (2008) is one of such studies that support the positive influence of modern or alternative energy source.

Conclusion
This paper has analyzed the roles of renewable energy in salvaging the incidence of energy deficiency embattling SMEs in Nigeria with particular reference to the metropolitan areas of Lagos State. Lagos is the commercial headquarters of Nigeria where all tribes and ethnic groups are represented. The findings of this study can, therefore, be generalized to Nigeria in terms of SMEs. The analysis reveals a number of striking results on factors impeding the performance of SMEs with traits peculiar to developing countries like Nigeria. The issue of gender inequality in the labor force as evident from the survey data in Lagos State is a general phenomenon peculiar to developing regions like Africa. Based on the findings, renewable energy is critical to enhancement of returns of firms in Lagos and by extension, Nigeria. This is because it positively correlates with SMEs performance in terms of Return on Assets (ROA) and Return on Investment (ROI). While we advise the government to take up practical and urgent steps in dealing with energy deficiency in Nigeria across the States or regions, renewable energy is an alternative energy source that must be massively explored in the country as this would further salvage the energy sector both in the short and long run. Therefore,

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[3]PHCN implies Power Holding Company of Nigeria.

an incentive-based policy on adopting renewable energy is seen as paramount for SMEs to thrive in Nigeria and favorably compete globally.

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