

Business Type and Location of Small Scale Enterprises as Determinant of Alternative Source of Electrical Energy in Lagos State

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Abstract— The study was carried out on the business type and location of small scale as determinant of alternative source of electrical energy in Lagos State. Two (2) research questions were formulated for the study. A four- Likert scale structured questionnaire which was administered to collect the data. The data collected were analyzed using mean, standard deviation and paired sample *t*- test. The sample of the study comprises of fifty (50) small scale business operator within Yaba local council developemtal area (LCDA). The reliability of the instrument was carried out using Cronbach's Alpha whose value was 0.709. The findings of this study showed that there is significance relationship between the business type and the usage of generator as alternative source of electrical energy by the small scale business enterprises in Lagos State. There is significance relationship in the business location and the usage of generator as alternative source of electrical energy by the small scale business enterprises in Lagos State. Therefore, it was recommended that The government should make conscious effort for electrical energy to be more available for usage by all; loan facilities to be given to the operators of small scale businesses in order to help them to stand against the problems of erratic electrical power supply and purchase of generator for their businesses; electrical energy must be made available to every location which in turn enhances all the location of the small scale businesses while generator set may be purchased as back- up in case of outage.

Keywords— Business, small scale industry, electrical energy.

I. BACKGROUND OF THE STUDY

A business whether small or big, simple or complex, private or public, etc is created to provide competitive prices. Business in Nigeria has been classified as small, medium and large. However, a small scale industry can be explained by the criteria of project costs, capital, and number of employees, sales volume, annual business turnover and the financial strength (Ayozie, Jacob, Umukoro and Ayozie, 2013). Small scale industry orientation is part and parcel of Nigeria. Evidence abound in our respective communities of what successes our great grandparents made of their respective trading concerns, yam barns, iron smelting, farming, cottage industries and the likes. In Nigeria, the Third National Development plan defined a small scale business as a manufacturing establishment employing less than ten people, or whose investment in machinery and equipment does not exceed six hundred thousand naira (Ayozie, Jacob, Umukoro and Ayozie, 2013). And its efficiency depends on the availability of the electrical power which enhances its progress in Nigeria.

Electrical power is an important component for the development of any economy and hence for prosperity. Besides capital and labour, it is regarded as a third important production factor in economic models Nkalo and Agwu (2018) citing Awosope, (1985). More than eight years after the new investors took over the assets of the Power Holding Company of Nigeria (PHCN), most electricity consumers begin to testify that power supply in Nigeria has improved slightly. This is an indication that stable power supply is achievable in Nigeria. According to World Bank report (Charles, 2017), in 2015, about 75 million Nigerians lacked access to adequate electricity and Nigeria was ranked highest amongst the countries with electricity access deficit when energy access, efficiency and renewable are on the rise in many developing nations. Much of the electricity distribution network at 2010 -2016 was poorly maintained and the supply in a lot of areas was often described as epileptic in nature, characterized by extreme voltage variations, load discharges, frequent and long outages and reliance by small scale businesses, industries and affluent individuals on off-grid generation (Kuale and Jacob, 2017). The poor state of power supply in Nigeria was widely viewed as one of the major constraints to the nation's economic growth (Joy, 2017). While Nigeria has an abundant supply of natural resources, including large reserves of oil and gas, it had one of the lowest net electricity generations (Uzor, 2017).

Nigeria loses \$25 billion (N75 trillion at the current exchange rate of N305 per dollar) yearly due to irregular electricity supply (Charles, 2017). Besides, accumulated power sector cash deficits from January 2015 to September 2017 amounted to N931 million (\$2.9 billion) (Kuale and Jacob, 2017). This is the total amount underpaid by all the distribution companies (DISCO's). A report from the Manufacturers Association of Nigeria (MAN) in 2016 show that member companies in the past years (2013 – 2015) spent N20.8 billion, monthly on power generation to run production process (Ikeonu, 2017). The ripple effects of power shortages and constant outages are numerous to the industries. This ranges from cut down in production, job loss to outright closure or relocation to other countries. Companies bear so much loss as outages often occur when goods are in the middle of production. When power is taken unannounced in the process of production, all goods are destroyed. Many MAN members generate power privately and cut off

dependence on the national grid Nkalo and Agwu, (2018) citing Bacon (1995).

Erratic power supply and prolonged power outages experienced in the nation has grossly encouraged a significant percentage of residential and other non-residential electricity consumers to seek alternative sources of power supply (Iwayemi, 2008b; Odularu, and Okonkwo, 2009). In the event of power outages, private generating plants aid continuation of important electrical appliances where halting will severely affect activities (Azodo and Adejuyigbe, 2013). A large number of households and small scale enterprises especially those residing in urban areas, though the figure are uncertain; rely on generators for their electricity needs. Estimated figures from the Global Business Intelligence in 2011 revealed that Nigerians spent about four hundred and fifty five million dollars on generators (Oketola, 2014).

Access to electrical energy has been identified as the “missing development goal,” and its importance in facilitating economic development, reducing poverty, broadening the reach of education and improving health has been well explored (Ulsrud, Winther, Palit, and Rohrer, 2015). To meet the anticipated future demand and ensure universal access, it is necessary to consider what drives electricity consumption, any observable spatial or regional consumption patterns as well as the barriers to electricity access, for which small scale enterprises and residential energy use data is particularly critical. For many developing countries across Asia and Sub-Saharan Africa however, the availability of disaggregated data is often limited due to the underdeveloped nature of electricity supply systems, as reflected in inadequate generation and distribution infrastructure, low number of power plants, access to finance and investment as well as low consumer prices (Urban, Benders and Moll, 2007).

Statement of the Problem

In Nigeria, poor electricity supply is perhaps the greatest problem confronting the business sector including the small scale businesses. The typical Nigerian firm experiences power failure or voltage fluctuations more frequently per week, each lasting for between two to eight hours per day, without the benefit of prior warning. Power outages for about 26 days per month, which lasted eight hours per day experienced in Nigeria is relatively worse than the regional and world average records (Moyo, 2012). This imposes a huge cost on the firms arising from idle workers, spoiled materials, lost output, damaged equipment and restart costs. However, alternative sources of electrical energy has been sought for, in order to sustain productivity which has also increase the running cost of the business. And this is further enhanced by the type of business and the location of the business which determine whether there will be access to the electrical energy. To what extent would the alternative source of electrical energy affect the small scale business type and the location of the business?

Purpose of the Study

1. To determine how the business type affect the usage of generator as alternative source of electrical energy by the small scale business enterprises in Lagos State.

2. To determine how the business location affect the usage of generator as alternative source of electrical energy by the scale business enterprises in Lagos State

Research Questions

1. How does the business type affect the usage of generator as alternative source of electrical energy by the small scale business enterprises in Lagos State?
2. How does the business location affect the usage of generator as alternative source of electrical energy by the scale business enterprises in Lagos State?

Research Hypotheses

1. There is no significance relationship between the business type and the usage of generator as alternative source of electrical energy by the small scale business enterprises in Lagos State.
2. There is no significance relationship in the business location and the usage of generator as alternative source of electrical energy by the small scale business enterprises in Lagos State.

II. METHODOLOGY

The descriptive survey design was adopted for the study. The population for this study comprised of fifty (50) small scale enterprises selected from Federal college of education (Technical) Akoka, Iwaya, Makoko and University of Lagos from Yaba Local Government Area in Lagos state which are purposely chosen. Research instrument used for this study was questionnaire and it was administered personally having four likert rating scale questionnaire with the weightings of the responses as follows: Strongly Agree= 4 points; Agree= 3 points; Disagree= 2 points and strongly Disagree = 1 point. The instrument was validated by three experts in the school of Technical Education. The instrument was reviewed based on their recommendations. And the reliability of the instrument was obtained through croanbach alpha whose coefficient value was 0.709. The data was analysed by using mean, standard deviation and pair sample t test.

III. RESULT PRESENTATION

TABLE 1. Showing the respondents’ business type and the location of the business enterprises of the small scale enterprises

Type of Businesses	Location of the scale Business Enterprises				Total
	FCE(T) AKOKA , YABA	Iwaya	Makoko	UNILAG	
Barbing Salon	1	1	3	3	8
Electronic sellers	0	2	1	0	3
Frozen food sellers	0	2	1	0	3
Carpenter and furniture enterprise	2	2	0	0	4
Hair dressers salon	1	2	1	3	7
Photocopy and Business centers	12	2	0	6	20
Welders	1	2	2	0	5
Total	17	13	8	12	50

From the table 1 above, it was discovered that seventeen (17) respondents were from FCE(T) Akoka with one barbing salon operator, two carpenters, one hair dresser, twelve operators of photocopy and business center and one welder. And from the thirteen (13) respondents from Iwaya there was one barbing salon operator, two electronic sellers, two frozen food sellers, two operators of carpenter and furniture, two hair dressers, two operators of photocopy and business center and two welders. There were eight (8) respondents from Makoko comprising of three barbing salon operators, one electronic seller, one frozen food seller, one hair dresser and two welders. However, twelve (12) respondents were from University of Lagos (UNILAG) comprising of three barbing salon operators, three hair dresser and six photocopy and business center operators.

TABLE 2. Showing the gender classification of the generator usage of the small scale enterprises

S/N	Gender	Generator usage		Total
		Number that use generator	Number that did not use generator	
1.	Male	18	14	32
2.	Female	10	8	18
	Total	28	22	50

From the table 2 above it was discovered that eighteen (18) male respondents used generator for their business while fourteen (14) male respondents were not using generator for their business. And ten (10) female respondents used generator for their business while eight (8) female respondents did not use generator for their small scale enterprises.

TABLE 3. Showing the level of generator usage according to the location

Generator Usage	Location of the Business enterprises				Total
	FCE(T) AKOKA	Iwaya	Makoko	UNILAG	
Uses Generator	16	8	4	0	28
Do not use Generator	1	5	4	12	22
Total	17	13	8	12	50

From the table 3 above it was discovered that seventeen respondents from FCE(T) Akoka out which sixteen (16) used generator for their small scale business enterprises while only one of the respondent did not used generator for their business. And thirteen (13) respondents were from Iwaya out of which eight (8) used generator for their businesses while five (5) did not use generator for their businesses. Additionally, eight (8) respondents were from Makoko out of which four (4) used generator for their business while four did not use generator for their business. Conclusively twelve respondents were from UNILAG that did not use generator for their small scale business.

Research Question one: How does the business type affect the usage of generator as alternative source of electrical energy by the small scale business enterprises in Lagos State?

From the table 4 below at the mean score rating above 2.50, it was discovered that the inconsistent supply of electrical energy has made the small scale enterprises irrespective of their type to depend on generator usage as the only alternative power source. Generator usage is the only

reliable source of electrical energy for the small scale enterprises irrespective of their type to succeed. Small scale enterprises depend on generator usage for expansion and progress. Small scale enterprises irrespective of their type need constant supply of electricity which can be gotten through generator usage. Small scale enterprises irrespective of their type can make more profits despite their usage of generators for their businesses.

TABLE 4. Showing how the business type can be affected by the usage of generator as alternative source of electrical energy by the small scale business enterprises in Lagos State

S/N	Items	Mean	Std. Deviation	Remark
1.	The inconsistent supply of electrical energy has made the small scale enterprises irrespective of their type to depend on generator usage as the only alternative power source	3.74	0.443	Accepted
2.	Generator usage is the only reliable source of electrical energy for the small scale enterprises irrespective of their type to succeed	3.56	0.611	Accepted
3.	Small scale enterprises irrespective of their type depend on generator usage for expansion and progress	3.54	0.706	Accepted
4.	Small scale enterprises irrespective of their type need constant supply of electricity which can be gotten through generator usage	3.72	0.536	Accepted
5.	Small scale enterprises irrespective of their type can make more profits despite their usage of generators for their businesses	3.14	0.948	Accepted

Research Question Two: How does the business location affect the usage of generator as alternative source of electrical energy by the scale business enterprises in Lagos State?

TABLE 5. Showing how the business location can affect the usage of generator as alternative source of electrical energy by the scale business enterprises in Lagos State

S/N	Items	Mean	Std. Deviation	Remark
1.	Business location can go a long way to determine the usage of generator for the smooth running of the small scale business	3.08	0.853	Accepted
2.	Location determines the freedom of operation of the business and usage of generator for the small scale businesses to succeed	3.18	0.873	Accepted
3.	Location determines the progress and profit of the business to affect generator usage	3.42	0.702	Accepted
4.	Location makes the service of the power holding company of Nigeria(PHCN) better than the usage of generator for electrical energy needed by the small scale enterprise	2.10	1.074	Rejected
5.	Location makes the cost of usage of generator to be cheaper than paying bill from PHCN for the small scale enterprises	1.82	0.919	Rejected

From the table 5 above at the mean score rating above 2.50, it was discovered that business location can go a long way to determine the usage of generator for the smooth running of the small scale business. Location determines the freedom of operation of the business and usage of generator for the small scale businesses to succeed. Location determines the progress and profit of the business to affect generator usage.

However, at the mean score rating below 2.50, it was discovered that Location makes the service of the power holding company of Nigeria (PHCN) better than the usage of generator for electrical energy needed by the small scale enterprise. Location makes the cost of usage of generator to be cheaper than paying bill from PHCN for the small scale enterprises.

Test of the Research Hypotheses

Research Hypothesis one: There is no significance relationship between the business type and the usage of generator as alternative source of electrical energy by the small scale business enterprises in Lagos State.

TABLE 6. Showing the paired samples statistics on the relationship on the business type and the generator usage by the small scale enterprises

	Mean	N	Std Deviation	Std Error Mean	Correlation	Sig
Pair 1 Business Type	5.06		3.133	0.443	0.126	0.384
Generator usage	1.44		0.501	0.071		

Table 6 above show that the business type has its mean and standard deviation to be 5.06 and 3.133 respectively; while the generator usage have its mean and the standard deviation given as 1.44 and 0.501 respectively.

From the table 7 below, the t statistic for the relationship between the business type and the generator usage of the small scale enterprises, $t = 8.232$, and $p = 0.000$; that is, a very small probability of this result occurring by chance, under the null hypothesis of no difference. The null hypothesis is rejected, since $p < 0.05$ (in fact $p = 0.000$). The 95% Confidence

TABLE 9. Showing the statistic for the relationship between the location of the business enterprises and generator usage by the small scale enterprises

Pair	Location of business enterprises/ Generator usage	Mean	Std Dev.	Std. Error Mean	Paired Difference		T	dt	Sig.(2-tailed)
					95% Confident interval of the difference	Upper			
2		8.740	4.793	0.678	7.378	10.102	12.894	49	0.000

From the table 9 above, the t statistic for the relationship between the location of the business enterprises and the generator usage of the small scale enterprises, $t = 12.894$, and $p = 0.000$; that is, a very small probability of this result occurring by chance, under the null hypothesis of no difference. The null hypothesis is rejected, since $p < 0.05$ (in fact $p = 0.000$). The 95% Confidence Interval is (7.378; 10.102). This confirms that, although the difference in marks is statistically significant, it is actually relatively small. There

Interval is (2.736; 4.504). This confirms that, although the difference in marks is statistically significant, it is actually relatively small. There is no significance relationship between the business type and the usage of generator as alternative source of electrical energy by the small scale business enterprises in Lagos State was rejected.

TABLE 7. Showing the statistic for the relationship between the business type and generator usage by the small scale enterprises

Pair	Business type/ Generator usage	Mean	Std Dev.	Std. Error Mean	Paired Difference		T	dt	Sig.(2-tailed)
					95% Confident interval of the difference	Upper			
1		3.620	3.109	0.440	2.736	4.504	8.232	49	0.000

Research hypothesis two: There is no significance relationship in the business location and the usage of generator as alternative source of electrical energy by the small scale business enterprises in Lagos State.

TABLE 8. Showing the paired samples statistics on the relationship on the location of the business enterprise and the generator usage by the small scale enterprises

	Mean	N	Std Deviation	Std Error Mean	Correlation	Sig
Pair 2 Location of the Business Enterprises	2.52		1.313	0.186	0.017	0.905
Generator usage	1.44		0.501	0.071		

Table 8 above show that the location of the business enterprises have its mean and standard deviation to be 2.52 and 1.313 respectively; while the generator usage have its mean and the standard deviation given as 1.44 and 0.501 respectively.

is no significance relationship in the business location and the usage of generator as alternative source of electrical energy by the small scale business enterprises in Lagos State was rejected.

IV. DISCUSSION OF THE RESULTS

It was discovered that the inconsistent supply of electrical energy has made the small scale enterprises irrespective of their type to depend on generator usage as the only alternative

power source. Generator usage is the only reliable source of electrical energy for the small scale enterprises irrespective of their type to succeed, which was in agreement with Azodo and Adejuyigbe, (2013). Small scale enterprises irrespective of their type depend on generator usage for expansion and progress. Small scale enterprises irrespective of their type need constant supply of electricity which can be gotten through generator usage. Small scale enterprises irrespective of their type can make more profits despite their usage of generators for their businesses.

Business location can go a long way to determine the usage of generator for the smooth running of the small scale business. Tokede and Okonji, (2013) reported that 82.4 million out of the nation's population of 160 million people lack access to electricity. Location determines the freedom of operation of the business and usage of generator for the small scale businesses to succeed. Location determines the progress and profit of the business to affect generator usage. Location did not make the service of the power holding company of Nigeria (PHCN) better than the usage of generator for electrical energy needed by the small scale enterprise. Location makes the cost of usage of generator to be cheaper than paying bill from PHCN for the small scale enterprises.

Implications

The implication of this study is that the government, its agencies, Manufacturers Association of Nigeria (MAN), power holding company of Nigeria (PHCN), other stakeholders and the small scale business operators are expected to work together in order to promote growth and progress of the small scale businesses in order to enhance development of Nigeria economy. The success and sustainability of the small scale businesses depend on the consistent supply of electrical energy in the nation through the government's effort and the power holding company of Nigeria when consider with the appropriate priority.

Recommendations

Based on the findings of this study, the following recommendations are made:-

- The government should make conscious effort for electrical energy to be more available for usage by all including the small scale business operators and there should be prior information concerning outages in order to help them to be more prepared for such;
- Government can also give loan facilities to the operators of small scale businesses in order to help them to stand against the problems of erratic electrical power supply, which every business operators contend with in Nigeria in securing the needed alternative source of electrical energy, especially purchase of the needed capacity of generator for the business;
- Every location must be treated equally if there is going to be economic development and freedom in Nigeria, so therefore, electrical energy must be made available to

every location which in turn will enhance all the location of the small scale businesses while generator set may be purchased as back- up in case outage.

V. CONCLUSION

Based on the findings of this study, it is concluded that both the business type and the location of the small scale businesses have significant effect on the usage of generator as an alternative source of electrical energy for the progress and sustainability of the small scale businesses in Nigeria.

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