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EFFECT OF EPILEPTIC POWER SUPPLY ON THE INVESTMENTAND PERFORMANCE OF BAKERIES IN ABIA STATE, NIGERIA

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ABSTRACT
The study examined the effects of Nigeria epileptic power supply on the investment and performance of bakeries in Abia State. Survey research design was adopted for the study and a total of 69 respondents were sampled through a well-structured questionnaire. Data were analyzed using both descriptive statistics such as mean, frequency tables and percentages; and inferential statistics such as multiple regression and probit regression analyses. Findings revealed increase in the trend of expenses on electricity generation among bakeries due to epileptic power supply. Epileptic electricity power, frequency of innovations, years of operation, level of education, scale of operation, amount spent on labor as wage, cost of material input, amount of saving and amount of credit obtained influenced the investment behavior of bread operator in the study area. Epileptic electricity power supply, age of the business, training in bread production, number of employees, business experience, cost of material inputs, amount of credit obtained, start-up capital and value of bread lost during production influenced the performance of the bakeries operators in the study area. Cost of petrol, start-up capital, cost of generating sets, national electricity bill, voltage supply of electricity, regular availability of national electricity supply, and revenue from the business were significant factors that influenced the choice of electricity power switch between national electric power supply and auto-generator source for bakeries. Lack of finance, high cost of equipment, high rate of tax payment and inadequate raw materials were factors that limited the investment behavior and performance of bakeries in the study area. The study therefore, recommends that National electric supply should be made to be constant as this will trigger the preference of the bakeries operators to national electric power generation rather than to depend on auto generation of electricity for their business as the smoke from the auto generators pollutes and degrades the environment faster and increases their cost of operations thereby leading to consumers spending more for these product.

Keywords: Nigerian, Epileptic, Power-supply, Investment, Performance, and Bakeries

Introduction

Epileptic power supply occurs as a result poor electrical technical know-how, weak power generation, one or more technical problems, which occur on the electrical network during the process of power generation, transmission and distribution (Adedokun and Osunpidan, 2010). The power sector of Nigeria is marked by its erratic nature, frequent interruption, total blackout, insufficient power supply (Udochukwu and Ogbonnaya, 2014). Power instability has become a problem among bakery enterprise supply chains. The supply chains include the sugar industries, the flour mills and the packaging material producing industries. According to a report of manufacturers association of Nigeria (MAN) survey in 2006, most of the industrial areas around the country suffered an average of 14.5 hours of power outage per day against 9.5 hours of supply, and the cost of production associated with the use of alternative source of power (generator sets) constitute 36% of total cost (Okafor, 2008). The bulk electric power is produced by special plants known as generating stations and individuals' efforts (Mehta and Mehta, 2005 and Sanusi and Bisiriyu, 2007). Adequate power supply impacts the backbone of infrastructural development, wealth creation, job opportunities which bakeries contribute to (Ademole and Afeiwana, 2004). According to Ademole and Afeiwana (2004), the issue of energy supply cuts across all aspects of society as it is used by industrial and domestic sectors. There are apparently links between a sustained economic growth and energy supply in any economy (Nwankwo and Njogo, 2013). Access to energy for investment is a measure of the level of development all over the world (Galadanci, 2010). Records established that many sectors of the economy including industrial and agribusinesses where bakeries belong to use electricity

at a commercial consumption level. However, utilization differs according to plants and sectoral characteristics (Olokooba, Ibrahim, and Abdulraheem-Mustapha, 2010; Azodo, 2014; and Reiss and White, 2002). The performance of modern energy services can impact on enterprise investment to a great extent (Udochukwu and Ogbonnaya, 2014). Poor performance due to poor electricity power is a major challenge facing Nigeria and Africa at large. Though a major driver for human, agribusiness and technological development, electricity-generating capacity in Africa with respect to the population is low **(**World Bank, 2011**;** EDRC, 2002). Nigeria's energy demand has increased much more rapidly than its population (Akarakiri, 1990). Due to the epileptic nature of Nigeria's power supply, the country's level of investment, development/growth is if not static, then slow, especially in the industrial sector (Cheijina, 2012). The bakeries as well fare no better as some factories shut down. The power supply most times is unstable and inaccessible (Nwankwo and Njogo, 2013). For short of steady electricity some enterprises use stand-by diesel powered generators resulting to higher prices of bakery products (Adenikinju, 2008). The problem of unsustainable energy especially electricity in bakeries in Abia State appears to have greatly contributed to high cost of investment and production of bread in Nigeria. This study therefore investigated the effect of epileptic power supply on the investment and performance of bakeries in Abia State, Nigeria.

Methodology

This study adopted a survey research design. This research design method seeks information that measures two or more factors to determine or estimate the extent to which the values for the factors are related or change in an identifiable pattern. The study was carried out in Abia state. The state is located in the South East Geo-Political zone of Nigeria, inhabited mainly by the Igbo people. It lies between Longitude 7^0 $23^{'}$ and 8^0 $02^{''}$ E and Latitude 50 47^0 and 60^0 12N. Current census statistics puts the state at a population of 2,833,000 (NPC, 2006). It covers a land area of 776,720 square kilometers. Abia State is made up of 17 Local Government Areas (L.G.As), which are grouped into three agricultural zones. The agricultural zones are Aba, Ohafia and Umuahia. There are many enterprises in Abia state of which bakeries comprising bread and snacks enterprises are among them. The study focuses on some of the bakeries in Abia state because of its abundance advantages, proximity, and the availability to the consumers. The population of respondents comprises both owners and managers of these enterprises in the state and their employees. A total of 60 bakeries were sampled from the study area. Data collected were analyzed using descriptive statistical and inferential tools. The socioeconomic characteristics of the bakeries and its operators, expenses on epileptic electricity power supply were analyzed using descriptive statistics such as mean, frequency tables and percentage. To analyze the effect of epileptic electricity power supply on the investment behaviour and the performance of bakeries, ordinary least square multiple regression analysis was adopted. Probit regression analysis was used to analyze the factors influencing the choice of electricity power and auto-generator service. Also, the factors militating against the investment behaviour and performance of bakeries in Abia State was analyzed using descriptive statistics such as mean, frequency tables and percentage. The ordinary least square multiple regression model that was used to estimate the effect of epileptic electricity power supply on the investment behaviour of bread and snacks enterprise in Abia State is specified implicitly as:

$$\Delta INVB = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11}, X_{12}, X_{13}, \mathcal{E}) \quad (1)$$

ΔINVB = Change in the amount of capital invested in bread or snacks enterprises (naira)
X_1 = Epileptic electricity power supply (proxy by the amount spent on provision of alternative power supply due to epileptic electricity power supply (naira))
X_2 = Frequency of innovations used (dummy: 1 = frequent; 0 = not frequent)
X_3 = Years of operation
X_4 = Business stage (Early stage of the business =1; otherwise = 0)
X_5 = Level of education (years spent schooling)
X_6 = Scale of operation (1= Small; 0 = Otherwise)
X_7 = Business experience (years)
X_8 = Amount spent on labor as wage (naira)
X_9 = Cost of material inputs (naira)
X_{10} = Amount of saving (naira)
X_{11} = Amount of credit obtained (naira)
X_{12} = Interest payment on loan
X_{13} = Product purchasing rate measured as monthly household product consumption expenditure of the business operator (naira)
$\mathcal{E}$ = Error term.

Four functional forms – linear, exponential, double-log and semi-log; were tried for the choice of the lead model. The choice of the lead model was based on the magnitude of the coefficient of multiple determinations (R^2), the number of significant variables, the signs of the significant variables as they conform to theoretical *a priori* expectations and the value of the f- statistic. The lead equation was used for discussion of the analyses result. The Cobb-Douglass multiple regression model used to estimate the effect of epileptic electricity power supply on the performance behaviour of bakeries in Abia State is specified implicitly as:

$$LnPEF = \beta_0 + \beta_1 lnQ_1 + \beta_2 lnQ_2 + \beta_3 lnQ_3 + \beta_4 lnQ_4 + \beta_5 lnQ_5 + \beta_6 lnQ_6 + \beta_7 lnQ_7 + \beta_8 lnQ_8 + \beta_9 lnQ_9 + \beta_{10} lnQ_{10} + \beta_{11} lnQ_{11} + \beta_{12} lnQ_{12} + \beta_{13} lnQ_{13} + \beta_{14} lnQ_{14} + e \quad (2)$$

PEF = Performance of bakeries proxied by their annual revenue (naira);
Q_1 = Epileptic electricity power supply (proxy by the amount spent on provision of alternative power supply due to epileptic electricity power supply (naira));
Q_2 = Frequency of innovations used;
Q_3 = Age of the business operator (years);
Q_4 = Training in bread production (Dummy variable: Yes =1; No = 0);
Q_5 = Educational status (years spent schooling);
Q_6 = Number of employees;
Q_7 = Business experience (years);
Q_8 = Amount spent on labour as wage (naira);
Q_9 = Cost of material inputs (naira);
Q_{10} = Size of land space for the business (hectare);
Q_{11} = Amount of credit obtained (naira);
Q_{12} = Interest payment on loan (naira);
Q_{13} = Start-up capital (naira);
Q_{14} = Value of bread or snack lost during production (naira);
e = Error terms.
$\beta_0 - \beta_{14}$ = parameters estimated
ln = Natural logarithm

The probit regression model was used to estimate the factors that influence the choice of electricity power between national electricity power and auto-generator source by bakeries. According to Nagler (1994), the probit model assumes that while we only observe the values 0 and 1 for the variable Y, there is a latent, unobserved continuous variable Y* that determines the value of Y.
Where Y_i* can be specified as follows;
Yi = 1 if $Y_i^* > 0$
Yi = 1 if $Y_i^* \leq 0$
To estimate the factors that influences the choice of electricity power between national electricity power and auto-generator source by bread and snack enterprises, the probit regression model is stated as follows:

$$Y^* = \beta_0 + \beta_1 Z_1 + \beta_2 Z_2 + \beta_3 Z_3 + \beta_4 Z_4 + \beta_5 Z_5 + \beta_6 Z_6 + \beta_7 Z_7 + \beta_8 Z_8 + \beta_9 Z_9 + \beta_{10} Z_{10} + \beta_{11} Z_{11} + \varepsilon \quad (3)$$

Where,
Y* = choice of electricity power between national electricity power and auto-generator source by bakeries (1= Preference of national electricity power supply, 0 = Preference of auto-generator power supply)
Z_1 = Cost of petrol (High = 1; Low = 0);
Z_2 = Start-up capital requirement (High = 1; Low = 0);
Z_3 = Cost of generating set (High = 1; Low = 0);
Z_4 = National electricity bill (High = 1; Low = 0);
Z_5 = Voltage supply of electric power from national grid (High = 1; Low = 0);
Z_6 = Noise from auto generator power source, (convenience = 1; inconvenience = 0);
Z_7 = Customers demand for product (High = 1; Low = 0);
Z_8= Regular availability of national electric power supply (Yes = 1; No = 0);
Z_9= Gender of the business operator (Male = 1; Female = 0);
Z_{10}= Revenue from the business (0 = below ₦20,000, 1= ₦21,000-₦50,000, 2 = ₦51,000-₦100,000, 3 = above ₦100,000);
Z_{11}= Duration in business (Long= 1; Short = 0);
ε = Stochastic variable.

Results and Discussion

Effect of epileptic electricity power supply on the investment behaviour among bakers in Abia State

The result of the Ordinary Least Square (OLS) multiple regression estimates of the determinants of the investment behavior among bakery operators due to epileptic electricity power supply are shown in Table 1. From the lead equation (double log function), epileptic electricity power, frequency of innovations, years of operation, level of education, scale of operation, amount spent on labor as wage, cost of material input, amount of saving and amount of credit obtained were the significant determinants of the investment behavior of bakeries in the study area. The regression coefficient of epileptic electricity power was negative and significant to investment behavior on bread at 1%, implying indirect relationship with investment behavior of bread enterprise. Therefore, increase in incidence of epileptic electric supply will lead to decrease in the investment behavior of enterprise in the study. The regression coefficients of frequency of innovation were positive and significant at 10%, implying direct relationship with investment behavior of bread enterprises. The result with respect to frequency of innovation is consistent with *a priori* expectation of those of Idiong (2005), Iheke *et al.* (2013) and Nwachukwu (2006). Therefore, increase in frequency of innovation of bakeries in the study area will lead to increase in investment behavior of bread enterprises. The regression coefficient of years of operation was positive and significant at 10%, implying direct relationship with investment behavior of bread enterprises. The result with respect to years of operation is consistent with *a priori* expectation of those of Iheke *et al.* (2013). Therefore, increase in years of operation of bakeries in the study area will lead to increase in investment behavior amongst these enterprises.
The regression coefficient of level of education of the enterprises managers or owners was positive and significant at 5 percent, implying direct relationship with investment behavior of bread enterprises. Education increases the ability of the individuals to make best decision on viability and profitability of any business venture and to improve the investment level on bakeries. This result is consistent with those of Iheke *et al.* (2013), Idiong (2007), Onu *et al.* (2000), Onyenweaku and Ohajianya (2005), Onyenweaku *et al.* (2004), Iheke, Mejeha, and Nwagbara (2009) whose works centered on efficiency in Nigeria; Ninso (2012),

Chukwu (2013), Ibeagwa, Nnamerewa and Anorue (2012) whose work considered educational status as a determinant and Iheke and Nwaru (2014); Iheke and Ukaegbu (2015) whose works centered on farm productivity in Nigeria. Therefore, efforts that increase investment behavior of bread enterprises should involve policies that strengthen education in the study area. The regression coefficient of scale of operation was positive and significant at 1 percent, implying direct relationship with investment behavior of bread enterprise. The result implies that increase in scale of operation will result to increase in investment behavior of bread by bakeries in the study area. The regression coefficient of amount spent on labour as wage and cost of material inputs were negative and significant at 1 percent respectively, implying indirect relationship with investment behavior of bread enterprises in the study area. Increase in amount spent on labour as wage and cost of material inputs is a disincentive to investment. Both increase the cost of operating a bakery. This result is consistent with *a priori* expectation and with the works of Kalu (2013), Nwaru (2004) and Kadurumba *et al.* (2009). The regression coefficient of amount of credit obtained was positive and significant at 5%, implying direct relationship with investment behavior of bread operators in the study area. This result implies credit obtained from banks and other financial institutions enhances the investment behavior of bread enterprise's level in the study area. The result with respect to amount of credit is consistent with *a priori* expectation and with the works of Simonyan *et al,* (2012), and Nnamerenwa (2012).

Analysis of epileptic power supply and its effect on the performance of bread baking enterprises in Abia state

The weekly and monthly analysis of epileptic power supply and its effect on the performance of Bakeries in Abia state are presented below in figures 1 and 2. The trend of power outage for both bakeries is presented in figures 1 and 2 respectively. There are significant fluctuations in power supply. There are spontaneous rise and fall movement of the power supply per week as well as per month. The power supply is quite erratic. This is in agreement with Fabiyi *et al.* (2016) that affirm that power outage on business can be catastrophic.

Effect of epileptic power supply on the performance of Bakeries in Abia state

The result of the Ordinary Least Square (OLS) multiple regression estimates of the determinants of the performance of bakeries due to epileptic electricity power supply is shown in Table 2. The value of the coefficient of multiple determinations (R^2) was 0.681, implying that about 68.1% of the variations in the performance of bread enterprises of respondents in the study area was explained by the explanatory variables included in the model. Epileptic electricity power supply, age of the business, training in bread production, number of employees, business experience, cost of material inputs, amount of credit obtained, start-up capital and value of bread lost during production were the significant determinants of performance of the bread bakeries in the study area. Epileptic electricity power supply and cost of material input were negative and significant at 1% respectively. This implies that epileptic electricity power and cost of material input negatively influenced the performance of bakeries in the study area. Thus increase in epileptic electricity power and cost of material input will reduce the performance of bakeries in the study area. The regression coefficient of age of the business, training in bread production, number of employees, business experience, amount of credit obtained and start-up capital was positive and significant at 5 percent, implying direct relationship with the performance of bakeries in the study area. The implication of the result is that increase in age of the business, training in bread production, number of employees, business experience, amount of credit obtained and start-up capital will result to increase in performance of bakeries in the study area. The regression coefficient of value of bread lost during production was negative and significant at 5 percent, implying indirect relationship with performance of bakeries. Loss of products during production is a minus to total productivity and hence impacts negatively on the overall performance of the enterprise at the end of every production.

Factors that influence the choice of electricity power between national electric power supply and auto-generator source by bakeries in Abia state

The result of the probit model analysis of determinants of choice of electricity power between national electric power supply and auto-generator source by bakeries is presented in table 3. The result in Table 3 showed a chi square of 1306.26 for bakeries which was significant at 1% showing goodness of fit of the model for the analyses. Cost of petrol, start-up capital, cost of generating sets, national electricity bill, voltage supply of electric power from national grid, regular availability of national electric power supply, gender of the business operator and revenue from the business were the significant factors that influenced the choice of switch of bakeries operators between national electric power supply and auto-generator source. Coefficient of cost of petrol was negative and significant at 10% for the bakeries operators. These show that increase in the cost petrol purchased by the operators would discourage the individuals to shift their choice from national electric power to auto generator services. This will keep the bread operators from incurring many expenses in providing electricity for their day to day operations. The coefficient of start-up capital was positive and significant at 1% level for the enterprise operators, implying that higher start- up capital will cause the bread enterprise operators to go for auto generator that would provide electricity during the off-power period of national electric power authority and this is a strong determinant of choice of

auto generator services. Cost of generating set consumed was negative but significant at 5% for the bakeries in the study. This implies that the higher the cost of generating set consumed by operators the lower their choice for auto generator services and would rather prefer using electricity provided by national electric power authority. Coefficient of National electricity was significant at 10% for the bakeries operators, implying that existence of national security would discourage the shift in choice for auto generator services. Coefficient of voltage supply of electricity was negative but significant, implying a direct choice for auto generator use. This shows that the extent of power voltage supplied to operators would cause them to either choose the national electric power authority or not. Supply of excess voltage would cause the operators to look for an alternative electric supply.The result showed that regular availability of national electricity supply has significant relationship with the choice of electric power by operators of bakeries at 5% level of significance. This implies that regular supply of national electricity to operators will make them have greater choice for national electrical power. Coefficient of revenue from the business was positive and significant to the choice of electric power supply by operators of bakeries at 10% level of significance. This implies that the higher the revenue generated from bakeries, the higher their choice for auto generator services that would provide electricity during the off-power period of national electric power authority.

Factors militating against the investment behaviour and performance of bread bakeries in Abia State

The distribution of respondents based on factors militating against the investment behavior and performance of bread bakeries in the study area is presented in Table 4. The result on factors militating against the investment behavior and performance of bread bakeries as present in table 4.8 showed that 89.9%, 76.8 %, of the respondents identified Lack of finance, High cost of equipment, High rate of tax payment and inadequate raw materials as major factors limiting investment behavior and performance of bakeries operators in the study area. This implies that lack of finance, high cost of equipment, high rate of tax payment and inadequate raw materials constrained the bakeries operators from maximizing the investments opportunities which could have transformed their business into a highly commercialized venture.

Conclusion

It is concluded that the epileptic power situation alongside other factors affected bakeries operators' investment and performance in Abia State Nigeria. The other determinants included age of the business, training in bread production, number of employees, business experience, cost of material inputs, amount of credit obtained, start-up capital and value of bread lost during production influenced the performance of bakeries. Cost of petrol, start-up capital, cost of generating sets, national electricity bill, voltage supply of electric power from national grid, regular availability of national electric power supply, gender of the business operator and revenue from the business influenced the choice of switch of bakeries operators between national electric power supply and auto-generator source. Inadequate finance, high cost of equipment, high rate of tax payment and inadequate raw materials were factors limiting investment behavior and performance of bakeries in the study area**.** It is recommended that stakeholders in power sector should ensure that power instability is reduced to enhance investment performance of bakery operators. Also, the government should put a check on national electric billing system, cost patrol and other raw materials needed by bakery enterprises to reduce high investment cost while boosting performance.

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Table 1: Determinants of investment behaviour among bakeries in the study area

Variable	Linear	Exponential	Double-log+	Semi-log
Constant	10.654	3.323	8.678	45.189
	(2.420)**	(2.890)***	(3.670)***	(2.140)**
Epileptic electricity power supply	-0.711	-0.037	-1.516	-37.597
	(-2.890)***	(-1.940)	(-5.51)***	(-2.410)**
Frequency of innovations	-0.099	0.325	0.257	-6.213
	(-0.090)	(2.200)**	(1.840)*	(-0.420)
Years of operation	-1.659	0.009	0.233	7.168
	(-0.840)	(0.340)	(1.990)*	(0.850)
Business stage	62.495	0.6749	0.617	51.972
	(2.000)*	(3.260)***	(1.330)	(1.910)*
Level of education	30.608	0.182	0.782	41.068
	(2.720)***	(0.450)	(2.010)**	(1.470)
Scale of operation	2.64e-06	4.56e-07	0.433	4.606
	(2.150)**	(3.280)***	(3.700)***	(3.340)***
Business experience	3.700	0.101	1.115	2.624
	(0.400)	(0.850)	(0.007)	(0.240)
Amount spent on labor as wage	480.900	0.238	- 0.147	262.168
	(2.571)**	(3.210)***	(-3.375)***	(2.117)**
Cost of material inputs	-2.183	-0.004	-0.003	26.216
	(-0.204)	(-0.927)	(-6.750)***	(0.212)
Amount of saving	-0.001	-0.101E-06	0.007	172.134
	(-0.537)	(-1.100)	(0.108)	(0.897)
Amount of credit obtained	18.197	0.009	0.277	366.980
	(1.977)*	(2.539)**	(2.409)**	(1.124)
Interest payment	0.061	2.92E-05	0.117	382.171
	(1.768)*	(2.125)**	(1.580)	(2.962)***
Monthly household consumption expenditure	-0.0116	-1.99E-05	-0.049	-143.616
	(-1.089)	(-0.471)	(-1.107)	(-1.147)
R^2	0.661	0.524	0.879	0.582
Adj. R^2	0.643	0.507	0.858	0.567
F-statistic	22.440**	25.110***	35.760***	12.930***

Source: Field survey, 2017. Note: ***, **, and * indicates statistically significant at 1 percent, 5 percent and 10 percent level of significance respectively. + stand for the lead equation

Table 2: Cobb-Douglas estimate of the determinants of performance of bakeries in the study area

Variable	Bakeries
Constant	5.092 (2.210)*
Epileptic electricity power supply	-1.396 (-3.760)***
Frequency of innovations	0.100 (0.190)
Age of the business operator	0.083 (2.100)*
Training in bread production	0.573 (2.620)**
Educational status	0.780 (0.740)
Number of employees	1.206 (2.270)*
Business experience	1.976 (2.420)**
Amount spent on labor as wage	-0.711 (-0.890)
Cost of material inputs	-1.099 (-3.090) ***
Size of land space for the business	-1.659 (-0.840)
Amount of credit obtained	1.495 (2.510)**
Interest payment on loan	0.008 (0.720)
Start-up capital	1.606 (2.450)**
Value of product lost during production	-3.700 (-2.400)**
R^2	0.881
Adj. R^2	-0.863
F-statistic	34.020**

Source: Field survey, 2017. Note: ***, **, and * indicates statistically significant at 1 percent, 5 percent and 10 percent level of significance respectively. + stand for the lead equation

Table 3: Probit model analysis of determinant of choice of electricity power between national electric power supply and auto-generator source

Variable	Bakeries Coefficient	t-values
Constant	1.021	3.843***
Cost of petrol	-0.058	-1.875*
Start-up capital	0.044	3.632***
Cost of generating set	-0.076	-2.104*
National electricity bill	-0.083	-1.824*
Voltage supply of electric power from national grid	-0.009	-2.082*
Noise from auto generator power source	-0.016	-0.091
Customers demand for product	0.023	2.432**
Regular availability of national electric power supply	-1.408	-2.207**
Gender of the business operator	0.709	1.062
Revenue from the business	0.009	1.942*
Duration in business	0.732	1.023
Chi- square	1306.26***	
Df	68	

Source: Field survey, 2017. *, **, *** represents significance at 10%, 5% and 1% level

Table 4: Distribution of respondents based on factors militating against the investment behaviour and performance of bread bakeries

Items Statement	Bakeries operator *Frequency	Percentage
High rate of tax payment	53	76.8
Lack of business ideas	14	20.3
Lack of finance	62	89.9
inadequate raw materials	41	59.4
High cost of equipment	62	89.9
Service water reduction	33	47.8

Source: Field survey 2017. *Multiple responses from operators in enterprise

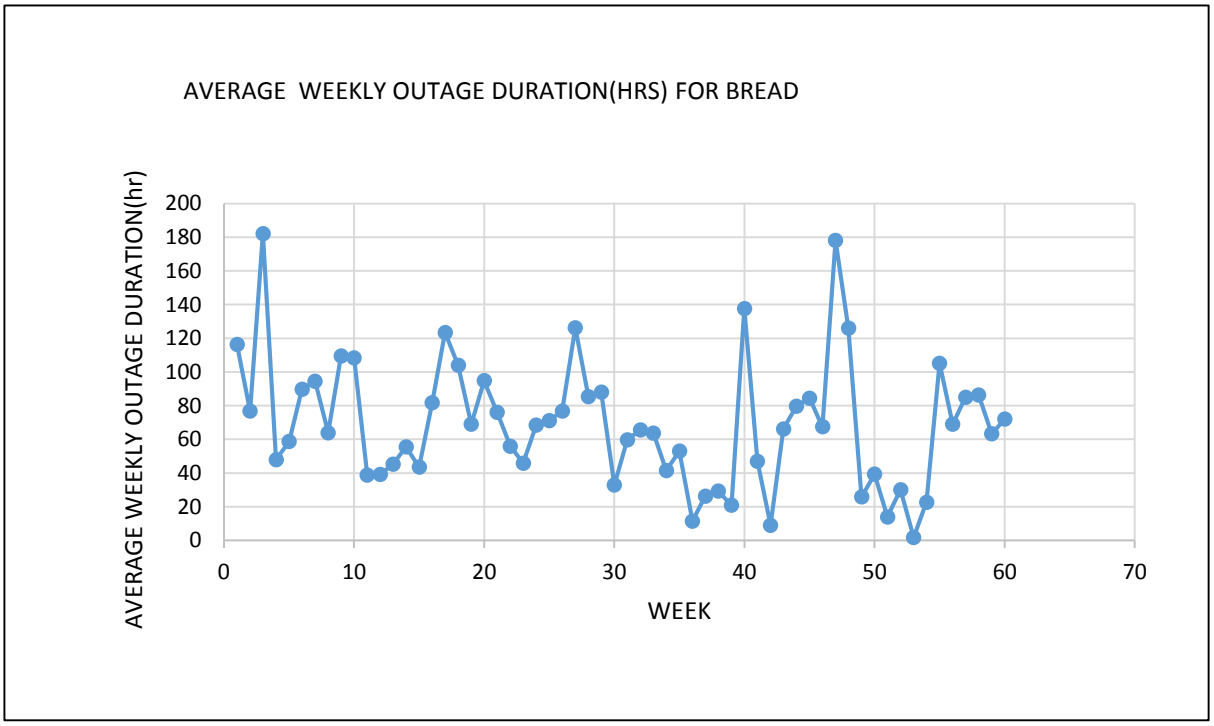

Figure 1: Trend of average weekly power outage duration (hrs) for bakeries

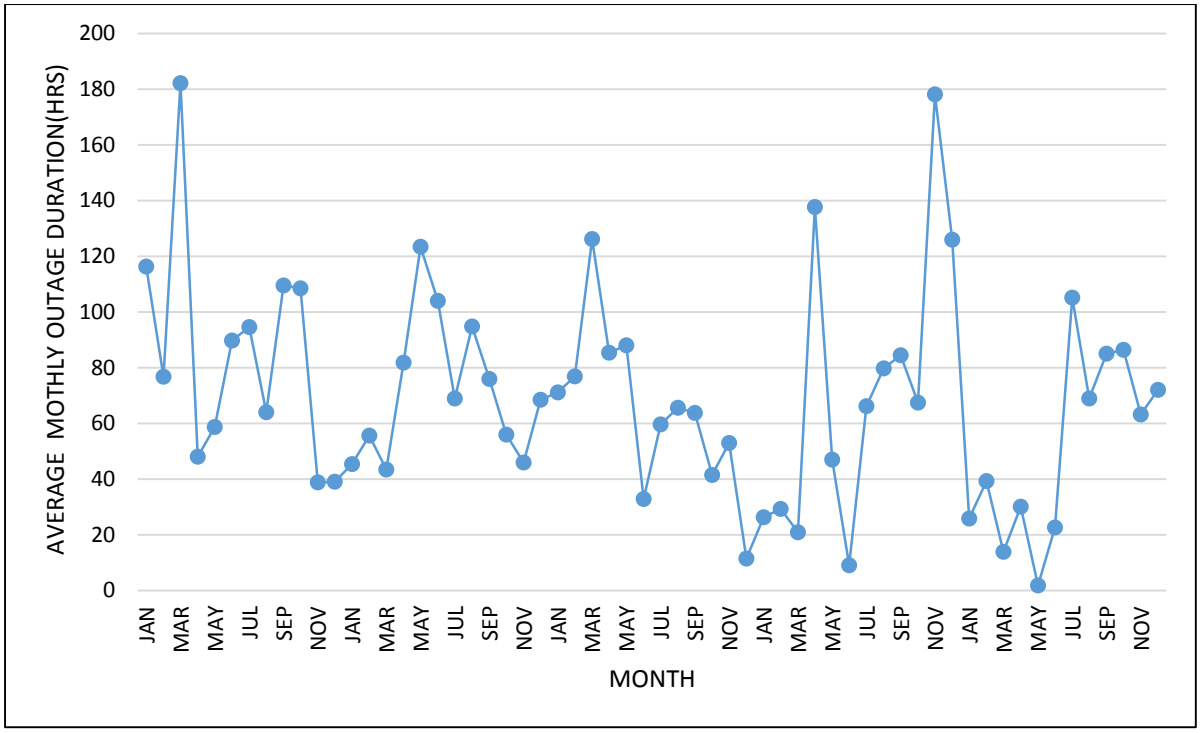

Figure 2: Trend of average monthly power outage duration (hrs) for bakeries