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Effect of Rural Electricity on Entrepreneurship Development in Nigeria: A Mediating Role of Business Performance Among Zobo Producers in Abaji Area Council, Abuja

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Abstract

The study effect of rural electricity on entrepreneurship development in Nigeria: a mediating role of business performance among zobo producers in Abaji area council, Abuja. The population of study is 82 zobo producers in Abaji Area Council and the figure was used as the sample size of the study. The study used survey research design using structural questionnaire administered to the respondents who the producers of zobo in Abaji Area Council of Nigeria. The study used correlation and regression analysis and correlation as statistical tools to analyse the data. The study also found that there is a significant relationship between rural supply of electricity and entrepreneurship skills among zobo producers in Abaji Area Council, Abuja, there is a significant relationship between entrepreneurship skills and performance among zobo producers in Abaji Area Council, Abuja, there is a significant relationship between rural supply of electricity and performance among zobo producers in Abaji Area Council, Abuja, there is a significant relationship between rural supply of electricity and entrepreneurship knowledge among zobo producers in Abaji Area Council, Abuja and there is a significant relationship between entrepreneurship knowledge and performance among zobo producers in Abaji Area Council, Abuja. The study suggested that rural electricity in Abaji Area council of Nigeria should improve upon by the Nigerian government and ensure that there is prompt electricity supply in the Abaji since it enhance performance as well as encouraging producers zobo in Abaji to preserve the zobo in their refrigerator. Zobo producers should continue to apply their entrepreneurial skills and knowledge such as their practical skills, research skills, creative skills, ability to recognize opportunity, ability to creative opportunity and immediately take action to achieve pre-determine goal.

Keywords: Rural Electricity, performance, entrepreneurship Development, Entrepreneurship Skills and entrepreneurship knowledge

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Introduction

Rural electrification encompasses electrification of the district headquarters, townships, villages, and commercial centres in order to ensure that entrepreneurs in the areas are develop in terms of ensuring a high risk, dependency, innovation, and business creativity. The supply of rural electricity can enhance the performance of any organization such as contributing to the performance increase in the organization. The performance measures such as efficiency, employee retention, growth, and survival may be achieved the supply of rural electricity in district headquarters, townships, villages, and commercial centres. The supply of electricity may enhance the development of entrepreneurs in the production of Zobo especially helping them to be innovative like creating and designing adding new packaging and ensuring that Zobo produce by rural dwellers can be preserve with the help of frequent supply of electricity in the rural areas of Nigeria. The performance of Zobo may enhance due to frequently supply of electricity in the rural areas. This because may Zobo producers need supply of electricity to ensure that zobo is preserve and refrigerated in order to prompt customers to patronized the business. The supply of electricity may enhance performance of zobo production in the rural areas which mediated entrepreneurship development in terms of innovation, creativity and risk taking.

Over the years, government of Nigeria under Rural Electricity Agency (REA), has adopted new measures, targeted at delivering power to off grid consumers in different parts of the nation and government have spent money to ensure that the strategy adopted by REA provide needed supply of electricity in Nigeria in order to enhance the development of entrepreneurs in rural areas. Yet, entrepreneurs are not developed and small business like zobo production is not performing creditably despite government effort to ensure that electricity is sufficient in rural areas of Nigeria. From the extant studies, studies conducted such as Peters, Vance and Harsdorff (2010); Daniel (2014); Akpan, Essien and Isihak (2013); Valerian (2015); Dufe (2015) u sing villages, Moshi District, Muranga County in Northern Benin Niger Delta, Nigeria, Tanzania and Kenya and Kenya, with a specific focus on Naivasha Constituency. However, this study fills the research gap by conducting similar study in Nigeria using Abaji Area council in Abuja. The study also used zobo production as entrepreneurship business in rural areas of Nigeria especially the northern region.

Effect of Rural Electricity on Entrepreneurship Development in Nigeria: A Mediating Role of Business Performance Among Zobo Producers in Abaji Area Council, Abuja

The objective of this study is to examine the effect of rural electricity on entrepreneurship development among zobo production in Abaji Area Council of Abuja, FCT. The specific objectives of this study are to: evaluate the effect of rural supply of electricity on innovation as a mediating role of performance among zobo production in Abaji Area Council of Abuja, FCT and examine the effect of rural supply of electricity on creativity as a mediating role of performance among zobo production in Abaji Area Council of Abuja, FCT.

The study is restricted to the effect of rural electricity on entrepreneurship development among zobo producers in Abaji Area Council of Abuja. The period of study covered 17 years 1999 to July, 2018. The period was chosen because it covered a democratic government where government Nigeria debated on how goods to governed the country and provide basic social amenities such as electricity to the rural areas. The period is chosen because government of Nigeria has adopted so many policies in order to improve rural electricity in Nigeria such as adopting privatization, commercialization and public private partnership.

Hypotheses were stated in a null form as follows:

H_{01}: rural supply of electricity does not affect entrepreneurial skills as a mediating role of performance   among zobo producers in Abaji, Abuja

H_{01}: rural supply of electricity does not affect entrepreneurial knowledge as a mediating role of performance   among zobo producers in Abaji, Abuja

Concept of Rural Electricity

Rural electrification can simply be defined as the supply of electricity to the countryside. However, this definition does not clearly delineate the boundaries and intent of the process of rural electrification. In this study, rural electrification is understood as the supply of electricity to small towns and villages, and agro-based industries outside the regional capitals to bring about important social and economic benefits (Kjellstrom et al., 1992; URT, 2004). Rural electricity supply can be achieved by using the national grid, mini-grid, isolated generator systems or renewable energy systems, including solar photovoltaic (PV), wind power plant, small hydropower, and bio-fuel engines, among others. Rural electrification is the provision of electricity to areas of Low demand and highly dispersed potential consumers. Electricity can be

supplied to such areas through small-scale auto generation, local independent grids, or a central regional or national grid(Cecelskiet al. al, 2009).

However, this study conceptualized rural electricity as the supply of electricity in rural areas using different methods such as national grid, mini-grid, isolated generator systems or renewable energy systems, including solar photovoltaic (PV), wind power plant, small hydropower, and bio-fuel engines in order improve an economic activities of the rural areas.

Concept of Entrepreneurship Development

The term entrepreneurial development has been defined in various dimensions (Ndechukwu, 2001; Ameashi, 2006). However referring to the productive transformation of an entrepreneur, a single thread runs through all of them: the ability to identify business opportunities, the ability to be able to harness the necessary resources to use opportunities identified, the ability and willingness to initiate and sustain appropriate actions towards the actualization of business objectives. Entrepreneurship Development refers to the process of enhancing entrepreneurial skills and knowledge through structured training and institution-building programmes (Ameashi, 2006).

The study conceptualized entrepreneurship development as the skills and knowledge learn from activities that lead to profitability. It is the ideas, skills and knowledge added to existing product in that modification or re-modification by packaging, designing, and re-branding the product in different ways and manner.
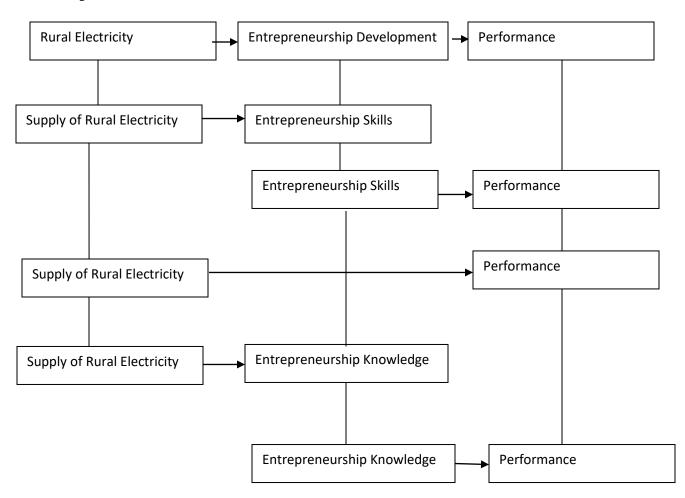
Concept of Performance

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. Effective nonprofits are mission-driven, adaptable, customer-focused, entrepreneurial, outcomes oriented and sustainable. Performance is the accomplishment of a given task measured against preset known standards of accuracy, completeness, cost, and speed. According to Molly (2013), to assess accurately how well a business is performing, one needs to develop some quantifiable measures by identifying those aspects of the business process that need improvement and that are working well. Steer (1975) identified 15 different indicators that

have been used by one or more analysts in the measurement of organizational performance. These include adaptability-flexibility, productivity, satisfaction, profitability, resource acquisition, absence of strain, control over environment, development, efficiency, employee retention, growth, integration, open communication and survival.

The above study conceptualized performance as the efficiency, growth (increase in the number of sale units,) and survival of business organization (ability to stay long in the business). Performance is also view as meeting the objectives of the organization through the process of efficiency, growth and strategically survival through sales in the market.

Conceptual Framework

Source: Researchers Model of Rural Supply of Electricity and Entrepreneurship Development as a mediating role of Performance

The model is conceptualized by Opusunju, Murat and Jiya to explain the cause and effect relationship that existed by rural electricity, entrepreneurship development and performance. The researchers believes that rural electricity enhance entrepreneurship development among zobo producers. The researchers also established that entrepreneurship development contribute to performance of any business in terms of growth, survival and efficiency. this implies that performance is a function of entrepreneurship development in terms of entrepreneurship skills and entrepreneurship knowledge. The model explain that entrepreneurship skills is a function of rural supply of electricity which showed that rural supply of electricity contribute to entrepreneurship skills. The model noted that performance is a function of entrepreneurship skills and that entrepreneurship skills contribute to performance in terms growth, survival and efficiency in any given organization.

The researchers were of the view that performance is a function of rural supply of electricity in the rural areas in any given community. This indicates that rural supply of electricity in terms of cost of electricity, frequent supply of electricity and break down of electricity in the rural areas affect performance of zobo producers or any other types of business. The model also indicates that entrepreneurship knowledge is a function of rural supply of electricity which patriot that rural supply of electricity contribute to entrepreneurship skills in any given country of the world. However, the model also believes that performance is a function of entrepreneurship knowledge. This indicate that entrepreneurship knowledge contribute to performance of any business. This model is not limited to zobo business, it can be apply to other forms of locally manufacture business. The model can also be apply to big businesses or manufacturing companies as well as multinational corporations.

Empirical Studies

Akpan, Essien and Isihak (2013) examined how rural electrification through extension of existing grid has impacted rural micro-enterprises in Niger Delta, Nigeria. The study used purposive sampling and obtained data using structured questionnaires and personal interviews with the owners of the micro-enterprises. From the data, summary information was obtained and the impact of connection to grid-electricity on the micro-enterprises was examined using a log-linear regression model. The result shows that although not statistically significant, on average,

enterprises in communities connected to the electricity grid are 16.2% more profitable than enterprises in communities not connected to the grid, and the use of generating sets in providing back-up electricity makes micro-enterprises more profitable. The study also observed that micro-enterprise owners are fully aware of the importance of electricity access to the profitability of their businesses and those who can afford generating sets willingly do so. Incidentally, the total expenditure on generating sets by some enterprises is up to three times (3x) the tariff for grid-electricity in rural areas.

The above study failed to indicate the population and sample size of the study as well as sample size determination in the study. The study could have indicates the research design but the study could included survey research design since it made used of questionnaire. The study also failed to indicate statistical tools of regression and correlation. The correlation could have been use establish relationship with the variables while regression could have been used to indicate the cause and effect relationship between the variable.

Valerian (2015) assessed the contribution of rural electrification to household income in Moshi District, Tanzania. The study aimed at identifying income generating activities undertaken using grid electricity, assessing the contribution of grid to household income as well as identifying the challenges in utilization of grid electricity services in income generating activities. A multistage sampling technique was used to select a total 120(60 with gridand without grid services respectively) respondents for the study. The study identified among others, iron wedding, compact disc burning and grain milling as income generating activities influenced by presence of grid electricity. The household annual income ranged from 800 000 Tshs to 46 000 000 Tshs and there were statistically significant differences in income between households with grid electricity services and those without. In addition, the study identified reliability of services, high application standards, and higher bill as challenges associated with grid electricity services. The study concludes that grid electricity contributes to increased household income.

The above study is current and indicates the population of the study as well as sample size of the study. However, similar study can be adopted in Nigeria using zobo production in Abaji area

council in Abuja, FCT, Nigeria. The study failed to indentified research design and also the methods of data analysis.

Peters,Vance and Harsdorff (2010) investigates these impacts by comparing the performance of micro manufacturing enterprises in grid-covered and non-covered villages in Northern Benin. Using firm-level data, the empirical analysis employs a Propensity Score Matching. While beneficial impacts are found from firm creation after electrification, firms that existed before actually show a non-significantly inferior performance to their matched counterparts from a non-electrified region. Complementary measures that sensitize firms about the implications of a grid connection are recommended as important features of program design.

The above study did not conducted by applying the basic ingredients of research such as research design, sample size, population of the study, sample size determination methods, methods of data collection, sources of data, methods of data analysis and model specification. The study could have specified statistical tools such as regression and correlation. The regression could have been used to indicate the cause and effect relationship between the dependent and independent variable.

Daniel (2014) assessed rural electrification adoption by microenterprises in Muranga County Kenya. The study was guided by two specific objectives which are; to establish the determinants of rural electrification adoption by Micro and Small enterprises in Murang"a County, Kenya and to determine the effect of adoption of rural electrification on the performance of rural micro and small enterprises in Murang" a County, Kenya. This study adopted two stage least squares incase of violation of endogeneity. The population of this research consists of the650 small and medium enterprises in Murang". The study used primary data. Results revealed that, amount of capital invested, nature of business activity and distance from market significantly influenced the predicted probability of electricity adoption. Results also revealed that electricity adoption was positive and significantly related with business performance. The results also indicated that gender, capital invested and workforce were positively and significantly related to business performance.

The above study indicates the population of the study and the sample size of the study. The study conducted using microenterprises in Muranga County Kenya and similar study can be conducted using Nigeria.

Dufe (2015) examined the factors influencing accessibility of rural electrification in Kenya, with a specific focus on Naivasha Constituency. The study adopted a survey design and focused on the Rural Electrification Authority projects Naivasha. The target population was 2,159, made up of 1,670 households, 430 business community members, 20 churches, 13 public primary schools, 14 public secondary schools and 12 members of the management team of the Rural Electrification Authority. Data was collected from a sample size of 221, representing about 10% of the target population. The data was analysed using thematic and content analysis. The study found that the Rural Electrification Authority has adequate policies to facilitate its performance on the provision of rural electrification but lacks sufficient funding. The study found that monitoring is not conducted on a continuous basis and public participation was found to be lacking. The study also found that demand for electricity has been rising due to people's ability to pay due to improved incomes generated from employment and small business enterprises. The study found that majority of the residents are aware of the alternative power sources available, e.g. solar and biogas which are relatively cheaper to install and more reliable in comparison to grid connection.

The above study was conducted in Kenya, with a specific focus on Naivasha Constituency. However, similar study can be conducted using zobo producers in Abaji Area Council of Nigeria. The study also indicate the study statistical tools as well as research deign which are appropriate in the study. The study indicate the population of the study and the sample size of the study.

Theory of Rural Electricity

Diffusion of Innovation (DOI) Theory, developed by E.M. Rogers in 1962, is one of the oldest social science theories. It originated in communication to explain how, over time, an idea or product gains momentum and diffuses (or spreads) through a specific population or social system. The end result of this diffusion is that people, as part of a social system, adopt a new idea, behavior, or product. Adoption means that a person does something differently than what they had previously (i.e., purchase or use a new product, acquire and perform a new behavior, etc.). The key to adoption is that the person must perceive the idea, behavior, or product as new or innovative. It is through this that diffusion is possible. New information technologies

represent innovations for potential adopters: "an idea, practice, or object that is perceived as new by an individual or other unit of adoption"(Rogers, 1995).

One popular and enduring conceptualization of innovation adoption behavior is Rogers" theory of the diffusion of innovations. Although the overall theory is rich and complex, its essence views the innovation adoption process as one of information gathering and uncertainty reduction. Information about the existence of an innovation, as well as its characteristics and features, flows through the social system within which adopters are situated. Potential adopters engage in information seeking behaviors to learn about the expected consequences of using the innovation. An assessment and evaluation of this information manifests itself in the form of beliefs about the innovation, and is then a proximal antecedent of adoption behavior. The theory also contains predictions regarding the spread of an innovation through a social system, i.e., the diffusion process, which is postulated to follow S-shaped curve. The S-shaped curve of cumulative adopters gives rise to a bell-shaped distribution of adopters. Rogers utilizes this distribution to distinguish between five categories of adopters –ranging from "innovators" to "laggards" – derived from their time of adoption of the innovation. Based on a meta-analysis of findings from a wide range of studies in several innovation domains, he also offers several generalizations regarding early adopters versus the rest related to the socioeconomic status of adopters, personality characteristics, and communication behaviors(Burkhardt et al., 1990).

This theory is relevant to this study as it is related to adoption of electricity by micro enterprises. Adam Smith (1723) defined economics as follows: "Economics is the science of wealth". He was the author of the famous book "Wealth of Nations" (1776). Adam smith was of the view that economics was concerned with the problems arising from wealth-getting and wealth-using activities of people. He was interested mainly in studying the ways by which the wealth of all nations could be increased. The relevance of Adams smith writings was in advocating for large investments of capital and use of large scale machinery in a bid to produce wealth on a large scale.

Research Methodology

The study adopted survey research design. The questionnaire was design in a five point likert scale of strongly agreed, agreed, decided, strongly disagreed and disagreed. The researches carried out a pilot study to certain the population of zobo producers in Abaji Area council. According to survey, there are 82 zobo producers in Abaji area council of Abuja, Nigeria. The

sample size was 82. The study did not use Taro Yamane formula because the population is less than 400.

The sample size was 82 and random sampling technique was used to administered questionnaire to the respondents and the respondents are the producers of zobo in Abaji area council of Abuja. The questionnaire was administered to the respondents across the villages in Abaji Area councils by the researchers (Dr. Jiya and Opusunju (PhD)). The study used regression and simple percentage to ascertain the mean of the values of the variables. The regression was used because the researcher established the cause and effect relationship between the dependent variable and the independent variable. The study used SPSS 25.00 to test for reliability of the instrument and discovered that variables used in the study are reliable at above 0.78. The SPSS statistical software package of 25.00 was also adopted in this study to indicate how a model fit and was used in analyzing the data collected from the respondents. The model of regression was state below:

Model1:

$ES = \alpha + \beta_1 RSE + \mu$ …………………………….. (1)

$PE = \alpha + \beta_1 ES + \mu$ …………………………………. (2)

$PE = \alpha + \beta_1 RSE + \mu$ ………………………………… (3)

Model 2:

$EK = \alpha + \beta_1 RSE + \mu$ …………………………….. (4)

$PE = \alpha + \beta_1 EK + \mu$ ………………………………. (5)

Where

ES= entrepreneurship skills

RSE= rural supply of electricity

PE= performance

EK= entrepreneurship knowledge

α = Intercept, β = coefficient and μ = error term

Data Analysis

Table 1: Entrepreneurship Knowledge

Items	5	4	3	2	1
I have ability to recognize materials needed to produce zobo	31(37.80)	21(25.61)	13(15.85)	11(13.41)	6(7.32)
I frequently create an opportunity by adding additional feature to the product	29(35.37)	20(24.39)	14(17.07)	10(12.20)	9(10.98)
I usually take action that relate to the making of zobo	39(47.56)	21(25.61)	8(9.76)	12(14.63)	2(2.44)

Source: Survey, 2019

The above table indicates the respondent percentage on each question relating to entrepreneurship knowledge. 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.

Table 2: Mean of Entrepreneurship Knowledge

Variables	5	4	3	2	1	FX	N	Mean	Remarks	Ranking	Sectorial mean
ability to recognize	31	21	13	11	6	306	82	3.73	High	2nd	3.83
create opportunity	29	20	14	10	9	296	82	3.61	High	3rd	
Take action	39	21	8	12	2	341	82	4.16	High	1st	

Author's Computation, 2019

The above table indicates that entrepreneurship knowledge among zobo producers in Abaji area council is unique since the sectorial mean is more than average. The implication of this is that sobo producers in Abaji have entrepreneurship knowledge such that they create opportunity, recognize opportunity and take action.

Table 3: Entrepreneurship Skills

The always express my practical skills in making zobo	33(40.24)	25(30.49)	11(13.41)	10(12.20)	3(3.66)
I adopted creative skills in producing zobo	31(37.80)	25(30.49)	12(14.63)	9(10.88)	5(6.10)
I apply additional features in producing zobo through research	37(45.12)	28(34.15)	6(7.32)	6(7.32)	5(6.09)

Source: Survey, 2019

The above table indicates the respondent percentage on each question relating to entrepreneurship skills. 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.

Table 4: Mean of Entrepreneurship Skills

Variables	5	4	3	2	1	FX	N	Mean	Remarks	Ranking	Sectorial mean
Practical skills	37	28	6	6	5	332	82	4.05	High	1st	
Creative skills	33	25	11	10	3	321	82	3.91	High	2nd	3.93
Research skills	31	25	12	9	5	314	82	3.83	High	3rd	

Author's Computation, 2019

The above table indicates that entrepreneurship skills among zobo producers in Abaji area council are unique since the sectorial mean is more than average. The implication of this is that zobo producers in Abaji have entrepreneurship skills such as practical skills, research skills and creative skills.

Table 5: Performance

Items	5	4	3	2	1
My business is growing in terms of having other business places	34(41.46)	32(39.02)	4(4.88)	6(7.32)	6(7.32)
I survive in my business through making adequate sales	44(53.66)	21(25.61)	6(7.32)	9(10.98)	2(2.44)
My business perform efficiently	39(47.56)	20(24.39)	5(6.09)	12(14.63)	6(7.32)

Source: Survey, 2019

The above table indicates the respondent percentage on each question relating to performance. 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.

Table 6: Mean of Performance

Variables	5	4	3	2	1	FX	N	Mean	Remarks	Ranking	Sectorial mean
Growth	34	32	4	6	6	328	82	4.00	High	2nd	
Survival	44	21	6	9	2	330	82	4.02	High	1st	3.97
Efficiency	39	20	5	12	6	320	82	3.90	High	3rd	

Author's Computation, 2019

The above table indicates that performance of zobo producers' in Abaji area council is unique since the sectorial mean is more than average. The implication of this is that zobo producers in Abaji have perform efficiently as well as increasing business by growing and also survive despite Nigerian economy situation.

Table 7: Rural Supply Electricity

Items	5	4	3	2	1
There is no frequent supply of electricity in Abaji Area Council of Abuja, FCT	30(36.58)	21(25.61)	14(50.00)	10(12.19)	7(8.54)
There is low cost of electricity charges by the rural electrification body	27(32.93)	25(30.49)	9(10.98)	10(12.20)	11(13.41)
There is always break down of the supply of electricity in rural areas of Abuja	30(36.58)	26(31.70)	11(13.41)	8(9.76)	7(8.54)

Source: Survey, 2019

The above table indicates the respondent percentage on each question relating to rural supply of electricity. 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.

Table 8: Rural Supply Electricity

Variables	5	4	3	2	1	FX	N	Mean	Remarks	Ranking	Sectorial mean
Frequent electricity	30	21	14	10	7	303	82	3.69	High	3rd	3.68
Low cost	27	25	9	10	11	293	82	3.57	High	2nd	
Breakdown	30	26	11	8	7	310	82	3.78	High	1st	

Author's Computation, 2019

The above table indicates that rural supply of electricity in Abaji area council is unique since the sectorial mean is more than average. The implication of this is that there is no frequent supply of electricity in Area of Abaji, FCT, Abuja-Nigeria.

Table 9: Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ES	82	1.20	4.90	2.8678	.97073
RSE	82	1.20	4.90	2.8542	.98582
PE	82	1.20	4.90	2.8980	.98938
EK	82	1.20	4.90	2.8346	.96759
Valid N (listwise)	82				

SPSS out, 25.00

The descriptive statistics shows that the average scores for ES, RSE, PE and EK are 2.86, 2.85, 2.89 and 2.83 respectively and standard deviation in the respective variables shows that the data set are unique to study.

Table 10: Correlations of the Variables

Correlations

		PE	RSE	ES	EK
PE	Pearson Correlation	1	-.055	-.016	-.013
	Sig. (2-tailed)		.314	.768	.813
	N	338	338	338	338
RSE	Pearson Correlation	-.055	1	-.070	.074
	Sig. (2-tailed)	.314		.199	.175
	N	338	338	338	338
ES	Pearson Correlation	-.016	-.070	1	-.029
	Sig. (2-tailed)	.768	.199		.598
	N	338	338	338	338
EK	Pearson Correlation	-.013	.074	-.029	1
	Sig. (2-tailed)	.813	.175	.598	
	N	338	338	338	338

Source: Researcher's computation using, SPSS 25.00, 2019

Based on the results of the correlation matrix, performance (PE), has a weak positive correlation (0.31) with rural supply of electricity (RSE). Performance (PE) has a strong positive correlation (0.76) with entrepreneurship skills (ES) and Performance (PE) has a strong positive correlation (0.83) with entrepreneurship knowledge (EK). However, rural supply of electricity (RSE) has a very weak positive correlation (0.19) with entrepreneurship skills (ES) and rural supply of electricity (RSE) has a very weak positive correlation (0.17) with entrepreneurship knowledge (EK) while entrepreneurship skills (ES) has a positive correlation (0.53) with entrepreneurship Knowledge (EK). These correlation shows that the variables are appropriately selected and thus, there is no problem of multicollinearity.

Table 11: Regression Result

Model 1:   Rural Supply of Electricity and Entrepreneurship Skills

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.070[a]	.532	.422	.96979

a. Predictors: (Constant), RSE

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.554	1	1.554	121.653	.009[b]
	Residual	316.006	81	.940		
	Total	317.560	82			

a. Dependent Variable: ES

b. Predictors: (Constant), RSE

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.064	.162		18.941	.000
	RSE	.069	.054	.070	1.286	.009

a. Dependent Variable: ES
SPSS, 25.00, 2019

Decision rule: 5%

The analysis indicates that the coefficient for rural supply of electricity is significant in enhancing entrepreneurship skills among zobo producers in Abaji Area Council, Abuja. The p-value and t-statistic value of the independent variable is significant at probability value of 0.000. However, the f-statistic value of 121.53 is significant at p statistic value of 0.00, it indicates that the model is a good fit which provides evidence of existence of linear relationship between rural supply of electricity and entrepreneurship skills among zobo producers in Abaji Area Council, Abuja. The R^2 = 0.53 indicates that only 53% of rural electricity supply embarked upon by zobo producers in Abaji can be explain by entrepreneurship skills but 47% can explained by other factors not noted in the regression model which is refer to as error term. Therefore we accept the alternative hypothesis that there is a significant relationship between rural supply of electricity and entrepreneurship skills among zobo producers in Abaji Area Council, Abuja.

Model 1:   Entrepreneurship Skills and Performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.016[a]	.519	.481	.99072

a. Predictors: (Constant), ES

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.086	1	.086	124.087	.008[b]
	Residual	329.793	81	.982		
	Total	329.879	82			

a. Dependent Variable: PE

b. Predictors: (Constant), ES

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.945	.168		17.499	.000
	ES	.016	.056	.016	.295	.008

a. Dependent Variable: PE

SPSS, 25.00, 2019

Decision rule: 5%

Effect of Rural Electricity on Entrepreneurship Development in Nigeria: A Mediating Role of Business Performance Among Zobo Producers in Abaji Area Council, Abuja

The analysis indicates that the coefficient for entrepreneurship skills is significant in enhancing performance among zobo producers in Abaji Area Council, Abuja. The p-value and t-statistic value of the independent variable is significant at probability value of 0.000. However, the f-statistic value of 124.089 is significant at p statistic value of 0.00, it indicates that the model is a good fit which provides evidence of existence of linear relationship between r entrepreneurship skills and performance among zobo producers in Abaji Area Council, Abuja. The $R^2 = 0.51$ indicates that only 51% of rural electricity supply embarked upon by zobo producers in Abaji can be explain by performance but 49% can explained by other factors not noted in the regression model which is refer to as error term. Therefore we accept the alternative hypothesis that there is a significant relationship between entrepreneurship skills and performance among zobo producers in Abaji Area Council, Abuja.

Model 1:   Rural Supply of Electricity and Performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.055[a]	.330	.320	.98935

a. Predictors: (Constant), RSE

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.996	1	.996	111.017	.004[b]
	Residual	328.883	82	.979		
	Total	329.879	81			

a. Dependent Variable: PE

b. Predictors: (Constant), RSE

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.055	.165		18.511	.000
	RSE	.055	.055	.055	1.009	.004

a. Dependent Variable: PE

SPSS, 25.00, 2019

Decision rule: 5%

The analysis indicates that the coefficient for rural supply of electricity is significant in enhancing performance among zobo producers in Abaji Area Council, Abuja. The p-value and t-statistic value of the independent variable is significant at probability value of 0.000. However, the f-statistic value of 111.017 is significant at p statistic value of 0.00, it indicates that the model is a good fit which provides evidence of existence of linear relationship between rural supply of electricity and performance among zobo producers in Abaji Area Council, Abuja. The $R^2 = 0.33$ indicates that only 33% of rural electricity supply embarked upon by zobo producers in Abaji can be explain by performance but 67% can explained by other factors not noted in the regression model which is refer to as error term. Therefore we accept the alternative hypothesis that there is a significant relationship between rural supply of electricity and performance among zobo producers in Abaji Area Council, Abuja.

Model 2: Rural Supply of Electricity and Entrepreneurship Knowledge

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.074[a]	.581	.453	.96638

a. Predictors: (Constant), RSE

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.723	1	1.723	231.845	.005[b]
	Residual	313.785	336	.934		
	Total	315.508	337			

a. Dependent Variable: EK

b. Predictors: (Constant), RSE

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.628	.161		16.298	.000
	RSE	.073	.053	.074	1.358	.005

a. Dependent Variable: EK

SPSS, 25.00, 2019

Decision rule: 5%

The analysis indicates that the coefficient for rural supply of electricity is significant in enhancing entrepreneurship knowledge among zobo producers in Abaji Area Council, Abuja. The p-value and t-statistic value of the independent variable is significant at probability value of 0.000. However, the f-statistic value of 231.845 is significant at p statistic value of 0.00, it indicates that the model is a good fit which provides evidence of existence of linear relationship between rural supply of electricity and entrepreneurship knowledge among zobo producers in Abaji Area Council, Abuja. The $R^2 = 0.58$ indicates that only 58% of rural electricity supply embarked upon by zobo producers in Abaji can be explain by entrepreneurship knowledge but 42% can explained by other factors not noted in the regression model which is refer to as error term. Therefore we accept the alternative hypothesis that there is a significant relationship between rural supply of electricity and entrepreneurship knowledge among zobo producers in Abaji Area Council, Abuja.

Model 2: Entrepreneurship Knowledge and Performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.013[a]	.651	.572	.99077

a. Predictors: (Constant), EK

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.055	1	.055	321.056	.003[b]
	Residual	329.824	81	.982		
	Total	329.879	82			

a. Dependent Variable: PE

b. Predictors: (Constant), EK

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.935	.167		17.573	.000
	EK	.013	.056	.013	.237	.003

a. Dependent Variable: PE

SPSS, 25.00, 2019

Decision rule: 5%

The analysis indicates that the coefficient for entrepreneurship knowledge is significant in enhancing performance among zobo producers in Abaji Area Council, Abuja. The p-value and t-statistic value of the independent variable is significant at probability value of 0.000. However, the f-statistic value of 321.056 is significant at p statistic value of 0.00, it indicates that the model is a good fit which provides evidence of existence of linear relationship between entrepreneurship knowledge and performance among zobo producers in Abaji Area Council, Abuja. The $R^2 = 0.65$ indicates that only 65% of rural electricity supply embarked upon by zobo producers in Abaji can be explain by entrepreneurship knowledge but 35% can explained by other factors not noted in the regression model which is refer to as error term. Therefore we accept the alternative hypothesis that there is a significant relationship between entrepreneurship knowledge and performance among zobo producers in Abaji Area Council, Abuja.

Discussion of Findings

From the analysis, performance has a weak positive correlation with rural supply of electricity. Performance has a strong positive correlation with entrepreneurship skills and Performance has a strong positive correlation with entrepreneurship knowledge. However, rural supply of electricity has a very weak positive correlation with entrepreneurship skills and rural supply of electricity has a very weak positive correlation with entrepreneurship knowledge while entrepreneurship skills has a positive correlation with entrepreneurship Knowledge. The study also found that there is a significant relationship between rural supply of electricity and entrepreneurship skills among zobo producers in Abaji Area Council, Abuja, there is a significant relationship between entrepreneurship skills and performance among zobo producers in Abaji Area Council, Abuja, there is a significant relationship between rural supply of electricity and performance among zobo producers in Abaji Area Council, Abuja, there is a significant relationship between rural supply of electricity and entrepreneurship knowledge among zobo producers in Abaji Area Council, Abuja and there is a significant relationship between entrepreneurship knowledge and performance among zobo producers in Abaji Area Council, Abuja. The finding is in tandem with the findings of Akpan, Essien and Isihak (2013) who found that there is a significant relationship between variables. The study also is in line with the theory of rural electricity.

Conclusions and Recommendations

The study concluded that performance has a weak positive relationship with rural supply of electricity. Performance has a strong positive relationship with entrepreneurship skills and Performance has a strong positive relationship with entrepreneurship knowledge. However, rural supply of electricity has a very weak positive relationship with entrepreneurship skills and rural supply of electricity has a very weak positive relationship with entrepreneurship knowledge while entrepreneurship skills has a positive relationship with entrepreneurship Knowledge. The study also found that there is a significant relationship between rural supply of electricity and entrepreneurship skills among zobo producers in Abaji Area Council, Abuja, there is a significant relationship between entrepreneurship skills and performance among zobo producers in Abaji Area Council, Abuja, there is a significant relationship between rural supply of electricity and performance among zobo producers in Abaji Area Council, Abuja, there is a significant relationship between rural supply of electricity and entrepreneurship knowledge among zobo producers in Abaji Area Council, Abuja and there is a significant relationship between entrepreneurship knowledge and performance among zobo producers in Abaji Area Council, Abuja.

The study suggested that rural electricity in Abaji Area council of Nigeria should improve upon by the Nigerian government and ensure that there is prompt electricity supply in the Abaji since it enhance performance as well as encouraging producers zobo in Abaji to preserve the zobo in their refrigerator. Zobo producers should continue to apply their entrepreneurial skills and knowledge such as their practical skills, research skills, creative skills, ability to recognize opportunity, ability to creative opportunity and immediately take action to achieve pre-determine goal.

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