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CONSUMER RESPONSE TO ADOPTION AND DEMAND FOR ENERGY SAVING BULBS IN NIGERIA

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Abstract

The power sector of any nation is a critical engine of growth and development. Despite Nigeria's growing population and absence of critical energy infrastructure, consumer demand for inefficient energy has not decreased with severe economic and social consequences. Evidence shows that consumer response to energy savings bulbs such as compact fluorescent lamps (CFLs) is abysmally low. This study considered consumer response to the energy saving bulbs and examined factors that influence the adoption and use of energy-saving lights using a sample of 300 residents of Abia State, Nigeria. Descriptive statistics and logit regression were used to evaluate the acquired data. The findings revealed that the level of awareness is modestand the usage rate isn't promising. Bills and the cost of energy-saving bulbs have a negative and considerable impact on energy bulb uptake and usage in the research area. As a result, the study found that bills and the cost of CFLs had a significant impact on the adoption of energy-saving bulbs in Abia state. To prevent the importation of poor CFL, the study advises policy formulation and severe measures that will forestall importation of inferior CFL.

Keywords: Electricity consumption, Consumer demand, Adoption and usage, Energy saving bulbs, Consumer perception.

INTRODUCTION

Electricity energy has been linked to industrialization (Ugwoke, Dike, & Elekwa, 2016) and economic growth (Alley, Egbetunde, & Oligbi, 2016). This gain of electrification often comes either in direct or indirect form, hence the benefits of industrialization are enormous Economic development, higher income creation, increased productivity, and combatting poverty are all examples of the advantages (Ndiaya & Lv, 2018; Anyanwu & Kalu, 2015). However, in spite of increase in population (Simandan, 2020), and pressure on available electricity infrastructure on industry, most developing countries are not realizing the benefits of industrialization (Nwankwo, & Njogo, 2013; Ugwoke et al. 2016) due partly to absence of critical energy infrastructure and energy behavior of its citizens.

Because of the important role electricity plays in increasing activities and supporting

socio-economic and technological improvements, electricity infrastructure is critical to a country's growth and household social welfare (Sambo, 2008). Unlike the industry, in advancing conversation around energy efficiency, household units or residential areas are often mentioned due to their consumption rate (Dineen & Gallachóir, 2011). Higher rate of electricity consumption is documented to arise from these units (Olusola, Odekoya, & Umeh, 2012). Therefore, investments in this area can pay off, especially when it comes to changing or modifying behavior that encourage more efficient use of energy in residential areas (Adaramola & Oyewola, 2011).

Nigeria is known for having Africa's largest population (Varrella, 2021) and the 7th in the world (United Nations Department of Public Information, 2021), but with the world's largest electricity gap (Nwachukwu, 2021; Azeez, 2021; Jeremiah, 2021) of 13,000MW (Ajayi, 2020) with a generating capacity that varies between 3000MW and 4000MW (Nwozor, Oshewolo, & Ogundele, 2019). This is small when compared with other emerging countries with large population such as South Africa (40,000MW for 47 million people) and Brazil (100,000MW for 201 million people) (Gwaivangmin, 2016; Onimisi & Obansa, 2014; Ojo & Nwalupue, 2019). Therefore, Nigeria's energy condition is abysmal (Nwozor et al. 2019). With predicted consumption of 24,380MW in 2015 (CSEA, 2019), it is clear that demand for electricity greatly outstrips supply (Sambo, 2008; Gwaivangmin, 2016). As a result, people are turning to alternative energy such as solar, energy generators etc for private electricity generation in their homes (Gwaivangmin, 2016; Oteh, Oloveze, Chukwu, Nto, Ahaiwe, & Nduka, 2021).

The available literature indicates that, in addition to electricity generation, electricity energy consumption is quickly increasing (Liu, 2016). Residential areas account for the majority of electricity consumption and inefficiency in Nigeria (Hussaini, 2018), owing to the intentional or unintentional use of inefficient appliances (Okpare & Okreghe, 2020), while consumption rises with population, resulting in an increase in electricity consumers (Onisanwa & Adaji, 2020). However, inefficiency connected with consumption is one of the most common reasons for people looking for energy-efficient products like CFLs. Despite their disadvantages such as increased energy and inefficiencies, incandescent light bulbs (ILBs) are commonly utilized in household settings (Tanushevski & Rendevski, 2016). The use of ILBs results in evident electrical energy losses. Alternatively, energy-efficient devices such as compact fluorescent lamps (CFLs) have a distinct benefit over ILBs in that they do not emit the heat that ILBs do (Osagie-Bolaji & Asikhia, 2020). Despite the fact that CFL has been shown in the literature to be beneficial, particularly in terms of energy savings through gains from reduced electricity consumption (Sule, Ajao, Ajimotokan, & Garba, 2011), energy inefficient appliances continue to be pushed to the market (Oyedepo, Adekeye, Leramo, Kilanko, Babalola, Balogun, & Akhibi,

2015), and consumer adoption of CFL remains low (Kadiri & Opasina, 2014). When CFLs were used, the predicted electricity savings were lower than expected (Chun & Jiang, 2012), resulting in a failure to meet the target (Chun & Jiang, 2012). As a result, the expected rate of adoption is not achieved.

Nonetheless, consumer decision concerning demand and adoption may likely varies as evidences have shown such as purchase cost and CFL installation (Balachandra & Shekar, 2001), city size (Olusola et al. 2012), proliferation of inferior CFLs (Uyigue, Agho, Edevbaro, Ogbemudia, Uyigue, & Okungbowa, 2009), affordability (Kumar, Jain, & Bansal, 2003), and mercury content of CFL (Uyigue et al. 2009), in addition, CFLs often known as energy-saving bulbs, are a smaller version of long fluorescent lighting (Olusola et al. 2012). It can cost a lot of money (Casillas & Kammen, 2011), yet it uses less energy than incandescent light bulbs (ILBs) (Xing, Hewitt, Griffiths, 2011) and saves energy (Uyigue et al. 2009).

On the other hand, Nigerians' attitudes regarding energy use stifle efficiency in electricity management due to inadequate energy conservation practices (Rim-Rukeh & Ogbiten, 2014). Evidence shows that CFL adoption is limited compared to ILB adoption (Menanteau & Lefebvre, 2003), which can be attributed to electricity users' prolonged use of ILBs (Oteh et al. 2021; Kadiri & Opasina, 2014). There are significant indications that lack of awareness about energy efficient bulbs (Kadiri & Opasina, 2014) and perception of CFLs as energy savers (Kadiri & Opasina, 2014) are causal factors in their poor uptake in less industrialized countries and certain emerging economies. This is the void that the study aims to fill.

This study is timely because information on factors impacting consumer acceptance, perception, and demand will be invaluable to policymakers as they modify existing models and innovate conservation programs. The findings will aid in refocusing efforts on human characteristics, behaviors, and general power consumption behavior that will result in long-term energy conservation. On the other hand, the National Electricity Regulatory Commission's (NERC) directive to electricity distribution companies (DISCOs) to install meters before December 2021 (Akpan, 2021) and to disconnect customers who refuse to be metered (Nnodim, 2020) is likely to cause a shift in electricity consumption patterns.

In essence, the study's main goal is to measure customer response to energy-saving bulb adoption and demand. The precise goals are as follows:

1. Determine the level of customer knowledge and use of energy-saving bulbs.
2. Determine how consumers feel about energy bulbs in terms of major product features.
3. Determine the factors that influence consumer intentions to purchase energy-

saving bulbs.

4. Determine the factors that influence the adoption of energy-saving bulbs by electricity consumers.

In the face of Nigeria's worsening power crisis and high inefficiency linked with electricity use in residential dwellings, these objectives will serve as windows to make policy suggestions that will increase demand for energy bulbs.

Literature Review

Adoption of a product by consumers is the result of a decision impacted by awareness (Iyengar, Van den Bulte, & Valente, 2011), with commercial efforts playing a crucial role in this influence (Hogan, Lemon, & Libia, 2004). According to studies, CFL adoption is a result of efforts to control rapidly rising electricity consumption (Liu, 2015), reduce use of inefficient appliances in domestic homes (Trifunovic, Mikulovic, Djurisic, Djuric, & Kostic, 2009), replace inefficient light bulbs (Kiptoon, 2014), and control demand for electricity from the national grid (Kazakevicius, Gadgil, & Vorsatz, 1999).

The consumption of electricity varies by geographical location (Olanrewaju & Adegun, 2021) as well as by domestic, industrial, and commercial sectors (Nwachukwu, Ezedimma, & Jiburum, 2014). Because of claims in the literature about high energy consumption rates in residential areas, investigations in each of these sectors have concentrated on residential regions. Adetona and Ogunyemi (2020), for example, investigated energy in their research. The discovery is that the use of incandescent light bulbs (ILBs) rather than CFLs is still prevalent in Lagos households, according to research. However, the authors claim that there are a large number of CFL users in the area. Consumers' continued use of ILBs has persisted in Nigeria, despite the fact that it is being phased out and replaced in other nations around the world (Adetona &Ogunyemi, 2020). There were health risks linked with CFL, but they were said to be manageable. Lim, Kang, Ogunseitan, and Schoenung (2013) highlighted the importance of the health risk in their investigation of the environmental implications of CFL, ILB, and LED. Despite the benefits of energy savings from LED and CFL, the environmental impact is larger when compared to ILB, according to their findings.

CFLs use less electricity, according to studies (Olusola et al. 2012), yet their consumption is lower than ILBs (Menanteau & Lefebvre, 2003; Olusola et al. 2012). In order to address low demand, research such as Osagie-Bolaji and Asikhia (2020) compared the energy efficiency of CFL, ILBs, and LED bulbs and discovered that the cost of bulbs and the energy efficiency of CFL, ILBs, and LED bulbs were not equal.

However, despite the benefits that can be attributed to CFL and other energy-saving bulbs such as LED lights, the cost to the environment is often underestimated. CFL has been shown to be dangerous in the literature. Emetere, Bologi, Sanni, Chidi, Femi-Pidan, &Okoro, 2021, for example, looked into the idea that CFLs save energy or lives and determined that they don't. Energy consumption is one of the most important aspects of energy efficiency. CFLs are more expensive than ILBs, but they conserve energy and have a longer life expectancy (Oko, Olokode, &Ezike, 2019). Sule, Ajao, Ajimotokan, &Garba (2011) highlighted the difference in energy consumption between CFL and ILB and the large potential advantages of CFL when used in residential houses when analyzing the savings capability of CFL and ILB.

Several considerations have been examined in this regard. Rogers (2003) adoption characteristics such as relative benefit, perceived risk, and others were among the considerations studied. In different situations, the components create varied levels of results. As a result, they've been used in a variety of settings for product uptake and spread. While conditions like poverty and hunger have a favorable impact. Attitudinal influences, which influence people's perspective and capacity to make reasonable decisions, are a less evident element. However, as a result of the variances in electricity usage, other authors considered several other aspects as being related to different locales. The difficulty of measuring CFL gains on bills, the affordability barrier, and the initial cost of purchase and installation were all factors evaluated by Olusola et al. (2012). Kadiri and Opasina (2014) concluded that the short life of CFLs, the health risks associated with vision, the expensive cost of CFLs, and the flickering and humming sound were all important. Chun and Jiang (2012) identified income and consumer expectations for the life period of CFLs as important factors that impact adoption. Age, home income, household size, and education are all socioeconomic factors that have an impact.

They're also being investigated to see if they have an impact on CFL adoption (Brohmann, Heinzle, Rennings, Schleich, &Wustenhagen, 2009). Customer impression, on the other hand, is critical to consumer purchasing behavior. It is subjective and is influenced by elements such as expectation, feelings, and risk tolerance (Hanna & Wozniak, 2013). The context of purchase decision making (Buck, Horbel, & Kessler, 2017) and available information have an impact on consumer perception (Smed, 2012). In essence, consumer decision-making is influenced by available information to the extent that it affects product knowledge. This is the foundation upon which familiarity grows when it comes to adopting or rejecting a new idea. When it comes to the diffusion and adoption process, the importance of information in aiding the consumer to go through the stages more quickly has increased. Kotler and Armstrong have both mentioned it in marketing literature (2013).

METHODOLOGY

The study was carried out in Abia State, Nigeria. The state's capital, Umuahia, is located in Nigeria's south-east region. In addition to the human development index, the state is ranked as Nigeria's fourth most industrialized state (Wikipedia, n.d.). It comprises 17 local administrations, a total area of 4,796 km2, a population density of 777.1/km2, and a population change of 2.7 percent every year (City Population, 2020). Aba is Nigeria's industrial heartland, although contributing only 2% of the country's gross domestic product (GDP) (Wikipedia, n.d.). However, crude oil and gas production contributes over 39% of the state's GDP, while agriculture contributes 27%, while employing around 70% of the workforce of the state (Wikipedia, n.d.).

The study, however, used a survey research design because it is appropriate for studying attitudinal preferences, opinions, and is aligned to determining characteristics (Kothari, 2004), and it is aligned to eliciting information from a large audience and using statistical measures to determine statistical significance (Kothari, 2004). (Denscombe, 2003).

The population of the state is 3,727,300 (City Population, 2020) however the population of the study consists of consumers who have the capacity to buy products. In essence, the population of the study is 2,377,106. This represents age distribution of 20 years to 80+ years (City population, 2020)for the population of the study. However, the attribute of the population consists of household units in Abia State who must be head of household, and who has operating electricity power at least 6 months prior to the study.

The study used the advice of (Krejcie& Morgan, 1970) for finite populations greater than 1,000,000 in order to identify the correct sample and cover a representative number of the study unit. As a result, there are 384 people in the sample. To reach out to household units in Abia state, purposive sampling was done. In doing this attention was focused on two major cities in Abia state – Aba and Umuahia given that on grounds of population, they cover majority of the population in Abia State.

Data was collected mostly by structured copies of questionnaires that were vetted by specialists and pre-tested on respondents to assure instrument reliability, with Cronbach Alpha being used to test the instrument's reliability.The instrument received a score of 70.5 percent, indicating a good level of instrument reliability. This is within the recommended 0.6 range (Hair, Black, Babin, Anderson, &Tatham, 2006). A five-point likert scale was used to create the questionnaire, with strongly agree (5), agree (4), indifferent (3), disagree (2), and severely disagree (2) being the options (1). Descriptive statistics and logit regression were used to analyze the data. Because of the nature of their attributes, these analytical tools were chosen.

Specifications for the Model

Consumer adoption of energy-saving bulbs was studied using a logit model. The logistic function is presented as follows, according to Chawla and Kowalska-Pyzalska (2019) and Oteh et al. (2021):

$$\pi(X) = \frac{1}{1 + e^{X\beta}} \quad (1)$$

$$\text{Logit}\{(X)\} = \log\{\frac{\pi(X)}{1 - \pi(X)}\} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots\ldots + \beta_n X_n \quad (2)$$

The model's implicit form is given as

$Y = b_0 + b_1 X_1 + b_2 X_2 + b_3 x_3 + b_4 X_4 + b_5 X_5 + b_6 X_6 + b_7 X_7 \ldots . b_n X_n + \varepsilon_1$ (3)

Where Y= Adoption of energy saving bulbs (Dummy, 1= Adoption of the bulb and 0= otherwise)

X_1 = Age (years)
X_2 = Marital status (1 = single; 2 = married; 3 = others)
X_3 = Educational qualification (years)
X_4 = Price of energy bulbs (Naira)
X_5 = Price of other bulbs (Naria)
X_6 = Household size (No)
X_7 = Gender (Dummy: male=1, female =2)
X_8 = Awareness (dummy: Yes=1, No=0)
X_9 = Income (Naria)
ξ_1 = Composite error term

DISCUSSION OF THE FINDINGS

Three hundred copies of the questionnaire were successfully administered out of 384 samples designed for the study. This amounted to 78.13 percent of the questionnaire responses, which was deemed sufficient for the project. A questionnaire response rate of 50-70 percent, according to Saunders, Lewis, and Thornhill (2009), is deemed appropriate for research.

Table 1: Awareness and usage level of energy saving bulbs among Consumers of electricity in the Study Area.

Response	Awareness	Usage	Non-Usage
Yes	198(66%)	174 (57%)	0 (0%)
No	102(34%)	0(0%)	126(42%)
Total	**300(100%)**	**174(58%)**	**126(42%)**

Source: Authors computation from field survey 2020.

According to the descriptive statistics in table 1, consumer knowledge and use of compact fluorescent lights (CFLs), also known as energy-saving bulbs, is low, despite the fact that a large number of people are aware of their existence. Although 66 percent of consumers are aware of the product, and consumption is modest at 57 percent, it is still not widely used.Given the benefits it has been shown in the literature to provide to consumers, this is encouraging. The distinction between awareness and application is significant. This means that energy-saving bulbs haven't yet made their way into the research region. In essence, it might be ascribed to a number of causes. Low acceptability, comparative cost of energy-saving bulbs, ignorance of the benefits of energy-saving bulbs, and customer attitude toward energy savings are all possible contributory reasons. Given the average degree of awareness and use of energy-saving bulbs, it is critical to deepen more awareness and steer overwhelming use of these bulbs.In the study region, there are energy-saving lamps (Oteh, Onyekachi&Atasie, 2017). This finding is also in line with Oteh, Ibok, and Nto (2017) results on the relationship between consumer awareness and product innovation uptake.

Consumer perceptions of the features of energy-saving bulbs

When confronted with a product, customers act in a variety of ways. Their decisions are sometimes influenced by how they view a product or service. The study used a Likert scale assessment to determine the level of consumer perception of energy bulb product features. Table 2 shows the results.

Table 2: Perception of Consumers on Energy Bulbs Product Attributes

Variables	Very high	High	Moderate	Low	Very low	Total	Mean	Rank
Relative advantage	45(89)	33(65)	11(22)	6(12)	5(10)	100(198)	4.07	1
Risk & uncertainty	18(36)	19(38)	8(15)	35(69)	20(40)	100(198)	2.8	8
Scientific credibility	27(53)	27(53)	14(28)	25(50)	7(14)	100(198)	3.42	5
Awareness	13(26)	20(40)	17(33)	27(53)	23(46)	100(198)	2.73	9
Social approval	18(36)	26(51)	30(59)	14(28)	12(24)	100(198)	3.24	6
Durability	18(36)	42(83)	18(36)	14(28)	8(15)	100(198)	3.48	4
Cost	42(83)	28(56)	10(20)	12(24)	8(15)	100(198)	3.84	2
product availability	10(20)	14(27)	22(44)	29(57)	25(50)	100(198)	2.55	10
Trustworthiness	12(24)	25(50)	24(48)	20(40)	18(36)	100(198)	2.94	7
Quality	27(53)	37(73)	17(34)	10(20)	9(18)	100(198)	3.63	3

Source: Authors computation from field survey, 2020

The mean rating analysis from the Likert table indicates different levels of perception of consumers on energy bulbs product attributes and how it affects their purchase intention. Of the 10 attributes considered, consumers have high perception of 6 attributes that includes relative advantage, cost, quality, durability, scientific credibility and social approval which were above 3.00 point. However, relative advantage had the strongest consumer perception. On the other hand, 4 attributes that include trustworthiness, risk/uncertainty, awareness and product availability were weakly perceived by consumers in such an insignificant measure as they are below 3.00 point. Thus following the ranking of the attributes with high consumer perception, relative advantage, cost, quality, durability, scientific credibility and social approval affects the adoption of energy saving bulbs. This result is consistent with the opinion of Kotler and Armstrong (2013) on the influence of product characteristics on the adoption of any innovation. Consumers want product that are consistent with their existing consumption pattern.

Table 3: Factors influencing consumer buying responses

Perceptual factors	Frequency	Mean	Std. dev
High initial cost	300	64.400	48.47989
Inability to measure benefits	300	61.400	38.4617
Health hazards	300	64.000	46.45628
Proliferation of inferior bulbs	300	64.000	34.589046
Affordability	300	38.000	30.19106
Warranty	300	37.2000	32.24438

Source: Authors computations from survey, 2020

The findings from table 3 show varying levels of factors influencing consumer buying intentions. The most significant factor is initial cost of energy saving bulb given the highest value of the mean (64.400) and standard deviation (48.47989) which explains high variability associated with the initial cost. The initial cost of CFLs – energy saving bulbs is high especially when compared with the alternative – ILBs in the market. The result supports the finding of Osagie-Bolaji and Asikhia (2020) who conducted a comparative analysis of the two light bulbs – CFL and ILBs as well Lefèvre, de T'Serclaes and Waide (2009) who asserted that the initial cost of CFL is higher compared to the alternatives. In line with law of demand, consumers tend to buy less and go for the alternative that is lesser in price.This explains how consumers respond to purchase of compact fluorescent lamps. Beside initial cost, consumers' inability to measure benefits is also a factor that influences consumers following the mean value of 64.400 and standard deviation of 38.4617. In essence poor knowledge of the gains from energy saving bulbs is capable of influencing purchases. When consumers are not aware of the real benefits (such as low electricity consumption) from a product, purchases and loyalty to the product is affected. This corroborates the study of Sandahl, Gilbride, Ledbetter, Steward, and Calwell (2006) who stated that a low electricity price and poor knowledge are contributory factors impacting CFLs.The health hazards and proliferation of inferior bulbs can sufficiently influence consumers buying intention of energy saving bulbs given the high mean values 64.000 each and high standard deviation of 46.46 and 34.589 respectively. The health hazards are often associated with mercury contents (Velleman, n.d.) while proliferation of inferior bulbs is associated with importation of inferior energy saving bulbs from other countries. The study supports Bryne (2013) on consumers having to suffer from inferior CFLs by frequently replacing them and wasting their money on the product. Also, it supports Olusola et al (2012) on importation of inferior CFL by Nigerian businessmen. This practice importation of inferior CFL reflects poor policy implementation of quality frameworks governing standards in our society and on importation. Rational consumers are often interested in quality of products they pay for against the value derivable from it. Quality is often directed towards giving customers better experience and satisfaction (Chiarini, 2013; Oloveze, Chukwuoyims, Ogbonna, &Anayochukwu, 2021) as it is capable of influencing the value of product (Ladewski& AI-Bayati, 2019). When the product is inferior purchase intention towards CFL is affected. In other words, when inferior products are imported into the country the issues of quality concerns will arise given that the inferior imported energy saving bulbs will not last long. This will affect their intentions to buy energy bulbs considering its costs vis-à-vis the inferior quality. Furthermore, it contributes to inability of consumers to identify the benefits they can derive from using energy saving bulbs. Affordability and The factors that have the least mean and standard deviation values are affordability and warranty has a low mean rating of 38.000 and 37.200 respectively. The mean ratings of the

variables are very low compared to other variables though it indicates a level of influence on consumers in purchasing energy saving bulbs. Affordability is often tied to other factors such as price, income, and price of related products. These elements are analyzed under the logit analysis.

Table 5: Analysis of factor influencing consumers' adoption of energy saving bulbs in residential homes Abia state.

Variables	Coefficient	Std error	Z	p>/z
Bills	-.0002227	.0001109	-2.01	0.045*
Gender	-.1135071	.4459364	-0.25	0.799
Age	.0223675	.0184729	1.21	0.226
Education	-.0386453	.562661	-069	0.492
Income	-.12e-07	9.35e-07	-0.12	0.905
Household size	-1.60066	.1144452	-1.40	0.162
Price of energy bulb	-.0017536	.0010291	-1.70	0.088**
Price of others	.0003625	.0133662	0.03	0.978
Awareness	.0167596	.4782634	0.04	0.972
Marital status	-.6489788	.6386634	-1.02	0.310
Constant	2.552487	1.949043	1.31	0.190

$LR\ chi^2$ 12.98 Significance denotation: ** 5% and * 10%
$Prob>chi^2$ 0.2246
$pseudoR^2$ 0.0939

Table 5 shows that out of the 10 variables used only bill paid and price of energy saving bulbs are significant at 5% and 10% level respectively as represented by the p>/z statistics. Bills in Nigeria are considered unrealistic and high by the consumers of electricity. This is traceable to the prevalence of estimated billing system in Nigeria in which consumers pay higher than what they consumed or is supposed to pay. Consequently, any reduction in the bill paid by consumers will promote adoption and use of energy saving bulb. This factor affects the adoption of energy saving bulb in the area because consumers cannot really ascertain the benefits of energy saving bulbs. An adoption of efficient billing system and use of prepaid meters will encourage more conservation practices. In addition, the price of energy bulb is another significant factor (at 10% level of significance) that influences adoption of energy saving bulbs though its effect is negative. The implication is that an increase in the price of energy saving bulb, rate of adoption in the study area will decrease and vice-verse. From the point of demand theory, as price of an item increase, the quantity demanded for such item decreases.

CONCLUSION AND RECOMMENDATIONS

In this study, data was analyzed using logit regression, Likert scale rating, and mean score rating to examine customer response to the adoption and use of energy-saving bulbs in Abia state. Bills and the price of energy-saving bulbs are key elements that influence consumer response to adoption and usage of the product, according to the study, although consumers' general level of awareness and usage of the product is average.
As a result, the study suggests that:

1. To reap the benefits of CFL and discourage the use of ILBs, it is critical to educate the public about the advantages of CFL, notably how it saves energy and minimizes excessive energy use.
2. Inferior CFLs on the market are one of the issues that consumers say influences their decision to acquire CFLs. In other words, buyers are concerned about the quality of CFLs because they do not want to waste money replacing inferior ones they purchased. In this context, the Standard Organization of Nigeria (SON) and customs, which oversee quality standards and compliance, should ensure stringent compliance and monitoring of imported CFLs. This should help to reduce the influx of low-quality CFLs into the country and, by implication, the state of Abia.
3. Given the impact of energy bulb prices on adoption, it is critical to encourage CFL manufacturers to locate their factories in Nigeria. The Federal Government of Nigeria (FGN) can help by providing incentives and encouraging local electrical goods producers in Nigeria, such as Curtix cables, to collaborate with global counterparts on CFL production. In this guise, the goal will be to increase energy savings and make CFLs more accessible. CFL costs in Abia state will most certainly fall as a result of this.

Policy Development

According to the findings of this study, effective implementation of intervention techniques in the power sector is required to halt the downward trend and poor power supply. The simple point is that if consumers do not see any benefits from using energy-saving bulbs, every effort to conserve energy would be futile. As a result, regulations that promote measures that make CFLs appealing are critical. Importation is a crucial point to consider. Importing CFLs will be more appealing if ILBs are taxed more and CFLs are taxed lower. It also has the potential to help CFL compete with ILBs on price. To put it another way, FGN needs to come up with ways to lower the cost of CFL bulbs by providing subsidies to stimulate importation while also making quick steps to produce them domestically. It is necessary to take steps to increase the availability and installation of prepaid meters in houses. This will assist

in influencing consumer decision to use CFLs over ILBs in terms of energy savings and power consumption. In essence, the installation of a prepaid meter will enable consumers to exercise proper control over their energy usage. Directives on communication through various FGN-owned radio and television stations, on the other hand, may be useful in refocusing public attention on CFL adoption. The state-owned stations can also aid to increase its domestic influence.

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EFFECT OF MARKETERS' SOCIO-ECONOMIC CHARACTERISTICS ON AGRICULTURAL PRODUCES MARKETED: PERSPECTIVE FROM EDU LOCAL GOVERNMENT AREA, KWARA STATE

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Abstract

The huge and growing population of Nigeria provides market potential for different agricultural produces in the country. Despite the numerous opportunities readily available, the position of agricultural marketing potentials in Nigeria remains untapped and largely undeveloped. Hence, this paper examines the consequence of marketers' socio-economic factor on agricultural produces marketed in Edu Local Government area of Kwara State, Nigeria. Survey research design was adopted and a structured questionnaire was utilized to collect data from the sample population in the various markets. Multiple linear regression was used in testing the hypotheses. It was revealed that a positive nexus exists between marketers' socio-economic characteristics and the type of agricultural produces they marketed. The study therefore recommended that agricultural produces marketers should revive their marketing programmes and strategies to take advantage of the relationship that exists between their socio-economic characteristics and the type of agricultural produces marketed.

Key words: Marketers, Agricultural Produces, Socio-economic Characteristics, Extension Workers

INTRODUCTION

Agriculture plays a critical role in every nation's economy because it is fundamental for addressing not only security of food, or nutrition but also provide a means of