

## **BIODEGRADABLE PACKAGING AND CONSUMER BUYING BEHAVIOUR OF FAST-MOVING CONSUMER GOODS IN AKWA IBOM STATE, NIGERIA**

**EMMANUEL A. D. BRAIDE, ANIETIE B. AKPAN, IMO H. C. UFORD  
& SUNDAY J. AKPAN**

Department of Marketing, Faculty of Management Sciences,  
Akwa Ibom State University, Obio- Akpa Campus.

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### **ABSTRACT**

The purpose of this study was to investigate the effect of biodegradable packaging on the purchasing behaviour of consumers of fast-moving consumer goods (FMCGs) in Akwa Ibom State, Nigeria. Biodegradability, recyclability and reusability were the proxies that were taken into consideration. Three hypotheses were developed. A survey research methodology was used, and the convenience sampling approach was followed to select 384 respondents from the fast-moving consumer goods industry in Akwa Ibom State. Data were analyzed using descriptive and inferential statistics, and the simple linear regression analysis was used to test all hypotheses at 0.05 level of significance. It was found, from the findings that biodegradability, recyclability and reusability all had positive and significant effect on the purchasing behaviour of consumers of FMCGs. Consumer purchasing behaviour of FMCGs in Akwa Ibom State was found to be significantly and positively influenced by biodegradability, recyclability and reusability. One of the recommendations was that businesses should highlight the degradable nature of packaging through clear labeling and emphasizing its environmental benefits using certifications from environmental organizations to build credibility. While consumers education is necessary on how degradable packaging reduces waste and supports a cleaner environment.

**Keywords:** Biodegradable Packaging, Biodegradability, Recyclability, Reusability, Consumer Buying Behaviour, Fast-Moving Consumer Goods, Akwa Ibom State.

### **1.0 INTRODUCTION**

The importance of environmental responsiveness and sustainability in business has led to discussion among academics, industry, and governments worldwide. Businesses globally emphasize sustainable growth through suitable purchasing, product development, marketing, and corporate strategies. Buying, making products, marketing, and responding to corporate strategy issues in a way that supports sustainable growth are things that businesses around the world do (Braide et al., 2024).

The American Marketing Association (2017), in Abiodun et al. (2024) explained that green marketing involves the product development and marketing of products that have reduced impact on environmental degradation as well as organizational response to solving

environmental problems by manufacturing, promoting, packing and refinishing products that are environmentally friendly and sensitive.

In essence green marketing is as a result of the increasing social and environmental awareness to protecting the available natural resources. This has led to consumers being more concerned as to how their purchase decisions impact on the social welfare and environment (Ahmad et al., 2020; Ebhote & Izedonmi, 2021; Ndaeyo, et al., 2025).

In Akwa Ibom State, Nigeria, a region that has seen significant economic growth and development in recent years, the FMCG sector plays a crucial role in the local economy. With increasing urbanization and a rising population, the consumption of FMCGs continues to grow. However, this growth is accompanied by high awareness of environmental sustainability among consumers regarding the packaging of these goods.

### **1.1 Statement of the Problem**

Some of the environmental problems our country is facing right now are air pollution, bad water quality, negative impact of traditional packaging materials, particularly plastics, has become a growing concern and insensitive to the available natural resources.

A lot of research has been done on the effect of biodegradable packaging and how people buy FMCGs in many areas and countries around the world. These studies have used factors like degradability, recyclability, and reusability.

In spite of this, there is not enough research on how biodegradable packaging strategies (like degradability, recyclability, and reusability) might change how people in Akwa Ibom State buy FMCGs. With this in mind, the goal of this study was to look at how biodegradable packaging (degradability, recyclability, and reusability) affects people's buying habits of FMCGs in Akwa Ibom State.

### **1.2 Objectives of the Study**

The main objective of this study was to determine the effect of biodegradable packaging on consumer buying behaviour of fast-moving consumer goods (FMCGs) in Akwa Ibom state. Specifically, the study was designed to:

- i. ascertain the effect of degradability on consumer buying behaviour of FMCGs in Akwa Ibom State.
- ii. determine the effect of recyclability on consumer buying behaviour of FMCGs in Akwa Ibom State.
- iii. investigate the effect of reusability on consumer behaviour of FMCGs in Akwa Ibom State.

### **1.3 Research Hypotheses**

The following null hypotheses were formulated and tested in the study:

**H01:** Degradability has no significant effect on consumer buying behaviour of fast moving consumer goods in Akwa Ibom State.

**H02:** Recyclability has no significant effect on consumer buying behaviour of fast-moving consumer goods in Akwa Ibom State.

**H03:** Reusability has no significant effect on consumer buying behaviour of fast-moving consumer goods in Akwa Ibom State.

## **2.0 LITERATURE REVIEW**

### **2.1 Overview of the Concept of Biodegradable Packaging**

The concept of Biodegradable Packaging refers to packaging materials that can break down and return to the environment naturally, without causing harm. This concept is critical in addressing global environmental concerns such as plastic pollution and waste management. Biodegradable packaging materials, typically made from plant-based sources like cornstarch, paper, or certain bio plastics, decompose under natural conditions, minimizing the environmental footprint (Ubogu & Ubueme, 2024).

According to Szaky (2021), biodegradable packaging is a collection of polymers made from renewable raw materials such as cellulose, soy protein, starch (such as corn, potato, tapioca and so on), and lactic acid. These materials are not harmful during production and, when disposed of appropriately, decompose back into carbon dioxide, water, and biomass. Demand for this biodegradable packaging is rising.

### **2.2 Degradability**

Degradability refers to the ability of a packaging material to break down into simpler substances over time through the action of natural processes such as microorganisms, air, and water. Biodegradable packaging is designed to decompose into non-toxic elements like water, carbon dioxide, and biomass (Ubogu & Ubueme, 2024). For consumers, the degradability of packaging directly impacts their perception of a product's environmental impact. Products packaged in biodegradable materials are often viewed as more sustainable, aligning with the values of environmentally-conscious buyers.

Degradability of a packaging material can serve as a powerful purchasing incentive from the view of the consumer. It gives consumers a feeling of helping to protect the environment, especially those who value eco-friendly products. Marketers can take advantage of this by emphasizing the packaging's biodegradability in order to draw in this market.

### **2.3 Recyclability**

Using recyclable packaging is one eco-friendly strategy to reduce waste and improve the preservation of the environment. Pullen (2021), says that environmental sustainability will be attained and there will be no trash in our lands and waters if all businesses utilize recyclable packaging. According to Giorgos (2023), recyclable packaging is a method of packaging in which the wrapper or container that a product was originally included in is repurposed. This

view point was supported by Barber (2019), who said that recyclable packaging will stop waste from being carelessly dumped on the streets and save the environment from pollution, deterioration, and littering.

## **2.4 Reusability**

According to the zero-waste hierarchy for the circular economy, reuse is more effective than recycling in waste reduction and more value is retained. Reusable packaging can be defined as packaging or packaging components that have been designed to accomplish a minimum number of trips or rotations in a system for reuse (Miao et al., 2024). In other words, the packaging is used multiple times by either the same or different users.

## **2.5 Consumer Buying Behaviour**

Consumer buying behaviour is the study of how individuals or groups select, secure, utilize, and dispose of products, services, experiences, or ideas to meet their requirements. It also examines the impact these activities have on both the consumer and society (Chinda & Umeh, 2023; Asuquo, et al., 2024).

Attih (2024) described consumer buying behaviour as behaviour exhibited by consumer to search, buy, and use goods and service to satisfy his/her needs and wants. Dimensions of consumer buying behavior includes attitudes and loyalty.

Mfon and Uford (2022) pointed out that basically, consumer buying behaviour is determined by experience and inducements, while the reasons are the inner factors that make the consumer to behave the way he does, inducements are exterior factors representing rewards the consumer expects from buying the products. Consumer buying behaviour goes through three (3) major successive stages; the Pre-purchase decision, purchase decision and post purchase decision (Uford & Mfon, 2023).

## **2.6 Biodegradable Packaging and Consumer Buying Behaviour of Fast-Moving Consumer Goods**

The concept of Biodegradable Packaging refers to packaging materials that can break down and return to the environment naturally, without causing harm. This concept is critical in addressing global environmental concerns such as plastic pollution and waste management. (Ubogu & Ubueme, 2024). Customers now prefer items with eco-friendly packaging and sustainable production methods in the fast-moving consumer goods (FMCGs), which include everyday items such as beverages, toiletries and others due to increased knowledge of environmental (Mfon & Uford, 2022).

Consumers are the people who buy and use goods and services. It includes all the people, groups, and families that buy things for their own use. Sometimes a customer is adaptable, crazy, and hard to predict. Other times, they may be reasonable and nice. Meeting the wants of the customer is still the most important thing for a business (Nwaizugbo, 2020).

## **3.0 THEORETICAL FRAMEWORK**

### **3.1 Value-Belief-Norm Theory (Stern, Dietz, Abel, Guagnano, & Kalof, 1990)**

This study was anchored on the theory of Value-Belief-Norm (VBN), VBN theory posits that individuals' environmental behaviors are influenced by their values, beliefs about environmental issues, and perceived moral obligations (norms) to act in environmentally friendly ways. In the context of FMCGs, consumers who hold strong concern for the environment and the wellbeing of others, are more likely to be worried about environmental impacts, which translates into beliefs that their consumption patterns can contribute or reduce environmental harm. These beliefs, in turn, foster a sense of moral responsibility to purchase eco-friendly products, even if they are more expensive or less convenient. Thus, eco-friendly consumers are driven by a deep-rooted sense of duty to support sustainable practices, influencing their preference for FMCGs with green credentials, such as biodegradable packaging, recyclable packaging, and ethical production standards.

### **3.2 Theory of Planned Behaviour (Ajzen, 1985)**

The theory attempts to guess how people will buy things that are in high demand. The idea of planned behaviour is often used to explain what people want and how they behave in the market for goods. Souril et al. (2021) and Zheng et al. (2020) used the theory of planned behaviour to explain why people want to buy things. Auliandri et al. (2021) say that new study backs up the theory of planned behaviour as a good way to understand and predict why people will choose to buy green packaged goods. This study adds to the behaviour and intentions model, which is a theory of planned behaviour by looking at customer buying behaviour using separate variables such as degradability, recyclability and reusability of biodegradable packaging.

### **3.3 Empirical Review**

Ubogu and Ubueme (2024) studied on the relationship between green packaging adoption and repeat patronage of manufacturing firms in Asaba, Delta State, Nigeria. The specific objectives were to determine the relationship between biodegradable packaging, packaging optimization, recyclable packaging and repeat patronage of manufacturing firms. The survey design was adopted with a sample size of 236 respondents for the study. The hypotheses stated were tested using the spearman rank order correlation coefficient ( $\rho$ ). Findings of the study revealed that biodegradable packaging and packaging optimisation both had a positive and significant relationship with repeat patronage of manufacturing firms in Asaba, Delta State. The study also found a moderate and significant relationship between recyclable packaging and repeat purchase of manufacturing firms. The authors recommend that manufacturing firms in Asaba, Delta State that are still practicing conventional packaging should switch to green product packaging, by using biodegradable, recyclable, and optimised materials, as this would not only reduce the amount of waste brought into the environment but would also enhance repeat patronage.

Braide et al. (2024) carried out a study on eco-labeling and consumer buying behaviour of fast-moving consumer goods (FMCGs) in Akwa Ibom State. The purpose of the study was to investigate the impact of eco-labeling on the purchasing patterns of consumers of fast-moving consumer goods in Akwa Ibom State, Nigeria. Awareness of the environment, symbols of recycling, and visual components were the variables taken into consideration. The survey research method was chosen, and the convenience sampling approach was utilized to select

384 respondents from the fast-moving consumer goods industry in Akwa Ibom State. The hypotheses stated were tested using the simple linear regression model at a level of significance of 0.05. The findings of the study revealed that eco-awareness, recycling symbols, and visual elements all had a substantial and favourable association with the purchasing behaviour of consumers of FMCGs. One of the recommendations that businesses should add eco-awareness messages into their product packaging and marketing materials in order to highlight the environmental benefits that come with selecting sustainable products.

Alabo and Anyasor (2021) investigated green marketing and the long-term viability of Nigerian breweries for the purpose of determining whether or not they may be successful. The concept of how innovations spread was the cornerstone of the research project. Through the use of a descriptive survey methodology, a sample size of 324 individuals was utilized. For the purpose of the study, primary data was collected through the use of a standardized questionnaire. At that point, the assumptions were put to the test by conducting an analysis of the data using frequency tables, percentages, and multiple regression analysis. The factors of the study, which included green product, green price, green place (distribution), and green marketing, were found to have a significant and favorable relationship with the sustainability of breweries in the southeastern region of Nigeria. In the end, they came to the realization that environmentally conscious marketing has a significant and favorable impact on the long-term profitability of breweries located in the southeastern region of Nigeria. Therefore, the researchers recommended that breweries in South East Nigeria and other locations should continue to fulfill their environmental responsibilities and pay greater attention to issues that are associated with this in order to ensure that their businesses are able to continue operating.

Ibok and Etuk (2014) did a study on the demographic and socioeconomic factors that affect green intake. The study's goal was to find out the racial and socioeconomic makeup of "green consumers" and how those traits affect the actions that are good for the earth. A survey was given to 102 people in Akwa Ibom State who were part of the green squad. According to the results, most "green" consumers who act in ways that are good for the world are college graduates. They are mostly middle-class guys with white-collar jobs who are married and own their own homes. They put environmental safety and security at the top of their list when deciding what to buy and how to get rid of their trash. Their results also show that a consumers' age, family income, home ownership, employment status, buying habits, level of education, and where they live all have a statistically significant effect on how responsible they are as consumers. They came to the conclusion that making people more aware of safe environments will make them more concerned about their socioeconomic and demographic status.

Abiodun et al. (2024) carried out a study on exploring the effect of green marketing strategies on purchasing decisions in Nigeria's fast moving consumer goods sector. The study investigated the effect of green marketing strategies on consumer purchasing decision in the fastmoving-consumer-goods (FMCG) industry in Nigeria based on insights gathered from consumers in selected areas of Lagos State. The study adopted the survey research design to gather primary data from a sample of 400 respondents selected via judgmental and convenience sampling technique. The results of the study showed that consumers do not experience cognitive dissonance/dissatisfaction with green FMCG products of their preferred organization. The findings of the study further indicated that consumers consider purchasing environmentally friendly products because their distribution channels allow for returning



empty containers for recycling and reusage. The study concluded that green marketing has a significant positive effect on consumer purchasing decision in the FMCG industry in Nigeria. Based on the findings, the authors recommended amongst others that green marketing should be seen and considered as a contemporary strategic marketing technique and tool, hence organizations and management should continue to develop ways that can improve their application of green orientation in all areas of their business and marketing.

#### 4.0 METHODOLOGY

The survey method was adopted as the research design for the study. This method was chosen to help the researcher get information directly from the respondents. The population of this study comprises all customers of fast-moving consumer goods (FMCGs) which include everyday items such as foods, pet- drinks and bottled water, beverages, cosmetics and so on, in Akwa Ibom State and is unknown.

The population of customers of fast-moving consumer goods is an infinite population where the total population is not known. To determine the sample size was 384, which was determined using Walpole's 1974 formula. The convenience sampling technique which is a non-probability sampling design would be used to collect data from 384 respondents. This sampling procedure was adopted because it allows a researcher to reach out to accessible respondents. The online questionnaire was used to collect data from respondents and was divided into two parts A and B. Part A focused on respondents' demographics data aimed at identifying respondents and their characteristics. While part B focused on the independent and dependent variables of the study. Thus, statements that measured these variables were made and the respondents given options to choose from five- point Likert rating scale. The research instrument was subjected to Cronbach Alpha reliability test and the result obtained for each item were 0.7 above justifying the use of the instrument. Data were analyzed using frequency count and simple percentages, while simple regression analysis would be used to test the hypotheses using the Statistical Package for Social Sciences (SPSS) version 25. All hypotheses were tested at 0.05 level of significance.

#### 4.1 Data Analysis

**H01:** Degradability has no significant effect on consumer buying behaviour of fast-moving consumer goods in Akwa Ibom State.

**Table 1: Summary of simple linear regression model showing the effect of degradability on consumer buying behaviour of fast-moving consumer goods.**

	<b>B1</b>	<b>SE</b>	<b>B2</b>	<b>t- value</b>	<b>Significant (2- tailed)</b>
Constant	4.299	0,647		3.424	0.000
Degradability	0.727	0.251	0.610	2.634	0.000
Dependent variable: Consumer buying behaviour					
R =	0.897				
R <sup>2</sup> =	0.896				

Adjusted R Square =	0.850
Std. Error of Estimate	1.24991
F- Statistics	821.614
Probability (Significance p-value=	0.000

Significant at 5% ( $P < 0.05$ ). B1= Unstandardized beta, B2= standard beta, SE= standard error.

**Source:** Researcher's Computation (2025)

The summary of Table 1, shows that regression coefficient R-value is (0.897) which indicate a positive relationship existing between the independent (that is degradability) variable and the dependent (that is, consumer buying behaviour) variables. The R-square (0.896) is the coefficient of determination. This means that 89.6 percent of the variation on the consumer buying behaviour can be explained from the independent variable (degradability). The constant value is 4.299 shows that keeping the independent variable (degradability) constant, consumer buying behaviour will be at 3.299. The coefficient of degradability was 0.727 which implies that a unit change in degradability will lead to 72.7 increase in consumer buying behaviour. The regression analysis table establishes the significance of the regression model from which F-ratio value (821.614) indicates statistically significant at 0.000 because it is less than 0.05 level of significance. Since the probability value (that is p-v  $0.000 < 0.05$ ). We reject the null hypothesis and accept that there is statistically significant effect of degradability on consumer buying behavior of fast-moving consumer goods.

**H02:** Recyclability has no significant effect on consumer buying behaviour of fast-moving consumer goods in Akwa Ibom State.

**Table 2: Summary of simple linear regression model showing the effect of recyclability on consumer buying behaviour of fast-moving consumer goods.**

	B1	SE	B2	t- value	Significant (2-tailed)
Constant	3.104	0.257		3.584	
Recyclability	0.802	0.241	0.713	2.739	
Dependent variable: consumer buying behaviour					
R =	0.860				
R <sup>2</sup> =	0.858				
Adjusted R- Square	0.823				
Std. Error of Estimate	1.10149				
F- Statistics	784.113				
Probability (Significance p-value=	0.000				

Significant at 5% ( $P < 0.05$ ). B1= Unstandardized beta, B2= standard beta, SE= standard error.

**Source:** Researcher's Computation (2025)



The summary of Table 2 shows that regression coefficient R-value is (0.860) which indicate a positive relationship existing between the independent (that is recyclability) variable and the dependent (that is, consumer buying behaviour) variables. The R-square (0.858) is the coefficient of determination. This means that 85.8 percent of the variation on the consumer buying behaviour can be explained from the independent variable (recyclability). The constant value is 3.104 shows that keeping the independent variable (recyclability) constant, consumer buying behaviour will be at 3.104. The coefficient of recyclability was 0.802 which means that for every unit that recyclability increase, consumer buying behaviour will increase by 80.2 units. The regression analysis table establishes the significance of the regression model from which F-ratio value (884.113) indicates statistically significant at 0.000 because it is less than 0.05 level of significance. Since the probability value (that is  $p < 0.000 < 0.05$ ). We reject the null hypothesis and accept that there is statistically significant effect of recyclability on consumer buying behaviour of fast-moving consumer goods.

**H03:** Reusability has no significant effect on consumer buying behaviour of fast-moving consumer goods in Akwa Ibom State.

**Table 3: Summary of simple linear regression model showing the effect of reusability on consumer buying behaviour of fast-moving consumer goods.**

	B1	SE	B2	t-value	Significance(2-tailed)
Constant	2.631	0.219		12.493	0.000
Reusability	0.723	0.795	0.784	18.821	0.000
Dependent variable: consumer buying behaviour					
R =	0.901				
R <sup>2</sup> =	0.877				
Adjusted R-Square =	0.875				
Std. Error of Estimate	0.92270				
F- Statistics	752.655				
Probability (Significance p-value=	0.000				

Significant at 5% ( $P < 0.05$ ). B1= Unstandardized beta, B2= standard beta, SE= standard error.

**Source:** Researcher's Computation (2025)

Result from Table 3 shows that regression coefficient R-value is (0.901) which indicates a positive relationship existing between the independent (Reusability) variable and the dependent variable (consumer buying behaviour) variable. The R-square (0.877) is the coefficient of determination. This means that 87.7 percent of the variation on the consumer buying behaviour can be explained from independent variable (Reusability). The constant value is 2.631 shows that keeping the independent variable (Reusability) constant, consumer buying behaviour will be at 2.631 units. The coefficient of attitude was 0.723 which means that for every unit increase in reusability, consumer buying behaviour will increase by 72.3 units. The regression analysis table establishes the significance of the regression model from which F-ratio value (752.655) indicate statistically significant at 0.000 because it is less than 0.05 level of significance. Since

the probability value (that is  $p < 0.000 < 0.05$ ). Therefore, we reject the null hypothesis and accept that there is statistically significant influence of reusability on consumer buying of fast-moving consumer goods.

## **5.0 DISCUSSION OF FINDINGS**

The study showed a significant positive effect of biodegradable packaging on consumer buying behaviour of fast-moving consumer goods (FMCGs) in Akwa Ibom State. The result of the first hypothesis tested shows that there is a significant positive relationship between degradability and consumer buying behaviour of fast-moving consumer goods. This finding is in agreement with the work of Ubogu and Ubueme (2024); Alabo and Anyaor (2021) that degradability significantly affects consumer buying behaviour of fast-moving consumer goods.

The result of the second hypothesis also showed that recyclability has a significant positive effect on consumer buying behaviour of FMCGs. This finding collaborates with the work of Braide et al. (2024) and Abiodun et al. (2024) which stated that recyclability and degradability significantly affect consumer's purchase intention of fast-moving consumer goods.

The third hypothesis showed that reusability has a significant positive effect on consumer buying behaviour of FMCGs. This tallies with the positions of Ibok (2014) and Abiodun et al. (2024) that reusability mediates the relationship between degradability, recyclability of consumer buying behavior of fast-moving consumer goods.

## **6.0 CONCLUSION AND RECOMMENDATIONS**

### **6.1 Conclusion**

The following conclusions were made based on the findings:

- i. There is a significant effect of degradability on consumer buying behaviour of fast-moving consumer goods in Akwa Ibom State.
- ii. There is a significant effect of recyclability on consumer buying behaviour of fast-moving consumer goods in Akwa Ibom State
- iii. There is a significant effect of reusability on consumer buying behaviour of fast-moving consumer goods in Akwa Ibom State

### **6.2 Recommendations**

Based on the findings and conclusion of the study, the researchers made the following recommendations:

- i. Manufacturers, government agencies, NGOs and environmental organizations should highlight the degradable nature of packaging through clear labeling and emphasizing its environmental benefits using certifications from environmental organizations to build credibility. While at the same time, educate consumers on how degradable packaging reduces waste and supports a cleaner environment.
- ii. Manufacturers should design packaging with clear instructions for recycling, including symbols and simple steps for proper disposal. Creating awareness campaigns to educate

- consumers about the recyclability of their packaging and its role in reducing landfill waste can contribute to environmental conservation.
- iii. It is also recommended that manufacturers of FMCGs should develop packaging that consumers can reuse, such as sturdy containers, jars, or bags, and promote creative reuse ideas in their marketing. Campaigns while at the same time highlighting the cost-saving and functional benefits of reusability.

## 7.0 FUTURE RESEARCH INTEREST

This study was limited to Akwa Ibom State; therefore, future research interest can be conducted in other States of Nigeria to compare consumer responses to biodegradable packaging across different States. Researchers may also consider examining how demographic factors such as age, education level, and income influence consumer behaviour toward biodegradable packaging.

While this study focused on consumers of fast-moving consumer goods (FMCGs), future study interest can explore the perspectives of producers, manufacturers, and retailers to better understand their roles in promoting environmentally friendly packaging practices.

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