

SUSTAINABLE PACKAGING INNOVATION AND CUSTOMER EXPECTATIONS IN FAST MOVING CONSUMER PRODUCTS MANUFACTURING FIRMS

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ABSTRACT

The research sought to investigate the influence of sustainable packaging innovation and customer expectations of fast-moving consumer goods by Unilever Nigerian Group of companies in selected retailers in Lagos state. In the current investigation, survey method was adopted as questionnaires were distributed among three eighty-four respondents (384) while two hundred and seventy-two (272) were finally retrieved for analysis. Regression analysis was utilized to analyze the data gathered in the study. As such, the results of the study indicate that there is a positive yet statistically insignificant regression coefficient between sustainable packaging innovation and customer expectation. It implies that even though customer expectation increases slightly with improvements in sustainable packaging innovation, this relationship is insignificant. The constant reveals that without any sustainable packaging innovation, consumers have high expectations anyway. This research shows that the existence of the gap between the attitude and the behaviour, high consumer expectations irrespective of sustainable packaging innovation, the absence of clear communication about sustainability, and the importance of functional features of packaging instead of symbolic ones are the possible explanations of the phenomena. It is suggested that Unilever needs to move from the approach where only innovation of packaging is carried out to more general communication strategies of sustainability implementation. As sustainable innovations do not lead to increased consumer expectations, these must be made evident to the customer.

Keywords: Customer Expectations; Environmental Consciousness; Green Packaging; Sensory Stimuli; Sustainable Packaging Innovation

INTRODUCTION

The Fast-Moving Consumer Goods (FMCG) sector is experiencing a major shift related to resource circularity and increasing concerns for the environment. Traditionally, FMCG focused almost entirely on packaging models based on linear economies. Priorities included product protection, minimizing costs, and maximizing visibility on store shelves (De Canio et al., 2024). This rapid style of consumption has created imprints that include massive ecological disruptions and unprecedented plastic pollution, overstuffed urban landfills, and widespread microplastic pollution in the oceans. Discerning these vulnerabilities requires manufacturers to adapt from fossil fuel linear materials to more advanced sustainable packaging. Innovations in sustainable packaging readily encompass multi-dimensional progress such as circularity of materials by the use of biodegradable bio-based polymers (e.g., polylactic acid), upcycling of food and agricultural wastes, lightweight packaging constructions, and simplification of structural recycling layers (Shi et al., 2025; Perera et al., 2023).

Global environmental degradation has intensified into a multidimensional planetary crisis, characterized by biodiversity loss, ecosystem disruption, escalating waste generation and persistent plastic pollution. Recent scholarship describes the interaction among climate change, biodiversity loss and other environmental pressures as an unprecedented planetary crisis, with human activities increasingly altering ecological systems and weakening ecosystem resilience (Pfenning-Butterworth et al., 2024). Plastic pollution has become particularly pervasive because of the rapid growth in plastic production and inadequate waste management. The global waste burden is also increasing rapidly: municipal solid waste generation was approximately 2.1 billion tonnes in 2023 and is projected to reach 3.8 billion tonnes by 2050, creating substantial pressure on urban collection, treatment and disposal systems (United Nations Environment Programme, 2024).

Marine ecosystems are particularly vulnerable to this pollution. Recent reviews demonstrate that microplastics are now widely distributed throughout marine environments, originating from both land- and ocean-based activities and entering marine food webs through trophic transfer (Kushwaha et al., 2024; Marcharla et al., 2024). Microplastics can also adsorb pollutants and heavy metals and release chemical additives, thereby creating additional ecological and potential human-health concerns (Kushwaha et al., 2024). Similarly, Anthony et al. (2024) identifies inadequate waste management, urban runoff and other anthropogenic activities as important pathways through which microplastics enter marine environments. Collectively, these trends demonstrate the urgency of moving beyond conventional linear production and disposal systems toward circular economy approaches emphasizing waste prevention, reuse, recycling, resource recovery and sustainable consumption.

Modern customer expectations are reshaping how companies engage with consumers. Retail customers now expect companies to use the product's exterior to embed a company's morals and values rather than just using the product's exterior to protect and display the product. Customers also expect companies to create product transport containers that are spill proof and easy to use, and also fully dispose of the product container, environmentally degrade, and appropriately express the container's recycling status. There is a serious imbalance and conflict of the expectations customers have and what companies are able to deliver. This has led to an investigative competition between companies to meet customer's expectation using the best idea available.

The impact of a company's sustainable packaging innovation on customer expectations cannot be generalized among demographics. The relationship is strong yet limited to the consumer's internal psychological needs. This exemplifies the importance of environmental

consciousness as a psychological variable. Environmental consciousness is a psychological and moral framework that governs a consumer's interpretation of eco-labels or natural sensory stimuli (Kim & Lee, 2023; Carrión-Bósquez et al., 2024). For highly environmentally conscious consumers, sustainable packaging innovations resonate on moral grounds, create positive brand related affect, and increase the consumer's willingness to tolerate a higher price or minor trade-offs in product function (Seref & Çufaoğlu, 2025). For environmentally indifferent consumers, the function of the product, the convenience of the product, and the economic value of the product are the primary determinants of the consumer's level of satisfaction. These consumers hold sustainable innovations in packaging in a negative light or are indifferent to the innovations (Selvaggi et al., 2026). It is, therefore, necessary to understand the interaction between this internal psychological variable and external sustainable packaging innovations for FMCG firms to effectively integrate the company's engagement in sustainable business practices with successful marketing in the new retail business.

LITERATURE REVIEW

Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (TPB) is a powerful socio-psychological framework that explains how consumers convert external stimuli, such as sustainable packaging innovations, into internal cognitive standards, such as customer expectations (Rozenkowska, 2023). Three pathways are used to explain the interaction between objective changes in packaging and human psychology, that is, attitude, subjective norms and perceived behavioral control within a modern fast-moving consumer goods context as core constructs of TPB (Sukri et al., 2026).

When an FMCG brand launches an SPI, such as advanced bio-based polymers, or dematerialized minimalist materials, it serves as a visual and tactile cue that directly improves the consumer's cognitive attitude (Bravo & Vieira, 2024), changing their baseline product desires from simple functional performance to relational, ethical expectations. This expectation is intensified further by subjective norms, which are increasingly making social and regulatory pressure against single-use plastics. As a result, consumers increasingly require sustainable packaging choices from brands to remain in line with their social reference groups (Kozik-Kołodziej, 2026). Moreover, if an SPI has smart packaging features like clear disposal labels or visible QR codes, it makes the way forward after consumption more straightforward and easier to recycle, which enhances the consumer's PBC and creates the anticipation of a hassle-free, functional ease of disposal to support the product's ecological claims, it diminishes the post-consumption recycling pathway, thus improving the consumer's perceived behavioral control and creating the expectation of easy and functional disposal in line with the product's ecological claims (Lee, 2025).

Sustainable Packaging Innovation

Green packaging, an innovative concept, has emerged recently. Packaging impacts multiple Sustainable Development Goals (Fonseca et al., 2020). Packaging safeguards food and conveys its nutrition. It provides value to the consumer through a methodical approach for preparing products for safe, fast, and efficient handling, transport, storage, retail, consumption, recovery, and disposal (Bócoli et al., 2025). "Green packages" (or ecological or environmentally friendly packages) are made entirely from plants, and are recyclable or reusable, biodegradable, and slow to break down (Adebayo, 2026). It supports sustainable development and does not pose a risk to the health of people or animals or to the environment

through its life cycle. To summarize, green packaging does not pollute the environment or people throughout its use and is functional, recyclable, reusable, and degradable (Khandeparkar et al., 2024).

Customer Expectations

Customers estimate the potential benefits and consequences of using products bought. Customer expectations are personal reference points and calculated benchmarks that consumers expect while shopping. Traditionally limited to functional utility (such as how easy a product is to open, its ability to be resealed or reused, how well it protects its contents), consumer metrics have significantly broadened to include the effectiveness of environmental protection after use (Operato et al., 2025). Many consumers now evaluate products at the Point of Sale (POS) for their disposal and end-of-life use, and for brand trust, the presence of “ease of recycling” is now the baseline for a positive evaluation (Turan et al., 2024). Recently published studies have shown that most consumers expect the brands they support to have a policy of sustainability and use sustainable packaging (Duarte et al., 2024).

Customer expectations can no longer be ignored and deeply affect the quality of the relationship that a brand can build with its customers. Studies show that not meeting such expectations leads to a huge gap of trust, and the brand switching behavior, especially in people from the younger generations who are known to switch from the brands that they trust to alternative brands that support sustainability and use sustainable packaging, is quite evident (Theocharis & Tsekouropoulos, 2025). On the other hand, by meeting customers’ expectations and satisfying the requirements for eco-packaging, a company can gain long-term sustainable brand equity and trust in the product, and customers are more likely to leave positive reviews and use a product advocacy behavior by supporting the product on social media platforms and other online channels (Yonalia & Bahri, 2025).

Environmental Consciousness

Environmental Consciousness (EC) is a socio-psychological and cognitive model that expresses an individual's awareness of environmental deterioration and stops one from taking further steps to destroy the environment. Understanding the environment includes many of the elements that influence one’s attitude, behavior, and goals, and these are closely tied to the psychological aspects of pro-environmental thinking and behavior (Zhang & Cao, 2025). Pro-environmental behavior is demonstrated by ecologically conscious individuals (Bellotti et al., 2025). The rising environmental consciousness fosters sustainable behavior and practices and serves to recognize the need for environmental conservation (Khan & Thomas, 2023). To promote green activism and consumer environmental friendliness to restore a better lifestyle, organizations work to enhance their knowledge of environmental issues (Khan & Thomas, 2023). Environmental consciousness is a determinant of consumer's willingness to pay and behavior modeling (Liga, 2024). The more informed customers are about social and environmental issues, the greater prosocial and pro-environmental behaviors they are likely to display (Nassani et al., 2023).

H₁: Sustainable Packaging Innovation has significant effect on Customer Expectations in selected retail outlets.

Conceptual Framework

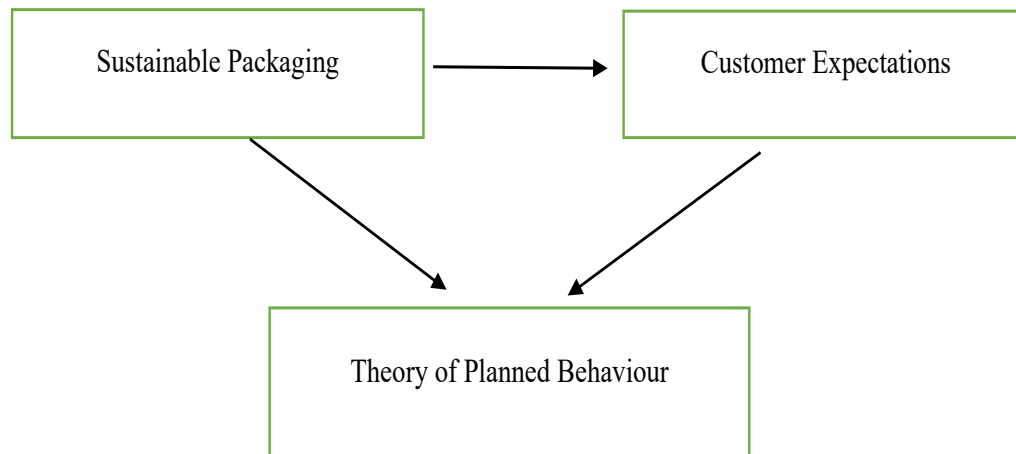


Figure 1. Conceptual Framework
Sources: Researcher's Conceptualization, 2026

RESEARCH METHOD

Research Design

In carrying out this study, the researcher made use of cross-sectional survey research design to find the influence of sustainable packaging innovation on customer expectations of FMC products of Unilever Nigerian Group of Companies' products. The study was carried out in three different Spar retail outlets in Victoria Island, Surulere and Ikeja area of Lagos metropolis. The rationale behind the selection of these stores is due to the customer base they have and the good locations they enjoy which is one of the vital aspects that makes customers choose such stores. The research was based mainly on primary data collected by using a structured questionnaire as the five-point Likert scale was used to measure the responses, for which 1 = Strongly Disagree and 5 = Strongly Agree. In view of the fact that the population is known but cannot be ascertained owing to its infinite nature, sampling model which is 384 was used while 286 questionnaires were received. From the 286 copies of questionnaires that was received, 272 copies of the questionnaire were finally inputted for data analysis while the remaining 112 copies of the questionnaire were rejected as a result of the improper filling of the copies of questionnaires. The sample-size approach is applicable in the study because the study population is very large and unknown, making a finite population estimate impractical. In lieu of this, the infinite sample determination model provides a statistically adequate sample size for achieving reliable and generalizable results under such conditions.

Sampling

A multi-stage sampling technique was utilized in this study. In the first stage, purposive sampling was employed to select the three retail sites based on their relevance to structured retail and product display arrangement. Secondly, stratified sampling was utilized where each mall served as strata and samples were proportionally allocated among the three sites, depending on their traffic. Finally, convenient sampling technique was employed at the third stage where the adult customers who were available were selected and invited to participate in the survey. Structured questionnaires included data on demographic characteristics and

respondents' perceptions regarding customer expectations, environment awareness, green packaging, sensory stimuli, and packaging innovation.

Measurement

Data measurement was carried out using a five-point Likert scale of 1 = Strongly Disagree to 5 = Strongly Agree. For the purpose of analyzing the collected data, Statistical Package for the Social Sciences (SPSS) Version 27 was used with the help of descriptive analysis and multiple linear regression to examine the influence of sustainable packaging innovation on customers' expectation. The validity of the research instrument was ensured using expert review for content and face validity; reliability was established with the use of Cronbach's alpha test with a minimum of 0.70; and finally, ethical considerations were taken into account.

Data Collection

The data were collected through the use of a structured questionnaire that was applied to the 286 respondents. The structured questionnaire includes demographic data, customer expectations, environmental consciousness, green packaging, sensory stimuli, and sustainable packaging innovation.

Response Rate

Table 1. Summary of Response Rate

Number of distributed questionnaires	Number of completed questionnaires	Number of incomplete questionnaires	Response rate
384	272	112	70.8%

Table 2. Descriptive Analysis of the Socio-Demographic Characteristics of the Respondents

Variables	Frequency (n = 272)	Percentage (%)
Age Group		
20 - 29 years	60	22.05
30 - 39 years	105	38.60
40 – 49 years	89	32.72
50 years and above	18	6.63
Gender		
Male	231	84.92
Female	41	15.08
Educational Level		
SSCE/ND	28	10.29
NCE/HND	77	28.30
Bachelor's Degree	112	41.17
Masters' Degree or higher	55	20.22

Table 3. Validity Statistics

	Validity Test	KMO	Barlett's Test	Sig.
i.	Sustainable Packaging Innovation	.636	59.565	.000
i.	Customer Expectations	.684	61.342	.000

Table 4. Cronbach's Alpha Coefficients Table

	Variables	Cronbach Alpha Coefficients
i.	Sustainable Packaging Innovation	.743

ii. Customer Expectations .751

RESULTS AND DISCUSSION

The data obtained was processed and statistically analyzed using inferential (Multiple regression) statistical data analysis method to validate the hypotheses.

Test of Hypothesis

Ho₁: Sustainable Packaging Innovation has no significant effect on Customer Expectations in selected retail outlets.

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Table 5. Model Summary

Model	R	Adjusted R Square	R Std. Error of the Estimate	Change Statistics				Sig. Change
				Square Change	F Change	df1	df2	
1	.079 ^a	.006	.41399	.006	1.728	1	272	.190

a. Predictors: (Constant), SPI

The model summary shows that the correlation between sustainable packaging innovation and customer expectation is $R = 0.079$, while the R^2 value is 0.006. This indicates that sustainable packaging innovation explains only 0.6% of the variance in customer expectation. The Adjusted $R^2 = 0.003$ further confirms that the predictive ability of the model is very weak. Thus, sustainable packaging innovation does not meaningfully predict customer expectation among respondents.

Table 6. ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.296	1	.296	1.728	.190 ^b
	Residual	46.617	271	.171		
	Total	46.913	272			

a. Dependent Variable: Customer Expectation

b. Predictors: (Constant), SPI

The ANOVA table reports an F-value of 1.728 with a p-value of 0.190. Since $p > 0.05$, the model is not statistically significant. This means that the regression model does not significantly improve the prediction of customer expectation beyond random chance. Therefore, there is no evidence of a statistically significant relationship between sustainable packaging innovation and customer expectation.

Table 7. Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
1	(Constant)	4.091			19.970	.000
	SPI	.085	.064	.079	1.314	.190

a. Dependent Variable: Customer Expectation

The coefficients table shows that sustainable packaging innovation has a positive but non-significant regression coefficient ($B = 0.085$, $t = 1.314$, $p = 0.190$). This means that although customer expectation tends to increase slightly as sustainable packaging innovation improves, this increase is not statistically significant. The constant term ($B = 4.091$, $p < 0.001$) indicates that, even without sustainable packaging innovation, customers already report high levels of expectation.

Decision: Since the p-value associated with sustainable packaging innovation is greater than 0.05 ($p = 0.190$), the null hypothesis is accepted. Therefore, it is concluded that: sustainable packaging innovation has no statistically significant effect on customer expectation in the selected retail outlets.

Discussion

Sustainable Packaging Innovation and Customer Expectations

The insignificant relationship between sustainable packaging innovation and customer expectation ($B = 0.085$, $t = 1.314$, $p = 0.190$) suggests that although there is a slight positive trend, the improvement of sustainable packaging practices in the selected retail outlets does not reliably predict changes in customer expectation levels. This is in line with the broader empirical literature (Espineda et al., 2026) that provides a nuanced picture of the impact of sustainable packaging on consumer perceptions and behavior.

Theoretical and Empirical Context

Many studies have reported that consumers are generally positive toward sustainable packaging. For instance, Rehal et al. (2023) discovered that 86% of consumers favor products with eco-friendly packaging, primarily driven by environmental protection and recycling concerns. Likewise, Turan et al. (2024) found that packaging material (e.g., fiber-based vs. plastic) strongly influences consumers' perception of environmental friendliness and brand social responsibility. Yet translating these positive attitudes into measurable expectations or behavioral outcomes is not always statistically robust, especially when analyzed through regression frameworks in specific retail contexts.

The lack of significance you found may be a manifestation of what's called (in sustainability circles) the attitude-behavior gap. David (2025) discusses how consumer consciousness about sustainable packaging is increasing, but there are still serious knowledge

gaps amongst consumers and labeling, trusted eco-certifications, and clear messaging are important intervening factors that affect purchase decisions. In the absence of those levers, innovation in sustainable packaging may not be enough to move the needle on customer expectations. Khandeparkar et al. (2024) found that material type and environmental claims on packaging significantly affected perception, reinforcing the idea that packaging innovation needs to be communicated to consumers if it's going to affect expectations.

Contextual Factors: Retail Environment and Consumer Segmentation

The retail environment is expected to moderate packaging- expectation relationships. For example, researchers found little to no support in their recent experimental investigation of sustainable packaging in the retail sector of the Philippines for statistically significant effects for individual-level demographic variables (age, sex) on perceptions of sustainable packaging, and model fit was negligible across the board ($R^2 < 0.03$). Authors suggest the choice to implement sustainable packaging is determined more by functionality and material perceptions rather than targeting specific demographic groups, lending credence to interpreting packaging through design/methodology-oriented (systems), versus individual-level (behavior prediction), retail expectations. We can infer from this that certain retailer may not influence customer expectation with sustainable packaging if the packaging is not perceived to be functionally or economically better than conventional options.

Secondly, customers may have been primed to already expect highly of products on some level, shown by the large effect of the constant ($B = 4.091$, $p < 0.001$). This leaves less room for the predictor to explain, as customers note having higher than expected expectations for green packaging even without it. Chirilli et al. (2022) who noted consumers' knowledge about and expectations of sustainable packaging are impacted by socio-demographic factors. However, they also found some consumer groups (fewer green consumers) to be less affected by sustainable packaging.

The Role of Communication and Labeling

The literature emphasizes that communication of sustainable packaging innovation is key to affecting consumers' expectations. Chirilli et al. (2022) discovered consumers expected greater Environmental-sustainability- related packaging information based on their gender and age. Specifically, females and older-aged consumers expect clearer symbols, recycling instructions, as well as narrative components that tell a story about the type of packaging. If the retailers surveyed in your study did not properly educate consumers about their sustainable packaging, this may have contributed to your findings of no significance. Further, interviewing industry professionals, discovered half of the professionals believe consumers do not care about sustainability when it comes to packaging.

CONCLUSION

In conclusion, the study concludes that sustainable packaging innovation has a positive but statistically insignificant effect on customer expectations ($B = 0.085$, $p = 0.190$). Therefore, the null hypothesis is retained, indicating that sustainable packaging innovation does not significantly influence customer expectations in the selected retail outlets. The lack of a significant impact from sustainable packaging innovation on expectation seems reasonable from an empirical point of view as well, as several literatures discussed earlier can help explain this phenomenon. From the attitude-behavior inconsistency to customers' already high expectations, insufficiently overt communication about sustainable packaging innovations to

customers, and even packaging attributes that are symbolically functional yet consumers who pay more attention to tangible functionality in certain retail environments. Research into this concept may apply variables that mediate these literatures in the future, such as perceived environmental knowledge, trust in environmental labels, and observability of sustainable packaging innovations. Additionally, research may look into how variables such as retail format moderate the relationship between sustainable packaging innovations and customer expectations. Variables such as consumers' involvement with environmental concerns may also serve as a moderating factor.

RECOMMENDATIONS

The retail outlets need to change their approach from sustainable packaging innovation in isolation to that of sustainable communication. This is because sustainable packaging innovation by itself cannot really increase consumer expectations as consumers expect excellent service in any case. In lieu of this, the study recommended that the company should specifically:

1. Strengthen communication on packaging. Eco-labeling, recycling instructions, and narrative information regarding the origin of materials must be incorporated for innovation to be realized, noticed, and expectations to be formed.
2. Fill the gap between attitude and behavior. Simply because consumers are aware of something does not mean their expectations will necessarily increase or that they will act on that knowledge.
3. Focus on functional benefits, not purely symbolic ones. Studies reveal that consumers react more positively towards packages which offer functional/economic benefits in addition to making environmental claims.
4. Don't make assumptions about consumer interests. People working within an industry tend to assume less about customer preferences than reality. Consumer research needs to be done prior to package investment.
5. Future researchers should measure Environmental Consciousness (EC) using Likert-scale items covering environmental awareness, concern, knowledge, and responsibility. The TPB should be operationalized through attitude, subjective norms, and perceived behavioral control (PBC) using validated multi-item scales. Reliability and construct validity should be established before testing the constructs through regression or SEM. EC may also be tested as a mediator/moderator, while TPB can explain the psychological mechanisms linking sustainable packaging innovation to customer expectations.

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