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GREEN MARKETING STRATEGIES AND CONSUMER PURCHASE BEHAVIOR IN NIGERIA

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ABSTRACT

This study empirically investigates the influence of green marketing strategies on consumer purchase behaviour within the unique socio-economic context of Nigeria, addressing a critical research gap in emerging economies. A quantitative, cross-sectional research design was employed, utilizing a structured questionnaire to collect data from 350 consumers in Northwestern Nigeria. The analysis incorporated descriptive statistics, reliability tests, correlation analysis, and multiple regression. The results confirmed high internal consistency for all constructs (Cronbach's Alpha range: 0.72-0.81). Descriptive findings indicated favourable consumer perceptions towards green products (Mean=3.85) and self-reported purchase behaviour (Mean=3.91), though green pricing strategies were viewed less positively (Mean=3.42), highlighting affordability concerns. Pearson correlation analysis revealed significant positive relationships ($p<0.01$) between all elements of the green marketing mix and purchase behaviour, with green product demonstrating the strongest association ($r = .615$). Multiple regression analysis established that the combined variables significantly explain 64.5% of the variance in consumer behaviour ($R^2 = 0.645$, $F = 68.45$, $p < 0.001$). All four green marketing strategies were significant predictors, leading to the rejection of all null hypotheses. Green product ($\beta = 0.421$, $p < 0.001$) and green promotion ($\beta = 0.332$, $p < 0.001$) emerged as the strongest influences, followed by green price ($\beta = 0.198$, $p < 0.001$) and green place ($\beta = 0.161$, $p = 0.001$). The study concludes that Nigerian consumers are positively influenced by eco-friendly product attributes and credible promotional messages, but economic and logistical realities moderate this relationship, providing essential insights for marketers and policymakers aiming to foster sustainable consumption.

Keywords: Green Marketing, Consumer Purchase Behaviour, Green Product, Green Price, Green Promotion, Green Place.

INTRODUCTION

In recent years, growing environmental concerns and increasing emphasis on sustainability have considerably impacted consumer behaviour and market dynamics. The growing concerns about the negative effects of pollution, increasing consumer awareness of environmental issues, and the need for sustainable supply chains are putting significant pressure on businesses to engage in green marketing practices (Alhamad et al., 2023; Liao et al., 2020). In response, businesses are incorporating green features into their marketing strategies from product design to manufacturing processes and promotional activities (Karunarathna et al., 2020). Hence, green marketing emerges as a critical strategy for businesses seeking to meet the needs of environmentally conscious consumers while also promoting sustainability (Pushpanathan & Silva, 2020; Shabbir et al., 2020).

Green marketing involves minimising the environmental impact of marketing by changing product designs, manufacturing methods, packaging, and promotional activities (Gbadeyan & Omolekan, 2015). It represents a marketing practice that considers the environmental effects of a product's entire lifecycle, including design, manufacturing, packaging, labelling, usage, and disposal (Shabbir et al., 2020). Furthermore, in addition to environmental commitment, companies that incorporate green aspects into their marketing strategy stand to achieve competitive advantages in an increasingly saturated market (Tsai et al., 2020). The growing worldwide awareness of concerns such as pollution, climate change, and resource depletion are also leading to increasing demand for green products (Wang et al., 2022). This prompts the development and implementation of the green marketing mix by businesses as a strategic tool to achieve both economic, environmental and social objectives.
The concept of green marketing mix is gaining traction due to the rise in consumer interest in sustainability. The green marketing mix, which builds on the conventional marketing mix, includes green features such as green products, green pricing, green placement, and green promotion aims at achieving both sustainability and consumer appeal (Mahmoud et al., 2024). These aspects can have a major impact on consumer behaviour, particularly purchasing intentions, and help organisations achieve competitive advantages in a more environmentally conscious market (Pushpanathan & Silva, 2020). However, despite the increasing interest in green marketing and sustainability, significant gaps exist between claimed consumers' environmental concerns and their actual purchase behaviour (Mahmoud et al., 2024). This disparity highlights the need for a better understanding of the components of the green marketing mix that have the most impact on consumer purchasing behaviour. Bridging this gap is essential for marketers as they design and implement effective green marketing strategies.

The relevance of investigating this green attitude-behaviour gap is acutely felt within the unique socio-economic and environmental landscape of Nigeria. The country faces severe environmental challenges including oil pollution in the Niger Delta, widespread deforestation, acute urban waste mismanagement, and growing greenhouse gas emissions which pose a significant threat to sustainable development and public health (Adeola, 2020; Egbuche, 2022). While there has been growing awareness among Nigerian businesses about corporate social responsibility and sustainability, empirical understanding of how specific green marketing strategies influence consumer purchase behaviour remains limited (Ayinde & Ogunbiyi, 2023).

The application and effectiveness of the green marketing mix in Nigeria are complex and mediated by contextual factors. Research from developed economies shows that consumers are increasingly motivated to pay more for sustainable products (Wang et al., 2022). However, these findings cannot be directly applied to Nigeria due to profound contextual differences. Nigerian consumers navigate a market characterized by high poverty levels, low purchasing power, deep-seated skepticism toward corporate environmental claims ("greenwashing"), and a limited availability of genuine eco-friendly alternatives (Gbadeyan & Omolekan, 2015; Ogiemwonyi & Harun, 2020). For instance, the success of green products is often hindered by their scarcity, perceived higher quality, and significant premium cost. Green pricing becomes a critical hurdle, as the willingness to pay a premium is constrained by economic realities (Karunarathna et al., 2020). The effectiveness of green promotion is challenged by consumer skepticism, while green place/distribution is hampered by logistical inefficiencies that limit the accessibility of sustainable products (Mustapha, Ali, & Alam, 2016).

Therefore, a critical gap exists in understanding whether Nigerian consumers genuinely prioritize eco-friendly products over cheaper alternatives, how much they are willing to pay, and which elements of the green marketing mix most effectively drive their actual purchase behaviour. This study seeks to fill this gap by empirically examining the relationship between green marketing strategies (conceptualized through the 4Ps mix) and consumer purchase behaviour in Nigeria, providing crucial insights for businesses, policymakers, and the broader sustainability agenda.

Research Problem

The growing global concern over environmental sustainability has placed significant pressure on businesses to integrate green marketing strategies into their operations (Alhamad et al., 2023; Liao et al., 2020). Green marketing refers to the promotion of products and services based on their environmental benefits, such as being recyclable, energy-efficient, or made with eco-friendly materials. It encompasses not just the products themselves, but also pricing, promotional messages, and distribution practices that reflect a commitment to sustainability (Pushpanathan & Silva, 2020).

In Nigeria, environmental issues such as oil pollution, deforestation, urban waste mismanagement, and greenhouse gas emissions threaten sustainable development and quality of life (Adeola, 2020; Egbuche, 2022). While there has been growing awareness among Nigerian businesses about corporate social responsibility and sustainability, there is still a limited understanding of how such strategies influence consumer behavior (Ayinde & Ogunbiyi, 2023). Nigerian consumers face unique challenges that may affect their responsiveness to green marketing, such as high poverty levels, low purchasing power, skepticism toward corporate environmental claims, and limited availability of eco-friendly alternatives (Gbadeyan & Omolekan, 2015; Ogiemwonyi & Harun, 2020).

Research conducted in developed economies shows that consumers are increasingly motivated to pay more for sustainable products (Wang et al., 2022). However, these findings cannot be directly applied to Nigeria due to profound contextual differences. There is a critical gap in understanding whether Nigerian consumers genuinely prioritize eco-friendly products over cheaper alternatives, how much they are willing to pay, and whether green promotional messages affect their actual purchase behavior (Mahmoud et al., 2024).

Thus, the research problem centers on the lack of empirical evidence regarding the relationship between green marketing strategies (green product, green price, green promotion, and green place) and consumer purchase behavior in the unique socio-economic context of Nigeria. Without this knowledge, businesses risk implementing ineffective campaigns, policymakers lack evidence for sustainable consumption policies, and the broader sustainability agenda (including the UN's Sustainable Development Goals) remains constrained.

Research Questions

This study is guided by the following research questions:

1. To what extent do green product strategies influence consumer purchase behaviour in Nigeria?
2. What is the effect of green price strategies on consumer purchase behaviour in Nigeria?
3. How do green promotion strategies affect consumer purchase behaviour in Nigeria?
4. What is the influence of green place strategies on consumer purchase behaviour in Nigeria?

Research Objectives

The broad objective of this study is to examine the relationship between green marketing strategies and consumer purchase behaviour in Nigeria. The specific objectives are to:

1. Examine the influence of green product strategies on consumer purchase behaviour in Nigeria.
2. Assess the effect of green price strategies on consumer purchase behaviour in Nigeria.
3. Determine the impact of green promotion strategies on consumer purchase behaviour in Nigeria.
4. Analyze the influence of green place strategies on consumer purchase behaviour in Nigeria.

Research Hypothesis

The following null hypotheses (H_0) were formulated to be tested at a 0.05 significance level:

1. $H_0$1: Green product strategies have no significant influence on consumer purchase behaviour in Nigeria.
2. $H_0$2: Green price strategies have no significant effect on consumer purchase behaviour in Nigeria.
3. $H_0$3: Green promotion strategies have no significant impact on consumer purchase behaviour in Nigeria.
4. $H_0$4: Green place strategies have no significant influence on consumer purchase behaviour in Nigeria.

Literature Review

Green Marketing Strategies

Green marketing refers to marketing efforts to integrate environmental concerns into marketing strategies to achieve both organisational objectives and customer satisfaction while minimising negative impacts on the environment (Mustapha et al., 2016). The concept of green marketing emerged from the concept of ecological marketing introduced in 1975 and focuses on the effects of marketing activities on the environment, including pollution, energy consumption, and resource use (Sohail, 2017). Green marketing, over the past 30 years, has become a prominent research topic and green consumers are playing an active role in influencing business practices, contributing to the promotion of a sustainable global economy (Pushpanathan & Silva, 2020). The major goal of green marketing is to reduce environmental impacts by modifying product designs, manufacturing methods, packaging, and promotional activities (Gbadeyan & Omolekan, 2015). Thus, it represents the response of marketing to the environmental implications of the entire product lifecycle from design, production, packaging, labelling, usage, and disposal (Shabbir et al., 2020). The growing challenges of climate change and global warming have heightened global environmental awareness, prompting governments, non-governmental organisations, investors and other stakeholders to focus more on environmental concerns in recent years (Chen et al., 2024). Hence, green marketing emerges as the marketing response to these challenges.

The aim of green marketing is to balance environmental sustainability with commercial objectives by helping businesses meet consumer demands for green products and contribute to environmental goals. Due to the growing environmental challenges, consumers are becoming more conscious of the impact of their consumption on the environment and marketing managers are increasingly building their decisions on consumer purchase intentions. These intentions represent the likelihood of consumers choosing products that align with their environmental values, making green marketing a key factor in designing marketing strategies (Pushpanathan & Silva, 2020). Thus, this study considers green marketing as a business practice which focuses on the production, placement, pricing and promotion of green products with lower or no environmental impacts to satisfy consumer needs and wants to achieve business profit objectives while promoting sustainability.

Green Marketing Mix

The green marketing mix refers to techniques that help companies meet consumer needs while remaining environmentally sustainable, highlighting the focus of companies on producing biodegradable and non-harmful products, employing green packaging, optimising energy use, and engaging in manufacturing practices that are aware of their environmental consequences (Kotler, 2011). It differs from the traditional marketing mix in that it focuses on activities that benefit the environment, rather than profit (Khan et al., 2020). However, the theoretical framework of the marketing mix affords significant understanding in clarifying the various components of the green marketing mix (Mahmoud et al., 2024). Hence, it contains components including green products, green prices, green placing, and green promotion (Mahmoud et al., 2024). Thus, green marketing mix in this regard pertains to the combination of green products, green pricing, green placing and green promotion by an entity to satisfy environmentally conscious consumers and achieve other business objectives.

Green Product

Green products, otherwise called ecological, sustainable, environmental, and eco-friendly, are the focal point of all green marketing efforts (Agrawal & Ansari, 2022). Green products are products that minimise harmful impacts on the environment and consumers. These products are environmentally friendly and free of possibly harmful substances (Wang et al., 2022). Green products are becoming increasingly popular due to limited resource use, waste, and environmental concerns because the product's ecological qualities are developed to consider its entire life cycle, from manufacturing to disposal (Agrawal & Ansari, 2022). Environmental development objectives advocate for the minimisation of energy consumption, a reduction in thermal and pollutant emissions, and the optimisation of the sustainability of limited resources (Karunarathna et al., 2020). Hence, in contrast to standard products, green products use non-toxic raw materials that are biodegradable, use recyclable packaging, consume less energy, and are more expensive than non-green products (Wang et al., 2022). Green products and their environmental qualities are crucial for businesses to provide environmentally safer products, such as packaging that is recyclable and biodegradable (Mustapha et al, 2016). However, in the context of this study, green products are considered as those products that are less harmful to the environment, produced with fewer raw materials, are recyclable, use a limited amount of energy, and are biodegradable and not harmful to consumers.

Green Price

Green pricing is one of the primary and critical components of the green marketing mix (Agrawal & Ansari, 2022). Green pricing refers to the cost of items that prioritise environmental sustainability. Green products may be more expensive than traditional ones (Karunarathna et al., 2020). This concept may be perceived as compensation for the ecological benefits associated with the purchase of green products (Agrawal & Ansari, 2022). Green products typically cost more than non-green products due to increased costs associated with green methods, materials, and obtaining eco-label certification (Pushpanathan & Silva, 2020). In addition to the financial cost, the price of green products might occasionally include opportunity, energy, and psychological costs. However, when the primary benefits of green products outweigh those of non-green products, consumers will rush to purchase green products even if their prices are slightly higher than those of conventional products (Pushpanathan & Silva, 2020). Thus, in this context, green price entails the value which consumers pay in exchange for green products to satisfy their needs and wants in a sustainable way.

Green Promotion

Green promotion involves informing potential customers about the environmental benefits of products and services without harming the environment (Mahmoud, 2019). Green promotion entails designing promotional tools such as advertising, marketing materials, signage, white papers, websites, videos, and presentations with people, planet, and profit in mind (Agrawal & Ansari, 2022). Accordingly, green promotion entails sharing environmental facts with customers about the company's products (Karunarathna et al., 2020). By keeping people, profit, and the environment in mind, green promotion helps to manage the promotion tools, including public relations, sales promotion, direct marketing, personal selling, and advertising (Pushpanathan & Silva, 2020). Hence, to succeed in the market, green enterprises must promote the health and environmental benefits of their products through several promotional channels, including advertising, personal selling, and public relations (Mustapha et al, 2016). Moreover, to reach a broad spectrum of green consumers, green marketers might draw customers based on performance, cost savings, convenience, health, or simply being environmentally friendly as educating customers on the advantages of eco-friendly products is one way to raise consumer awareness (Pushpanathan & Silva, 2020). Thus, green promotion involves the process of communicating with consumers concerning green products in an environmentally sensitive way and avoiding the use of misleading or false messages while appealing to consumers.

Green Place

Placing or distribution is how consumers can obtain the marketer's products. In green marketing, placing is an essential element for creating the green concept (Pushpanathan & Silva, 2020). Green placing involves delivering green products from the company to consumers while adhering to environmental standards and ensuring quality (Agrawal & Ansari, 2022). It includes channels, coverage, transit, location, and logistics (Pushpanathan & Silva, 2020). Customers are more likely to purchase locally available green products than those who require a long purchase journey. Hence, as part of their green marketing mix, marketers use a green placing strategy to ensure green products are available at the right time, quantity, and location (Kaur et al., 2022). Thus, to effectively sell their products, marketers must have a broad market position as customers tend to prefer green products that are conveniently accessible (Karunarathna et al., 2020). However, green placing is about managing logistics to reduce transportation emissions, hence lowering the carbon footprint (Pushpanathan & Silva, 2020). Hence, marketers adhering to green marketing practices must ensure that green products are distributed in environmentally friendly ways. Thus, this study considers green placing as the process of distributing green products to ensure that consumers obtain these products at the right place, time, quantity and quality in a way that is less harmful to the environment.

The Concept of Consumer Purchase Behavior

Consumer purchasing behaviour refers to the process through which individuals or households select, purchase, use, and dispose of products for personal use. Understanding this behaviour is crucial for businesses to achieve their objectives, as it informs product development, marketing strategies, and sales forecasting (Agrawal & Ansari, 2022). Thus, green consumer behaviour, as a subset of consumer behaviour, specifically describes actions of consumers to minimise consumption-related negative environmental impacts. These behaviours are typically measured by consumers' willingness to purchase green products due to internal motivations such as values or beliefs or external factors such as social influence or marketing efforts (Ogiemwonyi & Harun, 2020). Green purchasing behaviour, therefore, involves consumer actions that actively contribute to environmental conservation. This includes behaviours such as energy conservation, responsible use of resources, reducing waste, and avoiding or minimizing pollution (Karunarathna et al., 2020). Consumers take these actions due to environmental consciousness.

Consumer awareness about the importance of sustainability is increasing due to environmental challenges such as climate change and resource depletion, leading to the rise of green consumption (Wang et al., 2022). Consumers are now more likely and willing to consider the environmental impact of their purchases which results in an increasing demand for green products. This change in consumer preferences makes green purchase intention a reliable indicator of future purchasing decisions and behaviour, and a key predictor of sales in an environmentally conscious market (Pushpanathan & Silva, 2020). Thus, consumer purchasing behaviour in the context of this study refers to the actions of consumers in searching for, selecting, buying, using and disposing of green products to satisfy their needs while contributing to sustainability.

Theoretical Framework

This study is anchored primarily in the Theory of Planned Behavior (TPB) (Ajzen, 1991) and supplemented by insights from the broader Green Consumer Behavior literature. These frameworks provide a comprehensive lens to analyze how green marketing strategies influence consumer cognition and behavior.
The Theory of Planned Behavior (TPB) posits that an individual's intention to perform a behavior is the most immediate predictor of their actual behavior. Intention, in turn, is determined by three core constructs:

1. Attitude toward the behavior (the individual's positive or negative evaluation of performing the behavior),
2. Subjective Norms (the perceived social pressure from important others to perform or not perform the behavior).
3. Perceived Behavioral Control (PBC) (the perceived ease or difficulty of performing the behavior, which encompasses control beliefs and access to resources) (Ajzen, 1991, 2020).

In the context of this study, the "behavior" is the purchase of green products. The green marketing mix (4Ps) acts as a set of external stimuli that shape these core TPB constructs:

- Green Product and Green Promotion primarily influence Attitude by shaping beliefs about the product's environmental benefits, quality, and the credibility of its claims (Wang et al., 2020).
- Green Promotion, especially through social media and influencer endorsements, can significantly alter Subjective Norms by creating a perception that environmentally conscious consumption is socially desirable and expected (Ogiemwonyi et al., 2023).
- Green Price and Green Place directly affect Perceived Behavioral Control. A high price premium can act as a barrier (reducing PBC), while widespread availability and accessibility of green products (Green Place) enhance the consumer's feeling that making a green

- purchase is easy and feasible (Karunarathna & Liyanaarachchi, 2022). Thus, the studies conceptual model positions the green marketing mix as an antecedent to the TPB variables that ultimately drive purchase intention and behavior.

While TPB is powerful, the documented "green attitude-behavior gap" suggests that additional variables are needed to fully explain green consumption. The Green Consumer Behavior model integrates environmental-specific factors into traditional behavioral models (Follows & Jobber, 2000). Key additions from this literature include:

- Environmental Concern: A consumer's general awareness and worry about environmental problems, which forms a foundational value influencing their attitudes toward green products (Liobikienė et al., 2021).
- Green Trust: The willingness to rely on a product or brand based on the belief that it meets specific environmental performance claims (Chen & Chang, 2012). In markets like Nigeria with high skepticism, trust is a critical mediator between green marketing signals and purchase intention (Mahmoud et al., 2024).
- Perceived Consumer Effectiveness (PCE): The belief that an individual's efforts can collectively make a difference in solving environmental problems. PCE strengthens the link between attitude and intention, as consumers who feel their actions matter are more likely to follow through (Liobikienė et al., 2021).

Therefore, this study adopts an extended TPB model. It proposes that Green Marketing Strategies influence Consumer Purchase Behavior both directly and indirectly by shaping the core TPB constructs (Attitude, Subjective Norms, PBC), while also being moderated by factors like Environmental Concern and Green Trust, which are particularly salient in the Nigerian context. This integrated framework offers a more holistic explanation of the complex decision-making process behind green purchases.

Empirical Review

Adeola & Evans (2023). This comparative study specifically included Nigeria, examining how digital payment platforms moderate the relationship between green marketing and sustainable consumption. The findings revealed that the convenience and accessibility of digital finance (e.g., mobile money, online banking) significantly enhanced the effect of green marketing strategies on purchase behavior. The study found that concerns about green pricing were alleviated when flexible digital payment options were available, making eco-friendly products more financially accessible. This research provides a crucial empirical link between financial technology (fintech) and green marketing effectiveness, offering a practical strategy for overcoming the price barrier in the Nigerian market.

Ogiemwonyi, et al, (2023). This study explored the interplay between green marketing awareness, social media usage, and green purchase behavior among younger demographics. The empirical results indicated that green promotion through social media platforms significantly strengthened the relationship between awareness and purchase behavior. The study found that interactive and educational green content on platforms like Instagram and Twitter was particularly effective for these cohorts. This finding is crucial for the Nigerian market, which has a large, youthful, and increasingly digitally-connected population, pointing to social media as a vital channel for green placement and promotion.

Zhang and Wang (2023) embarked on a pioneering meta-analytical odyssey aimed at unraveling the overarching influence of green marketing on consumer behavior within the home appliance industry. Through an exhaustive synthesis of extant literature supplemented by a survey of consumer preferences, the study sought to distill the quintessence of green marketing's efficacy in shaping purchase decisions vis-a-vis energy-efficient appliances. The findings unveiled a discernible uptick in consumers' prioritization of environmental considerations when procuring home appliances, signaling an emergent paradigm shift towards eco-conscious consumption. The study's prescient recommendations enjoined manufacturers to accentuate the environmental virtues of their products through transparent and credible green marketing endeavors, thus harnessing the zeitgeist of sustainability to catalyze market ascendancy (Zhang & Wang, 2023).

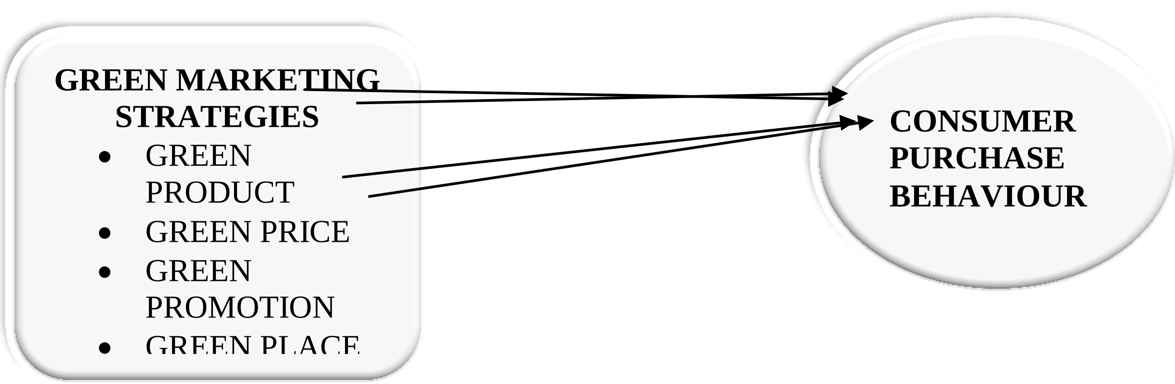
Mahmoud et al, (2024). This recent study investigated the direct impact of the green marketing mix (product, price, promotion, and place) on purchase intentions among consumers in Ghana. The findings revealed that while all four elements were significant predictors, green product attributes and credible green promotion were the most potent drivers of purchase intention. The study also found that green trust fully mediated the relationship between green price and purchase intention, indicating that consumers need to believe the premium is justified. This research underscores the critical role of trust and transparency in emerging markets, a highly relevant finding for the Nigerian context.

Silaban, et al, (2024). While not focused on Africa, this study offers valuable insights for Nigeria's collectivistic societal structure. The research found that in collectivistic cultures, green purchase behavior was significantly influenced by social norms and perceived social value (a facet of green promotion) rather than just individual attitudes. Consumers were more likely to purchase green products if they believed it enhanced their social image or was aligned with group expectations. This finding is highly transferable to the Nigerian context, suggesting that green marketing campaigns that highlight social benefits and community approval (e.g., "Join the community of conscious Nigerians") may be more effective than those focusing solely on individual environmental benefits.

Conceptual Framework

This study's framework was derived from the green marketing mix components and fundamentals as the independent variable based on the investigation on consumer purchasing Behaviour (choice and decision). This was adopted from prior empirical studies such as Wolok (2019), Purwanti et al (2019), Alabor and Anyasor (2021), Silaban et al (2021), Gelderman et al (2021) and Nguyen-Viet, 2023. The framework is graphically articulated in the image below:

Figure 1: Conceptual Framework of this Study



Source: Researcher (2025) as adopted from Wolok (2019) as well as Alabor and Anyasor (2021).

Research Methodology

Research Design

This study employed a cross-sectional research design, utilizing both descriptive and explanatory survey methods. The descriptive design was used to provide an overview of the respondents' demographics, awareness, and attitudes towards green marketing and products. The explanatory design was adopted to establish causal relationships between the independent variables (green product, green price, green promotion, and green place) and the dependent variable (consumer purchase behaviour). This approach is deemed appropriate as it allows for the collection of quantitative data from a sample of the population to address the research objectives and test the postulated hypotheses (Saunders, Lewis, & Thornhill, 2019).

Population and Sampling

The target population for this study consisted of North-western Nigerian consumers aged 18 years and above who are responsible for making regular purchasing decisions. A sample size of approximately 400 respondents was determined to be adequate for this study. This determination was made using the sample size table developed by Krejcie and Morgan (1970), which provides a representative sample for a large population while ensuring the generalizability of the results.

A mixed sampling technique was utilized. Purposive sampling was first employed to target and recruit respondents who demonstrated an awareness of eco-friendly or green products, ensuring the data collected was relevant to the research context. Subsequently, snowball sampling was used, where initial respondents were encouraged to share the survey questionnaire with their peers who also fit the study's criteria, thereby aiding in reaching a wider and more diverse audience within the target demographic.

Data Collection Method

Primary data was collected through a structured, self-administered questionnaire. This instrument was selected for its ability to ensure uniformity in responses, facilitate efficient data collection from a large sample, and enable robust statistical analysis. The questionnaire was distributed using a multi-channel approach to maximize reach and response rate. Online distribution was conducted via social media platforms (including WhatsApp, Facebook, and Instagram) and email using Google Forms. To ensure inclusivity and capture respondents with limited internet access, physical copies were also administered offline at strategic locations such as campuses, shopping malls, and corporate offices in selected North-western states.

Measurement of Variables

The questionnaire was structured into sections and utilized validated measurement scales adapted from prior scholarly works to ensure content validity and reliability. All constructs were measured using a five-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

- Green Product Strategies: Measured using a 5-item scale adapted from Chen (2010), capturing perceptions of eco-friendly design, recyclable packaging, durability, and overall product quality.
- Green Price Strategies: Measured using a 4-item scale assessing perceptions of affordability, willingness to pay a premium, and the perceived fairness of green pricing.
- Green Promotion Strategies: Measured using a 5-item scale evaluating the perceived effectiveness of eco-labels, environmental messages, influencer endorsements, and the credibility of corporate sustainability claims.
- Green Place Strategies: Measured using a 4-item scale focusing on product accessibility, availability in both physical stores and online platforms, and the convenience of distribution channels.
- Consumer Purchase Behaviour: Measured using a 6-item scale derived from the Theory of Planned Behaviour (Ajzen, 1991), capturing attitudes toward green products, intention to buy, and the self-reported likelihood of actual purchase.

The questionnaire also included a section to capture the demographic profiles of the respondents (e.g., age, gender, income, education level).

Data Analysis

The collected data was analysed using the Statistical Package for the Social Sciences (SPSS version 25). The analysis was conducted in several stages:

1. Descriptive Statistics: Frequencies, percentages, means, and standard deviations were computed to summarize the demographic data of respondents and their responses to the key constructs.
2. Reliability Analysis: The internal consistency of the measurement scales was assessed using

Cronbach's Alpha coefficient. A threshold of 0.7 or higher was used to confirm the reliability of the constructs (Nunnally & Bernstein, 1978).

Inferential Statistics:

- Pearson Correlation Analysis was *conducted to explore the strength and direction of the bivariate relationships between the independent variables and the dependent variable.
- Multiple Regression Analysis was performed to test the direct and combined influence of the four green marketing mix strategies on consumer purchase behaviour, thereby testing the study's hypotheses.

Model Specification

The regression model is functionally specified thus: FCPB = f(GPRO, GPRI, GPR,GPLA)

Where:

F CPB = Consumer Purchase Behaviour. GPRO = Green Product, GPRI = Green Price, GPLA = Green Place, GPR = Green Promotion.
The functional model is presented in econometric form as:
CPB = α + β1GPRO + β2GPRI + β4GPR+ β3GPLA+ ẹ

Where:

A = Constant term, B = Beta coefficients, β1 - β4 = Independent variables, ẹ = Error term 7.0 Result, Interpretation and Discussion

Reliability Test

In order to test the reliability of the instruments, Cronbach Alpha test was used to test the internal consistency of each construct (Pallant, 2011). According to Nunnally (1978), a Crobach's alpha value of 0.70 or more is considered significant and highly reliable, thus the result depict a great internal consistency for the constructs.

Table 1: Reliability Statistics

Variables	Cronbach's Alpha
Green Product	0.76
Green Price	0.81
Green Promotion	0.74
Green Place	0.72

Source: SPSS 25

Respondent Rate and Profile

A total of 400 questionnaires were administered, out of which 350 were returned and found valid for analysis, yielding a response rate of 87.5%. This is considered highly adequate as it exceeds the 70% benchmark recommended in survey research (Babbie, 2010; Saunders et al., 2019).

Table 2: Respondent Rate

Item	Number	Percentage (%)
Questionnaires Distributed	400	100.0
Questionnaires Returned	350	87.5
Questionnaires Not Returned/Invalid	50	12.5

Source: SPSS 24

Table 3: Demographic Profile of Respondents

Gender		Frequency	Percentage (%)
Valid	Male	190	54.3
	Female	160	45.7
Age (years)			
Valid	18-25	80	22.9
	26-35	150	42.9
	36-45	85	23.4
	46 and above	35	10.0
Educational Level			
Valid	Secondary/ND	60	17.1
	Undergraduate Degree (B.Sc./B.A.)	170	48.6
	Postgraduate Degree (M.Sc./Ph.D.)	120	34.3
Occupation			
Valid	Student	100	28.6
	Civil Servant	90	25.7
	Private Sector Employee	85	24.3
	Self-employed/Entrepreneur	75	21.4
Monthly Income (₦)			
Valid	Below ₦50,000	110	31.4
	₦50,000 - ₦100,000	120	34.3
	₦101,000 - ₦200,000	80	22.9
	Above ₦200,000	40	11.4

Source: Researcher's Field Survey 2025

The results reveal that male respondents (54.3%) slightly outnumbered females (45.7%), indicating a fairly balanced gender representation. In terms of age, the majority of respondents (42.9%) fell within the 26–35 age bracket, reflecting the dominance of young adults in purchasing decisions. A significant proportion of respondents (48.6%) possessed undergraduate degrees, suggesting a relatively educated consumer base. Occupationally, students (28.6%) and civil servants (25.7%) were the most represented, followed closely by private sector employees and entrepreneurs. Regarding income distribution, most respondents (65.7%) earned below ₦100,000 monthly, indicating that purchasing power constraints may influence consumer willingness to pay premium prices for green products.

Descriptive Statistics

Descriptive statistics were computed for all major study constructs green product, green price, green promotion, green place, and consumer purchase behaviour. The results are presented in Table 4, which shows the sample size, minimum, maximum, mean, and standard deviation for each variable.

Table 4: Descriptive Statistics

	N	Minimum	Maximum	Mean	St. Deviation
Green Product	350	2.10	4.90	3.85	0.74
Green Price	350	1.80	4.80	3.42	0.81
Green Promotion	350	2.00	4.80	3.67	0.76
Green Place	350	2.00	4.70	3.59	0.72
Consumer Purchase Behaviour	350	2.20	5.00	3.91	0.69
Valid N (listwise)	350				

Source: SPSS 25

The results reveal that respondents generally expressed favorable attitudes toward green product strategies (M = 3.85, SD = 0.74) and consumer purchase behaviour (M = 3.91, SD = 0.69). Green promotion (M = 3.67, SD = 0.76) and green place (M = 3.59, SD = 0.72) also recorded moderately high mean scores, suggesting positive perceptions of promotional activities and accessibility of green products. However, green price strategies (M = 3.42, SD = 0.81) recorded the lowest mean, implying that pricing remains a relatively weaker driver of green purchase behaviour among Nigerian consumers.

Correlation Matrix

Table 4: Correlation Matrix

		Con. Behav.	Purch.	G. Product	G. Price	G. Promotion	G. Place
Con Purch Behav.	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	350					
G. Product	Pearson Correlation	.615**		1			
	Sig. (2-tailed)	.000					
	N	350		350			
G. Price	Pearson Correlation	.425**		.381**	1		
	Sig. (2-tailed)	.000		.000			
	N	350		350	350		
G. Promotion	Pearson Correlation	.559**		.520**	.579**	1	
	Sig. (2-tailed)	.000		.000	.000		
	N	350		350	350	350	
G. Place	Pearson Correlation	.368**		.447**	.531**	.518**	1
	Sig. (2-tailed)	.000		.000	.000	.000	
	N	350		350	350	350	350

Correlation is significant at the 0.01 level (2-tailed)
Source: SPSS 25.

The correlation results reveal significant positive associations between all the independent variables of green marketing strategies (green product, green price, green promotion, and green place) and consumer purchase behaviour in Nigeria (North West). Specifically, green product exhibits the strongest correlation with consumer purchase behaviour (r = .615, p < .01), suggesting that eco-friendly product attributes play a critical role in influencing consumer decisions. This finding aligns with the assertion of Wang et al. (2022), who emphasized that consumers are more inclined toward environmentally friendly products that demonstrate tangible ecological benefits such as recyclability, durability, and reduced environmental harm. It also supports the Theory of Planned Behavior (Ajzen, 1991), which posits that favourable attitudes toward a behaviour in this case, purchasing green products strongly predict actual behavioural intentions.

Green promotion also demonstrated a strong and significant correlation with consumer purchase behaviour (r = .559, p < .01). This implies that communication strategies that credibly highlight environmental benefits can effectively shape consumer perceptions and drive purchasing decisions. This result is consistent with the findings of Ogiemwonyi et al. (2023), who showed that social media-based green promotion significantly enhances green purchase behaviour among young consumers. It further supports Mahmoud et al. (2024), who argued that promotional credibility is central to building trust and reducing consumer scepticism, particularly in developing markets where concerns about “greenwashing” remain high.

Green price was also significantly correlated with consumer purchase behaviour (r = .425, p < .01), albeit weaker than green product and promotion. This suggests that while pricing strategies affect consumer behaviour, their influence is moderated by affordability concerns within the Nigerian socio-economic context. The relatively weaker correlation may be explained by the purchasing power limitations of Nigerian consumers, as noted by Gbadeyan and Omolekan (2015), who observed that premium pricing often restricts access to eco-friendly products. However, the positive association indicates that when consumers perceive green products as fairly priced relative to their environmental benefits, they are more likely to adopt them, corroborating the arguments of Karunarathna et al. (2020).

Similarly, green place demonstrated a moderate yet significant correlation with consumer purchase behaviour (r = .368, p < .01). This highlights that product accessibility and convenient distribution channels are important drivers of green consumption in Nigeria. The result echoes the findings of Kaur et al. (2022), who noted that consumers are more likely to purchase green products when they are readily available across multiple channels, both physical and digital. Within the Nigerian context, this finding is particularly relevant given infrastructural and logistical challenges that may impede access to eco-friendly alternatives (Mustapha et al., 2016). Thus, improving the visibility and accessibility of green products can enhance their adoption among consumers.

The correlation analysis provides empirical evidence that Nigerian consumers respond positively to green marketing strategies, with product quality and promotional credibility serving as the strongest determinants of purchase behaviour. However, the relatively weaker role of price and accessibility highlights the contextual challenges facing green consumption in emerging economies.

Regression Result

Table 5: Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	.803	.645	.644	.84109

Source: SPSS 25.
Predictors: (Constant), Green Product, Green Price, Green Promotion, Green Place.
Dependent Variable: Consumer Purchase Behaviour.

The regression model summary demonstrates a strong explanatory power of the green marketing mix variables in predicting consumer purchase behaviour in Nigeria. The coefficient of determination (R^2 = 0.645) indicates that approximately 64.5% of the variance in consumer purchase behaviour can be explained jointly by green product, green price, green promotion, and green place strategies. This is a substantial proportion, suggesting that the green marketing mix is a significant determinant of purchasing decisions within the Nigerian context. The adjusted R^2 of 0.644 further confirms the robustness of the model, accounting for the number of predictors and reducing the likelihood of model overestimation.

The high R value of 0.803 indicates a very strong positive relationship between the set of independent variables and consumer purchase behaviour. This reinforces the theoretical proposition of the extended Theory of Planned Behavior (Ajzen, 1991, 2020), which posits that attitudes, perceived behavioural control, and subjective norms are shaped by external stimuli such as product attributes, promotional credibility, affordability, and accessibility. In this study, the green marketing strategies serve as such stimuli, thereby exerting significant influence on consumer attitudes and behavioural outcomes.

Table 6: ANOVA

Model	Sum of Squares	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	58.72	4	14.68	68.45	.000**
	Residual	47.82	345	0.14		
	Total	106.54	349			

Source: SPSS 25.
Predictors: (Constant), Green Product, Green Price, Green Promotion, Green Place.

Dependent Variable: Consumer Purchase Behaviour.

The ANOVA results demonstrate that the overall regression model is statistically significant, with an F-value of 68.45 and a p-value of 0.000, well below the 0.05 threshold. This finding indicates that the combination of green product, green price, green promotion, and green place strategies collectively provide a statistically significant explanation of variance in consumer purchase behaviour in Nigeria. In other words, the predictors, when taken together, have a meaningful influence on the dependent variable, thereby validating the appropriateness of the model for examining the relationship between green marketing strategies and consumer behaviour.

Test of Hypothesis

Table 7: Coefficients

		Unstandardized Coefficient		Unstandardized Coefficient		
1	Model	B	Std. Error	Beta	T	Sig.
	(Constant)	0.742	0.185		4.01	0.000
	Green Product	0.482	0.061	0.421	7.90	0.000
	Green Price	0.236	0.058	0.198	4.07	0.000
	Green Promotion	0.374	0.063	0.332	5.94	0.000
	Green Place	0.195	0.056	0.161	3.48	0.001

Source: SPSS 25.

Dependent Variable: Consumer Purchase Behaviour.

The first hypothesis ($H_0$1), which stated that green product strategies have no significant influence on consumer purchase behaviour in Nigeria, is rejected. The results show that green product strategies exert the strongest effect on consumer purchase behaviour ($\beta = 0.421$, $p < 0.001$). This finding demonstrates that environmentally friendly product attributes, such as recyclability, durability, and minimal ecological impact, play a pivotal role in shaping purchasing decisions. This result is consistent with prior studies by Mahmoud et al. (2024) and Wang et al. (2022), which highlighted that product quality and ecological characteristics are the most decisive factors influencing consumer adoption of green alternatives. Within the framework of the Theory of Planned Behavior (Ajzen, 1991, 2020), this underscores the role of positive attitudes toward eco-friendly products as a strong determinant of intention and behaviour.

The second hypothesis ($H_0$2), which posited that green price strategies have no significant effect on consumer purchase behaviour in Nigeria, is also rejected. The analysis reveals that green price significantly predicts consumer purchase behaviour ($\beta = 0.198$, $p < 0.001$), although its influence is comparatively weaker. This suggests that affordability and the perceived fairness of pricing remain critical considerations in consumer decisions. Nigerian consumers, operating within a socio-economic context of limited purchasing power, are price sensitive, yet they are willing to pay a premium for green products when the value proposition is credible. This finding supports the argument of Karunarathna et al. (2020) that willingness to pay for sustainable products is contingent on the perceived balance between cost and environmental benefits.

The third hypothesis ($H_0$3), which stated that green promotion strategies have no significant impact on consumer purchase behaviour in Nigeria, is likewise rejected. The results indicate that green promotion has a substantial effect ($\beta = 0.332$, $p < 0.001$), second only to product strategies. This demonstrates that credible and transparent communication regarding environmental benefits significantly shapes consumer trust and purchase decisions. This aligns with the findings of Ogiemwonyi et al. (2023), who observed that social media-based green promotional campaigns are effective in enhancing awareness and purchase behaviour among younger consumers in Nigeria. The result further confirms Mahmoud et al. (2024), who emphasized that the credibility of promotional messages reduces consumer scepticism and strengthens behavioural intention.

The fourth hypothesis ($H_0$4), which proposed that green place strategies have no significant influence on consumer purchase behaviour in Nigeria, is also rejected. The findings reveal that green place exerts a statistically significant, albeit weaker, effect on consumer purchase behaviour ($\beta = 0.161$, $p < 0.01$). This indicates that accessibility and convenience of eco-friendly products are important determinants of purchase, though their impact is moderated by infrastructural and logistical challenges prevalent in Nigeria. This finding echoes the work of Kaur et al. (2022), who highlighted the role of distribution in facilitating consumer access to sustainable products. Within the extended Theory of Planned Behavior, the availability of products enhances perceived behavioural control, thereby increasing the likelihood of green purchases.

Summary of Hypothesis Testing.

Null Hypothesis	Statement	Findings
$H_0 1$	Green product strategies have no significant influence on consumer purchase behaviour.	Rejected
$H_0 2$	Green price strategies have no significant effect on consumer purchase behaviour.	Rejected
$H_0 3$	Green promotion strategies have no significant impact on consumer purchase behaviour.	Rejected
$H_0 4$	Green place strategies have no significant influence on consumer purchase behaviour.	Rejected

Conclusion and Recommendation

This study examined the influence of green marketing strategies conceptualized through green product, green price, green promotion, and green place on consumer purchase behaviour in Nigeria. The results demonstrate that all four strategies significantly affect consumer decisions, with green product and green promotion emerging as the strongest predictors of purchase behaviour. These findings underscore that consumers value eco-friendly product attributes and credible promotional messages, though affordability and accessibility remain important considerations in the Nigerian context. The study therefore establishes that the green marketing mix is a critical determinant of consumer behaviour and provides empirical support for integrating sustainability into marketing practices in emerging economies such as Nigeria.

The findings of this study clearly highlight the relevance of integrating green marketing strategies into business practices in Nigeria, but their successful application requires careful consideration of the country's socio-economic realities. Businesses are encouraged to prioritize the development of eco-friendly products with verifiable environmental attributes such as recyclability, durability, and reduced ecological impact. By offering products that demonstrate genuine commitment to sustainability, firms can strengthen consumer confidence and foster greater adoption of green alternatives. Pricing strategies should also be designed to reflect a balance between the additional costs of green production and the limited purchasing power of many Nigerian consumers. This calls for innovative approaches, such as flexible payment systems, product bundling, and tiered pricing, which make green products more affordable without compromising quality.

Furthermore, effective promotion is essential for influencing consumer perceptions and overcoming skepticism about "greenwashing." Companies should emphasize credible, transparent, and evidence-based communication of their environmental initiatives, particularly by leveraging digital and social media platforms to engage the younger, more environmentally conscious demographic. Equally, policymakers and regulatory agencies must provide enabling frameworks that enforce truthful advertising and eco-labelling standards, as this will enhance consumer trust and discourage misleading environmental claims.

In addition, the distribution of green products must be improved to ensure accessibility across both physical and online marketplaces. Businesses should invest in efficient supply chain systems that not only make green products widely available but also reduce environmental footprints through sustainable logistics practices. In this way, the accessibility of eco-friendly products will encourage consistent consumer patronage and facilitate behavioural change.

Overall, the study recommends a holistic and sustained adoption of green marketing strategies by both firms and policymakers. Such efforts will not only improve consumer purchase behaviour in favour of eco-friendly products but will also contribute significantly to Nigeria's sustainable development agenda and global environmental conservation efforts.

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