How the Green Marketing Mix Shapes Sustainable Consumption: Consumer Skepticism as a Multilevel Mediator in Saudi Arabia

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ABSTRACT

This study examines the effects of the green marketing mix, which comprises green products, pricing, distribution, and promotion, on sustainable consumption behavior, mediated by consumer skepticism in Saudi Arabia. In response to the lack of empirical data in Middle Eastern markets, this study contributes to sustainability and marketing theory by incorporating the Theory of Planned Behavior, Attribution Theory, and Signaling Theory into a multilevel analytical framework. Firm-level data gathered at the firm level on green marketing practices were obtained from marketing managers, whereas individual-level data on consumer skepticism and sustainability-related consumption behavior were obtained from university students. The respondents refused to provide 550 valid responses within 50 firms using purposive sampling. Multilevel structural equation modeling (MSEM) was conducted using Mplus software. The results show that consumer skepticism is strongly influenced by all dimensions of the green marketing mix, with green promotion and green distribution having the most considerable impact. Consumer skepticism is a decisive mediated factor, which implies that green marketing strategies yield sustainable consumption, which boils down to the elimination of consumer skepticism towards claims about the environment. Although the green marketing mix has direct impacts on sustainable consumption, the impact of skepticism is significantly large at the individual and firm levels. The present research provides new theoretical inputs through the empirical validation of the concept of consumer skepticism as a key psychological process that connects the scope of green marketing strategy and behavioral changes in the sustainability environment. In practice, the results would support the fact that open promotion and trustworthy distribution procedures are essential for organizations trying to promote sustainable consumption as part of Saudi Arabia Vision 2030.

Keywords: Green marketing mix, consumer skepticism, sustainable consumption behavior, Saudi Arabia, multilevel analysis

1. INTRODUCTION

The issue of sustainable consumption has become a primary focus of political discussions because of increasing environmental distress, especially climate change, loss of biodiversity, and resource usage. With increased global awareness, companies are utilizing green marketing to ensure that consumer behavior meets sustainability objectives (Ali et al., 2025). Green marketing incorporates environmental aspects into the classic elements of the marketing mix, whereby the strategy is not focused on reflecting a change in purchase decisions but rather on a sustainable consumption culture in the long run (Zhang et al., 2024). However, as businesses focus on their green strategies, the question arises as to whether these marketing policies successfully translate into sustainable consumption behavior, particularly in new markets.

The green marketing mix, which consists of green products, green prices, green distribution, and green promotion, has become the focus of consumer behavioral formation (Alam et al., 2023). Each dimension has certain implications: green products are positioned to minimize environmental degradation; green pricing is meant to strike a balance between affordability and ecological value; green distribution is meant to have a minimal ecological footprint; and green promotion is meant to make consumers aware of environmental pledges (Islam and Ali Khan, 2024). Despite the importance of such dimensions identified in the extant literature, the results are still inconsistent, which makes it clear that the contributions of these dimensions should be studied collectively and individually in specific consumer markets (Khayyat et al., 2024).

Saudi Arabia is a special area to engage in such inquiry as it is rapidly changing its socio-economic environment with Vision 2030, which highlights sustainability, diversification, and less reliance on oil-related issues (Adil et al., 2024). Although the government supports sustainable development programs, the number of consumers embracing green consumption alternatives is still small, usually depending on the credibility and trust in corporate green assertions (Khan et al., 2024). This gap creates a need to analyze the interaction between the green marketing mix and consumer distrust in Saudi Arabia to impact sustainable consumption.

Moreover, consumer cynicism toward green claims, which can be described as a habit of consumers questioning the validity of companies' environmental promises, is a decisive conforming variable in comprehending the functioning of green marketing (Bhatti and Alawad, 2023). High skepticism can deter even well-designed green marketing strategies, which means that a low level of skepticism can intensify consumer sensitivity towards green initiatives (Lestari et al., 2025). Thus, including consumer skepticism in the analysis affords a broader perspective on the sustainability of some consumption behaviors in Saudi Arabia using green marketing practices. Despite numerous studies on green marketing in Western and Asian markets, few studies have been conducted on the role of this tool in the economy of the Middle East and Saudi Arabia (Mansour et al., 2024). The current literature has concentrated on the attitudes of consumers or environmental awareness in general but does not focus on the interactions between the elements of the green marketing mix and sustainable consumption patterns. This lack of contextualized insight also inhibits the development of theories and practical uses for green marketing in the region.

Additionally, although consumer skepticism has proven to be an obstacle to green consumption in many countries worldwide, its mediating effect between marketing plans for green and sustainable consumption has not been empirically investigated in Saudi Arabia (Yousef 2025). Considering that skepticism usually results from perceived corporate greenwashing, this aspect should not be overlooked because of the risk of overestimating the success of marketing initiatives. Thus, it is necessary to examine the process of skepticism between green marketing mix

dimensions and sustainable consumption. Finally, most of the literature applied generally falls within the one-level or direct-effect method, lacking financial details on how marketing initiatives can lead to sustainable actions (Ali et al., 2025; Lestari et al., 2025). There is also a lack of multilevel analyses applicable to complex consumer behaviors. Therefore, the gap includes the pressing research gap in empirically testing a mediated theoretical model that explains the skepticism in the Saudi market.

This study seeks to identify whether consumer skepticism mediates the existence of green marketing mix dimensions (green product, green pricing, green distribution, and green promotion) and sustainable consumption among consumers in Saudi Arabia. This study uses a multilevel analysis that attempts to separate the respective impact of each dimension of the marketing mix and elucidates the mediating role of consumer skepticism.

This research aim is relevant because it may help the literature on green marketing extend the theories by applying them to the realm of the Middle East, where culture, social, and economic processes are significantly diverse compared to Western economies. In particular, it discusses the under-investigated appraisal of skepticism and marketing mix strategies and provides an answer to the question of how the perception of credibility influences the adoption of sustainable practices by consumers. In its practical implications, the study offers actionable insights for policymakers and marketers in Saudi Arabia. Understanding how skepticism mediates consumer reactions to green marketing will assist institutions in devising clearer and more dependable strategies that may effectively endorse sustainable consumption within the Vision 2030 agenda.

Although previous studies have identified relationships between green marketing practices and sustainable consumption, most studies are at the direct and single-level relationship levels and provide little understanding of how firm-level strategies are passed on to the individual level to produce behavioral outcomes (Ali et al., 2025; Lestari et al., 2025). Consumer skepticism has emerged as a generally acceptable factor that impedes green consumption; however, it has seldom been discussed as a mediator construct for determining the effect of green marketing mix elements on consumer behavior. This restricts the theoretical knowledge of why different consumer reactions are achieved with the same green marketing strategy.

Furthermore, the available empirical results are mostly applied using single-source, individual-based data without considering the hierarchical nature of the marketing phenomenon, where green marketing strategies are planned at the firm level and manifested at the consumer level (Klabi and Binzafrah, 2023). Using a multilevel mediation approach, this study contributes to the existing knowledge by explicitly testing the relationship between the dimensions of the green marketing mix at the firm level and individual-level sustainable consumption behavior in terms of consumer (skepticism) behavior, thus providing a more methodologically rigorous and theoretically based explanation of green marketing effectiveness.

This contribution is especially significant in Saudi Arabia, where sustainability programs supporting the implementation of Vision 2030 coincide with increased sensitivity to greenwashing and changing consumer confidence priorities regarding corporate environment-related statements. Consumer skepticism in Saudi Arabia is not an incidental attitude but a critical interpretative filter, as opposed to the well-developed and mature Western markets. The analysis of skepticism as a mediator that occurs at multiple levels in the situation widens the current theory and illustrates how mechanisms that result in credibility influence sustainable consumption in developing sustainability-oriented economies.

1. LITERATURE REVIEW

2.1 THEORETICAL FRAMEWORK

The theory of Planned Behavior (TPB) captures the theories of perception of control, subjective norms, and attitudes to establish behavioral intentions and behaviors among individuals (Ajzen, 1991). Consumer responsibility is an important aspect of TPB that has been actively applied in sustainability studies to explain consumer decision-making (Yousef, 2025). TPP provides certain reasons why, in green marketing, the judgement of green products, normative pressures, and control factors passed on to consumers influence their lives regarding sustainable consumption (Mansour et al., 2024). Regardless of its explanatory power, it is not absolute because TPB cannot explain the moderate or mediating influence of psychological constructs such as skepticism, which can significantly disrupt the relationship between marketing stimuli and behavioral responses.

To overcome this limitation, the present experiment includes Attribution Theory oriented on providing credibility and authenticity to the piece of information under probable motives and attribution (Su and Li, 2024). Skepticism among consumers is another challenge within the green marketing environment, whereby consumers attribute the environmental rhetoric of companies to self-reasons rather than concern for sustainability (Klabi and Binzafrah, 2023). The attributional perspective discusses the ability of individuals to react differently to the same message in response to marketing, depending on their level of trust or distrust (Klabi, 2025). The lack of applicability of the TPB to the Attribution Theory by the researcher to examine how the mediation of skepticism positively influences the development of green marketing practice through the determination of sustainable consumption makes TPB an essential element of this study.

In addition, signaling theory guides the framework because it argues that marketing communication indicates that firms are keen to express their interest in controlling the environment (Mabkhot, 2024). The use of the right signals, eco-labels, and open distribution systems reduces information asymmetry and builds consumer confidence in green products. However, if signals are construed as minimal, indistinct, and misunderstood, they may increase skepticism and lead to action (Mohammed et al., 2025). Thus, the signaling viewpoint is an addition to the TPB and Attribution Theory, as it determines how green marketing factors can be translated into various consumer actions in different conditions of mistrust.

Finally, the integrated framework considers the socio-cultural peculiarities of Saudi Arabia, where individuals participate in green consumption as the goals of national sustainability are achieved within the framework of Vision 2030 and the culture of responsible consumption is cultivated (Nassani et al., 2023). In this case, the theory of consumer skepticism comes into play in moderating the response to marketing messages because Saudi consumers are increasingly sensitized to global sustainability messages and the dilemma of domestic greenwashing campaigns (Butar et al., 2024). By integrating the TPB, Attribution Theory, and Signaling Theory, this study establishes a compelling theoretical framework to examine the impact of the green marketing mix on the evolution of sustainable consumption patterns in the Saudi market, with consumer skepticism as a mediator.

2.2 GREEN MARKETING MIX PROGRAM

The green marketing mix comprises the transformation of the classic marketing mix into an ecologically responsive dimension in the pricing and promotion of products (Alsuwaidan, 2024). This model exposes firms to the methodical system of incorporating sustainability and cooperation with the view of making an effort to weave ecological theories into all aspects of their market endeavors. This will provide an opportunity to meet the rising demand for an even more

environmentally friendly solution and stand out in highly competitive frameworks (Alhowaish, 2025). In a broad sense, the ideal form of a green marketing sample does not seem to exist; however, it depends on whether a company changes its practice in the context of perceived purchasers, cultural dynamics and institutions.

Studies have also highlighted the saliency of the green marketing mix in adopting environmentally friendly consumption habits, but the arguments have been stitched together in a patchwork manner (Alhamdi et al., 2024; Shehawy, 2023). As such, some thought innovations in support of green products play a greater role in consumer interest in environmental issues, whereas others believe that green pricing or green distribution can play an even more important role in a targeted market (Vironika and Maulida, 2025). Such counterintuitive findings bring forth the chances of subtle and contextualized theories of study that reveal the unusual and further-layered interplay of all sections of the marketing mix components (Ghouse et al., 2024). As environmental issues are growing increasingly relevant, the reconciliatory variability of behavioral consistency in innovativeness, particularly in the environments of growing markets, such as Saudi Arabia, the green marketing molder denotes a perspective of uni-forced significance to the examination of the policies with which marketing can initiate a plan of gilded redemption.

In addition, confidence and uncertainty play crucial roles as mediators in the effectiveness of green marketing mix strategy. Under the same marketing intervention, pro-environmental behavior formation processes or the formation of opposition futures may ensue on the perception-grounding the same fact that customers accord to the same firm the same reason that it appeared similar to the customers to the same firm and extend the same line of reasoning in the same way, to this firm (Shehawy, 2023). By implication, eco-labeling or advertising campaigns that are based on the question of sustainability could be considered as one of the legacies but would equally carry forward the cloud of distrust of the greenwashing process, which would appear as artificial and false (Alnasser and Alhijris, 2025). The implications of the dynamic are that the agricultural explanation of the green marketing mix can never be final until the element of consumer skepticism is considered (Alotaibi and Abbas, 2023). Therefore, when coupled with skepticism, they would bring theoretical reasonability to the summary of green marketing information and offer managers quality concepts on how viable campaigns can be integrated into their marketing strategies.

The opportunities and requirements of companies for sustainability to be applied in work are guaranteed by state policy products and the achievement of sustainable development and corporate social responsibility (Cai et al., 2025). Nonetheless, consumer skepticism has been a significant problem, and such a decision was made because of the lack of experience in marketing the environment in the region. This implies the importance of considering the impact of the two in the absence of green products, pricing, distribution, and promotion policies, the relationships among these variables, and skepticism as a mediator in the establishment of sustainable consumption.

2.3 GREEN PRODUCT

Sustainable marketing should be based on green products, as it is essentially a manifestation of the green responsibility policies of companies by ensuring that they price eco-friendly materials, energy efficiency, and recycling services (Alkandi, 2025). In addition to addressing practical needs, these products signify to consumers that their choices can promote sustainability in relation to the broad sustainability (Aseri and Ansari, 2023). To this end, green products are pragmatic expediency and/or elements of identity in that they provide a more amiable societal spectrum rather than an ecologically corporate culture.

When perceived authenticity and performance reflect the performance of green products, they shed light on stimulating sustainable consumption. Studies have also established that consumers are more likely to purchase green products when they suspect that environmental characteristics do not affect product quality, safety, and utility (Alhamdi

et al., 2024). Simultaneously, when customers spot product acceptance between green credentials that are considered to be let down or definite evidence, the card diminishes regardless of skepticism (Mehrotra et al., 2025). This means that although green product innovation is essential, its success depends on the level of trustworthiness of the environmental benefits to consumers regarding the functionality of a leading product.

This attribute of green products is particularly applicable to Saudi Arabia because of the sustainability agenda presented by the government and the increase in the level of environmental awareness of the population regarding these concerns (Elgammal et al., 2024). Nonetheless, penetration is not considerable because of distrust and ignorance of eco-labels or certifications. This provides a rationale for considering the mediating effect of skepticism on consumer responses to green product attributes. By doing so, firms can learn how to reduce their perceived risks, enhance their credibility, and optimize sustainability consumption practices in the local market.

2.4 GREEN PRICING

Green pricing has been described as a method of strategically placing a price depending on the environmental benefits and sign-up costs that may have been incurred on environmentally preferred products (Elakkad et al., 2025). As opposed to conventional pricing, green pricing is expensive either because they are sustainably produced or renewable energy sources or because of fair treatment of working conditions (Kadir, 2025). One the one hand, it can be considered as a sign of high quality and responsibility, and an opposite situation may occur on the other hand, the consumers may consider this premium as an extra expenditure that cannot guarantee the expenditures (Al-Ahmed et al., 2025). Thus, the converse is striking a balance between affordability, symbolism, and sustainability practicality.

As always in studies, a relatively significant amount of importance in green buying tends to be ascribed to the notion of price sensitivity, considering that inlet incomes when evaluating purchase facilities are significantly higher in new markets (Saber and Ali, 2025). Consumers may possess a good attitude towards green products, yet they would end up rejecting them when they feel that the prices are prohibitive (Alnasser and Alhijris, 2025). Moreover, skepticism can contribute to this resistance, as consumers are unlikely to believe that an increase in prices is caused by benefits to the environment or profit creation (Chun, 2024). Hence, these open channels should support green pricing policies to explain the extra costs.

Another factor that should not be overlooked in Saudi Arabia is price determinacy in green consumption, where consumers use that criterion to determine their response to other consumers based on cultural values and recent trends in environmental sensitivity (Azazz et al., 2024). Within the context of the hasty process of economic transformation with reference to Vision 2030, there is a crucial need to view the relationship between green pricing and consumer skepticism in terms of transforming sustainable consumption habits. The sensitivity of the relationship will allow firms to know how they ought to and can produce green products in a manner that can accommodate economic or other price-sensitive markets without compromising the quality of the products.

2.5 GREEN DISTRIBUTION

Green distribution is a concept in which the entire supply chain, including sustainable packaging materials, reduction of carbon emissions throughout the logistics supply chain, and efficient waste disposal, is incorporated into the supply chain (Alawadh et al., 2024). The green distribution will become a vote in support of corporate responsibility by minimizing the environmental impact of transportation in production and, at the same time, following the world trends of building a cyclical economy (Senan et al., 2025). Consumers' perceptions of convenience and accessibility are other aspects of distribution that influence the same concept of sustainable consumption.

Regardless of their value, green distribution strategies can only work well when consumers perceive the openness and validity of a firm's statements regarding green issues. Companies that practice carbon-neutral logistics or biodegradable packaging can be cited as an example, although it should be supported with evidence that is reasonable enough and would make consumers feel more comfortable (Ali et al. 2025). Nonetheless, consumer collaboration in such efforts might fail to be productive in scenarios where companies make ambiguous promises about the sustainability of delivery (Yousef, 2025). This implies that green distribution involves dedicated operations that communicate well to allay fears among consumers.

In Saudi Arabia, the development of sustainable infrastructure is accompanied by the expansion of the Vision 2030 program, which creates the prospect of introducing green distribution into the marketing mix within the company (Mabkhot, 2024). However, this study did not provide sufficient empirical data on the perceptions and reactions of Saudi consumers towards green distribution plans. Therefore, there is a need to investigate the moderating effect of skepticism to determine whether consumers' perceived distribution practices are realistic intentions or mere rhetoric, thereby influencing customers sustainable consumption habits.

2.6 GREEN PROMOTION

Green promotion is a set of terms that encourages a firm to solve the problem of publicity in terms of advertising, PR, eco-labeling, and online campaigns about environmental programs to be followed (Klabi and Binzafrah, 2023). It is essential for creating consumer awareness, attitudes, and encouraging pro-environmental purchasing behavior. Green promotion should not only focus on the benefits of products, but also present consumption as a responsible use of social responsibility, thus strengthening the intentions of behavior (Khan et al., 2024).

Nevertheless, the success of green promotion depends on consumers' perceptions of authenticity and transparency. According to Alam et al. (2023), green promotion may imply favorable attitudes; however, there is a substantial risk of disbelief, especially in situations where the assertions are obscure, unprovable, and not in agreement with the corporate actions. This creates two sides to the promotion of green: on the one hand, green promotion can make consumption more sustainable as it provides the opportunity to stimulate others to trust; on the other hand, it can encourage more skepticism and mistrust in the green label.

The gap in environmental awareness and the real behavior of sustainable consumption is an issue of promotional strategies that should be closed in Saudi Arabia. Considering the low level of exposure to old-based green campaigns to match Western markets, Saudi consumers are likely to be more sensitive to the authenticity of promotions. Research on the mediation of skepticism based on responses to green promotions is beneficial to firms interested in developing plausible campaigns that can help them meet consumer expectations or national sustainability objectives.

2. HYPOTHESES DEVELOPMENT

Green products are generally accepted as one of the key factors of sustainable consumption behavior because they are envisaged as environmentally friendly qualities that attract eco-conscious consumers (Alsuwaidan, 2024). Previous research has established that the attributes of green products, including recyclability, energy efficiency, and low toxicity, favorably influence the intention to purchase and actual consumption patterns (Sivapalan et al., 2024). Consumers are likely to turn positive attitudes into sustainable consumption when they believe that these features are credible and appealing to their values (Shehawy, 2023). Nonetheless, consumer skepticism may undermine this association, as the authenticity of the claims involving the products may be undermined. According to research, a low skepticism level

positively influences consumers towards green products, whereas high levels result in the circumstance of ignoring or even boycotting ecologically friendly products (Islam and Ali Khan, 2024). Thus, it is hypothesized that green goods have a positive effect on sustainable consumption and that consumer skepticism can mediate this relationship.

H1: Green products positively impact sustainable restocking behavior.

Price matters a lot in consumer behavior, and in the case of green marketing, it does not just look at the economic unit, but also on the value and equity (Adil et al., 2024). Studies show that shoppers are prepared to pay a price premium to purchase items that are responsible for the ecosystem if they believe the excellence of the assertions and can sense the worth of the extra expense (Su and Li, 2024; Yousef, 2025). Thus, green pricing can serve as a distinctive marker of the market and a driving force for sustainable consumption. However, consumers' willingness to pay price premiums is diminished by high levels of skepticism toward the label. Mabkhot (2024) points out that consumer skepticism causes consumers to perceive higher prices as profit rather than environmental value, which suppresses purchase intentions. This dynamic is especially significant for Saudi consumers, whose behavior is highly price-sensitive and increasingly sensitive to sustainability.

H2: Green pricing positively impacts sustainable consumption behavior.

The distribution of green business practices, including carbon-neutral logistics, environmentally friendly packaging, and sustainable retailing, helps validate the sincerity of the environmental promise made by the firm (Lestari et al., 2025). With the values of environmental friendliness in the supply chain, companies can minimize their ecological footprint and, more importantly, provide an image of corporate genuineness, which reinforces consumer attachment and sustainable habits (Mansour et al., 2024). However, this relationship may be destroyed as consumers feel that the transparency of distribution practices is questionable. For example, allegations of eco-friendly packaging or logistics could be viewed as empty promises when companies do not have confirming statements (Cai et al., 2025). Authorities in Saudi Arabia are working on sustainable infrastructure, so in the country, skepticism can become the obstacle to the success of green distribution, and the need to establish a trust in sustainability strategies.

H3: Green distribution positively influences sustainable consumption concerns.

Green promotion plays a critical role in informing and persuading consumers about the environmental benefits of products and services (Butar et al., 2024). Sustainable consumption can be encouraged through good promotional campaigns that influence consumer attitudes and instill a positive environmental awareness (Mansour et al., 2024). When promotions are considered authentic and align with organizational behaviors, they create consumer confidence and encourage pro-environmental behaviors (Vironika and Maulida, 2025). In contrast, marketing statements are somewhat scrutinized because consumers perceive them as advertisement propaganda rather than guiding statements (Alhowaish, 2025; Mabkhot, 2024). This implies that the success of green promotion depends on consumer perceptions of authenticity. The possibility of consumer skepticism in Saudi Arabia being a vicious mediating variable regarding the determination of promotion strategies may be significant, given that the exposure to promotional campaign activities is still fresh.

H4: Green products positively influence sustainable consumption behavior.

Consumer skepticism is defined as a general feeling of doubt about the truth of companies' environmental claims (Alsuwaidan, 2024). This has been specified to dilute the role of the marketing campaign by lowering the trust and validity of the green program (Nassani et al., 2023). In light of the concept of green marketing, skepticism is a

psychological filter that consumers apply to determine the validity of environmental information and, hence, the outcome of their behavior. (Butar et al., 2024) This study assumes that attribution and signaling theories outline a connection between the elements of the green marketing mix and sustainable consumption behavior burdened with skepticism. Low skepticism makes consumers more assured of green products, pricing, distribution, and promotion strategies, which establishes better habits of eco-friendly consumption. However, these consequences can be minimized or nullified with the help of high skepticism.

H5: The relationship between the dimensions of the green marketing mix and sustainable consumption behavior is mediated by consumer skepticism.
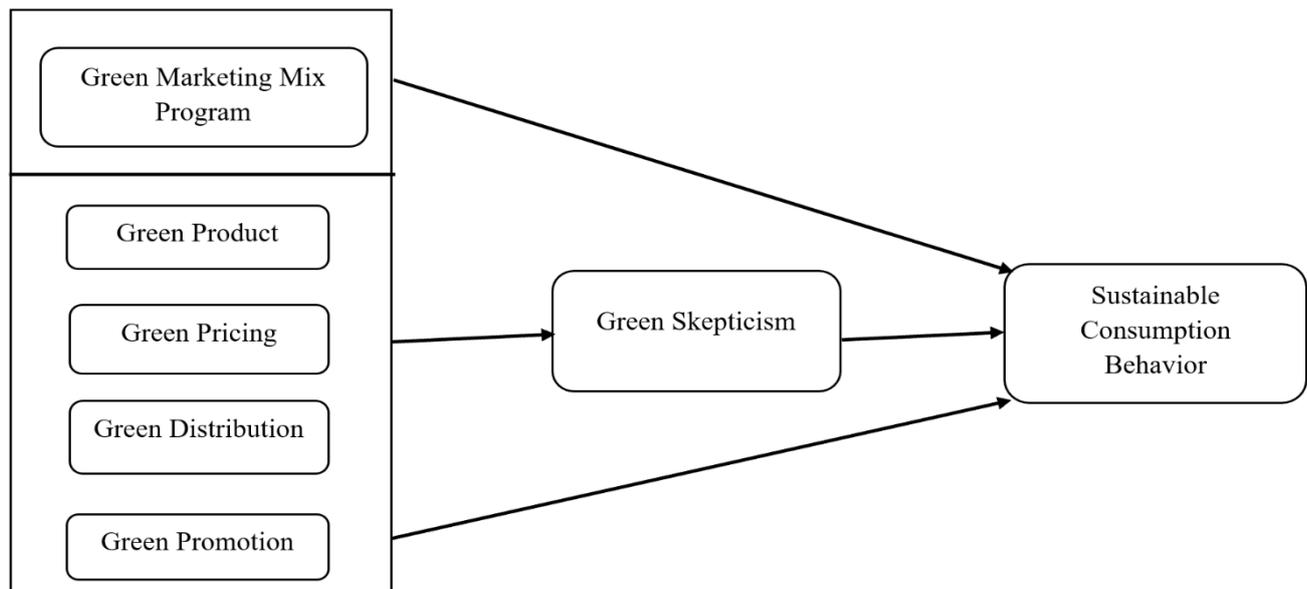

FIGURE 1: THEORETICAL FRAMEWORK

3. METHODOLOGY

The inductive, positivist research design is suitable for testing theory-driven hypotheses on the relationship between the green marketing mix, consumer skepticism, and sustainable consumption behavior. To enhance empirical rigor, this study operationalizes the theoretical framework by aligning every hypothesis with a clear measurement logic (Hair et al., 2019). In particular, firm-level indicators (Signaling Theory) are captured by the green marketing mix dimensions (product, pricing, distribution, and promotion), skepticism towards the motives of firms by consumers (Attribution Theory), and sustainable consumption behavior (Theory of Planned Behavior) is the behavioral predictor (Levitt et al., 2018). This design guarantees that theoretical concepts are empirically reduced to measurable and testable variables in a multilevel mediation design.

Before the hypothesis was tested, the measurement and reliability were assessed using normal psychometric procedures. The multi-item scales used to measure all constructs had been previously validated and scaled to the study situation. Cronbach's alpha was used to evaluate internal consistency and composite reliability, and all values surpassed the recommended threshold. Factor loadings and average variance extracted (AVE) ensured convergent validity, and discriminant validity was ensured using the established criteria (Al-Ahmed et al., 2025). These processes allowed the constructs to capture the theoretical concepts on which the proposed relationships are based.

To make it robust, the multilevel design eliminated possible confounding factors in both levels of analysis. Firm-level control (e.g., company size and industry type) and individual-level control (e.g., gender and environmental awareness) were considered to separate the effects of the green marketing mix and skepticism on sustainable consumption behavior (Su & Li, 2024). Multilevel structural equation modeling was also a methodological power that ensured that data nesting and minimization of common method bias were considered; thus, the empirical tests strictly conformed to the theoretical aims of the study.

The multilevel design of the study was reflected in purposive sampling. Marketing managers were chosen because they were directly involved in making green marketing choices at the firm level, and university students were chosen because they represented an informed and sustainability-related consumer group in Saudi Arabia (Etikan, Musa, & Abu, 2016). The last 550 response samples, which were from 50 firms, met the suggested multilevel-analysis recommendations. Although this method constrains the generalizability of the population, the two data sources ensure the minimization of common method bias and internal validity (Kline, 2015).

As a means of data analysis, M-plus software was used to run the multilevel structural equation modeling (MSEM). M-plus was chosen because it is more powerful and efficient in dealing with hierarchical datasets and is effective in testing mediation effects (Muthhen and Muthhen 2017). Multilevel analysis fitted best in this study because of the nested nature of the data, as there were firm-level variables (green marketing mix) and individual-level variables (consumer skepticism and sustainable consumption). This methodological technique has demonstrated the possibility of making precise cross-level associations and provided subtle perspectives on the associations between company-level sustainability practices and consumer-level behavior because of the mediating effect of skepticism.

4. ANALYSIS

TABLE 1. SAMPLE CHARACTERISTICS AND DATA SUMMARY

Statistic	Value
Number of observations	550
Number of clusters (companies)	50
Average cluster size	11
Estimator	MLR

The descriptive characteristics of the dataset used in this analysis are presented in Table 1. A total of 550 valid responses were received from 50 groups of companies, and the average cluster size was 11. In this distribution, the methodological presuppositions of the application of multilevel structural equation modeling (MSEM) were satisfied because it had an appropriate sample size at the individual level, and the number of clusters was appropriate to reflect the firms (Kline, 2015). More robust standard errors and valid statistical inferences were also achieved through the use of the MLR estimator in situations where the data were not normal.

TABLE 2. MODEL FIT INDICES

Fit Index	Value
Loglikelihood (H0)	-5953.140
AIC	11954.279
BIC	12057.718
Sample-Adjusted BIC	11981.531
RMSEA	0.000
CFI	1.000
TLI	1.000
SRMR (Within)	0.000
SRMR (Between)	0.084

The analysis of Table 2: Model Fit Indices using observations Interpretation: Given the observation, Table 2 indicates the fit of the models to the data using maximized and minimized values. The fit indices of the multilevel model are reported in Table 2, which shows an excellent overall fit of the model. Model convergence and parsimony were substantiated by the log-likelihood ratio, AIC, BIC, and reduced versions. The RMSEA value of 0.000 and CFI and TI of 1.000 indicated a great model fit, which is within the recommended range (Hu and Bentler, 1999). These values prove that the specified model fits well with the observed covariance structure. The SRMR values justified the sufficiency of the model fit at both levels of analysis. The within-level SRMR of 0.000 did not show any residual misspecification at the individual level, and the between-level SRMR was below the appropriate value (0.084). Taken together, these indices proved that the hypothesized model was statistically valid for testing the proposed direct and indirect effects of the variables.

TABLE 3. STRUCTURAL MODEL RESULTS (WITHIN-LEVEL)

Path	Estimate	S.E.	t-value	p-value
GS ← GP	0.669	0.138	4.865	0.000
GS ← GPR	0.711	0.182	3.914	0.000
GS ← GD	0.741	0.106	6.984	0.000
GS ← GPROM	0.859	0.137	6.255	0.000
SCB ← GS	0.244	0.025	9.739	0.000
SCB ← GP	0.145	0.050	2.900	0.004
SCB ← GPR	0.168	0.057	2.947	0.003
SCB ← GD	0.119	0.041	2.902	0.004
SCB ← GPROM	0.152	0.042	3.619	0.000

Table 3 provides within-level structural relationships with a significant weakening of the green marketing mix with consumer skepticism. The four marketing mix dimensions were all found to have significant prediction of skepticism in consumers with green promotion ($\beta = 0.859$, $p = 0.001$) and green distribution ($\beta = 0.741$, $p = 0.001$), which had the

most significant effects. This implies that consumers are extremely sensitive to the communication flow of firms regarding their environmental commitment and how they try to organize their supply chain. In addition, both direct and indirect paths towards sustainable consumption behavior were important. The mediating role of in the model was supported because consumer skepticism had a positive impact on sustainable consumption (β = 0.244, p < 0.001). Interestingly, when compared with other marketing mix components, all the marketing mix elements possess enhancements that were significantly impactful on skepticism compared to their impact on sustainable consumption. This means that the impact of the green marketing mix strategy on behavior was primarily indirect, through a reduction in the skepticism.

TABLE 4. STRUCTURAL MODEL RESULTS (BETWEEN-LEVEL)

Path	Estimate	S.E.	t-value	p-value
GS ← GP	0.640	0.245	2.612	0.009
GS ← GPR	0.515	0.198	2.601	0.010
GS ← GD	0.428	0.152	2.816	0.005
GS ← GPROM	0.762	0.243	3.136	0.002
SCB ← GS	0.342	0.119	2.873	0.004
SCB ← GP	0.245	0.087	2.816	0.005
SCB ← GPR	0.218	0.092	2.370	0.018
SCB ← GD	0.189	0.071	2.662	0.008
SCB ← GPROM	0.276	0.094	2.936	0.003

Table 4 displays the findings on the between-level structural results. Firm-level structural associations were found to be significant between the variables. All four dimensions of the green marketing mix were strongly anticipated to predict consumer skepticism, with green promotion being the most influential (β = 0.762, p, 0.01). This shows that in firms, campaigning plans were a highly sensitive consideration of consumer trust ratings and trustworthiness perceptions. Meanwhile, skepticism and elements of the green marketing mix have produced close and deep direct influences on sustainable consumption behavior between the levels. A close link between the strategies of the company levels and individual consumption resulted in a significant mediating effect of consumer skepticism (β = 0.342; p = 0.01). These findings confirm the multilevel disposition of the analysis, which justifies the fact that individual answers based on company tactics systematically determine consumer answers.

TABLE 5. MEDIATION AND TOTAL EFFECTS

Effect	Estimate	S.E.	t-value	p-value
Indirect (Within)	0.528	0.076	6.947	0.000
Indirect (Between)	0.388	0.132	2.939	0.003
Total (Within)	0.772	0.065	11.877	0.000
Total (Between)	0.666	0.198	3.364	0.001

Table 5 provides the estimation of the indirect and total effects, which provides a lawful demonstration of mediation at both levels of analysis. The sustainable consumption element of the green marketing mix (through consumer skepticism) was found to have an important indirect influence between clusters (between cluster, β = 0.528, p=0.001) and across clusters (between cluster, β = 0.388, p=0.01). This observed the hypothesized mediating position of skepticism, which is complementary to Attribution Theory and Signaling Theory, in which the perception of credibility defines the effect on behavioral outcomes. Moreover, the overall effects were strong and significant both within (β = 0.772, p < 0.001) and between the levels (β = 0.666, p < 0.001). These findings suggest that the green marketing mix has a direct or indirect effect on the sustainable consumption behavior of consuming the products in a sustainable manner, which involves the mediator role of skepticism that seems to be overriding the mediating mechanism. Collectively, these outcomes identify skepticism as a central construct in the process of interpreting green marketing processes, as it leads to sustainable behavioral change.

TABLE 6. R-SQUARE VALUES

Level	Variable	R²	p-value
Within	GS	0.604	0.000
Within	SCB	0.659	0.000
Between	GS	0.550	0.001
Between	SCB	0.564	0.001

The within-level predictors explained 60.4% of consumer skepticism and 65.9% of sustainable consumption behavior, confirming that consumer perception and behavior are driven by the strong connection between the green marketing mix elements. The model explained 55.0 and 56.4 percent of skepticism and sustainable consumption between levels, implying that firm-level strategies were always responsive to consumer response variations. These results strengthened the model stronger in order to provide explanations of direct and mediated relationships on various levels.

5. DISCUSSION

The findings indicate that consumer skepticism can be influenced by all elements of the green marketing mix but is greatly impacted by promotion and distribution. This demonstrates that the way businesses reported their environmental stewardship and the manner in which they used their logistical systems was the bottom line in determining that consumers were interested in such business undertakings. This implies that it is consistent with the opinion that marketing activity is constantly being reviewed when perceived as credible, particularly when the marketing activity of environmental care is still a new phenomenon. Consumer skepticism was identified as a factor influencing sustained consumption behaviors. Their deception ensured that consumers had fewer doubts, resulting in a preference for developing environmental friendliness and vice versa. This suggests that skepticism is not a powerhouse that suppresses the process but rather a thought that overtakes and finally removes marketing messages until the act is done. To support the intuitive arguments portrayed by the theoretical arguments, this study established that credible signals play a significant role in ensuring that sustainability claims resonate with consumers and transform into behavioral claims.

Regardless of the direct effects of the marketing mix on sustainable consumption, the effects were rather weak, as they were implemented with skepticism. This underscores that green strategies are not as important as consumers perceive them. In actual sense This implies that marketing activities would not have been enough to create a modification in the actions until the perception surrounding the existence of ulterior motives in the firms dropped. The preoccupancy of the forceful channels was pervasively deployed as the crippling judgment of the distressing inconsistency of the preceding results in which the influence of green marketing did not cause the desired activity under other conditions. The levels of analysis exhibited conceptual differences in that there are clear differences in reaction to practices in a firm, where the same cannot be said of the reaction of the consumers to the organization as a whole. Enterprises suffering from communication and distribution activities had the highest status, and a greater number of cross-enterprises were observed to be running pricing and product-oriented methodologies. These differences are aligned with the virtues of a multilevel strategy, which helped elevate this research to place the consequences of localized actions over individual responsibilities on one end and expansive marketplace actions over the organizational tier on the other.

These findings align well with the literature review because they empirically affirm the mediating role of skepticism between the marketing mix dimensions and sustainable consumption, thus filling a research void. This once again validated the construct of skepticism as an existent condition that was beyond contextual determinants, yet was actually a constituent of the full apparatus that ascertained how and why marketing campaigns would be generalized into consumer behavior. In this study, empirical evidence is related to the integration of psychological constructs into the marketing efficacy model because consumer assessment of credibility value is a vital factor in turning exposure into action course is needed. The total implications of the green marketing mix were that the level of sustainable consumption was determined by both direct and intermediate processes, although the latter had an ultimate influence. This indicates that there was no absolute probability that it was a utility of being subjected to practices that were practically directed informed sustainability consumption in Saudi Arabia but warned others through imprisonment of how it prized practices in the moral sense. The concept of skepticism was propagated at the front end of this process. One of the major focuses of the current study is not only to highlight the fact that consumers are in charge of determining the degree of sustainability but also to culminate with the starkness of green marketing activities.

6.1 IMPLICATIONS

This study contributes to the theory by illustrating that consumer skepticism is a fundamental mediating variable between the green marketing mix and sustainable consumption behavior. Incorporating Signaling Theory, Attribution Theory, and the Theory of Planned Behavior into a multilevel framework, the results facilitate the understanding of interpretations and realizations of firm-level strategies on an individual level. In particular, the findings contribute to signaling theory by revealing that the credibility of green marketing signals, rather than the mere presence of such signals, stimulates behavior; attribution theory by validating the empirical findings that attitudes only become behaviors where skepticism is low; and the Theory of Planned Behavior by revealing that attitudes are only behaviors where skepticism is low.

The findings indicate that being a good marketer of green products involves more than merely developing a new product or changing the price. Clear communication and operationalization of sustainability practices and processes, particularly through promotional and distribution channels, are important for minimizing consumer cynicism and promoting sustainable consumption. Companies must concentrate on visible and plausible sustainability behaviors; thus, marketing messages should be in line with what is really done to foster trust and achieve the greatest behavioral pay-off.

In new markets such as Saudi Arabia, where sustainability programs are rapidly changing, this study highlights the significance of consumer perception in policy and corporate strategy. Policymakers and business leaders should focus on initiatives that would promote transparency, standardization of green marketing practices, and tracking consumer responses because credibility-based mechanisms eventually decide the performance of environmental programs.

6.2 LIMITATIONS

The study's weakness was the sampling technique used, which relied on purposive sampling of marketing managers in large firms that sampled data on the delimiting level of the firm and the student population of the university that sampled data on the delimiting level of the consumer. This design was relevant in ensuring relevant expertise and exposures but restricted the applicability of the findings to other individuals, besides the students. In addition, as the information available was cross-sectional, it was not possible to determine how skepticism and consumption behavior changed over time, which could continue to change as sustainability efforts mature in Saudi Arabia.

6.3 FUTURE DIRECTIONS

In the future, the approach to conducting research can be extended by exploring the perspectives of more types of consumers (working alcoholic/family) to capture an increased number of consumer perceptions of green consumption. Longitudinal designs would allow for the testing of behavioral responses and skepticism, which increased throughout the process of instituting green marketing practices according to Vision 2030. Furthermore, the inclusion of moderate variables, such as environmental knowledge or cultural values, could contribute to a better understanding of the situations in which the introduction of green marketing could be the most effective method of encouraging people to engage in sustainable consumption.

6. CONCLUSION

This study explores this issue by examining how the green marketing mix leads to more sustainable consumer behavior in Saudi Arabia, mediated by consumer skepticism. To describe the interdependence between marketing strategies and consumer perceptions, this study used a multilevel approach when searching for available data concerning both marketing and individual levels and the issues of the marketing strategy and consumer perceptions that were explored. The findings validated the immense likelihood of the four dimensions of the marketing mix and the skepticism being causal with regard to long-term consumption. As illustrated in the analysis, the indirect impacts of skepticism were more important than the direct effects, hence showing that skepticism was the most important mediator through which the strategies that were to be followed in green marketing companies and consumer behavior were related. The results of the study also illustrate the theoretical positions relating to Attribution Theory, Signaling Theory and Theory of Planned Behavior and provide a slapdash perspective of the gaps in the literature on green marketing studies. The analysis of the situation in Saudi Arabia revealed that the concept of sustainable consumption in this country relied on exposure to a variety of green practices and the attitudes of consumers towards the feasibility of the latter to the brand.

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