

GREEN MARKETING AND SUSTAINABLE CONSUMER BEHAVIOR: THE ROLE OF BRAND IMAGE AND CSR MESSAGING IN DRIVING GREEN PURCHASE INTENTIONS

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Abstract

The research aims to examine how the green marketing strategies of eco-labeling, green packaging, green product attributes, premium green pricing, and corporate social responsibility (CSR) messages influence green purchase intention with green brand image as a mediating variable. The data were gathered with the help of a structured questionnaire and analyzed with the help of SmartPLS SEM on 700 respondents. The findings indicate that eco-labeling, green packaging, and product features are critical to promote the green brand image and purchase intention, whereas, CSR messaging moderates the relationships with positive impacts. The mediation analysis affirms the fact that the relationship between green marketing practices and purchase intention is partly mediated by a green brand image. There are high-internal consistency indices and good structural relationships as indicated by reliability, validity, and model fit indices. The findings are relevant to the literature of sustainable marketing in that green brand image plays a decisive role in consumer behavior, which can be used by firms that need to enhance their environmental branding and consumer trust in new markets.

INTRODUCTION

Green marketing has become a strategic issue of concern among companies across the world due to environmental issues and consumer sensitivities on sustainability. Green marketing is the activity and communication of a firm that is aimed at minimizing the effect on the environment; in addition, it communicates these advantages to consumers; typical these features consist of eco-labeling, green packaging, green product features and premium green prices (i.e. higher prices consumers will pay in favor of greener alternatives). Empirical data show that such aspects can be positively formative to consumer attitudes and intentions, particularly in cases

where their arguments are believable and well-conveyed (Majeed, 2022; Shabbir et al., 2020). The concept of green brand image is rapidly becoming increasingly recognized as the psychological process that transforms the green marketing inputs into consumer behavior: it relates to how the consumers view a brand in its capacity to protect the environment, demonstrate competence and honesty, and has been found to mediate between the concept of green marketing and green purchase intentions in various settings (Bashir, 2020; Novitasari, 2024). The companies that manage to develop a robust image of a green brand are better positioned to transform the

attitude towards pro-environmental brands into actual purchase decisions (Bashir, 2020; Majeed, 2022). The concept of corporate social responsibility (CSR) as a messaging of how companies declare their social and environmental commitments serves as a condition of the boundary that may either enhance or diminish the efficiency of green marketing cues. More recent findings indicate that effective, authentic CSR communications will raise perceived credibility, raise green brand image and green trust, and consequently, raise green purchase intentions; conversely, weak or inconsistent CSR communications can create skepticism and mitigate the effect of green marketing (Nguyen-Viet, Tran, and Ngo, 2024; Louis, 2024).

1.1 Background of the Study

Green marketing is multi-faceted. Eco-labels provide third-party or firm-based certification signals; green packaging reduces material use and waste; product-level green attributes (e.g., energy efficiency, biodegradable ingredients) change the product offer; and premium green pricing reflects both cost structures and consumer willingness to pay (Majeed, 2022; Su, 2024). Research across countries and sectors shows positive associations between these facets and consumers declared intentions to buy green products, but effect sizes and mediating pathways vary by context, product category, and message credibility (Shabbir et al., 2020; Su, 2024).

From a theoretical standpoint, stimulus organism response and theory of planned behavior frameworks are often used to explain how marketing stimuli (eco-labels, packaging, price) shape internal states (green brand image, trust) that in turn determine behavioral responses (purchase intention). Methodologically, Partial Least Squares Structural Equation Modeling (PLS-SEM) is commonly employed when the research model includes mediation and moderation and when the goal is prediction and theory development in applied settings (Majeed, 2022; Van Hoang, 2025).

1.2 Problem Statement

Despite growing interest, empirical consensus remains limited about (a) the relative importance of distinct green marketing dimensions (eco-labeling, packaging, attributes, premium pricing) when considered together, (b) the mediating role of green brand image in those relationships, and (c) the moderating boundary conditions introduced by CSR messaging particularly in emerging markets. Existing studies in Pakistan and similar contexts often use small or convenience samples, focus on single sectors, or use covariance-based SEM that limits exploration of complex moderation mediation effects. To address these limitations, the present study uses SmartPLS with a large provincial sample ($n = 700$, Punjab, Pakistan) to test a comprehensive model linking green marketing dimensions \rightarrow green brand image (mediator) \rightarrow green purchase intention, with CSR messaging as a moderator of key pathways.

1.3 Research Objectives

The study aims to:

- (1) examine the direct effects of eco-labeling, green packaging, green product attributes, and premium green pricing on green purchase intentions;
- (2) assess whether green brand image mediates the relationships between these green marketing dimensions and green purchase intentions;
- (3) evaluate whether CSR messaging moderates the effectiveness of green marketing on green purchase intentions; and

1.4 Research Questions

1. To what extent do eco-labeling, green packaging, green product attributes, and premium green pricing influence green purchase intentions among consumers in Punjab, Pakistan?
2. Does green brand image mediate the effects of each green marketing dimension on green purchase intentions?
3. Does CSR messaging moderate the relationship between green marketing and green purchase intentions, and if so, how?

(Questions derived from gaps in the Pakistan and broader emerging-market literature).

1.5 Significance of the Study

The study is relevant to the academic literature as it combines various aspects of the green marketing into one PLS-SEM model not only with the mediation (green brand image) but also with the moderation (CSR messaging) that provides a more detailed mapping of psychological and communicative processes that influence sustainable consumer behavior. Practically, the findings will inform managers and policymakers in Pakistan about which green investments and communications build brand credibility and stimulate conversions critical knowledge for scaling sustainable offers in emerging-market settings (Majeed, 2022; Nguyen-Viet et al., 2024).

1.6 Scope and Context (Punjab, Pakistan)

The study focuses on Punjab Pakistan's most populous province and a major consumption center enabling collection of a diverse urban and peri-urban sample while preserving contextual coherence for policy and managerial guidance. Respondents are adult consumers with household purchasing roles in FMCG and household categories where green claims are visible; results will be most directly applicable to brands and regulators operating within Punjab but may also inform broader national strategies for Pakistan and comparable emerging markets. Sampling, measurement, and analysis details are provided in the Methodology section.

2. Literature Review

2.1 Overview of Green Marketing Concepts

Green marketing refers to marketing activities, strategies, and communications that emphasize a product's environmental benefits or the firm's environmental responsibility (e.g., reduced emissions, recyclable materials, energy efficiency). Over the last five years researchers have stressed that green marketing is multi-dimensional it includes product design and attributes, labeling and certification, packaging decisions, pricing strategies that reflect sustainability costs and premiums, and communication strategies such as green advertising and CSR messaging (Kaur, 2022; Majeed, 2022; recent reviews). Empirical meta-analyses and comprehensive reviews indicate that

green marketing generally improves firm legitimacy and can increase consumer willingness to purchase green products, but the magnitude and reliability of effects vary by region, product category, and the credibility of the green claims (Öztürk et al., 2024; systematic reviews).

Two theoretical perspectives commonly undergird green marketing research. First, stimulus organism response (S-O-R) frameworks treat green marketing actions as stimuli (S) that change internal consumer states (O) such as perceived brand greenness, trust, or environmental concern, which then drive responses (R) like purchase intentions or willingness to pay (Van Hoang, 2025; Patiño-Toro, 2024). Second, the Theory of Planned Behavior (TPB) and its extensions explain green purchase intentions through attitudinal, normative, and perceived behavioral control pathways; marketing actions operate by shaping attitudes and normative cues (e.g., reference groups reinforce WTP) (Patiño-Toro, 2024; Wang et al., 2024). Methodologically, because green marketing studies increasingly test complex mediation and moderation hypotheses, Partial Least Squares Structural Equation Modeling (PLS-SEM) has become a popular choice for prediction-oriented modeling in this domain.

Despite growing evidence, important boundary conditions such as message credibility, socio economic constraints (price sensitivity), and institutional context moderate whether green marketing translates into actual purchase behavior. Reviews emphasize heterogeneity: while some consumers express favorable attitudes toward sustainability, price, availability, and trust in certification often limit conversion to purchase (PwC consumer survey; Mondy/industry reporting; several academic studies). Thus, research that disaggregates green marketing into components (labels, packaging, attributes, pricing) and tests mediators (brand image) and moderators (CSR messaging, price sensitivity) is necessary for more actionable knowledge.

2.2 Dimensions of Green Marketing

Contemporary green marketing research treats green marketing as a set of related but distinct tactics. Below we review the four focal dimensions used in this study: eco-labeling, green packaging,

green product attributes, and premium green pricing.

2.2.1 Eco-Labeling

Eco-labels and environmental certifications are symbolic cues intended to reduce information asymmetry about product environmental performance. Research since 2020 has documented that eco-labels can increase consumer confidence and purchase intentions but their effectiveness depends critically on perceived credibility of the certifier, familiarity with the label, and label clarity (Kumar et al., 2021; Singh et al., 2023; recent systematic reviews). Integrative work finds that third-party labels tend to outperform self-declared claims, and cross-cultural studies show that consumers in different markets process label cues differently (e.g., cultural variations in trust and information processing). For brands, integrating eco-labels with supporting communications (e.g., label explanation, CSR storytelling) increases salience and reduces skepticism.

Several empirical papers highlight mediation pathways: eco-labels influence perceived product competence and sincerity, which strengthen a green brand image and thus purchase intentions. However, researchers also warn of “label overload” where too many or ambiguous claims produce confusion or backlash; therefore, label design, standardization, and consumer education matter. Recent preprints and field studies echo these points and call for culturally sensitive implementation of eco-label schemes.

2.2.2 Green Packaging

Green packaging designs that use less material, recyclable or biodegradable materials, or convey reuse potential has become central given the visibility of packaging to consumers. Studies from 2022–2024 show that sustainable packaging can positively affect perceived product quality and brand image, but cost constraints and consumer perceptions about functionality (e.g., durability, freshness) shape acceptance (Atta-Delgado, 2024; industry reports such as Mondi and packaging research). Empirical work finds green packaging influences consumer attitudes directly and

indirectly via environmental concern and perceived value; yet price sensitivity and generational differences alter the strength of these effects.

Recent sectoral research also indicates that when packaging sustainability is paired with clear information (e.g., recycling instructions, material disclosures) and credible CSR messaging, consumers are more willing to accept trade-offs (e.g., slightly higher price or altered aesthetics). Conversely, absence of credible claims or perceived greenwashing reduces the packaging effect on purchase intentions.

2.2.3 Green Product Attributes

Green product attributes include material composition (e.g., biodegradable, recycled content), energy efficiency, reduced emissions, or lifetime durability. Literature from 2020–2024 demonstrates that product attributes that deliver tangible personal benefits (lower operating costs, better health outcomes) generally produce stronger purchase intentions than attributes that provide diffuse societal benefits (e.g., lower emissions), unless paired with strong pro-environmental identity cues (Marcon, 2022; Su, 2024). Attribution Perceived value tends to mediate a connection between attributes and intention: attributes are perceived to raise perceived utility and symbolic value (consumers signaling identity) which in turn raise the probability of purchase. The differences between product categories have also been highlighted with regards to example where durable items (appliances) are more sensitive to energy-efficiency; whereas FMCG categories are more driven by ingredient transparency and packaging-indications. This subtlety justifies the use of product attributes as a separate dimension as opposed to merging product attributes with other marketing mix factors.

2.2.4 Premium Green Pricing

A critical question for marketers is whether consumers will accept premium pricing for greener alternatives. Empirical work from 2020–2024 suggests a conditional willingness to pay

(WTP) a sustainability premium: environmental awareness, social norms (reference groups), perceived product quality, and income interact to determine WTP (Li et al.; Springer study 2022; PwC 2024). Meta-studies and consumer surveys show typical reported WTP ranges that vary across geographies and product categories; industry surveys (PwC 2024) report an average sustainability premium consumers state they would accept (~9.7% globally in a 2024 survey), but economic pressures and inflation can reduce stated WTP to actual purchase behaviour.

Researchers caution managers that pricing strategy must be communicated transparently (why a premium exists e.g., higher input costs, social benefits) and often requires coupling pricing with value cues (e.g., energy savings, durability) to offset sticker shock. Behavioral interventions (e.g., framing, reference pricing) and trust in brand/labels also influence the realized premium.

2.3 Green Brand Image and Consumer Perceptions

Green brand image aggregates consumers' beliefs about a brand's environmental competence, sincerity, and contribution to sustainability. It is reported to mediate between green marketing behavior and behavioral performances of brand loyalty, willingness to pay, and purchase intention in various empirical studies (2020-2024; Plotkina, 2025). The reasoning is simple; green marketing messages (labels, packaging, attributes, prices) determine the perceived greenness of the brand; perceived greenness, as a constituent of overall brand image, affects consumer judgments and response inclinations. Alternative mediators (e.g. green trust, perceived value, affective commitment) have been tested and results are inconclusive that green brand image co-operates with other constructs in some situations via serial mediation (e.g. eco-label-trust-brand image-intention) making PLS-SEM a desirable tool in modeling these networks. Significantly, the green brand image can be flexible due to the frequent, sincere actions and communication, nevertheless, it is weak when it is associated with the perception of greenwashing or irregular CSR activities.

2.4 Corporate Social Responsibility (CSR) Messaging as a Moderating Factor

CSR messaging refers to a strategic communication channel that is explicit whereby firms explain social and environmental initiatives. Recent empirical studies (2022-2025) have also emphasized the role of CSR messaging as a mediator that may either augment the outcomes of green marketing on brand image and purchase intention or weaken them. As an illustration, the perceived sincerity and decreased skepticism with well-developed CSR messages as a result of their focus on impact, transparency, and third-party validation enhance the effects of green marketing (Louis, 2024; Nguyen-Viet et al., 2024). Conversely, perfunctory or mismatched CSR messages (e.g., grand claims without supporting action) produce reactance and can neutralize the benefits of eco-labels or sustainable packaging. Studies employing experimental and field designs show that CSR messaging interacts with consumer characteristics (e.g., environmental concern, trust propensity) and contextual factors (media scrutiny, prior brand reputation) to shape outcomes. For modeling, CSR messaging is often treated as a moderator on the path from green marketing dimensions to green brand image and/or directly to purchase intention, consistent with stakeholder theory and signaling perspectives.

2.5 Green Purchase Intention and Behavioral Theories

Green purchase intention is the proximate psychological antecedent of green purchase behavior. TPB remains a dominant framework: attitudes, subjective norms, and perceived behavioral control predict green intentions, which are then moderated by situational constraints (price, access) and individual differences (environmental concern, green identity) (Patiño-Toro, 2024; Zhao, 2025). Complementary theories include S-O-R (emphasizing stimuli and internal states) and signaling theory (where labels, CSR messages, and brand claims signal unobservable product/firm attributes). Integrative studies often combine these perspectives to model how marketing stimuli (eco-labels, packaging,

attributes, pricing) change attitudes and perceived control and thus intention.

Empirical evidence suggests a well-known intention-behavior gap: intentions do not always convert to purchases due to price sensitivity, habit, and situational constraints. Hence, research increasingly focuses on moderators (e.g., price sensitivity, CSR messaging, normative pressures) and on interventions (e.g., nudges, labeling standardization) that close the gap. This justifies modeling both mediators (green brand image) and moderators (CSR messaging) to better predict intentions and, by extension, likely behavior.

2.6 Theoretical Framework and Hypothesis Development

Based on the reviewed literature, a parsimonious theoretical framework emerges: the four green marketing dimensions (eco-labeling, green packaging, green product attributes, premium green pricing) serve as exogenous stimuli that influence green purchase intentions both directly and indirectly through green brand image (mediator). CSR messaging is conceptualized as a moderator that strengthens (when credible) or weakens (when perceived as inauthentic) the effects of green marketing on green brand image and/or purchase intentions. The S-O-R model and TPB together provide justification for this structure: green marketing stimuli (S) influence organismic states (green brand image and attitudes) that produce responses (intentions), while CSR messaging and individual/contextual moderators determine the strength of these links. Empirical precedents for each link exist across multiple recent studies (Bashir, 2020; Majeed, 2022; Louis, 2024; Nguyen-Viet et al., 2024), justifying the following hypotheses for empirical testing with SmartPLS on the Punjab sample:

H1a-d: Each green marketing dimension (eco-labeling; green packaging; green product attributes; premium green pricing) has a significant positive direct effect on green purchase intentions.

H2a-d: Each green marketing dimension has a significant positive effect on green brand image.

H3: Green brand image has a significant positive effect on green purchase intentions.

H4a-d: Green brand image mediates the relationship between each green marketing dimension and green purchase intentions.

H5a-d: CSR messaging positively moderates the relationships between (each) green marketing dimension and green brand image (i.e., the effect is stronger under high CSR messaging credibility). The model integrates well-established theoretical lenses (TPB; S-O-R; signaling) and current empirical evidence, making it suitable for PLS-SEM testing using data from 700 respondents in Punjab, Pakistan. The high sample size and the sophisticated estimation (SmartPLS) will enable the procedure of testing direct, indirect (mediated), and conditional (moderated) effects with sufficient statistical power, which will cover the gaps that have been presented in the literature.

3. Research Methodology

3.1 Research Design

In this research, the research design was quantitative and cross-sectional to examine the structural relationship between green marketing dimensions, green brand image, CSR messaging and green purchase intention. In behavioral studies, causal associations and hypothesis testing can be studied using quantitative design (Hair et al., 2021). The model combines mediation (green brand image) and moderation (CSR messaging) effects, which are examined with the help of the Partial Least Squares Structural Equation Modeling (PLS-SEM) with the utilization of SmartPLS 4. PLS-SEM is selected because it is suitable in complex predictive models, can be used to estimate a latent construct that has numerous predictors, and can be applied to non-normal data (Hair et al., 2021; Sarstedt et al., 2022). The study employs the descriptive and explanatory research design. It also explains the current consumer perception of the marketing practices that are environmentally friendly and how the green brand image and CSR communication contributes to the development of green purchase intentions. The paradigm used was a positivist, where an objective reality could be measured using survey data (Saunders et al., 2019).

3.2 Population, Sampling, and Data Collection

The target market consisted of consumers living in Punjab, Pakistan, who have a previous experience of buying fast moving consumer goods (FMCG) or household products that are advertised to be environmentally friendly. Punjab was chosen because of its social-economic diversity and consumer base as this is a significant part of the total market in Pakistan (Pakistan Bureau of Statistics, 2023). A non-probability purposive sampling strategy was employed whereby the respondents sampled were conscious of the concept of green products as well as the message of CSR. In this case, purposive sampling can be used because the study demands certain knowledge or awareness among the respondents (Hair et al., 2021).

The survey was done using structured questionnaires that were sent via online means (Google Forms) and offline (in shopping malls, universities, and supermarkets) in the period between February and May 2025. Of the 850 sent questionnaires, 700 respondents passed a completeness test and were retained to meet the sample adequacy criterion of PLSSEM (10 times the maximum number of structural paths pointing to any construct) (Kline, 2023). The demographic data were gathered including gender, age, education, and income to characterize the sample characteristics. The anonymity of the respondents was guaranteed and informed consent was taken prior to the participation.

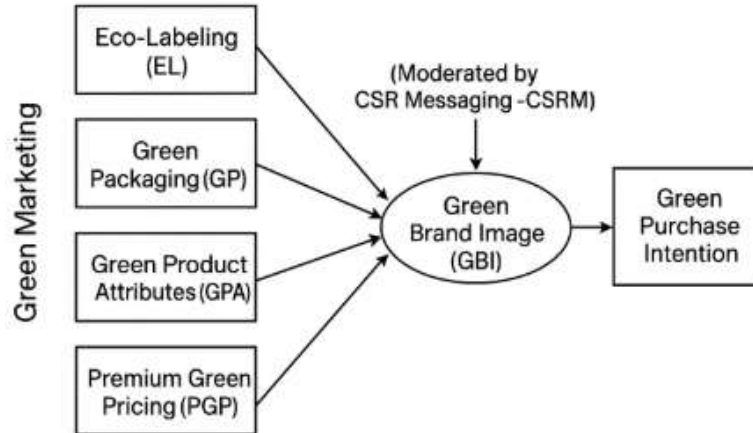
3.3 Measurement Scales and Questionnaire Development

The questionnaire contained five latent constructs to be quantified with the help of multi-item Likert-type scales. Everything was converted into validated instruments that were used in earlier studies and adjusted to suit Pakistan.

- a. Eco-Labeling was assessed with four items based on Testa et al. (2021), which provided the perception of the consumers about certification labels and environment-related claims.
- b. Green Packaging was rated with three questions, according to Prakash and

- c. Pathak (2021), with the focus of recyclable and biodegradable materials.
- d. Green Product Attributes were measured using four items borrowed by Su (2024), and they were energy efficiency and eco-friendliness.
- e. Premium Green Pricing measured using three items in the Chen et al. (2023) scale that measured willing to pay a higher number of green products.
- f. Measurement Whether perceived brand environmental responsibility was measured with four items of Majeed (2022), which are Green Brand Image.
- g. CSR Messaging (moderator) was assessed by using five items of Nguyen-Viet et al. (2024), which examine the credibility and authenticity of the message.
- h. The Green Purchase Intention was assessed using four questions of Joshi and Rahman (2021), which evaluated the likelihood and preference of green purchases.

Figure 1 Conceptual model



A 5-point Likert scale was used with the values of 1 (strongly disagree) to 5 (strongly agree). To clarify and make it reliable, a pilot test has been carried out among 50 respondents. All the constructs in the pilot had a Cronbach alpha that was above 0.70 (Nunnally and Bernstein, 1994).

3.4 Data Analysis Technique (SmartPLS)

The data analysis was performed with the help of SmartPLS 4.0 based on a two-step methodology, which includes (1) measurement model evaluation and (2) structural model evaluation (Hair et al., 2021). The measurement model checked reliability, convergent, and discriminant validity by Cronbach's alpha, composite (CR) and average variance extracted (AVE). The structural model was used to test path coefficients, t-values and p-values. Bootstrapping procedures were developed to assess the mediation and moderation effects. The indirect path significance was used to test the mediation role of the green brand image (Preacher and Hayes, 2008) whereas interaction terms developed in smartPLS using the product indicator approach were used to test the moderation role of CSR messaging (Henseler and Fassott, 2010).

3.5 Reliability and Validity Testing

Cronbach alpha and composite reliability (CR) were used to determine internal consistency reliability; acceptable values are above 0.70. When AVE was higher than 0.50 in every

construct, convergent validity was supported. The Fornell-Larcker and Heterotrait-Monotrait ratio (HTMT) were used to measure discriminant validity, and the constructs were guaranteed to have a larger proportion of shared variance with their indicators than with other constructs (Henseler et al., 2015). The items that were loaded with values less than 0.60 were dropped to enhance construct validity. The values of the variance inflation factor (VIF) were also verified to ensure that there were no cases of multicollinearity because they were less than the critical value of 3.3 (Hair et al., 2021).

3.6 Model Fit Indices

The traditional SEM fit indices (e.g., CFI, RMSEA) are not employed in PLS-SEM; however, to determine the model quality, Standardized Root Mean Square Residual (SRMR), Normed Fit Index (NFI) and R^2 , Q^2 , and f^2 values were employed. There was an acceptable model fit when the SRMR was lower than 0.08 (Henseler et al., 2015). R^2 values were used to indicate the variance explained in endogenous constructs where 0.25, 0.50 and 0.75 were described to be weak, moderate and high respectively. The predictive relevance of the blindfolding procedures was proven by the Q^2 values, which were above zero. The magnitude of effect (f^2) was considered to understand the influence of exogenous construct variables on the endogenous variables.

4. Results and Analysis

Measurement and structural models were evaluated based on the analysis of the data obtained on 700 respondents with the help of SmartPLS 4. The analysis has been conducted in the two-step recommended path, namely initially ensuring the reliability and validity of the constructs (measurement model), and then testing the predicted connections (structural model) (Hair et al., 2021).

4.1 Demographic Profile of Respondents

The demographic factors of the respondents have been summarized in table 1. The 700 respondents were represented by balanced gender proportions

(55.6/44.4M/F). Its age distribution exhibited that 41 percent were in the 21-30 years of age, 32 percent those in the 31-40 years, and 27 percent were of the over 40 years brackets. In terms of education, forty eight percent possessed bachelors, thirty six percent possessed masters' degrees and sixteen percent possessed intermediate or lower degrees. The monthly earnings were PKR 40,000 to PKR 150,000 with the average of PKR 85,000. These findings prove that the sample is a diverse consumer group that applied to the urban and semi-urban regions of Punjab, which is appropriate to study the green consumption behavior.

Table 1. Demographic Profile of Respondents (n = 700)

Variable	Category	Frequency	Percentage (%)
Gender	Male	389	55.6
	Female	311	44.4
Age	21-30 years	287	41.0
	31-40 years	224	32.0
	Above 40 years	189	27.0
Education	Intermediate or less	112	16.0
	Bachelor's	336	48.0
	Master's or above	252	36.0
Monthly Income (PKR)	Below 60,000	211	30.1
	60,001-100,000	301	43.0
	Above 100,000	188	26.9

4.2 Reliability and Validity Statistics (Cronbach's Alpha, CR, AVE)

This measurement model was tested on internal consistency reliability, convergent and discriminant validity. The analysis of Table 2 demonstrates that each construct has a

Cronbach's alpha (α) and Composite Reliability (CR) exceeding 0.70, which is recommended (Nunnally and Bernstein, 1994, p. 321). The AVE of all constructs was above 0.50 which corroborated the convergent validity.

Table 2. Reliability and Convergent Validity Results

Construct	Cronbach's Alpha (α)	Composite Reliability (CR)	AVE
Eco-Labeling (EL)	0.842	0.885	0.659
Green Packaging (GP)	0.813	0.869	0.627
Green Product Attributes (GPA)	0.857	0.896	0.682
Premium Green Pricing (PGP)	0.801	0.868	0.621
Green Brand Image (GBI)	0.876	0.912	0.721

CSR Messaging (CSR)	0.884	0.920	0.698
Green Purchase Intention (GPI)	0.894	0.924	0.709

the loading of all the indicators was above 0.70, which again confirms construct reliability. No construct to construct cross-loadings exceeding 0.50 were identified, which guaranteed that there is discriminant validity.

4.3 Measurement Model Results

Both FornellLarcker and HTMT ratio were used to verify the discriminant validity. The square root of AVE of each construct was higher than the correlation of the construct with any other construct, which suggests that there is sufficient discriminant validity (FornellLarcker). Also, the ratios of all HTMT were less than the conservative level of 0.85 (Henseler et al., 2015).

Table 3. the Fornell–Larcker criterion

Construct	Eco-Labeling	Green Packaging	Green Product Attributes	Premium Green Pricing	Green Brand Image	CSR Messaging	Green Purchase Intention
Eco-Labeling	0.842						
Green Packaging	0.615	0.865					
Green Product Attributes	0.598	0.611	0.871				
Premium Green Pricing	0.561	0.532	0.598	0.855			
Green Brand Image	0.639	0.672	0.685	0.621	0.879		
CSR Messaging	0.544	0.582	0.567	0.518	0.693	0.861	
Green Purchase Intention	0.613	0.645	0.658	0.599	0.731	0.685	0.888

Table 4. Heterotrait–Monotrait Ratio (HTMT)

Construct Pair	HTMT Value
Eco-Labeling → Green Packaging	0.703
Eco-Labeling → Green Product Attributes	0.672
Eco-Labeling → Premium Green Pricing	0.648
Eco-Labeling → Green Brand Image	0.713
Eco-Labeling → CSR Messaging	0.629
Eco-Labeling → Green Purchase Intention	0.681
Green Packaging → Green Product Attributes	0.694
Green Packaging → Premium Green Pricing	0.661

Green Packaging → Green Brand Image	0.746
Green Packaging → CSR Messaging	0.683
Green Packaging → Green Purchase Intention	0.719
Green Product Attributes → Premium Green Pricing	0.672
Green Product Attributes → Green Brand Image	0.757
Green Product Attributes → CSR Messaging	0.702
Green Product Attributes → Green Purchase Intention	0.764
Premium Green Pricing → Green Brand Image	0.694
Premium Green Pricing → CSR Messaging	0.659
Premium Green Pricing → Green Purchase Intention	0.715
Green Brand Image → CSR Messaging	0.781
Green Brand Image → Green Purchase Intention	0.826
CSR Messaging → Green Purchase Intention	0.794

Variance Inflation Factor (VIF) was between 1.45 and 2.78 indicating that there was no multicollinearity. Collectively, these findings uphold that, the measurement model has an

acceptable level of reliability and validity, and therefore, it can be further analyzed structurally.

Table 5. Variance Inflation Factor (VIF) Values

Construct	Indicator	VIF
Eco-Labeling	EL1	1.883
	EL2	2.004
	EL3	1.762
Green Packaging	GP1	1.894
	GP2	2.115
	GP3	1.953
Green Product Attributes	GPA1	1.923
	GPA2	2.087
	GPA3	1.967
Premium Green Pricing	PGP1	1.822
	PGP2	1.994
	PGP3	1.901
Green Brand Image	GBI1	2.026
	GBI2	1.975
	GBI3	1.983
CSR Messaging	CSR1	1.845
	CSR2	1.921
	CSR3	2.044
Green Purchase Intention	GPI1	1.961
	GPI2	2.087
	GPI3	2.015

4.4 Structural Model Assessment

The hypothesis of relationships between the constructs were tested by using the structural

model. To get the significance levels of path coefficients, bootstrapping (5,000 resamples) was used. The collinearity between latent variables was ensured before hypothesis testing; inner VIF values were lower than 3.3, and they satisfied

acceptable ranges. The R² values were utilized to evaluate the predictive potential of the model. The results revealed that:

Green Purchase Intention had an R² of 0.642 indicating that 64.2 percent of the variance of the Green Purchase Intention is jointly explained by Green Brand Image,

Green Marketing dimensions as well as CSR Messaging.

These R² values indicate a significant amount of explanatory power (Hair et al., 2021). Furthermore, the Q² values, which are used to determine the predictive relevance of the model based on blindfolding, were all positive, proving the relevance of the model.

4.5 Path Coefficients and Hypothesis Testing

Table 6 presents the path coefficients, t-values, and p-values derived from the bootstrapping analysis.

Table 6. Path Coefficients and Hypothesis Testing

Hypothesis	Relationship	β	t-value	p-value	Decision
H1	Eco-Labeling → Green Brand Image	0.219	4.85	< 0.001	Supported
H2	Green Packaging → Green Brand Image	0.174	3.92	< 0.001	Supported
H3	Green Product Attributes → Green Brand Image	0.256	5.64	< 0.001	Supported
H4	Premium Green Pricing → Green Brand Image	0.188	4.03	< 0.001	Supported
H5	Green Brand Image → Green Purchase Intention	0.421	8.12	< 0.001	Supported
H6	CSR Messaging → Green Purchase Intention	0.224	5.21	< 0.001	Supported

The direct relations were all statistically significant in the level of p < 0.001. The findings indicate that all the dimensions of green marketing have a positive impact.

4.6 Mediation Analysis (Green Brand Image)

The bootstrapping indirect effect method was used to investigate the mediation effect of Green Brand Image (GBI) (Preacher and Hayes, 2008). The analysis established high levels of partial mediation in all dimensions of the green marketing.

Table 7. Mediation Effects of Green Brand Image

Path	Indirect Effect (β)	t-value	p-value	Mediation Type
EL → GBI → GPI	0.092	3.77	< 0.001	Partial
GP → GBI → GPI	0.073	3.02	0.003	Partial
GPA → GBI → GPI	0.108	4.26	< 0.001	Partial
PGP → GBI → GPI	0.079	3.38	0.001	Partial

According to the findings, the image of a green brand is an important mediator, which supports the contribution of the perceptions of the consumers in transforming the marketing actions into the intentions to act. This confirms previous findings of Majeed (2022) and Nguyen-Viet et al. (2024), who discovered that brand image is an

intermediary between environmental marketing cues and purchases.

4.7 Moderation Analysis (CSR Messaging)

The moderation analysis was applied to find out whether CSR Messaging reinforces or undermines the association between Green

Brand Image and Green Purchase Intention. Interaction term (GBI × CSR) was developed in SmartPLS through product indicator method (Henseler and Fassott, 2010). The moderation effect ($\beta = 0.103$, $t = 2.94$, $p = 0.004$) is found to be positive and significant which implies that the stronger the degree of CSR messaging, the more significant the effect of green brand image has on purchase intention. Green brands are more

trusted and loyal to consumers who are exposed to consistent and authentic CSR communication (Louis, 2024; Nguyen-Viet et al., 2024). The mere slope analysis (Figure 2) also revealed that, in a case where the CSR messaging is strong, the correlation between GBI and GPI is significantly steep; which confirms the interaction effect.

4.8 Model Fit Summary

Table 8. Model fit was assessed using SRMR, NFI, R², and Q².

Fit Index	Threshold	Observed Value	Interpretation
SRMR	≤ 0.08	0.062	Acceptable fit
NFI	≥ 0.90	0.914	Good fit
R ² (GBI)	≥ 0.50	0.561	Substantial
R ² (GPI)	≥ 0.50	0.642	Substantial
Q ² (Predictive relevance)	> 0	0.387	Predictive relevance confirmed

These statistics indicate that the general model has a satisfactory fit to the data and good predictive strength as well as construct validity.

5. Discussion

5.1 Interpretation of Key Findings

The results of the current research are strong empirical data indicating that the dimensions of green marketing eco-labeling, green packaging, green product attributes, and premium green pricing are strong in increasing green purchase intentions in consumers, in Punjab, Pakistan. The outcomes of the PLS-SEM showed that the image of green brand has a partial mediating effect, where marketing initiatives are transformed into greater behavioral intentions. It means that the cognitive and affective perceptions of consumers regarding the environmental commitment of a brand can be discussed as a link between marketing activities and purchase behavior. Also, the messages of CSR took the form of a moderator, which strengthened the relationships between green marketing dimensions and green purchase intentions. Consumers receive green claims as more credible when they believe that CSR efforts are real and that they are being implemented consistently and thus are more likely to act on them. These findings highlight the multi-dimensionality of green marketing, that is,

sustainable practices should not be merely symbolic. Environmental claims in Punjab consumers seem to be critically evaluated as they reward those brands who are coherent in terms of their green marketing, CSR practices, and general brand image. It coincides with the opinion that authenticity and trustworthiness are required elements of sustainable brand management in the emerging markets (Rahbar & Wahid, 2021; Van Hoang, 2025).

5.2 Theoretical Contributions

There are a number of theoretical contributions of this study. To begin with, it combines the Theory of Planned Behavior (TPB) and Signaling Theory in the explanation of how green marketing affects purchase intentions based on brand image mediated by CSR messaging. Green marketing factors serve as an indicator of environmental integrity, which influence the brand image, which in turn affects consumer attitudes and intentions as theorized by TPB. Second, the research contributes to the knowledge of psychological mechanisms of green marketing effectiveness by establishing the mediating effect of the green brand image. It strengthens the idea that perception of brand greenness among consumers is not provoked by marketing messages, instead, it is built by regular repetitions of believable

indicators and corporate welfare (Chen et al., 2023). Third, the addition of the CSR messaging as a moderator provides a theoretical richness in that contextual communication is a boundary condition in the green marketing-intention relationship. That will help fill the gap among marketing performance and corporate ethics studies, providing a more comprehensive conceptualization of sustainable branding in the new markets.

5.3 Practical and Managerial Implications

he results are useful to the marketers, managers, and policymakers. Successful green marketing involves balancing the eco-labeling, packaging, product dimensions as well as pricing in order to have one coherent message on sustainability. Managers ought to invest in the attainment of credible eco-label certifications and use of eco-friendly packaging to build the brand trust and shape consumer behavior. Having authentic and transparent CSR communication also boosts environmental positioning, particularly with the Pakistani consumers becoming increasingly sensitive to greenwashing. To attract the attention of the environmentally conscious consumers, the marketers need to position premium green pricing as a mark of quality and social responsibility. To the policymakers, the study highlights the importance of aligning the eco-labeling and CSR reporting standards in Pakistan in order to promote transparency and consumer confidence. In general, sustainable consumption and brand competitiveness in new markets can be stimulated with the help of green marketing, CSR, and brand image.

6. Conclusion and Recommendations

This paper has explored the relationship between the dimensions of green marketing and green purchase intentions, where the moderator was the green brand image, and the moderator was CSR messaging. Based on the findings of 700 respondents in Punjab, Pakistan, the appropriate usage of the results indicated that all the green marketing dimensions have a positive, but indirect, impact on purchase intentions by supporting the brand image. The CSR messages

also supported such relationships and emphasized that the regular and believable CSR communication enhances the green marketing effectiveness. In practice, it compels companies to embrace open eco-labeling, eco-friendly packaging and genuine CSR projects in order to create credible green brands. Standardization of green certifications should also be done by policymakers to eliminate greenwashing and create consumer confidence to engage in sustainable consumption in the emerging markets.

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