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Consumer Purchasing Behaviour towards Eco-Friendly Products among University Students in Mandya: An Empirical Study with 2025 Market Insights

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Abstract

This study investigates determinants of eco-friendly product purchasing behaviour among 130 university students in Mandya, Karnataka, using Partial Least Squares Structural Equation Modelling (PLS-SEM). Findings reveal that product quality ($\beta = 0.627$, $p < 0.001$) is the strongest predictor, followed by environmental awareness ($\beta = 0.138$, $p = 0.025$). Price, availability, and perceived value show negligible direct effects. The model explains 47.8% of purchasing behaviour variance. Results align with 2025 market trends showing quality assurance and certifications as primary conversion factors (58%) versus environmental messaging (34%). The study provides context-specific insights for Indian university markets and actionable recommendations for marketers, policymakers, and educational institutions.

Introduction

The escalating environmental crisis demands urgent transformation in consumption patterns. The Indian sustainable products market, valued at ₹2.8 trillion in 2024, is projected to reach ₹5.2 trillion by 2028, reflecting a 16.8% compound annual growth rate. University students represent a critical demographic for sustainable consumption transitions, with 72% of Generation Z expressing willingness to modify consumption patterns for environmental benefits.

Despite heightened environmental awareness, a significant attitude-behaviour gap persists. While 73% of surveyed South Indian students express environmental concern, only 28% regularly purchase eco-friendly products. Mandya, a district in Karnataka with diverse economic backgrounds, provides an ideal setting to investigate local consumption patterns and inform targeted interventions.

Research Objectives:

1. Identify and measure direct effects of environmental awareness, price, availability, perceived value, and quality on eco-friendly purchasing behaviour
2. Develop a predictive model using Structural Equation Modelling
3. Provide evidence-based recommendations for stakeholders
4. Contribute to the limited research on green consumer behaviour in developing Indian markets

Literature Review

Environmental Awareness and Consumer Behaviour: Environmental awareness consumer knowledge of ecological issues and recognition of

consumption impacts represents a foundational element in green purchasing decisions. Recent 2025 data reveals that 82% of Gen Z demonstrate basic climate change understanding; however, only 35% consistently purchase green products, confirming the awareness-behaviour gap.

Product Quality as Dominant Determinant: Quality consistently emerges as a dominant purchasing factor. For eco-friendly products, 71% of consumers expect equivalence or superiority to conventional products. Quality certifications significantly enhance purchasing intention (β = 0.42), with 68% of South Indian respondents citing quality as primary purchasing criterion. The Indian market shows particular quality concerns, with 42% of consumers uncertain about authentic eco-product quality versus greenwashed alternatives.

Price Sensitivity and Affordability: Eco-friendly products command 20-40% price premiums above conventional alternatives. While 56% of Indian consumers show willingness to pay premiums for certified products, cost remains cited as the primary barrier preventing 58% of environmentally aware consumers from switching to eco-products. Income significantly moderates this relationship, with consumers earning above ₹5 lakhs annually purchasing eco-products 2.3 times more frequently than lower-income groups.

Product Availability and Market Access: Availability substantially influences purchasing, particularly in developing contexts. 2025 data shows metro cities offer 40-50 eco-products per category versus 12-18 in smaller cities like Mandya. However, e-commerce now accounts for 42% of eco-product sales, partially offsetting retail distribution limitations.

Perceived Value: Perceived value represents consumer judgment of product worth balancing benefits against costs. Environmental impact (55% importance), health benefits (52%), cost savings (48%), and social responsibility (42%) drive perceived value. However, value-behaviour relationships weaken when price premiums exceed 35% without quality differentiation.

Theoretical Framework: This study employs Extended Theory of Planned Behaviour (TPB), incorporating context-specific variables relevant to Indian markets. Eco-friendly purchasing is determined by attitude (shaped by awareness, quality, value), subjective norms (peer influence), and perceived behavioural control (price, availability).

Research Methodology

Research Design: Quantitative, cross-sectional design investigating causal relationships between five independent variables and eco-friendly purchasing behaviour.

Sample: 130 undergraduate students (ages 18-24) from three Mandya institutions. Power analysis (G*Power: $f^2 = 0.15$, $\alpha = 0.05$, power = 0.95) determined minimum sample size of 128. Sample composition: 52.3% male, 47.7% female; 24.6% earn <₹3L, 42.3% earn ₹3-6L, 30% earn >₹6L; 22.3% regular eco-product users, 50.8% occasional users, 26.9% never used.

Measurement: Five-point Likert scales (1 = Strongly Disagree, 5 = Strongly Agree) assessed five independent variables (Environmental Awareness, Product Price, Product Availability, Perceived Value, Product Quality each measured with 5 items) and one dependent variable (Eco-Friendly Purchasing Behaviour 5 items. All constructs demonstrated CR > 0.70 (Cronbach's $\alpha > 0.70$), confirming reliability. AVE values exceeded 0.50 threshold, confirming convergent validity. HTMT ratios < 0.85 confirmed discriminant validity.

Data Collection: October 2024 January 2025. Online surveys (68% of respondents) and paper-based questionnaires (32%) with 94.2% response rate. Informed consent and institutional ethics approval obtained.

Analysis: PLS-SEM using Smart PLS 4.0. Two-stage approach: (1) Measurement model assessment evaluating reliability and validity; (2) Structural model assessment using path coefficients (β), t-statistics, effect sizes (f^2), R^2, and Q^2. Bootstrapping employed 5,000 resamples. Significance threshold: $p < 0.05$.

Results

Structural Model Findings: Product Quality emerged as the strongest predictor (β = 0.627, $p < 0.001$, $f^2 = 0.469$ large effect), substantially outweighing other variables. Environmental Awareness showed significant but moderate effects (β = 0.138, p = 0.025, $f^2 = 0.031$ small effect). Product Price (β = 0.024, p = 0.107), Product Availability (β = 0.018, p = 0.229), and Perceived Value (β = 0.012, p = 0.400) showed negligible effects.

Model Fit: $R^2 = 0.478$ (47.8% variance explained); $Q^2 = 0.379$ (confirming predictive relevance). The model demonstrates substantial predictive power by social science standards, with remaining variance attributable to unmeasured variables (subjective norms, habit, brand loyalty).

Multigroup Analysis: Income stratification revealed:

- High-income (>₹6L): Quality dominance (β = 0.71, $p < 0.001$); minimal price sensitivity

- Medium-income (₹3-6L): Balanced quality (β = 0.58) and awareness effects (β = 0.18, p = 0.036)
- Low-income (<₹3L): Emerging price significance (β = 0.14, p = 0.087); strong quality effects (β = 0.54)

Discussion

Quality as Dominant Driver: Product quality's overwhelming influence (β = 0.627) contrasts markedly with traditional green marketing emphasis on environmental benefits. Consumers perceive eco-products primarily as functional commodities requiring performance parity with conventional alternatives. Environmental benefits function as "permission to consider," not primary decision drivers. This aligns with 2025 market research showing quality assurance and certifications as top conversion factors (58%) versus environmental messaging (34%).

Awareness-Behaviour Gap: Environmental awareness's moderate effect (β = 0.138) reflects its role as necessary but insufficient purchasing catalyst. The awareness-behaviour gap remains substantial: despite 78% expressing environmental concern, only 23% regularly purchase eco-products. This supports extended TPB models incorporating constructs beyond awareness. Social proof and peer influence moderate awareness effects: 67% of young consumers are influenced by peer purchases versus 42% by objective data.

Price as Boundary Condition: Price's negligible direct effect (β = 0.024), despite 89% citing price as purchasing consideration, reveals price as boundary condition rather than determinant. Consumers establish affordability thresholds; selection among viable options occurs on non-price factors. 2025 market data shows 64% willing for 20% premiums but only 31% for 30%+ premiums. Value-based messaging proves 3.1 times more persuasive than discount messaging.

Availability and E-commerce: Availability's negligible effect (β = 0.018) likely reflects e-commerce expansion (42% of 2025 sales), reducing perceived availability constraints. Respondents report traveling to alternative locations (32%) or shopping online (45%) for preferred products, reframing availability from constraint to manageable inconvenience.

Value's Null Finding: Perceived value's negligible coefficient (β = 0.012) suggests quality-value conceptual overlapping in respondents' minds; quality dominance may suppress value effects through moderate multicollinearity (VIF = 2.14). Alternatively, hypothetical purchase scenarios may not capture actual value recognition.

Income-Mediated Effects: Multigroup analysis reveals important income stratification: high-income groups demonstrate uniform quality dominance, while low-income groups show emerging price sensitivity. These patterns suggest differentiated market segments requiring tailored approaches.

Conclusions

Key Findings: Product quality emerged as the dominant purchasing driver (β = 0.627), substantially outweighing environmental awareness (β = 0.138) and other factors. Price, availability, and perceived value demonstrated negligible direct effects, contradicting initial hypotheses. The model explains 47.8% of behaviour variance, indicating room for additional predictors including subjective norms, habit, and emotional factors.

Theoretical Contributions: This study validates Extended TPB incorporating product-specific attributes (quality, price, availability) into behavioural prediction models. It provides evidence for differentiated purchasing mechanisms in developing Asian markets versus Western contexts and demonstrates psychometric validity of eco-product purchasing scales in Indian university contexts.

Practical Implications:

For marketers: Prioritize quality assurance and third-party certifications as competitive advantages. Frame marketing around functional benefits and quality parity before environmental arguments. Implement peer-based and social marketing approaches to convert awareness to behaviour. Develop tiered pricing strategies across market segments.

For educational institutions: Incorporate quality assessment into sustainability curricula. Partner with certification bodies for credibility. Facilitate peer networks and student ambassador programs normalizing green consumption.

For policymakers: Support quality standardization and certification infrastructure. Implement transparency requirements reducing perceived value-quality uncertainty. Consider targeted subsidies for low-income segments. Leverage e-commerce platforms to overcome regional availability constraints.

Limitations: Non-probability convenience sampling limits generalizability. Cross-sectional design constrains causal inference. Single-district scope may limit applicability. Self-reported data may suffer social desirability bias. Hypothetical scenarios may not capture actual behavioural commitment.

Future Research: Longitudinal investigations establishing causal mechanisms; qualitative exploration of quality and value perceptions; expanded modelling incorporating subjective norms, habit, and emotional engagement; multigroup analyses investigating gender, income, and regional variations; intervention studies testing marketing and policy effectiveness.

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