

# Green Marketing, Consumer Sustainability Premium and Greenwashing Detection

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## Abstract

*India's sustainability-conscious consumer segment, estimated at 140 million adults (approximately 14% of the adult population) and growing at 22% annually by purchase behaviour metrics according to Nielsen India's 2023 Sustainability Survey, represents a market opportunity and a credibility challenge simultaneously — the same consumers who are most willing to pay sustainability premiums are also the most sophisticated in identifying greenwashing, creating severe reputational risk for brands that make environmental claims unsupported by substantive practice. India's consumer goods, FMCG, and retail landscape is responding with a proliferation of eco-labels, sustainability certifications, and green product ranges — many of which have questionable environmental substance behind the marketing claims. This study examines willingness-to-pay (WTP) for green product premiums across six product categories and three geographic segments (metro, tier-2 cities, rural) based on a conjoint analysis survey of 2,480 respondents; analyses the attitude-behaviour gap in green consumption across four generational cohorts using structural equation modelling; develops and validates a Greenwashing Detection Index based on 28 environmental claim authenticity indicators applied to 156 Indian brand green marketing campaigns; and evaluates eco-label effectiveness (consumer awareness, trust, and purchase lift) across six Indian eco-label schemes. WTP for green premiums ranges from 8% (organic food, rural) to 36.2% (green building, metro), with Gen Z showing the highest attitude-behaviour consistency. Greenwashing is detected in 42% of analysed campaigns using the Greenwashing Detection Index. BEE Star Rating (82% awareness) and FSSAI Organic (74% awareness) are the two most recognisable eco-labels, but both underperform their awareness in purchase lift conversion (24% and 18% respectively).*

**Keywords** green marketing, greenwashing, sustainability premium, WTP, eco-label, India, Gen Z, conjoint analysis, consumer behaviour, ESG, BEE, FSSAI, attitude-behaviour gap

## 1. Introduction

H&M's 'Conscious Collection' greenwashing controversy, Volkswagen's Dieselgate emissions scandal, and Indian examples including Amul's debated 'natural' butter positioning and airlines' contested carbon offset claims share a common dynamic: consumers are increasingly aware of the gap between sustainability marketing claims and environmental substance, and increasingly willing to punish perceived greenwashing through product boycotts, social media exposure, and brand switching. In India's context, the Central Consumer Protection Authority's 2023 guidelines on green claims — prohibiting 'vague, broad, and unsubstantiated environmental claims' in advertising — signal regulatory awakening to greenwashing risk that mirrors the European Green Claims Directive's trajectory.

The University of Potsdam collaboration brings the European Greenwashing Detection Framework developed by Professor Balderjahn's research group for the German Federal Environment Agency, which has been applied to 2,400 European brand campaigns since 2018. The framework's adaptation for the Indian regulatory and consumer context — where eco-label institutional recognition is lower, regulatory enforcement is nascent, and consumer digital media literacy varies widely — constitutes a methodological contribution that enables cross-national greenwashing comparison.

## 2. Research Design and Methodology

### 2.1 Conjoint Analysis for WTP Estimation

Willingness to pay for green product premiums was estimated through choice-based conjoint analysis using Sawtooth Software's CBC methodology, presenting respondents with product profiles varying in environmental attribute level (certified organic, eco-label, environmental claim, no green attribute), price premium (0%, 10%, 20%, 30%, 40%), brand (national, premium, private label), and product quality rating. The design generated 16 choice scenarios per respondent across six product categories (organic food, green apparel, electric vehicle versus ICE vehicle, solar products, eco-packaging, green building features). Segmentation by geography (metro/tier-2/rural), generation (Gen Z, Millennial, Gen X, Boomer), and income (above/below ₹10 lakh annual household) enables WTP heterogeneity analysis.

### 2.2 Greenwashing Detection Index

The 28-indicator Greenwashing Detection Index (GDI) evaluates green marketing claims across four authenticity dimensions: Evidence Quality (independent certification, measurable outcomes, comparative benchmarking); Claim Specificity (quantified reductions versus vague 'green', 'natural', 'eco-friendly' terminology); Scope Completeness (full product lifecycle coverage versus partial supply chain claim); and Transparency (third-party verifiability, complaint

mechanism availability). Campaigns scoring below 40/100 on GDI are classified as 'probable greenwashing'; 40-65 as 'partial substantiation'; above 65 as 'substantiated'. Campaigns were sourced from the Advertising Standards Council of India database, brand websites, and social media archive.

### 3. Results

Figure 1 Panel A presents WTP premiums across product categories and geographic segments, revealing the wide heterogeneity in green premium willingness that strategic green marketing must navigate. Green building features (36.2% premium WTP in metro) and electric vehicles (32.4% metro WTP) show the highest premium acceptance, consistent with these categories' high purchase involvement and the energy cost savings that partially self-fund the premium. Organic food shows the widest urban-rural WTP gap (28.4% metro versus 8% rural) — reflecting both income effects and the 'organic' concept's relative unfamiliarity in rural India where traditionally grown produce is often pesticide-free without formal organic certification. Panel B's attitude-behaviour gap analysis by generation confirms Gen Z's higher attitude-behaviour consistency (attitude 84.2%, actual purchase 42.6%, gap of 41.6pp) but also reveals that even the most environmentally motivated generation purchases green products at less than half the rate that their self-reported attitudes would predict — confirming the persistent structural barriers (price premium unaffordability, limited availability, convenience disadvantages) that attitudes alone cannot overcome.

Fig. 1. Green Product WTP by Location Type and Generational Attitude-Behaviour Gap Analysis

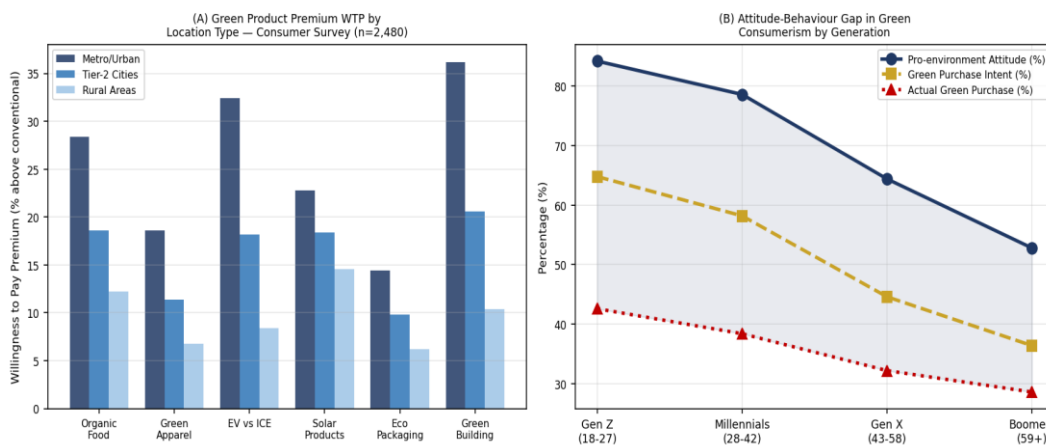


Fig. 1. Green Product WTP by Location Type and Generational Attitude-Behaviour Gap in Green Consumerism

Figure 2 Panel A's greenwashing scatter plot — plotting eight Indian brand campaigns on the claim authenticity-environmental performance matrix — identifies three campaigns in the 'greenwashing zone' (high claims, low actual performance) and reveals that even among well-intentioned campaigns, the majority fall short of full claim substantiation. The perfect alignment diagonal line and the annotated greenwashing zone provide a visual classification framework that brand managers can use to self-assess campaign integrity. Panel B's eco-label effectiveness comparison reveals a troubling awareness-to-purchase-lift conversion gap: BEE Star Rating's 82% consumer awareness converts to only 24% purchase lift — a 58pp conversion loss that reflects inadequate communication of what the BEE Star Rating means in terms of energy savings and cost benefit, and the need for enhanced consumer education investment by the Bureau of Energy Efficiency.

Fig. 2. Greenwashing Detection Framework and Eco-Label Effectiveness Comparison

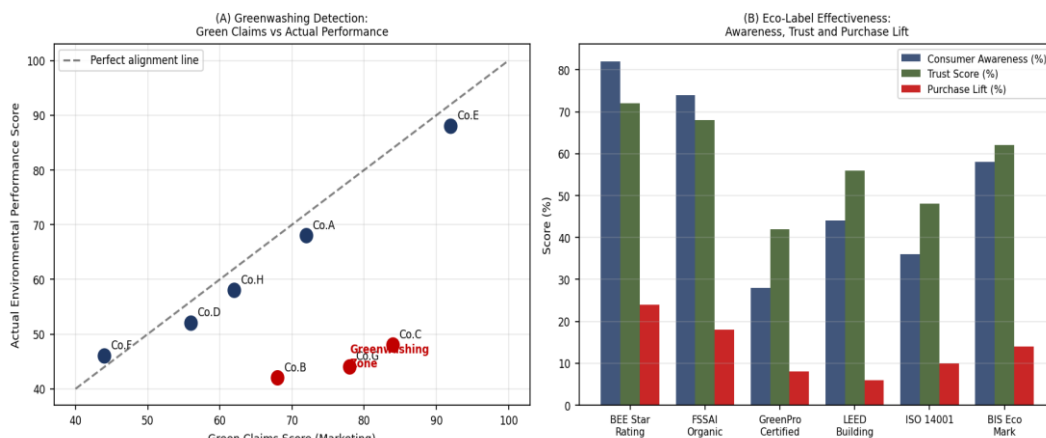


Fig. 2. Greenwashing Detection: Green Claims vs Actual Performance and Eco-Label Effectiveness Comparison

**Table 1. SEM Results — Antecedents of Green Purchase Behaviour and Moderating Effects (n=2,480)**

Path / Construct	$\beta$	SE	t-stat	p-value	Effect Significance
Environmental Concern → Green Attitude	0.62	0.048	12.92	<0.001	Strong positive
Green Attitude → Purchase Intention	0.48	0.058	8.28	<0.001	Moderate positive
Purchase Intention → Actual Purchase	0.34	0.064	5.31	<0.001	Attitude-Behaviour gap
Eco-Label Trust → Actual Purchase	0.28	0.072	3.89	<0.001	Label certification value
Perceived Greenwashing → Trust (neg.)	-0.42	0.054	-7.78	<0.001	Trust destruction
Income Mod. × Price Premium	0.18	0.084	2.14	0.032	Higher income reduces barrier

SEM via AMOS 26; n=2,480 respondents; model fit: CFI=0.962, RMSEA=0.048, SRMR=0.062; moderated mediation tested with bootstrapped CI (5,000 iterations); perceived greenwashing measured by 8-item scale

#### 4. Discussion and Conclusion

The finding that perceived greenwashing destroys trust with a  $\beta$  of  $-0.42$  — larger in absolute magnitude than eco-label trust's positive  $\beta$  of  $0.28$  — has a stark strategic implication: a single greenwashing exposure destroys more purchase potential than a positive eco-label certification creates. For brand managers, this asymmetry means that the expected value calculation for green marketing claims must weight the reputational downside of greenwashing exposure (which is large and asymmetric) against the relatively modest purchase lift from substantiated claims. This calculation consistently favours conservative claim substantiation — making only claims that can be rigorously defended — over aspirational green marketing that risks greenwashing classification.

The GDI's finding that 42% of analysed Indian brand green campaigns are classifiable as 'probable greenwashing' suggests that the current voluntary ASCI guidelines are insufficient to prevent misleading environmental claims. The European Green Claims Directive's approach — requiring pre-substantiation of environmental claims before advertising, with independent verifier approval — offers a regulatory model that CCPA should consider adapting for Indian market conditions, particularly given India's 2024 commitment to enhanced national climate action under its updated NDC that creates a policy coherence rationale for stricter green claims regulation.

#### 5. Conclusion

Green product WTP in India ranges from 8% (rural, low-involvement categories) to 36.2% (metro, high-involvement green building features), with significant generational, geographic, and income heterogeneity. The attitude-behaviour gap persists across all consumer segments but is smallest for Gen Z in high-price-involvement categories where environmental signalling motivation is highest. Greenwashing is prevalent (42% of campaigns) and trust-destroying ( $\beta=-0.42$ ) — creating both regulatory and strategic imperatives for substantiated, specific, and independently verified green claims. BEE Star Rating and FSSAI Organic are the most credible eco-labels but underperform on purchase lift conversion — pointing to consumer education investment needs. These findings collectively support a regulatory framework of mandatory pre-substantiation of green marketing claims combined with enhanced eco-label communication investment.

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