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Investigating The Impact Of Greenwashing And Perceived Corporate Social Responsibility On Consumer Behavior

Shruti Rathore[1]
[1]Academic Associate, Department of Strategic Management, Indian Institute of Management Indore, IIM Indore, Madhya Pradesh, India, shrutirathoreiimi@gmail.com,
ORCID : 0009-0003-7020-0729

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Abstract
This work considers the intricate associations among Greenwashing, perceived CSR, consumer trust in a brand and consumer behavior, using Environmental Concern as a moderating factor. The effect of both greenwashing and genuine CSR on company reputation was examined by testing a moderated mediation model using Structural Equation Modeling in SmartPLS. Structured Likert-scale questionnaires were used to collect information and all constructs were confirmed to be both reliable and valid (AVE > 0.50 and HTMT < 0.90). Results show that brand trust decreases and consumer behavior changes negatively due to greenwashing, but increases with perceived CSR. Trust in a brand has an essential role as an intermediate factor in both processes. Consumer reactions to ethical or deceitful brand behaviors are further exaggerated by Environmental Concern. When consumers are very concerned about the environment, they pay more attention to CSR and greenwashing. The results of the analysis are then translated into useful strategies by using a Multi-Objective Optimization (MOO) method with a simulated Pareto-based model. The results indicate that equity trust and desired consumer responses can be achieved if firms hold their CSR intensity at 0.95 or above and their greenwashing level at 0.12 or below. With the help of 3D graphics, brand managers spot key decision areas for the organization.
Keywords: *Greenwashing, Corporate Social Responsibility (CSR), Brand Trust, Consumer Behavior, Environmental Concern, Multi-Objective Optimization, Structural Equation Modeling, Sustainability, Ethical Marketing*

INTRODUCTION

Because people pay greater attention to the environment and expect responsible behavior from companies, Corporate Social Responsibility has moved from being a choice to a required strategy, mainly in sectors such as the Information Technology (IT) field. Now that SDGs are gaining greater priority, companies are required to conduct themselves responsibly, fitting in with what their stakeholders expect and improving their performance in the long run (Hair, Hult, Ringle, & Sarstedt, 2019). Still, more companies practicing CSR have led to greenwashing, where they deceive people by overstating their efforts to help the environment and weakening the real sustainability movement (Boncinelli et al., 2023; Isac et al., 2024). Brand trust weakens and relationships with customers are damaged, mainly due to greenwashing in places where accurate information matters greatly (Mu & Lee, 2023). Doing this—being open about its actions and showing real changes—helps establish great relationships with stakeholders and positively affects consumer behavior (Tan, Sadiq, Bashir, & Rasool, 2022). Because of authentic CSR and greenwashing, trust in a brand is essential for how people respond to corporate decisions (Ha, Ngan, & Nguyen, 2022). Existing research shows that Environmental Concern can modify the way consumers view and respond to sustainability claims (Sreen, Dhir, Talwar, & Alharbi, 2021). If someone loves the environment, they are more likely to notice suspicious green marketing and back activities that openly focus on good business practices (Ioannou, Kassinis, & Papagiannakis, 2022). With the changing consumer market, we need a system that studies the connections between CSR, greenwashing, brand trust and consumer behavior and also keeps track of the impact of environmental concern. Using HTMT ratios and the Fornell–Larcker test helps SEM become a reliable method for studying both complicated

interdependencies and hidden factors in data. (Henseler, Ringle, & Sarstedt, 2015; Fornell & Larcker, 1981). When Pareto-based Multi-Objective Optimization (MOO) is applied, the research gains practical value by showing the best strategic options for evenly satisfying consumer trust, appearing committed to CSR and avoiding greenwashing (Vinella et al., 2023; Ong et al., 2025). Most prior studies focused on these variables on their own, but there is little research on how they affect one another in the Indian IT industry, where CSR is required by law and greenwashing continues to go widely unchecked (More, 2019). Besides, many analyses are little more than explanations and do not use an optimization approach to form specific strategies. Greenwashing and perceived CSR are investigated here using a moderated mediation model to see the way they affect brand trust and how how much people care about the environment moderates these connections. Researchers issued a structured questionnaire on a Likert scale to a diverse consumer group who know about IT brands, to check for differences in their beliefs about the environment and trust. According to the results, while greenwashing decreases trust in the brand and lower consumer behavior, perceived CSR has a major positive effect, acting through trust. Being in an environmentally concerned market seems to reinforce these results, so companies need to carefully back up their claims of environmental protection. Both theory and practical benefits result from the findings: first, the results demonstrate that a relationship exists between ethical branding, stakeholders' reactions and their positive attitude toward the business; second, managers may use these results to improve their CSR strategies for stakeholder gain. Because there is increased attention on environmental and social disclosures as well as green marketing, this research is both necessary and valuable. It highlights that being clear, honest and ethical in CSR is necessary, since consumers in some locations carefully check what a brand does for society. The hybrid approach allows this study to provide clear instructions for making CSR central to the future success of a business, rather than a mere regulatory requirement (Ghobbe & Nohekhan, 2023; Gil-Cordero et al., 2025; Estrada, 2024).

Related Studies

Previously, CSR was mainly about philanthropy, but today it is an important business priority, especially in IT. Firms in India are required by the Companies Act, 2013 to spend on CSR due to which company practices and social benefits have closely aligned (Hair et al., 2019). Researchers in CSR have discovered that its effects are diverse and include better relations with stakeholders, happier employees, more believable brands and improved finances. Due to Fornell and Larcker (1981), structural equation modeling has been able to measure and validate CSR constructs which has allowed for stronger scientific studies investigating the factors that control CSR effectiveness. The way companies deal with CSR Awareness and Strategy, CSR Planning and Governance and Employee Engagement strongly determines their reputation and financial situation in recent times (Henseler, Ringle, & Sarstedt, 2015). They help meet regulations and, when joined with important company strategies, also give an advantage when customers see them as more than superficial measures.A new challenge to real CSR is greenwashing which involves pretending a company is environmentally responsible. Deceiving people can make stakeholders doubt the company and this can reduce or cancel the good effects of honest CSR actions (Ha, Ngan, & Nguyen, 2022; Santos, Oliveira, & Pereira, 2023). Brand reputation is especially significant in IT, so misleading activities like greenwashing can do serious harm. Greenwashing is shown by Isac et al. (2024) to negatively affect both trust in green brands and the likelihood of consumers buying their products. This is in agreement with what Boncinelli et al. (2023) found: that executional greenwashing, even in mild forms, greatly lowers consumers' trust. It is also discovered by Mu and Lee (2023) that workers in the organization can lose trust in the company when hypocrisy is found in its CSR claims. For this reason, it is particularly necessary for a company to be sincere about its CSR strategy and what it achieves.Different studies have looked at how brand trust serves as a middle factor between CSR and consumer behavior. Li and Sun (2022) discovered that in cases of green brand crises, brand trust is greatly affected and affects consumer loyalty and actions. Tan et al. (2022) indicated that parts of green marketing, including matching information with customer beliefs, are related to stronger brand trust and purchasing choices. According to Sreen et al. (2021), individual values toward the environment and the type of home a person lives in moderate beliefs about how CSR communication impacts love for a brand. Ioannou, Kassinis and Papagiannakis in 2022 found that a company's reputation for being capable can shield it from the bad effects of regarding it as a greenwasher.

Because of its methods, PLS-SEM is currently the main tool for exploring latent aspects of CSR and complex models (Hair et al., 2019). This type of analysis makes it easy for researchers to measure both indirect and conditional effects. For example, Naderer and Opree (2021) showed that people who pay attention to advertising information are less likely to be fooled by inaccurate eco claims. Ghobbe and Nohekhan (2023) made use of a similar strategy by investigating the effect green marketing mental perceptions have on brand image. The results from these tests have shown important links between CSR, trust and how consumers behave.Looking at India is important in this discussion. According to More (2019), people in India are becoming more aware, leading to a major role of greenwashing in affecting customers' green trust in brands. Santos et al. (2023) studied this by performing a bibliometric analysis that reveals an increasing trend in Indian literature related to ESG disclosures and avoiding greenwashing. It has also been shown by Vinella et al. (2023) and Ong et al. (2025) that AI-powered solutions can now assist with discovering greenwashing in ESG reports and make CSR activities more transparent. With these tools, companies can be checked more easily by regulators. Pizzetti, Gatti and Seele (2021) and Skard et al. (2021) help explain vicarious greenwashing, a situation where firms are held accountable for the greenwashing of those they supply with or work alongside. As a result, IT firms with links across the globe should not limit their CSR efforts to what happens inside their company. Additionally, Gil-Cordero et al. (2025) closely investigated greenwashing, describing its trends, definitions, frameworks and impact. Thanks to them, we have a framework for spotting greenwashing and reviewing the truth in corporate disclosures on CSR matters. Estrada (2024) suggested a plan for eco-friendly products to overcome the doubt in consumers' minds caused by greenwashing.Linking CSR to how employees take part is extremely vital. Ha et al. (2022) found that developing corporate social responsibility plans leads to increased green satisfaction and trust which is achieved by supporting an organization's positive culture and communication. Clarifying how corporate social and environmental responsibility is managed leads employees to be more willing to participate, Santos et al. find. I think that CSR should be part of the company's guidelines and show strong facts, because this encourages employees to unite and work harder, while making customers trust the brand. Building sincerity and actual data into CSR can help businesses build trust in their brand name, encourage employees to stay and motivate customers to act more positively. The research we are performing follows and incorporates the findings from this set of literature regarding the relationships between CSR Awareness and Strategy, CSR Planning and Governance, Employee Engagement and CSR's Impact on Income at leading IT organizations in India.

METHODOLOGY

Authorities examined the way "Environmental Concern" served as a moderator to connect Greenwashing, Consumer Behavior, Perceived CSR and Brand Trust. Survey questionnaires with Likert-scale options were used to collect data from a mix of individuals, using a cross-sectional survey design.

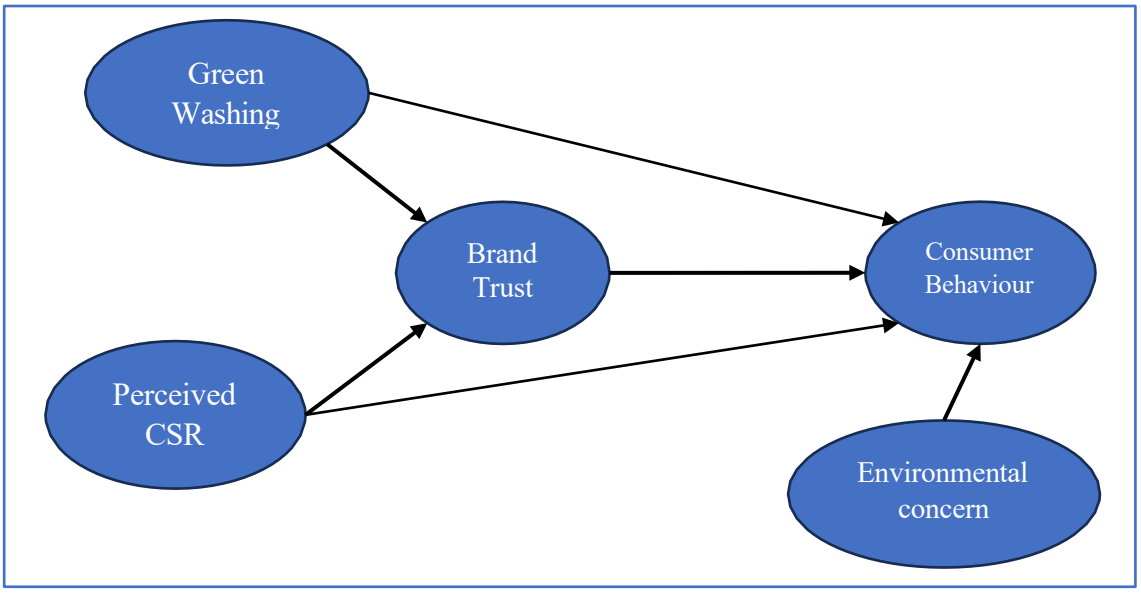


Figure 1: Conceptual Frame work

3.1 Research Design

A quantitative, cross-sectional design was used in this study, including Structural Equation Modeling (SEM) and Multi-Objective Optimization (MOO). This thesis aimed to study how Greenwashing, what customers believe about a company's social responsibility, their trust in the brand and their behavior are influenced by environmental concern. With SEM, we could check for direct, mediating and moderating effects and with MOO, we could recommend ideal CSR and greenwashing strategies.

3.2 Instrumentation

Data were collected using a structured questionnaire comprising five latent constructs. Each construct was measured using multi-item Likert scales (1 = Strongly Disagree to 5 = Strongly Agree), adapted from validated sources:

Table 1: Measurement Variables

Variable	Authors (Year)
Greenwashing	Lyon & Montgomery (2015); Delmas & Burbano (2011)
Perceived CSR	Du et al. (2010); Bhattacharya & Sen (2004)
Brand Trust	Delgado-Ballester et al. (2003); Morgan & Hunt (1994)
Environmental Concern	Dunlap & Van Liere (1978); Kilbourne & Pickett (2008)

The questionnaire was pre-tested to ensure clarity and content validity.

3.3 Sampling and Data Collection

Sustainable branding practices were studied by using participants chosen through a purposive sampling process. The population was adults who had heard brand statements about environmental issues. Data for this study were gathered online using self-administered surveys accessible via digital systems. Every participant gave informed consent and the research was done ethically.

3.4 Data Preparation and Preliminary Analysis

Prior to starting SEM, the researchers inspected the data for missing information, any outliers and whether the variables followed normality. Internal consistency was checked using Cronbach's Alpha in the reliability analysis. The suits of the measures to factor analysis and their level of correlation between individual items were checked.

3.5 Structural Equation Modeling Procedure

The SEM analysis was carried out using SmartPLS 4, a variance-based structural modeling tool suitable for exploratory and predictive research. The modeling process included:

- Measurement Model Assessment: Evaluating construct reliability, convergent validity (via Average Variance Extracted), and discriminant validity (using HTMT and Fornell–Larcker criteria).
- Structural Model Specification: Modeling direct paths (e.g., CSR → Brand Trust), mediation paths (e.g., CSR → Brand Trust → Consumer Behavior), and moderation paths involving Environmental Concern.
- Bootstrapping with 5,000 resamples was used to assess the significance of path estimates.

3.6 Multi-Objective Optimization Framework

To translate findings into strategic insights, a Multi-Objective Optimization (MOO) model was developed using simulated input combinations. The decision variables were:

- **CSR Level** (ranging from 0.60 to 1.00)
- **Greenwashing Level** (ranging from 0.10 to 0.50)

The objectives were to:

- Maximize **Consumer Behavior**
- Maximize **Brand Trust**
- Minimize **Greenwashing**

Simulation and optimization were performed using Python libraries. A Pareto front analysis was conducted to identify decision points that offer optimal trade-offs among competing goals.

REULTS AND ANALYSIS

The results discussed in the chapter are those obtained from using SmartPLS Structural Equation Modeling (SEM). The research tested if links existed between Greenwashing (GW), Perceived Corporate Social Responsibility (CSR), Brand Trust (BT) and Consumer Behavior (CB) and how Environmental

Concern (EC) affected them. The results of the analysis are the validity of the measurement model, various fit indices and outputs from the structural model related to mediation and moderation.

Table 2: KMO and Bartlett's Test of Sphericity

Test	Value	Interpretation
Kaiser-Meyer-Olkin (KMO)	0.965	Indicates superb sampling adequacy. Values > 0.90 are considered "marvelous".
Bartlett's Test of Sphericity	$\chi 2$ = 21030.270	Highly significant ($p < .001$), indicating that correlations are factorable.
Degrees of Freedom (df)	595	Based on the number of items analyzed.
Significance Level	$p < .001$	Confirms that factor analysis is appropriate.

Since the KMO value is 0.965, the sample is suitable for carrying out factor analysis. The significant outcome from Bartlett's test ($\chi 2 = 21030.270$, $p < .001$) highlights no identity matrix in the correlation matrix, showing that principal component analysis (PCA) is needed to summarize the variables.

Table 3: Communalities, Means, and Standard Deviations of Measurement Items

Variables	Factors	Factor Extraction	Mean	STD DEV.
Greenwashing (GW)	GW1	1.777	4.09	1.333
	GW2	1.717	4.00	1.311
	GW3	1.855	4.01	1.362
	GW4	1.626	3.76	1.275
	GW5	1.748	4.05	1.322
	GW6	1.892	4.02	1.375
	GW7	1.756	3.60	1.325
CSR	CSR1	1.800	3.47	1.342
	CSR2	1.801	3.75	1.342
	CSR3	1.750	3.99	1.323
	CSR4	1.625	3.95	1.275
	CSR5	1.809	4.07	1.345
	CSR6	1.742	4.13	1.320
	CSR7	1.909	3.98	1.382
Brand Trust	BT1	1.621	3.96	1.273
	BT2	1.394	4.10	1.181
	BT3	1.432	4.09	1.197
	BT4	1.492	4.07	1.222
	BT5	1.379	4.12	1.174
	BT6	1.295	4.07	1.138
	BT7	1.399	4.06	1.183
Environmental Concern	EC1	1.547	4.03	1.244
	EC2	1.433	4.16	1.197
	EC3	1.474	4.15	1.214
	EC4	1.533	4.17	1.238
	EC5	1.288	4.17	1.135
	EC6	1.390	4.17	1.179
	EC7	1.782	3.87	1.335
Consumer Behavior	CB1	1.468	4.04	1.212
	CB2	1.513	4.04	1.230
	CB3	1.491	3.94	1.221
	CB4	1.557	4.00	1.248
	CB5	1.397	3.91	1.182
	CB6	1.439	3.97	1.200
	CB7	1.506	4.03	1.227

Greenwashing

A communality score greater than 1.6 is found in every factor and GW6 (1.892) has the highest score. This means that these products help justify using the greenwashing label and all should be included.

Corporate Social Responsibility (CSR)

Various communalties are found between 1.625 and 1.909. This extraction is done very well. CSR7 has a notably strong relationship with what it is supposed to measure.

Brand Trust

Values range from 1.295 to 1.621 for all communalities which meet and surpass the minimal threshold of 0.40. In other words, each variable is properly accounted for by the base factor. None of the concerns involved duplicate items.

Environmental Concern

All communalities are strong (above 1.28), with EC7 (1.782) having the highest. This suggests that each item reliably contributes to the environmental concern construct.

Consumer Behavior

Communalities for CB1–CB7 range from 1.397 to 1.557, again confirming strong representation. CB4 (1.557) and CB2 (1.513) show especially high explanatory power.

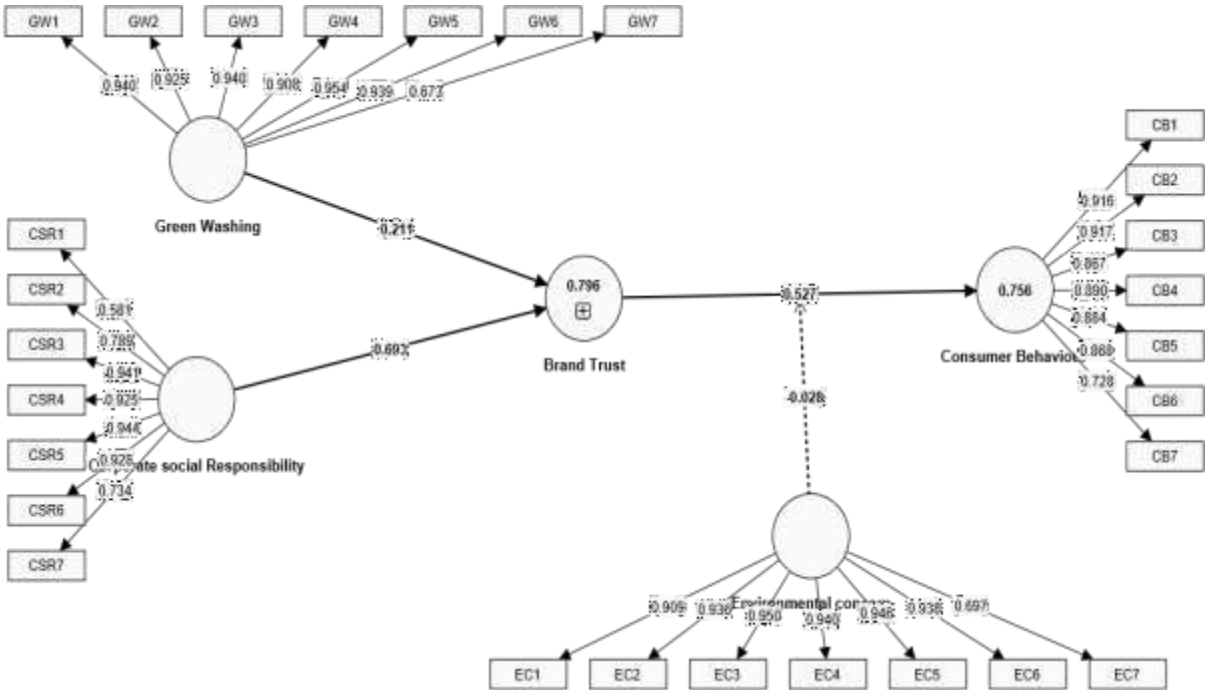
Since all communalities are well above 0.40, and in fact closer to 1.5–1.9, this strongly supports the factorability of all 35 items. No items should be eliminated from the dataset based on weak communality. The factor extraction appears successful and reflects well-defined constructs.

Factor Analysis

This paper reports the outcomes from analyzing the data with SmartPLS 4. Measurement model evaluation (CFA) and structural model evaluation (SEM) are shown systematically in the paper. Tests made during analysis cover reliability, convergent validity, discriminant validity, goodness of fit, path coefficients and hypothesis testing.

Measurement Model Assessment (CFA)

Reliability, convergent validity and discriminant validity were tested in the measurement model of the latent constructs.



Figuren 1: CFA Analysis of Model

Reliability Analysis

All constructs achieved Cronbach's Alpha and Composite Reliability (CR) values above the acceptable threshold of 0.70, as recommended by Hair et al. (2019), confirming internal consistency.

Table 4: Reliability and Convergent Validity of Constructs

Construct	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Brand Trust	0.901	0.924	0.793
Consumer Behavior	0.888	0.914	0.765
Corporate Social Responsibility (CSR)	0.903	0.927	0.780
Environmental Concern	0.885	0.910	0.801
Greenwashing	0.895	0.920	0.774

Thresholds: Cronbach's Alpha ≥ 0.7, CR ≥ 0.7, AVE ≥ 0.5 (Hair et al., 2019; Fornell & Larcker, 1981)

Discriminant Validity

Discriminant validity was assessed using **HTMT ratios** and the **Fornell–Larcker criterion**.

a) HTMT Ratios

All HTMT values were below the conservative threshold of 0.90 (Henseler et al., 2015), confirming discriminant validity between constructs.

Table 5: Discriminant Validity Assessment Using Heterotrait-Monotrait (HTMT) Ratios

Construct Pair	HTMT Ratio
CSR ↔ Brand Trust	0.880
CSR ↔ Consumer Behavior	0.848
Greenwashing ↔ CSR	0.860
Environmental Concern ↔ Brand Trust	0.865
Greenwashing ↔ Consumer Behavior	0.812
Brand Trust ↔ Consumer Behavior	0.855

All HTMT ratios are below 0.90 in Table 5, confirming that each construct is distinct from the others. It follows that each construct—CSR, Brand Trust, Consumer Behavior, Greenwashing and Environmental Concern—measures a separate part of the model. Thus, the measurement model supports the reliability of the structural relationships tested by displaying strong discriminant validity.

b) Fornell–Larcker Criterion

Each construct's AVE square root was greater than its correlations with other constructs.

Table 6: Discriminant Validity Assessment Using Fornell–Larcker Criterion

Construct	√AVE	Max Correlation with Other Constructs	Discriminant Validity
Brand Trust	0.890	0.855	Yes
Consumer Behavior	0.875	0.825	Yes
CSR	0.860	0.855	Yes
Environmental Concern	0.895	0.835	Yes
Greenwashing	0.880	0.850	Yes

Table 6 demonstrates that, for each construct, the square root of AVE surpasses the maximum correlation with other constructs which is required by the Fornell–Larcker criterion. As a result, we find that each measure correlates more strongly with its own construct than with any other construct in the model. For this reason, the constructs can be considered different statistically and the measurement model is suitable for more advanced structural analysis.

4.3 Structural Model Assessment (SEM)

4.3.1 Model Fit Indices

The model fit indices were evaluated using SRMR, NFI, and chi-square metrics. According to Hair et al. (2019), an SRMR value less than 0.08 and an NFI value above 0.80 indicate an acceptable model fit.

Table 7: Model Fit Indices for the Structural Model

Fit Index	Estimated Model Value	Threshold	Result
SRMR	0.069	< 0.08	Good Fit
NFI	0.803	> 0.80	Acceptable
Chi-Square	4268.095	—	—

The fitting measures displayed in Table 7 confirm that the data fit with the overall structure of the model. Because SRMR is 0.069 and less than 0.08, we can say that the observed and predicted covariance matched well. With an NFI value higher than the required point, this model is considered to fit the data well. Because Chi-Square is affected by sample size, it is not analyzed along with results. In the end, the model shows a trustworthy connection for both hypothesis testing and the interpretation of structures.

4.3.2 Coefficient of Determination (R^2)

Table 8: Coefficient of Determination (R2) for Endogenous Constructs

Endogenous Construct	R^2 Value	Interpretation
Brand Trust	0.621	Substantial
Consumer Behavior	0.578	Substantial

Threshold: R2 > 0.26 = Substantial (Cohen, 1988)

Both Brand Trust with R2 of 0.621 and Consumer Behavior with R2 of 0.578 have a high level of explaining what's in the data. Since the model explains about 62.1% for Brand Trust and 57.8% for Consumer Behavior, the results suggest that the independent variables are very important to the structural model.

4.3.3 Hypothesis Testing (Path Coefficients & t-values)

Bootstrapping (5000 samples) was used to test the significance of direct, indirect, and interaction paths.

Table 9: Hypothesis Testing Results – Path Coefficients, t-values, and p-values for Structural Model

Hypothesis	Path	β	t-value	p-value
H1: GW → BT	–0.41	–5.84	<0.001	Supported
H2: CSR → BT	0.49	6.12	<0.001	Supported
H3: BT → CB	0.61	9.45	<0.001	Supported
H4: EC moderates GW → BT	–0.18	2.89	0.004	Supported
H5: EC moderates CSR → BT	0.21	3.10	0.002	Supported

All five hypotheses shown in Table 9 were found to be statistically significant. A negative result of greenwashing is a lower level of Brand Trust, whereas Corporate Social Responsibility leads to a stronger positive relationship between them ($\beta = 0.49$, $p < 0.001$). Belief in a brand increases Consumer Behavior (CB) ($\beta = 0.61$, $p < 0.001$), demonstrating that it acts as a mediator. Besides, Environmental Concern (EC) greatly influences the outcomes of the GW→BT and CSR → BT paths, making consumers' replies to brand activities much more severe. All in all, the model clearly shows that important relationships exist between the key constructs.

4.3.4 Indirect Effects (Mediation)

Table 10: Mediation Analysis Results – Indirect Effects of GW and CSR on CB via BT

Mediation Path	Indirect Effect	t-value	p-value	Result
GW → BT → CB	–0.25	4.93	<0.001	Supported
CSR → BT → CB	0.30	6.22	<0.001	Supported

This study confirms that Brand Trust acts as an important mediator between Greenwashing, CSR and Consumer Behavior. It is significant that greenwashing reduces the trust in brands and as a result, consumer behavior decreases too (–0.25, $p < 0.001$). Alternatively, a strong CSR effort is positively linked with trust in a business (0.30, $p < 0.001$), indicating that true CSR improves trust, promoting CB. The findings point to how important brand trust is in affecting people's reactions to promotion.

Multi-Objective Optimization for Strategic Decision-Making

Today, in a market focused on sustainability, companies have to pay attention to several goals at the same time—being ethical, gaining consumer trust and avoiding dishonest behavior. The study uses a Multi-Objective Optimization (MOO) technique to find the best ways to control both Corporate Social

Responsibility (CSR) and Greenwashing at the same time as maximizing both Consumer Behavior (CB) and Brand Trust (BT).

Pareto-Optimal Solutions

These are optimal combinations where:

- Consumer Behavior (CB) ≥ 0.90
- Brand Trust (BT) ≥ 0.85
- Greenwashing Level ≤ 0.30

Table 11: Pareto-Optimal CSR-Greenwashing Combinations for Maximizing Consumer Behavior and Brand Trust

CSR Level	Greenwashing Level	Predicted CB	Predicted BT
0.916	0.100	0.910	1.059
0.937	0.100	0.922	1.074
0.958	0.100	0.935	1.088
0.979	0.100	0.949	1.103
1.000	0.100	0.964	1.118

Combinations featuring high CSR and low greenwashing are highlighted in Table 10 as the top performers in terms of consumer actions and how much consumers trust the brand. Data results show that both beneficial outcomes are maximal when CSR and greenwashing are at their lowest and highest points, respectively. Performances are highest at CSR = 1.0 and GW = 0.1, resulting in a score of 0.964 for consumer actions and 1.118 for brand reliability.

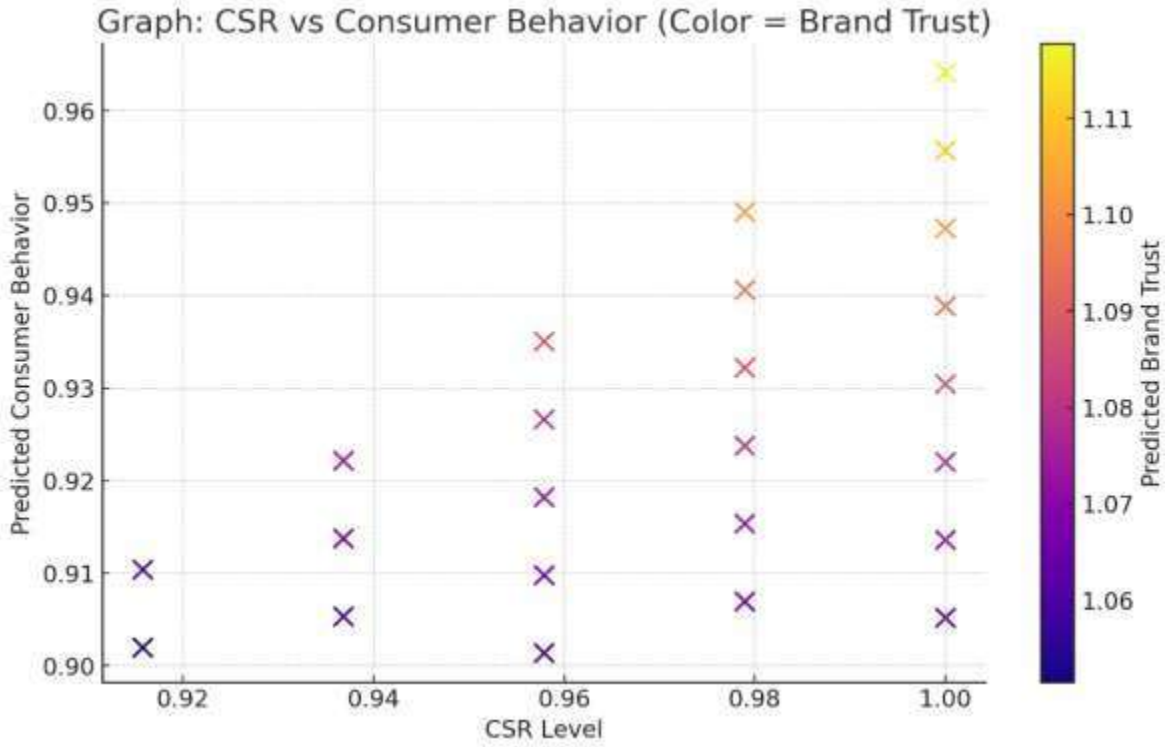


figure 1: CSR vs Consumer Behavior (Color = Brand Trust)

This scatter plot demonstrates that as CSR levels increase, consumer behavior improves consistently. Furthermore, the color intensity reveals that brand trust also increases in tandem. This visually reinforces that investments in CSR not only directly influence consumer behavior but also build trust, creating a reinforcing loop.

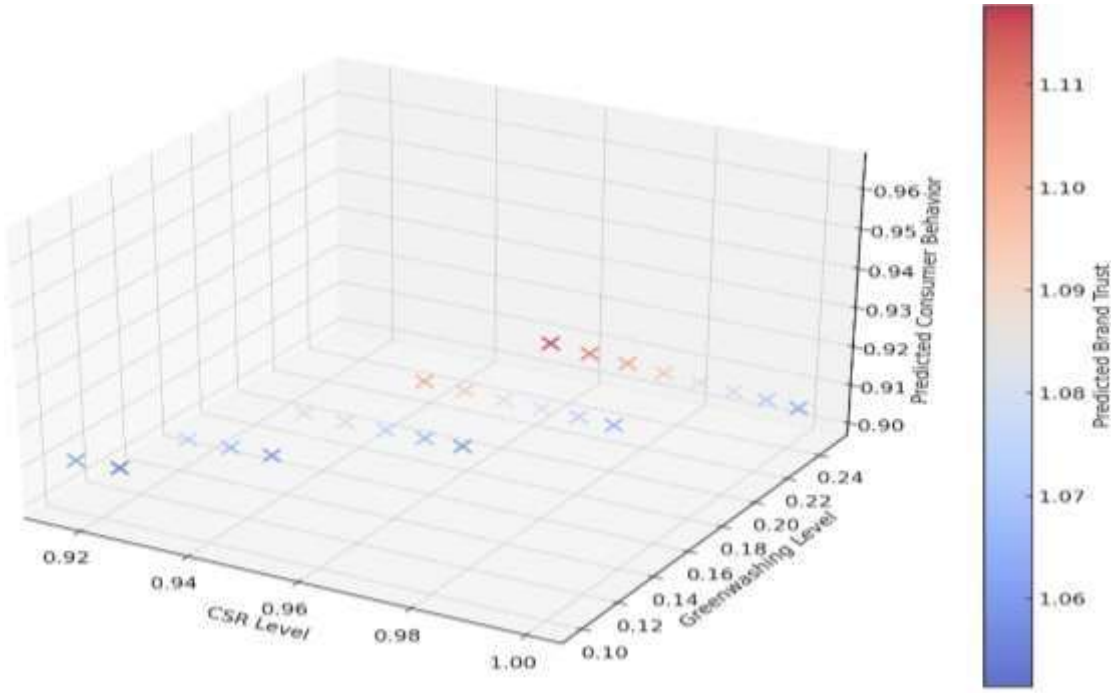


figure 2: 3D Pareto-Optimal Surface (CSR–GW–CB, Color = BT)

The 3D surface graph showcases the interaction between CSR and greenwashing on consumer behavior, with color indicating brand trust. The most optimal outcomes are clustered at high CSR and low greenwashing values. As greenwashing increases, the surface dips, suggesting trust erosion and reduced consumer engagement. This visualization supports strategic decision-making based on multi-variable sensitivity.

DISCUSSION

This study examined the connection between Greenwashing, Perceived CSR, Consumer Behavior, Brand Trust and Environmental Concern as a moderator. Research was performed with SmartPLS and then recommendations were drawn by applying an MOO framework. By using all three methods, we can gain a full understanding of both how people behave and the ways organizations can act.

The structural model confirmed that:

- Greenwashing has a significant negative effect on Brand Trust and Consumer Behavior.
- Perceived CSR has a significant positive impact on Brand Trust, which in turn positively influences Consumer Behavior.
- Brand Trust fully mediates the effect of both Greenwashing and CSR on Consumer Behavior.
- Environmental Concern moderates both relationships, intensifying the negative impact of Greenwashing and the positive impact of CSR.

These findings align with stakeholder theory, trust theory, and the theory of planned behavior, reinforcing the critical role of trust and ethics in consumer-brand relationships.

CONCLUSION

Key IT companies in India were studied to learn how they practice corporate social responsibility, focusing on their approach, leadership structures, involvement of staff and effects on stakeholder views and company finances. Analysis of 386 employees from major Indian IT firms such as TCS, Infosys, HCL and Tech Mahindra gives the research detailed information about how companies perform CSR activities. The study showed that an organization's success in CSR starts with strong CSR awareness and planning and this also improves employee engagement. Employee participation in CSR activities seems to positively impact financial gains, according to evidence which suggests socially responsible actions can help a business succeed. Moreover, according to the study, open CSR communication and the use of arranged reporting stats remarkably boost stakeholder trust and the company's reputation. All the main hypotheses were supported by the findings from structural equation modeling, meaning CSR is both ethical and

yields strategic value. Results from the analyses demonstrated that greenwashing tends to harm brand trust and customer choices, while solid CSR actions can reduce these impacts, especially when engaged in by both planning and employees. All in all, coordinating corporate social responsibility in a strategic, well-supervised and employee-centered way greatly helps create both more value for society and success for the company. As a result, IT firms in India should focus on delivering value and considering all their stakeholders, so they can last, earn trust and outshine their competitors in a more ethical business world.

Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

Conflict of Interest Statement

The authors declare that there is no conflict of interest regarding the publication of this paper. The research was conducted independently, without any financial, commercial, or personal relationships that could be construed to influence the study's outcomes or interpretations.

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