
The Impact of Carbon Footprint Disclosure on Consumer Behaviour

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ABSTRACT

This paper investigates the influence of carbon footprint disclosure on consumer behavior by analyzing factors such as consumer trust, environmental concern, perceived brand credibility, and purchase intention. Carbon footprint disclosure has emerged as a vital sustainability communication tool that enables organizations to demonstrate transparency in their environmental impact while building long-term trust with consumers. The research highlights that transparent carbon labeling strengthens corporate credibility and encourages environmentally responsible consumption. However, challenges such as limited consumer understanding, inconsistent labeling standards, and greenwashing reduce the effectiveness of disclosure practices. It adopts a descriptive research design using structured questionnaires to collect primary data from consumers. Statistical tools such as Reliability Analysis, Correlation, Chi-square, Regression, and ANOVA are employed using SPSS software. The findings reveal that carbon footprint disclosure not only shapes consumer behavior but also encourages organizations to adopt environmentally responsible business strategies, contributing to long-term sustainability and competitive advantage.

Key Words: Carbon Footprint Disclosure, Consumer Behavior, Sustainable Consumption, Green Marketing, Environmental Sustainability, Green Purchasing, Corporate Transparency.

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INTRODUCTION

Climate change has become one of the most significant global challenges of the twenty-first century. Rising greenhouse gas emissions from industrial production, transportation, agriculture, and consumption activities have intensified global warming, biodiversity loss, and environmental degradation. As consumers become more environmentally conscious, organizations are increasingly expected to disclose the environmental impact of their products and operations.

Carbon footprint disclosure refers to the practice of measuring and communicating the amount of greenhouse gases emitted throughout a product's life cycle, from raw material extraction to disposal. Companies disclose carbon emissions through product labels, sustainability reports, environmental certifications, QR codes, and corporate websites.

Millennials and Gen Z consumers, in particular, increasingly consider environmental information before making purchasing decisions. Consumers are no longer influenced solely by price and quality; they also evaluate products based on sustainability, ethical sourcing, and environmental responsibility. Consequently, carbon footprint disclosure has emerged as a strategic tool that influences purchasing behavior, strengthens brand image, and encourages companies to reduce emissions.

This study explores how carbon footprint disclosure affects consumer awareness, trust, purchase intentions, and brand loyalty while identifying the opportunities and challenges associated with implementing transparent environmental reporting.

AIM AND OBJECTIVES OF THE STUDY

Aim of the Study

- To study the influence of carbon footprint disclosure on consumer behavior from a sustainable marketing perspective.

Objectives

Primary Objective:

- 1) To examine the impact of Carbon Footprint Disclosure on Consumer Purchase Behavior.

Secondary Objectives:

- 2) To examine the influence of carbon footprint disclosure on consumer purchasing behavior.
- 3) To evaluate the relationship between environmental awareness and buying decisions.
- 4) To analyze consumer willingness to pay for low-carbon products.
- 5) To identify challenges in implementing effective carbon footprint disclosure.
- 6) To recommend strategies for improving consumer understanding and sustainable purchasing.

HYPOTHESES

Hypothesis - 1

H0: Carbon footprint disclosure has no significant influence on consumer purchasing behavior.

H1: Carbon footprint disclosure significantly influences consumer purchasing behavior.

Hypothesis - 2:

H0: There is no significant relationship between environmental awareness and buying decisions.

H1: There is a significant relationship between environmental awareness and buying decisions.

Hypothesis - 3:

H0: There is no significant difference in consumer willingness to pay for low-carbon products across income/demographic groups.

H1: There is a significant difference in consumer willingness to pay for low-carbon products across income/demographic groups.

SCOPE OF THE STUDY

The study focuses on understanding consumer perceptions of carbon footprint disclosure and its influence on purchasing behavior. It evaluates how disclosure format, credibility, and environmental concern affect consumer trust, purchase intention, and repeat purchasing behavior.

The findings will help organizations:

- Design more effective carbon labeling and disclosure formats.
- Strengthen consumer trust through credible, verifiable claims.
- Reduce the risk of greenwashing accusations.
- Encourage low-carbon purchasing behavior.
- Build long-term brand loyalty among environmentally conscious consumers.

REVIEW OF LITERATURE

Wang, Liu, Luo, and Zhang (2025) studied the social and cultural determinants of willingness to pay for low-carbon products, finding that descriptive social norms, prescriptive social norms, and environmental affect all exert significant positive influence on individuals' environmental behavior. The authors also flagged a methodological gap: most existing studies over-rely on structural equation modeling and regression analysis, without sufficient use of mixed-method approaches to reveal the complex mechanisms linking social norms and low-carbon consumption.

Beyer, Chaskel, Euler, Gassen, Großkopf, and Sellhorn (2024) conducted a field experiment examining how carbon footprint disclosure affects real-world consumer choice. Their study is notable as one of the first to provide experimental evidence on how consumers actually process and respond to carbon footprint information when it is presented in a real-world reporting context, helping to unpack the causal chain from disclosure to consumer response.

Vlaeminck, Jiang, and Vranken (2014) examined the effect of carbon labels on food purchasing decisions and found that clear, simplified labels produced a modest but measurable shift toward lower-carbon options, particularly when the labeled product was comparable in price to alternatives.

Upham, Dendler, and Bleda (2011) studied consumer understanding of carbon labeling schemes and found that while awareness of labels increased significantly after exposure, comprehension of the underlying carbon metrics remained low, limiting the depth of behavioral change achievable through disclosure alone.

Grankvist, Dahlstrand, and Biel (2004) examined the influence of ecolabels on consumer choice and found that environmentally concerned consumers responded more strongly to eco-labeling than less concerned consumers, suggesting that disclosure effectiveness is moderated by pre-existing consumer values.

RESEARCH METHODOLOGY

Research Design:

A descriptive research design is used in this study. The purpose is to systematically describe and analyze consumers' perceptions of carbon footprint disclosure and its influence on purchasing behavior, examining factors such as disclosure awareness, credibility, environmental concern, and purchase intention.

Sampling Technique:

- **Population** The total population of the study consists of 220 consumers who regularly purchase consumer goods from retail stores and online platforms where carbon footprint information may be disclosed.
- **Sample Unit** Consumers who have encountered carbon footprint labels, sustainability reports, or emissions-related product information while shopping.
- **Sample Size** : The sample size selected for the study is 120 respondents.
- **Sampling Method**: The study employs Simple Random Sampling, a probability sampling technique, under which every consumer in the target population has an equal and known chance of selection, minimizing sampling bias.

Data Collection

- **Primary Data**: Primary Data is collected directly from consumers through a structured questionnaire covering disclosure awareness, perceived credibility, environmental concern, purchase intention, and post-purchase brand trust.
- **Secondary Data**: Secondary Data is collected from research journals, sustainability reports, government publications, conference proceedings, and articles related to carbon disclosure and consumer behavior.

Statistical Tools Used

The data collected through the questionnaire is analyzed using the Statistical Package for Social Sciences (SPSS) software. The following statistical tools are used for analysis:

- **Percentage Analysis**: Percentage analysis is used to summarize the demographic characteristics of respondents and their responses regarding carbon footprint awareness, purchasing habits, environmental concerns, and preferences toward low-carbon products. It provides a clear understanding of consumer perceptions and attitudes toward carbon disclosure.
- **Correlation Analysis**: Correlation analysis is used to determine the strength and direction of the relationship between Environmental Awareness and Consumer Buying Decisions, as well as between Carbon Footprint Disclosure and Consumer Purchase Intention. It helps identify whether improvements in environmental information influence consumer behavior.
- **Regression Analysis**: Regression analysis is employed to measure the impact of Carbon Footprint Disclosure, Environmental Awareness, and Consumer Trust on Consumer Purchasing Behavior.

It helps determine how effectively carbon disclosure predicts consumers' sustainable purchase decisions.

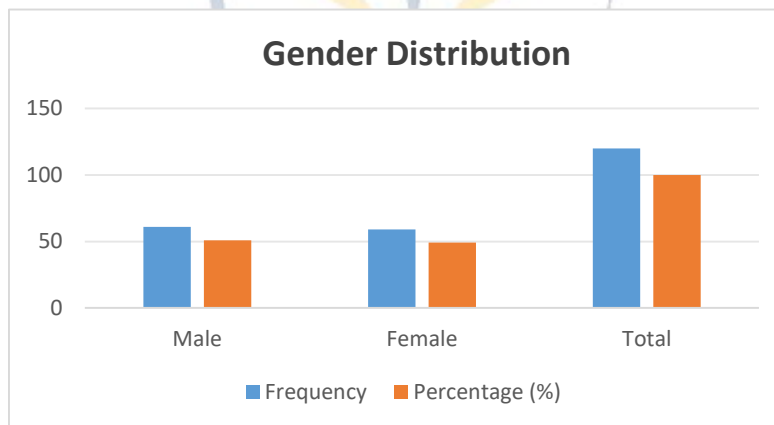
- **Chi-Square Test:** Chi-square analysis is used to identify whether there is a significant association between demographic factors such as gender, education, occupation, and income level with consumer awareness and acceptance of carbon footprint disclosure.
- **ANOVA (Analysis of Variance):** ANOVA is used to determine whether significant differences exist in consumer willingness to pay for low-carbon products among different demographic groups such as age, income, education, and occupation. It helps understand variations in consumer responses toward sustainable products.

DATA ANALYSIS AND INTERPRETATION

Percentage Analysis

Table 1: Gender Distribution

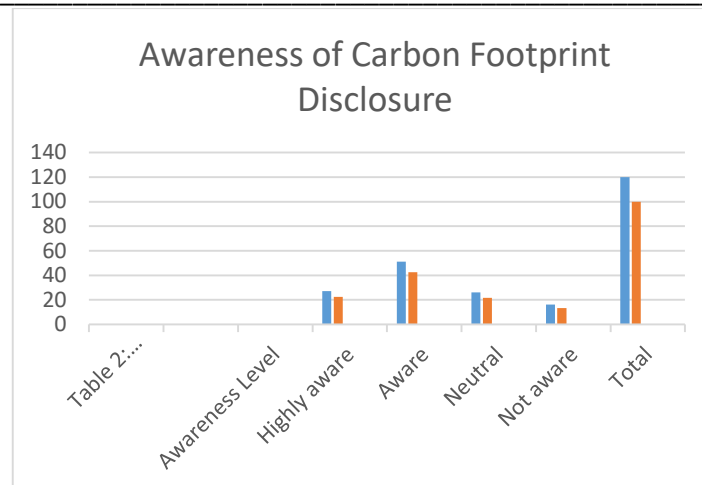
Gender	Frequency	Percentage (%)
Male	61	50.8
Female	59	49.2
Total	120	100.0



Interpretation: The table shows that 50.8% of respondents are male and 49.2% are female, indicates the gender distribution in the sample.

Table 2: Awareness of Carbon Footprint Disclosure

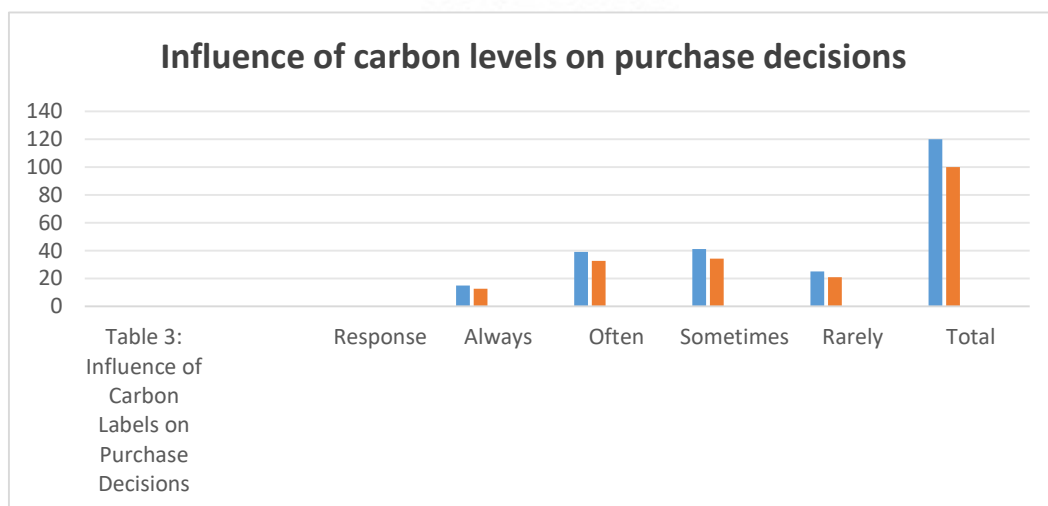
Awareness Level	Frequency	Percentage(%)
Highly aware	27	22.5
Aware	51	42.5
Neutral	26	21.7
Not aware	16	13.3
Total	120	100.0



Interpretation: A combined 65% of respondents reported being aware or highly aware of carbon footprint disclosure, indicating a reasonably strong baseline of awareness among the sampled consumers.

Table 3: Influence of Carbon Labels on Purchase Decisions

Response	Frequency	Percentage(%)
Always	15	12.5
Often	39	32.5
Sometimes	41	34.2
Rarely	25	20.8
Total	120	100.0



Interpretation: Most respondents 32.5% reported that carbon labels often influence their purchase decisions, while a further 34.2% reported occasional influence, suggesting a generally positive but inconsistent effect on behavior.

HYPOTHESIS TESTING

Hypothesis 1: Regression Analysis

Regression analysis was used to examine the influence of Disclosure Credibility on Purchase Intention.

Table- 4: Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the estimate
1	0.771	0.594	0.591	0.548

Interpretation: The correlation coefficient ($R = 0.771$) indicates a strong positive relationship between Disclosure Credibility and Purchase Intention. The R Square value of 0.594 indicates that 59.4% of the variation in Purchase Intention is explained by Disclosure Credibility, while the remaining 40.6% is attributable to other factors. The null hypothesis (H_0) is rejected, and it is concluded that Disclosure Credibility significantly influences Purchase Intention.

Hypothesis 2: Correlation Analysis

Correlation analysis was used to determine the relationship between Environmental Concern and Consumer Behavior.

Table- 5: Correlation Analysis

Variables	Pearson Correlation	Sig.(2- tailed)
Environmental concern and consumer behavior	0.706	0.000

Interpretation: The Pearson Correlation coefficient ($r = 0.706$) indicates a strong positive relationship between Environmental Concern and Consumer Behavior. Since the significance value ($p = 0.000$) is less than 0.05, the null hypothesis (H_0) is rejected. It is concluded that a significant positive relationship exists between Environmental Concern and Consumer Behavior.

Hypothesis 3: One-Way ANOVA

One-Way ANOVA was used to determine whether a significant difference exists in response to carbon footprint disclosure among different age groups.

Table- 6 : One-Way ANOVA

Variation	Sum of squares	df	Mean Square	F	Sig.
Between groups	11.932	3	3.977	5.104	0.002
Within groups	90.318	116	0.779		
Total	102.250	119			

Interpretation: The F-value of 5.104 with a significance value of 0.002 (less than 0.05) leads to rejection of the null hypothesis. This indicates a statistically significant difference in response to

carbon footprint disclosure across different age groups, with younger respondents generally showing stronger responsiveness than older respondents.

FINDINGS

- The percentage analysis revealed a near-even gender split among respondents (50.8% male, 49.2% female).
- A combined 65% of respondents reported being aware or highly aware of carbon footprint disclosure, reflecting a reasonably strong baseline of consumer awareness.
- Regarding purchase influence, 32.5% of respondents reported that carbon labels often affect their decisions and 34.2% reported occasional influence, indicating disclosure has a real but inconsistent effect on behavior.
- The regression analysis showed that Disclosure Credibility significantly influences Purchase Intention ($R = 0.771$, $R^2 = 0.594$), confirming that consumers respond more strongly to disclosure they perceive as trustworthy and verifiable.
- The correlation analysis confirmed a strong positive relationship between Environmental Concern and Consumer Behavior ($r = 0.706$, $p = 0.000$), indicating that consumers with higher environmental concern are more responsive to carbon disclosure.
- The ANOVA results confirmed a statistically significant difference in disclosure responsiveness across age groups ($F = 5.104$, $p = 0.002$), with younger consumers showing greater responsiveness than older consumers.

Overall, the study concludes that carbon footprint disclosure is a meaningful, though not singularly decisive, driver of consumer behavior. Its effectiveness depends heavily on perceived credibility, alignment with existing environmental values, and demographic factors such as age.

SUGGESTIONS

Organizations should strengthen the credibility of carbon footprint disclosures through third-party verification and present information in simple, easy-to-understand formats such as visual or comparative labels. Communication strategies should be tailored to different consumer segments based on environmental concern and age, while awareness initiatives should target less-engaged consumers. In addition, organizations should ensure the availability of affordable low-carbon alternatives to encourage sustainable purchasing behavior.

CONCLUSION

The study concludes that carbon footprint disclosure plays a significant role in shaping consumer purchase intention and behavior, particularly when the disclosure is perceived as credible and when consumers hold pre-existing environmental concern. The findings reveal that disclosure credibility strongly predicts purchase intention, environmental concern is closely tied to behavioral responsiveness, and age is a significant moderating factor in how consumers respond to emissions information. Organizations seeking to leverage disclosure as a sustainability and marketing tool should prioritize transparency, verification, and message design tailored to distinct consumer segments in order to translate awareness into meaningful behavior change.

REFERENCES

- Delmas, M. A., & Burbano, V. C. (2011). The drivers of greenwashing. *California Management Review*, 54(1), 64–87.
- Gadema, Z., & Oglethorpe, D. (2011). The use and usefulness of carbon labelling food: A policy perspective from a survey of UK supermarket shoppers. *Food Policy*, 36(6), 815–822.
- Grankvist, G., Dahlstrand, U., & Biel, A. (2004). The impact of environmental labelling on consumer preference: Negative vs. positive labels. *Journal of Consumer Policy*, 27(2), 213–230.
- Hartikainen, H., Roininen, T., Katajajuuri, J. M., & Pulkkinen, H. (2014). Finnish consumer perceptions of carbon footprints and carbon labelling of food products. *Journal of Cleaner Production*, 73, 285–293.
- Upham, P., Dendler, L., & Bleda, M. (2011). Carbon labelling of grocery products: public perceptions and potential emissions reductions. *Journal of Cleaner Production*, 19(4), 348–355.

