ECO-CONSCIOUS CONSUMERISM AND PURCHASE INTENTION TOWARDS ALTERNATIVE FUEL VEHICLES – AN EXAMINATION

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The increasing urgency to stop climate change and lower greenhouse gas pollution has made Alternate Fuel Vehicles (AFVs) a popular way to travel that is also good for the environment. A wide range of vehicles are considered AFVs, such as electric vehicles (EVs), hybrid vehicles, hydrogen fuel cell vehicles, and vehicles that run on biofuels or compressed natural gas (CNG). This kind of vehicle is made to use less fossil fuels, put out less CO2, and be a cleaner option to regular vehicles that run on petrol or diesel, However, despite the potential of AFVs, several challenges remain in promoting their widespread adoption. Additionally, in collectivistic societies like India, social norms play a major role in influencing the purchase intention of consumers. Therefore, getting inspiration from the Value-Belief-Norm Theory, this study tried to find out how eco-conscious consumers' behavior influence their intention to purchase AFVs (personal values, attitudes, personal norms, social norms and purchase intention towards AFVs). Data was collected from 269 respondents through a structured questionnaire. The findings show that personal values, such as concern for the environment and social influences, like peer and societal expectations, play a significant role in encouraging consumers to choose AFVs.

DOI https://doi.org/ 0.18690/um.epf.5.2025.72

> ISBN 978-961-286-984-7

> > Keywords:

eco-conscious consumer, alternate fuel vehicle, purchase intention, theory of planned behavior, value-belief-norm theory

> JEL: M30, M39.



1 Introduction

India has an interesting opportunity to study eco-friendly consumer behavior because of the differences in ecological and cultural set up. The country does have serious air pollution problems more so in the cities, making it compulsory rather than optional to embrace clean forms of transport. Urban consumers' understanding of environmental issues, which is coupled with enhanced sense of responsibility towards sustainability, has led to a change in their consumption pattern. This change is marked by increasing preference for eco-friendly products, such as Alternative Fuel Vehicles (AFCs), which are seen as tangible efforts towards alleviating the negative impact on the environment. In Indian society, the concept of social responsibility and social good are deep archetypes that guide people's choices and actions. Environmentally conscious individuals, for instance, are often able to act in compliance with their inner beliefs because of the cultural values they comprise. Such cultural and normative influence encourages the readiness of the society for the adoption and integration of AFVs. Therefore, this study was conducted to answer the question: How do eco-socially conscious consumer behaviors influence the adoption of AFVs among people?

The paper is structured as follows: The first chapter of this paper is the introduction. The second chapter provides a theoretical overview of relevant literature on the topic. This is followed by a section on the research methodology. The fourth chapter presents the results, followed by the fifth chapter discussing the key findings. The conclusion summarizes the research contributions and suggests directions for future studies.

2 Theoretical Background / Literature Review

Irene (2013) study examined how Greek consumers embraced environmentally friendly behaviors, that is, ecologically conscious consumer behavior (ECCB). It probed the factors responsible for pro-environmental action, namely demographics such as age and income, attitudes, and personality traits. According to Rezvani et al. (2015) and Zhang et al. (2021), the growing adoption of electric vehicles (EVs) is influenced by advancements in technology, rising environmental awareness, and financial benefits. Factors such as access to charging infrastructure, vehicle performance, and supportive policies play a crucial role in shaping consumer

decisions. This paper reviews the current state of EV research, identifies gaps in understanding long-term consumer behavior, and suggests future directions to address challenges and promote wider EV adoption. Naz Onel (2016) explores how personal norms, along with the Theory of Planned Behavior (TPB), shape consumers' choices to buy environmentally friendly products. The study found that personal and social norms play a key role in driving eco-friendly purchasing intentions. Analyzing data from 281 participants, the research showed that while attitudes and intentions matter, perceived behavioral control doesn't strongly predict buying intentions. This highlights the need for marketing strategies that focus more on the influence of social and personal norms. By integrating personal norms into the TPB, the study offers useful insights for encouraging sustainable consumer behavior.

Degirmenci and Breitner (2017) examined what drives people to consider buying electric vehicles (EVs), focusing on environmental benefits, cost, and driving range. Their study, which included 167 test drives and surveys, found that the environmental performance of EVs—like reducing pollution and saving natural resources—plays a bigger role in shaping consumer attitudes and purchase decisions than price or range limitations. Carley et al. (2013) also looked at factors influencing EV adoption but emphasized the importance of owning an EV for personal environmental image rather than its actual environmental impact. Similarly, Junquera et al. (2016) focused on price and range concerns but did not explore the environmental aspect, which Degirmenci and Breitner addressed by showing how EVs contribute to sustainability. Bockarjova and Steg (2014) highlighted the risks of traditional fuel vehicles, reinforcing the need for studies like Degirmenci and Breitner's to position EVs as a cleaner, greener alternative.

Varshneya et al. (2017) explored how green values and social norms shape people's decisions to buy organic clothing. They found that personal values, like caring for the environment, play a much bigger role in influencing purchase intentions than social pressure, especially in emerging markets. Similarly, Thøgersen and Zhou (2012) observed that even in collectivist cultures like India, people tend to make individual choices when it comes to adopting new and niche products, prioritizing their environmental concerns over fitting in. These findings shed light on why there's often a gap between people's attitudes and their actual buying behavior for green products. Bennett and Vijaygopal (2018) explored how stereotypes about

electric vehicle (EV) owners and the alignment of self-image with EV users affect consumer attitudes and their willingness to purchase EVs. Through a gamification approach, the study found that playing a game where participants took on the role of an EV driver improved their perception of EV owners and made them feel more connected to the idea of owning an EV. While this shift in attitude was positive, it did not strongly influence their willingness to buy an EV, as this connection was moderated by how favorable the stereotype was and how closely participants identified with EV users. The study highlights the importance of marketing EVs using relatable role models and improving public perceptions to make EV ownership more appealing.

Abid, Eagle, and Low, (2021), suggest that the study applied Value-Belief-Norm (VBN) theory to investigate which factors influence eco-socially conscious consumer behavior (ESCCB) towards alternative fuel vehicles (AFVs). It appeared that personal norms, more so introjected and integrated norms, were a good predictor of ESCCB by influencing both the desire to acquire and conserve AFVs. Lee et al. (2023) explored what motivates people to adopt electric vehicles (EVs) by combining two key theories: the Value-Belief-Norm (VBN) theory and the Theory of Planned Behavior (TPB). They found that people who prioritize altruistic and environmental values are more likely to be aware of environmental impacts and develop a sense of moral responsibility, while those with self-centered values are less likely to do so. The study highlights the need to address personal values and social influences, along with practical factors like attitudes and perceived control, to encourage more people to switch to EVs.

Enggar Handarujati (2024) looks at the factors that shape people's intentions to buy electric cars by combining three well-known theories: the Theory of Planned Behavior (TPB), the Norm Activation Model (NAM), and the Technology Acceptance Model (TAM). The study focuses on how perceived usefulness and control influence consumer decisions. By analyzing data from 253 participants using structural equation modeling, the research shows that these theories together offer a clearer picture of what drives people to choose eco-friendly transportation. It also helps fill gaps in understanding the various factors that impact these purchasing decisions.

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The Value-Belief-Norm (VBN) Theory might be instrumental in understanding sustainability-oriented behavior of consumers. Personal values, beliefs, and norms influenced by VBN theory shapes how individuals perceive and act on environmentally friendly ideas. These factors shape their environmental beliefs and practices, which later, affect choices such as acceptance of AFVs. Therefore, in this study the conceptual model is created taking inspiration from combining TPB and the VBN theory, to test the relationship between the following variables: Egoistic values (EGO), Altruistic values (ALT), Awareness of Consequences (AC), Ascription of Responsibility (AR), Social Norms (SN), Personal Norms (PN), and Eco-conscious Consumer Purchase Intention (ECCPI).

3 Methodology

The study used a quantitative research approach to explore the behavioral factors that influence eco-conscious customers in adopting alternative fuel vehicles. The sample frame of this study consisted of 269 respondents, aged 18 years and above. A convenience sampling method was chosen for its practice advantages, such as easy access to respondents. The study used a quantitative research approach using a questionnaire as a research tool, aimed at gathering insights into respondents' personal values (egoistic and altruistic), attitudes, and behavioral intentions. The questionnaire includes items measured on a Five-point Likert scale (1 – Strongly disagree to 5 – Strongly agree) to capture respondents' perceptions and behaviors regarding alternative fuel vehicles. It was distributed among the target group through online platforms to ensure broader reach and higher response rates. Section 1 covered questions on consumer demographics and Section 2 covered questions measuring behavioral constructs such as environmental attitudes, personal values, awareness of alternative fuel vehicles, and intention to adopt these vehicles. A pilot study was carried out to test the reliability and clarity of the questionnaire before the main data collection. The initial questionnaire consisted of 40 items, however, during the pilot analysis, five items were identified as problematic due to certain reasons. To ensure the quality and accuracy of the survey, these items were removed. This resulted in a final questionnaire with 35 items, which was then used for the study. Descriptive analysis and Structural Equation Modeling were employed to test the hypotheses.

4 Results

Majority of the respondents are younger individuals, with 49.1% under the age of 26, and 25.3% between 26-33 years. The next largest group, aged 34-41, accounts for 16.4%, while those aged 42-49 and above make up a smaller portion of 9.2%. This clearly highlights that the study is dominated by younger participants, with older age groups being less represented. These insights are particularly relevant for understanding how younger, eco-conscious individuals perceive and adopt AFVs. The gender distribution of the respondents also shows a slight predominance of female participants. Out of the total 269 respondents, 54.3% are female, while 45.7% are male. This balanced yet female-leaning representation offers valuable insights into the perspectives of both men and women, which could be particularly relevant when analyzing eco-conscious behaviors and their influences on the adoption of AFVs. Out of the 269 respondents, the largest group consists of students at 33.5%, followed closely by those employed full-time at 32.7%. Self-employed individuals make up 15.6%, while part-time employees account for 8.6%. Smaller groups include homemakers (5.6%), those unemployed and looking for work (3.7%), and a very small number of retired individuals (0.4%).

The results of hypotheses testing are given below:

H1 – Awareness of Consequences (AC) is positively related to Ascription of Responsibility (AR)

The link between AC and AR is strong and significant. With a p-value of 0.00, the data suggests that when individuals are more aware of the environmental consequences of their actions, they tend to feel a greater responsibility to act. This indicates that awareness is an important factor in fostering a sense of personal responsibility towards the environment.

H2 – Ascription of Responsibility (AR) is positively related to Personal Norms (PN)

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The relationship between AR and PN is also highly significant (p-value = 0.00). This shows that when people feel a sense of responsibility for the environment, they are more likely to develop personal norms, or internal moral obligations, to act in an environmentally responsible way.

H3 – Social Norms (SN) is positively related to Eco-conscious Purchase Intention (ESCCPI)

SN significantly influences ESCCPI (p-value = 0.00). This means that social influences, such as expectations of family, peers, or society, play a critical role in shaping individual's decisions to engage in sustainable consumption and purchasing behaviors. Social pressure to act sustainable can strongly motivate individuals to make more environmentally friendly choices.

H4 – Altruistic values (ALT) positively relates to Awareness of Consequences (AC)

The relationship between ALT and AC is also supported, with a t-statistic of 3.448, and a p-value of 0.001. This indicates that individuals with stronger altruistic values, who care about the welfare of others, are more likely to be aware of the broader environmental consequences of their actions. This finding highlights the role of altruism in enhancing awareness of environmental issues, which can motivate individuals to engage in more sustainable behaviors.

H5 – Egoistic values (EGO) positively relates to Awareness of Consequences (AC)

The hypothesis that EGO influences AC is supported, with a t-statistic of 2.763 and a p-value of 0.006. This shows that individuals with egoistic values, who are primarily motivated by self-interest, still tend to be aware of the consequences of their actions. However, this relationship is somewhat weaker compared to other variables, indicating that egoistic individuals may not be as strongly motivated by the broader environmental consequences as those with more altruistic values.

H6 – Social Norms (SN) positively relates to Personal Norms (PN)

The hypothesis that SN influences PN is also supported with a t-statistic of 5.213 and a p-value of 0.00, indicating a strong and significant positive relationship. This suggests that individuals are more likely to adopt personal ethical standards related to sustainability when they are aware that such norms are prevalent in their social environment.

H7 – Personal Norms (PN) positively relates to Eco-conscious Purchase Intention (ESCCPI)

The result is supported with a t-statistic of 3.102 and a p-value of 0.002, which indicates a statistically significant positive relationship between the two variables. This suggests that individuals who hold strong personal norms regarding environmental sustainability are more likely to have the intention to purchase eco-sustainable products.

5 Discussion

The results highlight that eco-friendly purchase intentions are significantly influenced by personal and social factors. Altruistic values and social norms play a key role in shaping personal norms, which, in turn, drive sustainable purchasing behavior. Environmental awareness strongly impacts individuals' sense of responsibility by increasing awareness of consequences and accountability. While egoistic values have a smaller impact, they still contribute to environmental responsibility indirectly. The study also emphasizes the importance of personal norms as a bridge connecting social influence, environmental awareness, and values to sustainable purchase intentions. Encouraging personal responsibility through environmental education and positive social reinforcement can effectively promote eco-friendly behaviors. Despite a growing awareness of environmental issues, the adoption of AFVS is hampered by practical challenges. Key barriers include the high initial cost of AFVs, limited charging infrastructure, and insufficient knowledge of their long-term benefits. The perception of risks associated with new technologies, coupled with a lack of trust in manufacturers' claims about vehicle performance, also deters potential adopters.

6 Conclusions

Demographically, the study highlights the potential of younger, educated individuals as early adopters of sustainable technologies. However, barriers such as affordability, infrastructure gaps, and perceived risks continue to limit the adoption of AFVs. Addressing these challenges requires a collaborative effort from policymakers, industry stakeholders, and environmental advocates. By aligning strategies with consumer values, leveraging the power of social norms, and fostering a sense of personal moral responsibility, stakeholders can accelerate the transition to sustainable transportation. Educational initiatives, coupled with targeted marketing and supportive policies, have the potential to create a ripple effect, driving not just individual behavior but also broader societal change. In conclusion, the adoption of AFVs is not merely a technological shift but a cultural transformation.

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