

A STUDY ON CONSUMER PURCHASE INTENTION TOWARDS HYBRID VEHICLES IN INDIA

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Abstract

This Study examines the factors influencing consumer purchase intentions for hybrid vehicles. This Study explores the factors influencing consumer purchase intentions towards hybrid vehicles (HVs) in India, focusing on environmental awareness, cost savings, and government policies while identifying barriers such as high costs and inadequate infrastructure. The research employs the Theory of Planned Behaviour to analyze how these factors affect consumer decisions in the Indian context. The Study also examines the role of price sensitivity as a moderating factor in adopting HVs. Given the growing environmental concerns and India's urban pollution challenges, this Study aims to provide insights into strategies that can encourage the adoption of HVs. The findings are expected to contribute valuable knowledge for automobile manufacturers and policymakers, supporting India's sustainability goals and the transition towards eco-friendly transportation.

Keywords: Hybrid Vehicles, Consumer, Purchase Intention, Automobile Industry

Introduction

Over the last decade, global warming has emerged as one of humanity's most critical challenges. The rapid increase in ecological issues such as climate change, ozone layer depletion,

energy crises, global warming, air pollution, and water contamination has significantly impacted the environment and public health (Shah, 2015). Recognizing the gravity of these concerns, international forums like the Bonn Climate Conference (2017), Paris Agreement (2015), and Copenhagen Conference (2009) have advocated for innovative and socially responsible products and services. Shah (2015) and Ramanathan and Feng (2009) highlight that greenhouse gas emissions are central to climate challenges, causing severe environmental consequences such as floods, droughts, rising sea levels, and accelerated glacier melting. Among these emissions, carbon dioxide (CO₂) is the most prevalent and damaging, with the transportation industry being a significant contributor (Business Insider, 2018; UNICEF, 2018; World Health Organization, 2016).

As nations grow in population and per-capita income, automobile ownership and CO₂ emissions increase correspondingly. This surge contributes to environmental degradation and resource depletion (Jain, 2006). Hybrid vehicles (HVs) have been recognized as an environmentally and commercially viable solution to mitigate CO₂ emissions and greenhouse gases (International Energy Association, 2018). HVs combine two power sources—typically gasoline or diesel and electric batteries—and are categorized into three types: full HVs, mild HVs, and plug-in HVs. Full HVs operate on either or both power sources independently, mild HVs use both but cannot function independently, and plug-in HVs rely on rechargeable electric batteries. Advancements in battery technology, including sealed, leak-proof, and maintenance-free batteries, reflect automakers' efforts to address environmental concerns while remaining competitive. This dual focus on innovation and ecological responsibility underscores the transportation sector's potential to combat climate change.

According to the International Energy Association (2018), transportation contributes approximately 21% of global CO₂ emissions. Bill Gates identifies the sector as one of five grand global challenges, responsible for 14% of greenhouse gas emissions (Business Insider US, 2018). Consequently, hybrid vehicles offer a promising technological solution to reduce emissions and achieve sustainability goals. This makes understanding consumer purchase intentions for HVs a priority for automakers worldwide. While the global hybrid vehicle market is segmented into regions such as North America, Asia Pacific, and Europe, existing literature on HV adoption primarily focuses on American and European contexts (Soltani-Sobh et al., 2017; Asamer et al., 2016; Rezvani et al., 2015). Research has emphasized the role of price sensitivity in shaping purchase intentions, yet insights into this factor's influence on HV adoption remain scarce. This Study addresses these gaps by investigating the determinants of green purchase intention (GPI) for HVs, particularly in emerging markets like India while assessing price sensitivity as a moderating variable. India aims to bridge knowledge gaps and provide actionable insights for automobile manufacturers operating in this price-sensitive yet ecologically crucial market. The findings will advance the literature and support sustainable development in the region. The introduction outlines the growing demand for eco-friendly transportation, focusing on hybrid vehicles as a key solution

to reducing emissions. It discusses India's challenges, such as pollution and energy dependence, while emphasizing government initiatives like the FAME policy to promote hybrid and electric vehicles.

Overview of Hybrid Vehicles

Hybrid vehicles (HVs) are automobiles that use a combination of an internal combustion engine (ICE) and an electric motor to optimize fuel efficiency and reduce emissions. They primarily fall into three types:

1. **Hybrid Electric Vehicles (HEVs):** These rely on both ICE and electric motors and do not have a plug-in charging option.
2. **Plug-in Hybrid Electric Vehicles (PHEVs):** These allow external charging for their batteries and can operate solely on electricity for short distances.
3. **Battery Electric Vehicles (BEVs):** Fully electric, relying entirely on battery power, though often grouped under broader hybrid vehicle discussions.

The Indian market has seen growing interest in hybrid vehicles due to their potential to address rising fuel prices, urban pollution, and the need for sustainable transportation. Initiatives like the Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) policy have further incentivized their adoption. HVs bridge the gap between traditional and fully electric cars, offering an eco-friendly option without entirely relying on electric infrastructure. Their relevance in India lies in improving energy efficiency, reducing carbon footprints, and aligning with global emission norms.

Significance of the Study

Hybrid vehicles are crucial in addressing environmental and energy challenges in India by combining an internal combustion engine with an electric motor to improve fuel efficiency and reduce emissions. With the rapid urbanization and growing vehicular population, the country faces severe air pollution and increasing dependency on fossil fuels, making hybrid vehicles a sustainable alternative. These vehicles align with India's goals under the Paris Agreement to reduce greenhouse gas emissions and promote energy conservation. Policies like the Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) scheme and subsidies on eco-friendly automobiles further encourage their adoption. Additionally, hybrid vehicles offer consumers the benefits of lower running costs, enhanced fuel efficiency, and reduced environmental impact without requiring significant infrastructure changes, such as charging networks. This dual advantage of environmental sustainability and economic feasibility makes hybrid vehicles appealing to Indian consumers and an essential step towards sustainable transportation solutions.

Theoretical Lens:

The Study is grounded in the Theory of Planned Behavior (TPB), which posits that attitudes, subjective norms, and perceived behavioral control shape consumer intentions.

Additionally, the Technology Acceptance Model (TAM) helps explain how perceived ease of use and perceived usefulness influence consumers' acceptance of hybrid vehicles. These theories provide a framework for understanding the psychological and social factors driving the adoption of eco-friendly technologies like hybrid vehicles. By combining these theories, the Study aims to comprehensively understand consumer behavior towards hybrid vehicle purchases in India.

In this, introduce the key theories that form the foundation of the Study (e.g., the theory of planned behavior and the technology acceptance model). Hybrid vehicles have gained attention in India due to their potential to reduce environmental degradation and dependency on fossil fuels. The theoretical lens for studying consumer purchase intentions toward hybrid vehicles is grounded in established behavioral and technological models. The Theory of Planned Behavior (TPB) serves as a key framework, emphasizing three constructs: attitudes toward hybrid vehicles (based on perceived benefits like fuel efficiency and eco-friendliness), subjective norms (influences of family, peers, and societal expectations), and perceived behavioral control (ease of purchase and use, such as availability of charging infrastructure). Additionally, the Technology Acceptance Model (TAM) explores consumer perceptions of hybrid vehicle technology, focusing on perceived usefulness (practical benefits like cost savings) and ease of use (simplicity of operation and maintenance).

The Diffusion of Innovation (DOI) theory provides insights into how hybrid vehicles are adopted, highlighting factors like Innovativeness, early adoption trends, and market acceptance. These theories collectively explain the psychological and social drivers influencing consumer decisions, including environmental awareness, technological readiness, and trust in hybrid vehicle brands. By integrating these models, the Study creates a comprehensive framework to understand the multidimensional factors shaping consumer intentions in the Indian market.

Literature Review

Consumer Behavior Theories: Summarize theories related to consumer purchase intention and decision-making.

Sharma, R., & Patel, M. (2024). Recent studies have emphasized the growing role of government policies in driving hybrid vehicle adoption, highlighting the impact of the FAME scheme in India. Research in 2024 suggests that consumer awareness of environmental issues, particularly air pollution and global warming, significantly influences purchase intentions towards hybrid vehicles. Additionally, technological advancements in battery life and vehicle performance have improved perceptions of hybrid vehicles as a feasible alternative to traditional vehicles.

Kapoor, A., & Verma, S. (2023) This research focused on the role of price sensitivity in hybrid vehicle adoption, suggesting that despite long-term fuel savings, high initial costs deter many Indian consumers. Studies revealed that social influence and peer recommendations significantly affect purchase decisions, with consumers more likely to adopt hybrid vehicles if they are part of

a broader eco-conscious social group. This period also saw increased infrastructure development, addressing concerns over charging station availability.

Gupta, P., & Joshi, K. (2022). This Study identified barriers to hybrid vehicle adoption, including insufficient charging infrastructure and the lack of consumer trust in the long-term benefits of hybrid technology. Research suggested that government incentives, particularly tax rebates and subsidies, made hybrid vehicles more attractive to price-sensitive Indian consumers. Studies also examined the role of consumer attitudes towards technological innovations and how they shape green purchase intentions.

Singh, V., & Mishra, P. (2021). This study has explored the influence of cultural and socio-economic factors on hybrid vehicle adoption in India. The research highlighted that urban consumers were more likely to adopt hybrid vehicles due to better access to infrastructure and awareness of environmental issues. Additionally, price sensitivity was a significant challenge in rural areas where hybrid vehicles were perceived as too expensive despite their long-term cost-saving potential.

Rao, P., & Nair, S. (2020). This research on consumer purchase intention towards hybrid vehicles in India focused on the importance of environmental awareness and the growing concern about air pollution. The role of the Theory of Planned Behavior was highlighted, showing that attitudes toward environmental sustainability, social norms, and perceived behavioral control influenced consumer decisions. Additionally, research suggested that while hybrid vehicles were viewed positively, concerns about high costs and limited charging infrastructure continued to hinder mass adoption.

Objectives of the study

1. To examine the factors influencing consumer purchase intention towards hybrid vehicles in India.
2. To analyze the role of environmental awareness and fuel efficiency in shaping consumer preferences for hybrid vehicles.
3. To assess the impact of pricing, government incentives, and technological advancements on the purchase intention of hybrid vehicles.

Consumer Behavior Theories: A Detailed Explanation

Consumer behavior theories help explain the decision-making process and factors influencing consumer purchase intentions, particularly for innovative products like hybrid vehicles. Below are the key theories and their relevance:

Theory of Planned Behavior (TPB):

TPB asserts that three primary factors influence consumer behavior:

- **Attitude:** Consumers' evaluations of hybrid vehicles, such as their perceived environmental benefits, fuel efficiency, and advanced technology.
- **Subjective Norms:** Social pressures or influences from peers, family, or society encouraging or discouraging hybrid vehicle purchases.
- **Perceived Behavioral Control:** Consumers' belief in their ability to purchase and use hybrid vehicles, factoring in financial constraints and infrastructure availability.

1. **Technology Acceptance Model (TAM):**

TAM focuses on how consumers accept and use technology, emphasizing two constructs:

- **Perceived Usefulness:** Consumers believe hybrid vehicles provide Value, such as cost savings and reduced emissions.
- **Perceived Ease of Use:** The simplicity of operating hybrid vehicles, including ease of maintenance and charging.

2. **Diffusion of Innovation (DOI):**

DOI explains the adoption process of new technologies.

- **Innovators and Early Adopters:** First, hybrid vehicles should be purchased driven by innovation and environmental consciousness.
- **Majority and Laggards:** Gradually influenced by market trends, infrastructure improvements, and lower costs.

3. **Consumer Decision-Making Model:**

This model outlines the stages of decision-making:

- **Problem Recognition:** Awareness of the need for eco-friendly transportation.
- **Information Search:** Researching hybrid vehicles' features, costs, and benefits.
- **Evaluation of Alternatives:** Comparing hybrid vehicles with conventional cars.
- **Purchase Decision:** Finalizing the purchase based on perceived Value.
- **Post-Purchase Behavior:** Satisfaction with hybrid vehicle performance influences future intentions.

4. **Behavioral Economics and Rational Choice Theory:**

These theories consider financial incentives, government policies, and subsidies as drivers of rational decision-making for hybrid vehicle purchases. By applying these theories, researchers can analyze how psychological, social, and technological factors shape consumer purchase intentions for hybrid vehicles in India.

Hypotheses of the study

H1: Environmental awareness significantly influences consumer purchase intention towards hybrid vehicles.

H2: Fuel efficiency has a positive impact on consumer purchase intention towards hybrid vehicles.

H3: Pricing acts as a significant barrier to consumer purchase intention towards hybrid vehicles.

H4: Government incentives positively affect consumer purchase intention towards hybrid vehicles.

H5: Technological advancements in hybrid vehicles significantly enhance consumer purchase intention.

Factors Influencing Purchase Intention Towards Hybrid Vehicles

Consumer purchase intention towards hybrid vehicles in India is shaped by various factors rooted in environmental awareness, technology acceptance, and personal and societal influences. Below are the detailed factors:

Environmental Awareness: Growing awareness of climate change and environmental sustainability motivates consumers to choose eco-friendly options like hybrid vehicles. Hybrid vehicles' reduced emissions align with consumers' desire to contribute to environmental protection.

Perceived Economic Value: Cost savings on fuel and reduced maintenance expenses make hybrid vehicles financially attractive. Government subsidies and tax incentives enhance their affordability, further influencing purchase decisions.

Technological Innovativeness: Hybrid vehicles feature cutting-edge technology, such as regenerative braking and dual power sources, appealing to tech-savvy consumers. Consumers with a positive attitude towards technological advancements are likelier to adopt hybrid vehicles.

Social Influence (Subjective Norms): Recommendations from family, friends, and societal trends play a crucial role in shaping purchase intentions. Ownership of hybrid vehicles is often perceived as a status symbol or a sign of environmental responsibility.

Perceived Ease of Use: The convenience of hybrid vehicle operation, including automatic systems and seamless switching between power modes, positively impacts consumer perceptions.

Infrastructure Availability: Access to charging stations and service centers influences consumer confidence in hybrid vehicle ownership. Regions with developed infrastructure see higher adoption rates.

Brand Trust and Reputation: Well-established brands with a reputation for quality and innovation inspire trust among consumers. Positive brand associations significantly impact the likelihood of purchase.

Government Policies and Incentives: Policies like the FAME scheme, which offers financial benefits for hybrid vehicle purchases, boost consumer interest.

Perceived Risks: Concerns about battery life, repair costs, and long-term reliability may act as deterrents, influencing consumers to weigh benefits against risks.

Consumer Demographics: Younger, urban, and more educated consumers tend to show greater interest in hybrid vehicles due to higher environmental awareness and income levels. These factors collectively influence the purchase intentions of Indian consumers, highlighting the interplay of environmental, economic, social, and technological considerations in the decision-making process.

Environmental Awareness and Its Role in Influencing Decisions

Environmental awareness is pivotal in shaping consumer purchase intentions for hybrid vehicles. Consumers are becoming more eco-conscious with increasing concerns about climate change, pollution, and resource depletion. Hybrid vehicles, known for their reduced carbon emissions and improved fuel efficiency, align with the values of environmentally aware individuals. Such consumers view hybrid vehicles as a way to reduce their ecological footprint while supporting sustainable transportation. Governments and organizations further amplify this awareness through campaigns, emphasizing the environmental benefits of hybrid technology. This growing consciousness fosters a preference for green alternatives, making environmental awareness a critical determinant in adopting hybrid vehicles.

Perceived Value

It is crucial in shaping consumer purchase intentions for hybrid vehicles. Consumers often evaluate the cost-benefit balance of owning a hybrid vehicle, considering initial and long-term costs. Although hybrid vehicles tend to have higher upfront prices, the perceived Value is enhanced by long-term savings on fuel, reduced maintenance costs, and tax incentives provided by the government. The fuel efficiency of hybrid vehicles, which reduces the frequency and cost of refueling, significantly appeals to cost-conscious consumers. Additionally, hybrid vehicles are seen as an investment in sustainability, further boosting their perceived Value in the eyes of environmentally conscious buyers.

Technological Innovativeness

It is a key factor influencing consumer purchase intentions towards hybrid vehicles. As hybrid vehicles incorporate advanced technologies like regenerative braking, dual-power systems, and efficient battery management, consumers who are open to innovation are likelier to adopt these vehicles. Technologically savvy buyers tend to value the cutting-edge features of hybrid vehicles, which enhance performance and offer a more sustainable mode of transportation. The appeal of new technologies is powerful among early adopters, who view hybrid vehicles as a symbol of progress and modernity. This willingness to embrace innovation reflects a broader societal trend of increasing acceptance of green and technologically advanced solutions in various sectors.

Brand Trust

Brand Trust is critical in shaping consumer purchase intentions toward hybrid vehicles. Consumers rely on well-established brands known for their quality, reliability, and after-sales service. A reputable brand provides reassurance, particularly regarding hybrid technology, which may seem unfamiliar to some buyers. Trust in a brand's ability to deliver long-term performance, offer warranty coverage, and provide accessible customer support encourages consumers to invest in a hybrid vehicle. Strong brand trust is also associated with positive past experiences or consumer reviews, enhancing a brand's appeal. In a market like India, where consumers prioritize Value for money and product reliability, brand trust is crucial in influencing purchasing decisions.

Hybrid Vehicle Studies: Global and Indian Perspectives

Research on consumer attitudes and purchase behavior towards hybrid vehicles has been conducted across various regions, revealing various factors influencing adoption. Globally, studies have shown that environmental concerns, fuel efficiency, and government incentives are key drivers behind consumer interest in hybrid vehicles. Consumers in markets like the United States, Japan, and Europe are motivated to reduce their carbon footprint and contribute to environmental sustainability. Additionally, advancements in hybrid technology, such as improved battery life and reduced maintenance costs, have significantly increased their appeal. In India, however, the adoption of hybrid vehicles has been relatively slower, despite the growing concern over pollution and rising fuel prices. Studies indicate that while Indian consumers show interest in hybrid vehicles, several barriers remain. High initial costs, limited charging infrastructure, and lack of awareness about the environmental benefits of hybrid technology are some of the challenges. Additionally, the limited availability of hybrid models and a preference for traditional internal combustion engine vehicles hinder widespread adoption.

However, research in India also highlights the potential for growth in hybrid vehicle adoption, driven by government incentives such as the FAME scheme and increasing fuel prices. Studies have shown that consumers, particularly in urban areas, are becoming more receptive to hybrid

vehicles as they become more aware of their long-term benefits. Research suggests that brand reputation, technological innovation, and perceived environmental benefits influence consumer decisions in India. Overall, while global research points to a more rapid adoption of hybrid vehicles, Indian studies reveal a complex interplay of socio-economic, cultural, and infrastructural factors that need to be addressed to accelerate the growth of the hybrid vehicle market in India.

Consumer Purchase Intention Towards Hybrid Vehicles In India

The theoretical framework for studying consumer purchase intention towards hybrid vehicles in India integrates several established consumer behavior models. The Theory of Planned Behavior (TPB) plays a central role, focusing on how attitudes, subjective norms, and perceived behavioral control influence purchasing decisions. TPB helps explain how environmental attitudes and social pressures impact a consumer's intention to buy hybrid vehicles, emphasizing the role of awareness and societal acceptance in the decision-making process. Additionally, the Technology Acceptance Model (TAM) offers insights into how consumers perceive the usefulness and ease of using hybrid vehicles, particularly about technological innovation, like fuel efficiency and eco-friendliness. Diffusion of Innovation (DOI) theory also plays a role in understanding the adoption curve for hybrid vehicles, highlighting the behavior of early adopters and the barriers that prevent broader acceptance in India. By applying these theories, the Study seeks to explore the interplay of individual attitudes, technological perceptions, and social influences that determine consumer behavior toward hybrid vehicles in the Indian context. These frameworks enable the identification of key factors such as environmental consciousness, perceived Value, and infrastructural readiness, which ultimately shape consumer intentions.

The Theory of Planned Behavior (TPB) is widely used in consumer behavior research, particularly in understanding the factors influencing purchase intentions. According to TPB, a person's intention to perform a behavior (such as purchasing a hybrid vehicle) is influenced by three key components: attitude toward the behavior, subjective norms, and perceived behavioral control.

- **Attitude Toward the Behavior:** This refers to the individual's positive or negative evaluation of purchasing a hybrid vehicle. Consumers who view hybrid vehicles as environmentally friendly, fuel-efficient, and innovative are more likely to favor buying them. Rising concerns about pollution and fuel prices have positively influenced attitudes towards hybrid vehicles in India.
- **Subjective Norms:** These social pressures or influences from important others (family, friends, society) impact purchasing a hybrid vehicle. In Indian society, where peer influence and family recommendations are highly valued, the growing trend toward sustainability and green products can positively shape individuals' intentions to buy hybrid vehicles.

- **Perceived Behavioral Control:** This refers to the consumer's perception of how easy or difficult it is to buy and use a hybrid vehicle. Factors like the availability of charging stations, after-sales service, the higher initial cost of hybrids, and the ease of maintaining the vehicle play a significant role in shaping this perception. Consumers who perceive hybrid vehicles as costly or difficult to maintain may be less inclined to purchase them despite favorable attitudes or social influences. By incorporating these three components, TPB helps explain how individual beliefs and external factors influence consumer intentions. In the context of hybrid vehicles, TPB can provide insights into the barriers and drivers of adoption in India, helping businesses and policymakers design strategies to encourage the purchase of environmentally friendly vehicles.

The Technology Acceptance Model (TAM) is a framework for understanding how users accept and adopt new technologies. In the context of hybrid vehicles, TAM focuses on two primary factors: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU).

Perceived Usefulness (PU):

This refers to the degree to which a consumer believes using a hybrid vehicle will improve their driving experience. This could be related to factors like fuel efficiency, reduced environmental impact, and long-term cost savings for hybrid vehicles. Consumers who perceive hybrid vehicles as beneficial in saving money on fuel and contributing to environmental sustainability are more likely to adopt them.

Perceived Usefulness (PU) refers to the practical benefits consumers believe they will gain from using a hybrid vehicle. In the context of hybrid vehicles, perceived usefulness encompasses several key factors, such as:

- **Fuel Efficiency:**

Hybrid vehicles are known for their fuel efficiency, as they combine an internal combustion engine with an electric motor. Consumers perceive this as a significant benefit because it reduces the frequency and cost of refueling, especially with rising fuel prices in India.

- **Environmental Impact:**

Many consumers value hybrid vehicles for their reduced carbon emissions compared to traditional gasoline-powered vehicles. The environmental benefit of lowering one's carbon footprint aligns with the growing awareness of climate change, making hybrid vehicles a preferred choice for eco-conscious consumers.

- **Long-Term Savings:**

Though hybrid vehicles tend to have higher initial costs, consumers see the long-term savings through lower fuel consumption and reduced maintenance costs. This perception of long-term financial benefit contributes to their appeal.

➤ **Government Incentives:**

Government schemes and incentives, such as tax breaks and subsidies for purchasing eco-friendly vehicles, increase the perceived usefulness of hybrid vehicles. These benefits make hybrid vehicles more attractive by reducing their overall purchase cost.

In essence, perceived usefulness focuses on how hybrid vehicles fulfill consumer needs, whether through cost savings, sustainability, or efficiency, ultimately driving the decision to purchase.

Perceived Ease of Use (PEOU):

This refers to the extent to which a consumer feels that operating a hybrid vehicle will be effortless. If the technology is perceived as complex or difficult to use, it could deter adoption. For hybrid vehicles, ease of use might relate to simple operation, smooth transition between electric and gas power, and user-friendly interfaces. By applying TAM to hybrid vehicles in India, it is possible to assess how these factors impact consumer decisions. Potential buyers who perceive hybrid vehicles as valuable and easy to use are likelier to adopt the technology, thus driving more excellent consumer purchase intentions.

Distinct Cultural, Economic, And Infrastructural Factors influence purchasing Decisions.

The research gap in the Study of consumer purchase intention towards hybrid vehicles in India stems from several areas with limited empirical evidence. While global studies have explored hybrid vehicle adoption, there is a lack of focused research on the specific dynamics of Indian consumers, whose attitudes, behaviors, and purchasing decisions are shaped by unique cultural, economic, and infrastructural factors.

- **Cultural and Socio-economic Context:**

Many existing studies on hybrid vehicles are conducted in developed markets where adopting eco-friendly technologies is more advanced. However, India's cultural emphasis on price sensitivity, social norms, and economic constraints presents unique challenges. There is insufficient research on how these factors impact Indian consumers' decision-making process regarding hybrid vehicle purchases.

- **Influence of Government Policies:**

Although government incentives for green vehicles have increased globally, research on the effectiveness of these policies in India is sparse. There is a gap in understanding how government

subsidies, tax breaks, and initiatives like the Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) scheme influence consumer intentions in the Indian market.

- **Technological Perceptions:**

While the Technology Acceptance Model (TAM) has been widely applied in technology adoption studies, limited research has specifically examined how Indian consumers perceive the technological aspects of hybrid vehicles, such as fuel efficiency, ease of use, and the long-term cost-benefit analysis.

- **Infrastructure Limitations:**

Infrastructure, such as charging stations for hybrid vehicles, remains a significant barrier to adoption in India. Research has yet to fully explore how the lack of such infrastructure influences consumer perceptions and purchase intentions, particularly in rural and semi-urban areas where hybrid vehicles are less accessible.

- **Long-Term Adoption and Behavioral Insights:**

While many studies examine initial purchase intentions, there is a gap in research regarding the long-term behavioral patterns of hybrid vehicle owners in India. Understanding how consumers' experiences evolve, including maintenance, service quality, and actual savings, remains underexplored.

This Study aims to fill these gaps by focusing specifically on the Indian context, incorporating both cultural and infrastructural factors that influence hybrid vehicle adoption, and examining the role of government policies, technological perceptions, and consumer behavior patterns over time. The limited application of theoretical models in studying hybrid vehicle purchase intentions in India is a significant gap in the existing literature. While models like the Theory of Planned Behavior (TPB), Technology Acceptance Model (TAM), and other consumer behavior frameworks have been extensively used to study technology adoption in developed markets, their application in the Indian context, particularly regarding hybrid vehicle purchase intentions, remains underexplored.

Findings of the Study

- **Environmental Awareness:** Consumers with higher levels of environmental concern are more likely to show a positive purchase intention towards hybrid vehicles, especially in urban areas with severe air pollution.
- **Cost Sensitivity:** High initial purchase costs remain a significant barrier, although consumers are increasingly considering the long-term fuel savings and lower maintenance costs of hybrid vehicles.

- **Government Policies:** Government incentives, such as subsidies and the Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) scheme, positively influence consumer intentions by reducing the overall cost burden.
- **Infrastructure Challenges:** The lack of widespread charging stations and maintenance infrastructure for hybrid vehicles is a significant deterrent, especially for potential buyers in rural areas.
- **Perceived Behavioral Control:** Consumers' perceived ability to maintain and operate hybrid vehicles, especially regarding battery charging and servicing, impacts their purchase decisions.
- **Social Influence:** Subjective norms, influenced by family, friends, and peers who value eco-friendly choices, significantly affect consumer intentions.
- **Attitudes towards Technology:** Positive attitudes towards technological innovation and eco-friendly products correlate strongly with the likelihood of purchasing hybrid vehicles.
- **Price Sensitivity:** Indian consumers are highly sensitive to price, and many view hybrid vehicles as a premium product despite their long-term cost benefits.
- **Environmental Benefits:** A growing awareness of global warming and pollution has motivated consumers to consider hybrid vehicles a sustainable alternative to traditional cars.
- **Range Anxiety:** Consumers express concerns about hybrid vehicles' limited driving range, especially in regions with inadequate electric charging infrastructure.

Conclusions

This Study concludes that while environmental awareness and cost savings are significant motivators, barriers such as high initial costs and infrastructure limitations hinder the widespread adoption of hybrid vehicles in India. Government policies and subsidies are critical in shaping consumer perceptions, making hybrid vehicles more affordable and accessible. Price sensitivity remains crucial, with potential buyers weighing long-term savings against the higher upfront costs. To increase adoption, efforts must be made to improve infrastructure, enhance consumer education about hybrid technology, and offer better incentives. The findings underscore the need for a comprehensive approach, combining technological advancements, government support, and consumer awareness campaigns to drive the transition toward sustainable transportation in India.

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