

EVS – THE NEW ELECTRIC WAVE IN THE AUTOMOBILE SECTOR, GOVT. POLICIES AND THE INFRASTRUCTURE

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Abstract

In India, where environmental issues continue to rise and sustainable transportation is urgently needed, electric vehicles, or EVs, have come out as a source of hope. Government policy plays a significant role in assisting the acceptance of electric vehicles in the country; policies not only influence the adoption rate of EVs but also customer satisfaction. This in-depth examination analyses various government programs that are designed to foster the adoption of electric vehicles in India and their impact on consumer perception and satisfaction. This paper tries to investigate how programs like the Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) scheme, tax incentives, and infrastructure development impact the people's switch to electric vehicles. In spite of the achievements, there are some challenges to overcome, including a high price and a lack of adequate charging infrastructure. This review aims to identify areas where policy can be reinforced with the intention to increase customer satisfaction and uplift India's transition to electric vehicles.

Keywords: Electric Vehicles (EVs), Government Policies, FAME Scheme, Customer Satisfaction, EV Adoption, Charging Infrastructure, EV Market in India, Consumer Perception, Sustainability, EV Incentives, India Electric Mobility, EV Challenges, Green Transportation, EV Infrastructure Development, Environmental Policy

1. Introduction

In recent years, there has been a notable shift in the Indian automobile industry in the direction of electric mobility. For sustainable transport, electric vehicles are a promising solution to deal with air pollution and fossil fuel depletion. The Indian government has taken many steps to foster the adoption rate of electric vehicles (EVs). Although the shifting is taking longer than expected. This raises questions about the interconnection between government policy, customer satisfaction, and EV adoption rates.

1.1 Background

The Indian automobile industry is one of the biggest in the world, but it has a major impact on greenhouse gas emissions. As metropolitan areas continuing to grow, there is a greater need for sustainable transportation solutions. To overcome the challenges, the government has implemented the faster adoption and manufacturing of hybrid and electric vehicles (FAME)

schemes. The government tries to promote the adoption of EVs through tax incentives, subsidies, and infrastructure development. Further study is needed to analyze how this policy makes an impact on customer satisfaction and perception.

1.2 Problem Statement

In spite of government efforts, adoption of EV in India remains a challenge. There are significant obstacles that become a barrier to EV adoption, including initial cost, lack of adequate charging infrastructure, and varying customer perceptions about their benefits. This leads us to investigate the complex relationship between government policy, consumer satisfaction, and obstacles that are becoming barriers to the widespread use of electric vehicles.

1.3 Objectives

The primary objectives of this study are:

- To assess the impact of governmental policies on EV adoption in India.
- To evaluate how these policies shape customer satisfaction and perceptions.
- To identify the challenges that hinder the growth of the EV market.

1.4 Research Questions

This study seeks to answer the following questions:

- How do government policies affect the adoption of electric vehicles in India?
- What is the relationship between government initiatives and customer satisfaction with EVs?
- What are the key challenges faced by customers in adopting electric vehicles?

2. Literature Review

According to literature on electric vehicles in India, there is a complicated interaction between government policy, market dynamics, and consumer behavior. The study indicates that FAME I and II schemes have had a notable impact on the adoption of EVs. Despite many government schemes and initiatives, there are some challenges that still exist due to inadequate infrastructure and cost-related issues.

2.1 Government Policies

- According to ministry of heavy industry and public enterprises (2020) the FAME1 provides considerable subsidies and financial aids for electric vehicles, which reduce the financial burden of consumers.
- Kumar and Kaushik (2021) describe in their study how the FAME 1 program raises interest towards electric two-wheeler and three wheelers which indicate a positive shifting toward clear mobility.
- Jain and Bhattacharya (2021) in their research the analyse FAME 2 program. This program mainly focuses on public transportation and charging infrastructure and suggests a complete approach to electrification.
- According to Ghosh and Sagar (2022) research, government policies play a vital role in enhancing consumer trust towards electric vehicles. Transparent conveyed communication policy can raise customer satisfaction by certifying that consumers are familiar with available incentives and support systems.

2.2 Customer Perceptions

- Customer perception plays a vital role in the adoption of electric vehicles. Yadav and Sharma (2020), through their empirical research, reveal that customers are well aware of the environmental benefits of EVS, but they are worried about the high initial cost and deficient charging infrastructure, and these obstacles often block out those benefits.
- Furthermore, Sharma (2021) discovers that government policy has a significant impact on customer satisfaction, and there is a strong correlation between customer satisfaction and perceived value.
- Bloomberg New Energy Finance (BNEF) (2021) in spite of government financial incentives and schemes, the high initial cost of electric vehicles and inadequate charging facilities become a barrier for prospective buyers. The study reveals that consumers acknowledge the notation of electric vehicles, but the fact is that their purchasing decision is affected by numerous factors, such as financial incentives and charging infrastructure availability.

2.3 Challenges in Adoption

- In spite of the government's several financial incentive and efforts there are still some challenges which are becoming a significant barrier in the adoption of EV. According to the study of Bansal and Singh (2020) inadequate charging infrastructure is a notable hindrance in widespread adoption of electric vehicles. They assert that without a proper energetic network of charging stations, consumers encounter range anxiety, because this consumer gets hesitated to transit from traditional to EV.
- According to Jain and Bhattacharya (2021), inequality in the distribution of charging infrastructure between urban and rural areas prevents many potential customers from adopting EVs. As consumers have a lack of awareness about the environmental benefits of EVs and government incentives regarding the adoption of EVs, it makes the switching more complicated.
- PWC India (2021) advises that consumer awareness can rise through targeted educational campaigns, which can mitigate the gap and also motivate more people to consider electric vehicles as a workable option.

2.4 The Role of Infrastructure

- One of the literature's most important themes is infrastructure development. According to research, a well-designed charging infrastructure has a major impact on consumers' decisions to purchase electric vehicles in addition to improving customer happiness. According to Kumar and Kaushik (2021), range anxiety is exacerbated by the scarcity of charging stations in cities, discouraging prospective purchasers from switching to electric vehicles.

3. Methodology

This study uses a qualitative review methodology to analyze secondary data from a variety of sources, such as government reports, scholar articles, and trade journals. Through a compressive

literature review, this study scrutinizes the impact of government policy on EV adoption and customer satisfaction in India.

3.1 Data Collection

To gain more knowledge, we gathered information from official documents, including FAME scheme reports, NITI Aayog publications, and academic articles on consumer behavior in electric vehicles. This wide variety of source enables us to create a strong statement about how government policy affects consumer satisfaction and adoption of EVs.

3.2 Data Analysis

The data was analyzed to reveal patterns and connections between government initiative and consumer perception. The literature highlights three main themes, which are policy effectiveness, customer satisfaction, and barriers to adoption.

4. Analysis and Discussion

According to the analysis, government policy has positively influenced the adoption of EVs in India, but there are still significant challenges to overcome.

4.1 Impact of Government Policies on Adoption

The introduction of FAME 1 and 2 has helped to raise interest and awareness among people regarding electric vehicles. Although there is an increase in the adoption of two-wheeler and three-wheeler electric vehicles, adoption of electric cars is still slow. While government subsidies made EVs more accessible to people, their high initial cost remains a barrier for many consumers. (KPMG India,2020)

4.2 Customer Satisfaction

Customer satisfaction emerges as a pivotal theme in our discussion. The relationship between government policies and consumer perceptions reveals a nuanced picture. While consumers appreciate the financial incentives, their overall satisfaction is heavily influenced by the availability of charging infrastructure. Limited access to charging stations leads to range anxiety, deterring potential buyers from making the switch (Sharma, 2021). Moreover, the lack of awareness regarding available subsidies and financial benefits further complicates the narrative.

4.3 Challenges and Barriers

As we go deeper in our investigation, we identify key challenges in the electric vehicle market:-

- **Infrastructure Gaps:** Inadequate charging stations in both urban and rural areas are a significant barrier in the adoption of electric vehicles. (International energy agency, 2020)
- **High Costs:** Despite subsidies, many consumers are unsure regarding switching to electric vehicles due to high initial costs. (BloombergNEF,2021).
- **Awareness Deficit:** There are a lot of financial benefits and incentives available for the purchase of electric vehicles, but many people are unaware of them. (PwC India 2021)

5. Findings

Our analyses revealed that government policy has positively influenced the adoption of electric vehicles in India, but there are still some obstacles that became a significant barrier in the adoption

of EVs. We can see that people's interest is growing in electric vehicles, but customer satisfaction levels still remain moderate and are largely influenced by infrastructure availability and the perceived value of EVs.

6. Conclusion

Government policy has significantly impacted the adoption of electric vehicles in India . Initiatives like the FAME scheme have had positive outcomes but this is still a challenge which needs to be addressed such as high cost and inadequate infrastructure. To accelerate the switching to electric mobility, it's important to work on customer awareness and expand charging networks.

7. Recommendations

The following recommendations are proposed: To enhance customer satisfaction and increase the adoption of electric vehicles:-

- **Infrastructure Development:** The government should work on establishing accessible charging infrastructure, specifically in rural areas.
- **Increased Subsidies:** Offering more sustainable subsidies for private easy buyers can boost adoption of electric vehicles particularly for electric cars.
- **Public Awareness Campaigns:** Campaign: the government should launch national campaigns to tell people about the environmental benefits of EVs and the financial incentives available for the purchase of electric vehicles.
- **Battery Technology Improvements:** The electric vehicle manufacturing industry must invest in the research and development department to improve battery life and lower replacement costs.

8. Limitations and Future Research

Secondary data has been primarily used in this study; as a result, it may not be able to reflect current trends in consumer behavior. For better understanding of consumer satisfaction and perception with electric, future studies should be done on primary data through consumer surveys. Additionally, a comparative analysis between India and other countries can provide perceptive information for effective policy implementation.

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