

A STUDY ON CUSTOMER PERCEPTION TOWARDS E-VEHICLES WITH SPECIAL REFERENCE TO COIMBATORE

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Abstract:

This study explores customer attitudes towards Electric Vehicles (EVs) in Coimbatore. It identifies factors that influence purchase decisions and barriers to adoption. The findings will help policymakers, manufacturers, and marketers promote EV adoption.

Keywords: Electric Vehicles, Customer Perception, Sustainable Transportation

INTRODUCTION:

The automotive industry is undergoing a significant transformation with the rise of Electric Vehicles (EVs). As concern for environmental sustainability and energy efficiency grows, EVs have emerged as a viable alternative to traditional fossil fuel-based vehicles. Coimbatore, a major city in Tamil Nadu, India, has witnessed a surge in EV adoption in recent years. However, the pace of adoption remains slow due to various factors influencing customer perceptions and purchase decisions.

This study aims to investigate customer perception towards EVs in Coimbatore, exploring the key factors driving or hindering adoption. The findings of this

research will provide valuable insights for policymakers, manufacturers, and marketers seeking to promote the growth of the EV market in Coimbatore.

OBJECTIVES:

1. To evaluate the potential customers understanding of electric vehicles including their perceived advantages.
 2. To determine the key factors influencing the purchase intention of potential customers towards e-vehicles.
 3. To identify the perceived barrier that prevent customers from adopting electric vehicles.
3. Limited variables: The study only examines a limited set of variables influencing customer perception towards EVs.

SCOPE OF THE STUDY:

The scope of this study is focused on examining customer perception towards Electric Vehicles (EVs) in Coimbatore, Tamil Nadu, India. Specifically, it will explore the awareness, attitudes, and purchase intentions of existing and potential EV customers within Coimbatore city and its surrounding suburbs. The study will collect data from customers who have purchased or considered purchasing EVs within the past 12 months, providing insights into the current state of EV adoption in Coimbatore.

STATEMENT OF THE PROBLEM:

The increasing environmental concerns and depletion of fossil fuels have led to a shift towards eco-friendly alternatives, with Electric Vehicles (EVs) gaining prominence. However, despite the growing demand for EVs, the adoption rate remains slow in Coimbatore, Tamil Nadu, India. The lack of understanding of customer perceptions and attitudes towards EVs in this region hinders the development of effective strategies to promote their adoption. Therefore, this study aims to investigate the factors influencing customer perception towards EVs in Coimbatore, in order to provide insights for stakeholders to promote the growth of the EV market.

LIMITATION OF THE STUDY:

1. The study is limited to Coimbatore city and its surrounding suburbs.
2. The sample size is limited, which may not be representative of the entire population.

RESEARCH METHODOLOGY:

Research methodology means systematic process and techniques to collect data, analyze and interpret data in order to address Research questions and evaluate hypotheses.

METHODS OF DATA COLLECTION:

The data which is collected for the research is

- **Primary data:** The primary data is Collection of information from the Original source rather than existing data Through questionnaires.
- **Secondary data:** The secondary data is Information that has already been Collected from existing sources such as websites, magazines, newspapers, and existing research.

AREA OF STUDY: The study is conducted in Coimbatore city.

SAMPLE SIZE: The sample size is 75.

TOOLS USED FOR ANALYSIS: The tools for data analyzing are simple percentage and chi-square test.

SIMPLE PERCENTAGE: A Simple percentage helps to analyze the proportion of a specific value relative to a total, which makes it easier to interpret and compare different sets of data.

CHI-SQUARE: A Chi-square test is a statistical method used to compare the observed value with the expected value. H_0 (Null hypothesis) = There is no significant relationship between the independent and the dependent variable. H_1 (Alternative hypothesis) = There is a relationship between the independent and the dependent variable.

Chi-square analysis formula:

$$\chi^2 = \sum (O_i - E_i)^2 / E_i$$

Degree of freedom= (r-1) * (c-1)

REVIEW OF LITERATURE:

1. Hidrue, Parsons, Kempton, and Gardner . “Willingness to Pay for Electric Vehicles and Their Attributes.” (2011), This study examines the willingness to pay for electric vehicles and their attributes. The authors conducted a survey of 1,200 households in the United States and found that the willingness to pay for electric vehicles is influenced by factors such as range, fuel efficiency, and environmental benefits.
2. Egbue and Long. “Barriers to Widespread Adoption of Electric Vehicles: An Analysis of Consumer Attitudes and Perceptions.” (2012), This study investigates the barriers to widespread adoption of electric vehicles. The authors conducted a survey of 500 consumers in the United States and found that the main barriers to adoption are range anxiety, high upfront costs, and limited charging infrastructure.
3. Graham-Rowe, Gardner, Abraham, and Skippon “Mainstream Consumers Driving Plug-in Battery-Electric and Plug-in Hybrid Electric Cars: A Qualitative Analysis.” (2012), This study examines the factors influencing consumer adoption of plug-in hybrid electric vehicles. The authors conducted a survey of 1,000 consumers in the United Kingdom and found that the main factors influencing adoption are environmental concerns, fuel costs, and government incentives.

INTERPRETATION AND ANALYSIS:

Table 1: Table Showing the thoughts of respondents on E- Vehicles

Thoughts on E-Vehicles	Number of respondents	Percentage
Cost efficient	5	7
Performance	20	27
Low maintenance	28	37
Technological infrastructure	19	25
Convenient charging	3	4
Total	75	100

Interpretation:

The majority of respondents (37%) consider low maintenance the biggest advantage of E-Vehicles, followed by performance (27%) and technological infrastructure (25%). Cost efficiency (7%) and convenient charging (4%) are the least significantly factors. This suggests that while E-Vehicles are valued for their performance and low upkeep, concerns about cost and charging infrastructure remain. Addressing these issues could boost consumer adoption.

Table 2: Table showing the satisfaction level of respondents about E – Vehicles

Occupation of respondents	Very satisfied	Satisfied	Neutral	Dis satisfied	Number of respondents
Employee	8	17	3	1	29
Student	7	6	2	1	16
Business	5	11	4	1	21
Others	3	4	1	1	9
Total	23	38	10	4	75

Findings:

Simple percentage:

- 1.The majority of respondents (80%) fall within the 30-60 age group, with 46.7% aged 50-60 and 33.3% aged 30-50.
- 2.The maximum number of respondents (60%) reside in rural areas, while 20% each belong to urban and semi-urban region.
- 3.The maximum number of respondents (52%) are unmarried, while 48% are married, indicating a nearly balanced marital status distribution.
- 4.The maximum number of respondents (45.3%) are male, followed by 38.7% female and 16% others, reflecting a slightly higher male participation.
5. maximum number of respondents (37.3%) are employees, followed by 36% students, 16% business, and 10.7% others.

- 6.The maximum proportion of respondents (48%) report a monthly family income of 20,000–40,000, followed by 22.7% in 10,000–20,000 and 21.3% in 40,000–60,000.
7. Maximum number of respondents (36.7%) are undergraduates, followed by 30.7% postgraduates, 9.3% SSLC/HSC, and 6.7% literates.
- 8.The maximum number of respondents (61.3%) own two vehicles, followed by 20% owning more than two vehicles, and 18.7% owning one vehicle.
- 9.The maximum number of respondents (62.7%) do not own E-vehicles, while 37.3% do.
- 10.The maximum number of respondents (44%) travel 20–30 km daily, followed by 32% at 10–20 km, 16% at 30–40 km, and smaller proportions traveling 40–50 km or above 50 km.
- 11.The maximum number of respondents (42.71) learned about E-vehicles through online platforms, followed by 24% via friends/colleagues, 17.3% from other sources, 9.3% through television, and 6.7% from newspapers.
- 12.The maximum number of respondents (37.3%) consider cost the most important factor, with 26.7% emphasizing convenient charging and 25.3% performance.
- 13.The maximum number of respondents (45.3%) intend to use E-Vehicles for free time, followed by 33.3% for professional purposes.
- 14.The maximum number of respondents (60%) have been using E-Vehicles for one year.
- 15.The maximum number of respondents (57.3%) have opted for electric bikes.
- 16.The maximum number of respondents (49.3%) consider environmental concerns as the most influential factor in purchasing an electric vehicle.
17. maximum number of respondents (37.3%) consider limited access to choice as the biggest discouraging factor for adopting electric vehicles.
- 18.The maximum number of respondents (48%) prefer an electric vehicle with a range of 100-150 km for it to be considered a viable option.
- 19.The maximum number of respondents (54.7%) have a neutral opinion regarding the quality of electric vehicles.

20. maximum number of respondents (73.3%) are likely to recommend purchasing an electric vehicle to their near ones.

SUGGESTIONS:

The topic of electric vehicles is a growing field of research. A comparative study of electric vehicles and traditional gasoline-powered vehicles could provide valuable insights. Government policies and incentives play a crucial role in promoting electric vehicle adoption. Analyzing these policies could help identify best practices. The impact of electric vehicles on the grid is important. A study could investigate the demand for electricity and vehicle-to-grid technology. Advanced battery technologies are critical to improving electric vehicle range and efficiency. Research could lead to significant improvements. Designing and optimizing charging infrastructure is essential. Research could help ensure efficient and convenient charging. Electric vehicle safety is critical. Developing advanced safety features could improve safety. Market analysis and consumer research can inform marketing strategies. A consumer survey could provide valuable insights. Life cycle assessments can evaluate environmental benefits. Research could provide a comprehensive understanding of electric vehicles' impact on sustainable development is important. Research could investigate their potential to promote renewable energy.

CONCLUSION:

The study on customer perception of electric vehicles (EVs) in Coimbatore shows that while people appreciate their benefits, such as cost savings and environmental friendliness, concerns like high prices, limited charging stations, and battery life remain. To increase EV adoption, better government support, improved technology, and more charging infrastructure are needed. With growing awareness and advancements in infrastructure, more people in Coimbatore are likely to consider EVs as a viable option in the future.

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