

DETERMINANTS OF CONSUMER PREFERENCE AND SATISFACTION TOWARDS ELECTRIC CARS IN AMBATTUR, CHENNAI

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Abstract

Driven by national frameworks like FAME – II and the regional Tamil Nadu EV policy, battery vehicles (BEVs) are key drivers of sustainable urban mobility in India. The study empirically evaluates consumer preference and post-adoption satisfaction regarding electric areas in the industrial-residential corridor of Ambattur, Chennai. Utilizing a quantitative design, primary survey data were gathered from the sample of 75 active electric car owners using convenience sampling. The data were evaluated using percentage analysis; mean score rank analysis and chi-square testing. Findings indicate that adoption is overwhelmingly catalysed by environmental and fuel transition motivators. To accelerate adoption, automakers and policymakers must optimize financial incentives and expand fast-charging networks along major commute corridors.

Keywords: Electric Vehicles, consumer preference, Ambattur, Post-purchase satisfaction

1.1 Introduction

In recent years, driven by progressive national and state policy frameworks such as the central FAME-II (Faster Adoption and Manufacturing of Electric Vehicles) Scheme and the Tamil Nadu Electric Vehicle Policy, the new energy automotive market in India is undergoing a structural paradigm shift. Within this rapidly evolving landscape, battery electric vehicles (BEVs) have emerged as the primary vehicle class driving the transition toward sustainable urban mobility, owing to their zero emissions, lower operating costs and superior energy conversion efficiency.

Unlike conventional Internal Combustion Engine (ICE) vehicles, evaluating customer satisfaction and preference for electric cars requires a multidimensional approach. Consumer decision-making in the EV domain is governed by a unique matrix of determinants ranging from technical attributes like battery, acceleration, charging time and economic factors like

upfront purchase price, state subsidies and resale value to infrastructural readiness to public charging network density and grid access.

1.2 Scope of the Study

The scope of the study is strictly focused on examining the adoption determinant and post-purchase satisfaction of electric car owners located within the industrial – residential hub of Ambattur, Chennai. Geographic coverage extends across key micro-markets, including the Ambattur Industrial Estate, Ambattur OT, Korattur and Ayapakkam.

1.3 Objectives of the study

- To evaluate the overall satisfaction levels and operational challenges experienced by electric car users in Ambattur, Chennai.
- To examine whether demographic factors statistically influence how consumers acquire information regarding electric car vehicle technology

1.4 Research Methodology

This study adopts a quantitative, empirical research design utilizing convenience sampling to gather primary survey data from the sample of 75 active electric car owners across the industrial-residential area of Ambattur, Chennai. Structured Questionnaires distributed at local commercial hubs and charging stations alongside secondary literature, the raw data are analysed using percentage analysis to identify primary purchase drivers, mean score rank analysis to evaluate dimensional satisfaction levels and Chi-square test to examine demographic dependencies between educational qualifications and Electronic car information channels.

1.5 Review of literature

Nigam and Kumari (2020), examines the dynamics of consumer satisfaction and post-adoption behaviour within the micro-mobility sector, focusing on Okinawa electric two-wheelers in Kolhapur city, Maharashtra. The study investigates how consumer perceptions of utility and operational ease translate into post-purchase satisfaction and brand stickiness in Tier-2 Indian urban ecosystems.

Nayaab and Kumar (2022) empirically investigate the conceptual bridge connecting stated consumer preferences to actual adoption intentions for electric vehicles within the evolving Indian automobile landscape. The author examines how multidimensional preference constructs encompass purchase price sensitivity, operational cost efficiency and technological perception and battery range expectations. The analysis reveals that while consumer

preferences reflect high environmental awareness and interest in EV innovations, preference alone does not linearly translate into adoption intention unless mediated by key structural facilitators such as government incentive schemes, reliable charging infrastructure and perceived product risk mitigation.

Dilotsothe (2022) investigates the consumer decision-making mechanisms driving electric vehicle (EV) adoption through the theoretical framework of Theory of Consumption Values (TCV). The study conceptualizes adoption intention as a function of five distinct value dimensions: functional, social, emotional, conditional and epistemic values. The empirical findings demonstrate that functional, social, conditional and emotional values exert a statistically significant positive effect on consumers' purchase intentions, whereas epistemic value plays a minor role in driving adoption decisions.

Manjula, Shilpa and Sundaresh (2022) examines the critical structural, financial and psychological impediments inhibiting the widespread consumer transition toward electric mobility in developing automobile markets. Framing their empirical inquiry around the Innovation Resistance Theory (IRT), the authors categorize adoption barriers into systemic operational constraints including high initial capital expenditure, range anxiety; battery degradation uncertainty, limited public charging density and prolonged charging turnaround times and psychological barriers related to traditional brand habits and perceived functional risks.

1.5 Analysis and Interpretation

Table 1 Reasons for selecting Electric Cars

Factors	No of Respondents	Percentage (%)
Petroleum Alternative Preference	36	48
Carbon footprint Reduction	25	33.33
Car Performance	7	9.33
Driving Range Efficiency	7	9.33
Total	75	100

The table represents that out of 75 respondents who chose electric cars primarily use 48% for petroleum alternative preference, 33.33% opted for carbon footprint reduction, while 9.33% prioritized vehicle performance and driving range efficiency.

Table2 Satisfaction of Electric car with Rank analysis

Aspect	Mean Score	Rank
Car Performance	3.32	I
Technological & Comfort Features	3.06	II
Driving Range Efficiency	3.03	III
After-Sales Service Support	2.96	IV
Cost & Acquisition Value	2.89	V

The mean score ranking reveals that Car Performance occupies the top ranking with mean value as 3.32, followed by Technological & Comfort Features with mean value as 3.06, Driving Range Efficiency with mean value as 3.03, After-Sales Service Support with mean value as 2.96 and final rank with Cost & Acquisition Value with mean value as 2.89.

Table 3 Chi-Square Test

Independent Variable	Dependent Variable	Calculate X ² Value	Df	Average Sig	Results
Educational Qualification	Information Source of Electric Cars	11.881	9	15.51	H0 Accepted

The calculated Chi-square is 11.881 at a 0.05 significance level with 9 degrees of freedom is lower than the critical table value with 15.51. Therefore, the null hypothesis (H0) is accepted. It is concluded that there is no statistically significant relationship between Educational Qualification and the Information Source of Electric Cars.

1.6 Findings

Electric Car adoption in Ambattur is overwhelmingly catalysed by environmental and fuel transition motivations with 48% prioritizing petroleum alternatives. Technical factors such as vehicle performance and driving range efficiency play a minor role in driving initial purchase decisions. Consumers report the highest post-purchase satisfaction with vehicle performance with rank I and technological features with rank II. Chi-square test also confirms that educational qualification has no statistically significant impact on how consumers acquire information about Electric Cars.

1.7 Suggestions

Based on the empirical findings of the study, automotive manufacturers, local dealerships and state policymakers can introduce targeted financial incentive and streamlined subsidy delivery to address low consumer satisfaction regarding upfront acquisition costs. As information acquisition is independent of educational background, marketing campaigns should utilize broad multi-channel strategies across digital platforms, community hubs and local dealerships to effectively build consumer awareness across all demographic segments.

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