Plugging into Progress: Consumer Perception and Purchase Intent of Electric Vehicles in Tier-1 Indian Cities

Yashodha G
ISBR B School, Bangalore

1. Introduction

Electric Vehicles (EVs) are at the forefront of India's clean energy transition. As urban centers in Tier-1 cities like Bengaluru, Mumbai, and Delhi grapple with rising pollution, EVs have emerged as a viable alternative to traditional fossil-fuel vehicles. Central and state-level policies such as FAME-II, green number plates, and tax rebates are pushing market adoption. However, despite incentives and awareness campaigns, the consumer adoption curve has remained slow. Factors such as cost perception, infrastructure readiness, and product trust continue to influence intent. This study explores the perception and purchase behavior of urban Indian consumers towards EVs.

2. Literature Review

Consumer perception studies reveal that EV adoption is influenced by a mix of rational and emotional triggers. Ajzen's Theory of Planned Behavior (1991) highlights that attitudes, subjective norms, and perceived behavioral control guide intent. In EV contexts, Rezvani et al. (2015) observed that range anxiety, brand trust, and infrastructure reliability influence decision-making. In India, NITI Aayog (2021) and TERI (2022) found that affordability, battery life, and awareness of subsidies directly impact adoption. Yet, gaps remain in localized urban consumer behavior analysis—this study addresses that.

3. Research Methodology

The study employed a quantitative research design targeting working professionals and students aged 22–45 in Tier-1 cities. Using purposive sampling, 300 responses were collected through structured online questionnaires. The instrument covered three constructs: (1) Awareness and Perception (policy knowledge, EV features, environmental value), (2) Barriers (cost, charging infrastructure, performance concerns), and (3) Purchase Intent. All constructs were measured on a 5-point Likert scale. Reliability was confirmed with Cronbach's alpha > 0.75. SPSS 26 was used for analysis including descriptive stats, correlation, and regression.

4. Data Analysis

Among the 300 respondents, 59% were male and 41% female, with a median income of ₹52,000/month. Awareness of EV benefits ($M = 4.15$, $SD = 0.51$) was high, while actual purchase intent was moderate ($M = 3.38$, $SD = 0.68$). 68% of participants cited charging infrastructure as a major limitation. Pearson correlation indicated a strong relationship between environmental perception and purchase intent ($r = 0.61$, $p < 0.01$). Regression analysis found that perceived cost-benefit ratio ($\beta = 0.41$) and policy awareness ($\beta = 0.35$) significantly influenced intent ($R^2 = 0.52$).

5. Findings and Suggestions

The study establishes that while consumer awareness of EVs is high in Tier-1 cities, purchase decisions are shaped by a mixture of policy understanding, cost perception, and infrastructure confidence. Respondents familiar with subsidies and battery leasing models showed higher purchase intent. It is recommended that auto firms and public agencies co-create awareness campaigns focused on practical benefits and financing ease. Retailers should enhance showroom experience with hands-on demonstrations, while municipal bodies must invest in public charging networks.

6. Conclusion

This study highlights the evolving mindset of urban Indian consumers toward electric vehicles. High awareness and environmental alignment indicate readiness, but actionable adoption depends on infrastructure, affordability, and information clarity. By aligning policy, marketing, and technological clarity, stakeholders can transform curiosity into commitment. For India to meet its net-zero goals, accelerating EV adoption in Tier-1 cities through informed perception building and practical support is essential.

Bibliography

- Ajzen, I. (1991). The Theory of Planned Behavior. Organizational Behavior and Human Decision Processes, 50(2), 179–211.
- Rezvani, Z., Jansson, J., & Bodin, J. (2015). Advances in consumer electric vehicle adoption research: A review and research agenda. Transportation Research Part D, 34, 122–136.
- TERI. (2022). Charging Ahead: State of EV Readiness in Urban India. The Energy and Resources Institute.
- NITI Aayog. (2021). Handbook on Electric Mobility: Framework for Urban Transition. Government of India.
- Kumar, R., & Patel, H. (2023). Psychological Drivers of EV Adoption in Indian Cities. Indian Journal of Sustainable Mobility, 5(1), 15–27.