

Affordability vs. Sustainability: 'Indian Electric Two-Wheeler Manufacturers Pricing Conundrum'

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Abstract: *The pricing strategies of Indian electric two-wheeler manufacturers face a critical challenge in balancing affordability with sustainability. As the market rapidly shifts towards environmentally friendly alternatives, manufacturers must navigate cost structures influenced by raw material prices, battery technologies, and government incentives. Achieving affordability while ensuring sustainable practices poses a complex dilemma requiring innovative solutions. This study examines market dynamics, consumer preferences, and regulatory frameworks shaping pricing strategies. Key considerations include competitive pricing, technological advancements, consumer behavior, government policies, and environmental impact assessments. Effective pricing strategies that integrate sustainable practices without compromising affordability are essential for long-term market viability and environmental stewardship. Indian electric two-wheeler manufacturers grapple with the dual challenge of pricing products competitively while promoting sustainability. This abstract explores the intricate balance required between affordability and environmental consciousness. Factors such as material costs, battery innovations, regulatory support, and consumer expectations shape pricing decisions. Successful strategies will align economic feasibility with environmental responsibility to foster a sustainable market for electric mobility in India.*

Keywords: *pricing strategies, electric two-wheelers, affordability, sustainability, India, consumer behavior.*

INTRODUCTION

The adoption of electric vehicles (EVs), particularly two-wheelers, in India is gaining momentum due to increasing environmental consciousness and government incentives promoting cleaner transportation alternatives. However, a significant barrier hindering widespread adoption remains the pricing dynamics of these vehicles. Manufacturers face a dual challenge of making electric two-wheelers affordable while ensuring sustainability across their product lifecycle.

In recent years, several Indian cities have faced severe air quality issues, prompting regulatory bodies to incentivize the transition to electric mobility. This shift has sparked intense competition among manufacturers to develop cost-effective solutions without compromising on sustainability. The pricing strategy for electric two-wheelers must strike a delicate balance between affordability and sustainability to attract a diverse consumer base.

Manufacturing costs play a pivotal role in determining the final price of electric two-wheelers. Factors such as battery technology advancements, economies of scale, and supply chain efficiencies significantly impact pricing decisions. Moreover, consumer affordability and willingness to pay a premium for eco-friendly alternatives influence market penetration rates.

Understanding consumer behavior is crucial in designing effective pricing strategies. Preferences for features such as range, charging infrastructure availability, and initial purchase costs vary among different demographic segments. Market segmentation based on income levels, urbanization, and environmental awareness provides insights into tailoring marketing efforts and product offerings.

This study examines the strategic pricing decisions of Indian electric two-wheeler manufacturers amidst the evolving regulatory environment and competitive landscape. By analyzing current market trends and consumer insights, the research

aims to identify optimal pricing strategies that support both affordability and sustainability objectives. Achieving a sustainable EV ecosystem in India requires innovative approaches to address pricing challenges while fostering long-term environmental benefits.

PURPOSE OF THE STUDY

This study aims to investigate the pricing strategies of Indian electric two-wheeler manufacturers, focusing on balancing affordability and sustainability. By analyzing market dynamics and consumer preferences, the research seeks to provide insights into effective pricing models that promote wider adoption of electric vehicles while supporting environmental goals.

SCOPE OF THE STUDY

This research focuses on electric two-wheeler pricing strategies within the Indian market context. It includes an analysis of manufacturing costs, regulatory influences, and consumer behavior trends impacting pricing decisions. The study examines recent developments and challenges faced by manufacturers in achieving competitive pricing while maintaining sustainability standards in product offerings.

CONSTRAINTS OF THE STUDY

Constraints include limited access to proprietary data from manufacturers, which may affect the comprehensiveness of pricing analyses. Additionally, the rapidly evolving regulatory landscape and technological advancements in battery technology pose challenges in forecasting long-term pricing trends accurately. The study is primarily qualitative, relying on industry reports, market surveys, and expert interviews, which may introduce biases in data interpretation and generalizability of findings across diverse market segments.

RESEARCH LITERATURE SYNTHESIS

□ **Title:** "Electric Vehicle Adoption in India: Opportunities and Challenges" **Year:** 2020 **Authors:** Singh, A., & Kandpal, T. C. **Explanation:** This review explores the factors influencing electric vehicle adoption in India, including pricing strategies and regulatory incentives.

□ **Title:** "Consumer Preferences and Willingness to Pay for Electric Vehicles: A Review" **Year:** 2019 **Authors:** Zhang, Y., & Kannan, V. R. **Explanation:** The study examines consumer behavior and preferences towards electric vehicles, crucial for understanding pricing strategy formulation.

□ **Title:** "Sustainability Strategies in the Electric Vehicle Industry" **Year:** 2021 **Authors:** Schot, J., & Kanger, L. **Explanation:** This literature review discusses sustainability practices and strategies adopted by electric vehicle manufacturers worldwide, relevant for Indian contexts.

□ **Title:** "Battery Technologies for Electric Vehicles: Current Status and Future Prospects" **Year:** 2018 **Authors:** Lu, L., et al. **Explanation:** Reviews advancements in battery technologies, influencing manufacturing costs and pricing strategies of electric vehicles.

□ **Title:** "Impact of Government Policies on Electric Vehicle Adoption: A Review" **Year:** 2020 **Authors:** Lee, S., & Moghimi, A. **Explanation:** Examines the role of government policies and incentives in promoting electric vehicle adoption and affecting pricing strategies.

□ **Title:** "Challenges in the Development of Electric Vehicles: A Review" **Year:** 2017 **Authors:** Badr, O., & Probst, P. **Explanation:** Reviews technological challenges in electric vehicle development, including implications for pricing and sustainability.

□ **Title:** "Economics of Electric Vehicles: A Comprehensive Review" **Year:** 2019 **Authors:** Ghiasi, H., & Shahidehpour, M. **Explanation:** Discusses economic aspects of electric vehicles, including manufacturing costs, pricing strategies, and market penetration challenges.

□ **Title:** "Sustainability Assessment of Electric Vehicles: A Review" **Year:** 2018 **Authors:** Vassallo, J. M., & Garcia-Morales, V. J. **Explanation:** Reviews sustainability assessment methodologies for electric vehicles, relevant for understanding the environmental impacts of pricing decisions.

□ **Title:** "Electric Vehicle Battery Technology: Current Status and Future Prospects" **Year:**

2021 **Authors:** Zheng, Y., et al. **Explanation:** Focuses on advancements in electric vehicle battery technology, influencing pricing and sustainability considerations.

□ **Title:** "Strategic Pricing of Electric Vehicles: A Review" **Year:** 2022 **Authors:** Tan, K. H., et al. **Explanation:** Reviews strategic pricing approaches in the electric vehicle industry, emphasizing implications for affordability and market competitiveness.

PROBLEM STATEMENT

The burgeoning interest in electric two-wheelers in India poses a critical challenge: how can manufacturers effectively price their products to achieve widespread adoption while maintaining sustainability? Existing literature predominantly focuses on technological advancements and regulatory incentives but lacks a comprehensive understanding of the optimal pricing strategies necessary for balancing affordability and environmental considerations. This study seeks to address this gap by exploring the specific pricing dilemmas faced by Indian manufacturers, aiming to provide insights into strategic pricing decisions that can foster the transition towards sustainable mobility solutions.

RESEARCH GAP

The existing literature on electric two-wheelers in India provides valuable insights into technological and regulatory aspects but falls short in addressing the nuanced pricing strategies essential for market penetration. There is a notable research gap concerning how manufacturers can navigate cost considerations, consumer affordability, and environmental impacts to set competitive yet sustainable prices. This study aims to fill this gap by examining the specific challenges and opportunities in pricing electric two-wheelers in the Indian context, contributing to a more nuanced understanding of the factors influencing adoption rates and sustainability outcomes in the electric vehicle sector.\

OBJECTIVES OF THE STUDY

1. **To analyze current pricing strategies:** Investigate existing pricing models used by Indian electric two-wheeler manufacturers and evaluate their

effectiveness in balancing affordability and sustainability.

2. **To assess consumer perceptions and preferences:** Understand consumer attitudes towards electric two-wheeler pricing, including willingness to pay premiums for sustainable features and perceived value propositions.
3. **To identify regulatory impacts:** Examine the influence of government policies and incentives on pricing decisions and their alignment with sustainability goals in the electric vehicle sector.
4. **To explore cost dynamics:** Analyze the cost structures involved in electric two-wheeler production, including battery technologies, manufacturing efficiencies, and supply chain logistics affecting pricing strategies.
5. **To propose strategic recommendations:** Develop actionable recommendations for manufacturers to optimize pricing strategies that enhance market competitiveness while promoting wider adoption of electric two-wheelers.
6. **To contribute to sustainable mobility transitions:** Provide insights into how effective pricing strategies can contribute to achieving sustainable mobility objectives in the Indian context, thereby fostering environmental benefits and societal impacts.

RESEARCH DESIGN AND METHODOLOGY

Sl. No.	Objective	Research Design	Methodology
1.	To analyze current pricing strategies	Descriptive and comparative study	Review and analyze existing pricing models used by Indian electric two-wheeler manufacturers through literature review and case study analysis.
2.	To assess consumer perceptions and preferences	Quantitative survey and qualitative interviews	Conduct surveys to gather quantitative data on consumer attitudes and conduct in-depth interviews to explore qualitative insights into preferences and perceptions.
3.	To identify regulatory impacts	Policy analysis and case study approach	Analyze government policies and incentives impacting electric two-wheeler pricing through policy documents review and case studies of regulatory impacts.
4.	To explore cost dynamics	Quantitative analysis and cost modeling	Use cost modeling techniques to analyze battery technologies, manufacturing costs, and supply chain logistics impacting pricing strategies.
5.	To propose strategic recommendations	Action research and expert consultations	Engage stakeholders through expert consultations and workshops to develop strategic recommendations based on findings and analysis.
6.	To contribute to sustainable mobility transitions	Mixed-method approach	Combine qualitative and quantitative data to assess the impact of pricing strategies on sustainable mobility transitions in the Indian electric vehicle sector.

FINDINGS

- Current Pricing Strategies:** Indian electric two-wheeler manufacturers predominantly use competitive pricing strategies, focusing more on affordability than emphasizing sustainability features.
- Consumer Preferences:** Consumers exhibit a willingness to pay premiums for enhanced range and faster charging capabilities but prioritize initial purchase costs.
- Regulatory Influence:** Government incentives significantly impact pricing decisions, with manufacturers adjusting prices to maximize subsidies and tax benefits.
- Cost Dynamics:** High initial costs of battery technologies remain a primary barrier, influencing pricing strategies

despite advancements in manufacturing efficiencies.

- Strategic Recommendations:** Manufacturers often underutilize segmentation strategies based on income levels and urbanization, missing opportunities to tailor pricing models.
- Sustainable Mobility Impact:** Effective pricing strategies can accelerate the adoption of electric two-wheelers, contributing to reduced emissions and improved urban air quality.

SUGGESTIONS

- Enhance Sustainability Messaging:** Emphasize sustainability features in marketing campaigns to educate consumers and justify premium pricing.

2. **Optimize Government Incentives:** Collaborate with policymakers to streamline subsidy processes and ensure pricing reflects available incentives effectively.
3. **Invest in R&D for Cost Reduction:** Allocate resources to research and development aimed at reducing battery and production costs to offer competitive pricing.
4. **Segmentation Strategy Implementation:** Develop targeted pricing models based on consumer demographics and preferences to capture diverse market segments effectively.
5. **Promote Charging Infrastructure:** Expand partnerships and investments in charging infrastructure to alleviate consumer concerns about range anxiety and enhance perceived value.
6. **Educate Dealerships and Sales Teams:** Provide training to dealerships and sales teams to effectively communicate the benefits of electric two-wheelers and justify pricing to potential buyers.

These **findings and suggestions** aim to optimize pricing strategies for electric two-wheelers in India, balancing affordability with sustainability to drive market acceptance and support sustainable mobility transitions effectively.

CONCLUSION

Effective pricing strategies for electric two-wheelers in India are crucial for achieving sustainable mobility goals while meeting consumer affordability expectations. This study has highlighted the complexity of balancing affordability with the integration of sustainable features such as battery technology advancements and regulatory incentives. Findings underscore the need for manufacturers to optimize pricing models that reflect both economic viability and environmental benefits. Strategic recommendations include enhancing sustainability messaging, optimizing government incentives, and investing in cost-effective technologies. By addressing these challenges and implementing targeted strategies, stakeholders can accelerate the adoption of electric

two-wheelers, contributing to reduced emissions and improved urban air quality in India.

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