



A Study On Consumer Perception Towards Cng Fueled Bikes In Bajaj With Special Reference To Coimbatore

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ABSTRACT

The increasing environmental concerns and rising fuel costs have driven the demand for alternative fuel technologies in the automotive sector. This study explores consumer perception towards CNG-fueled bikes in Bajaj, with a special focus on Coimbatore, a city known for its industrial growth and environmentally conscious consumers. The research examines consumer awareness, purchase intentions, and key factors influencing the adoption of CNG bikes, including demographic influences, environmental concerns, economic benefits, and perceived performance and safety. Using a mixed-method approach, the study incorporates both qualitative and quantitative data, employing statistical tools such as ANOVA, regression, and Chi-Square tests. The findings reveal that while consumers recognize the environmental benefits and cost-effectiveness of CNG bikes, concerns over infrastructure, limited refueling stations, and performance issues hinder adoption. The study highlights the need for targeted awareness campaigns, improved infrastructure, and government incentives to promote the use of CNG-powered two-wheelers. Manufacturers like Bajaj should focus on consumer education, emphasizing long-term savings and enhancing marketing strategies to drive demand. This research provides valuable insights for automobile manufacturers, policymakers, and environmental advocates to support the transition towards sustainable two-wheeler transportation in India.

KEYWORDS: Consumer perception, purchase intention, economic benefits, fuel efficiency, environmental awareness, performance and safety, infrastructure availability, alternative fuel vehicles, market adoption, and CNG-fueled bikes.

1. INTRODUCTION

The automotive industry is undergoing a transformation driven by environmental concerns, rising fuel prices, and sustainability initiatives. Compressed Natural Gas (CNG) has emerged as an alternative fuel due to its cost-effectiveness and lower emissions. While CNG adoption in public and commercial transport is widespread, its presence in two-wheelers is still in the early stages. Bajaj, a key player in the Indian two-wheeler market, has introduced CNG-fueled bikes as an eco-friendly alternative. This study focuses on consumer perceptions, awareness, and the challenges in adopting CNG bikes in Coimbatore, a city known for its industrial growth and environmentally conscious consumers. The study aims to evaluate consumer awareness, economic benefits, environmental concerns, and infrastructure limitations impacting the adoption of CNG-powered bikes.

Bajaj, known for its innovation in the automotive industry, has ventured into CNG technology with the aim of offering consumers a cost-effective and environmentally friendly alternative to traditional petrol-driven bikes. CNG-powered bikes offer several advantages, such as lower operational costs, reduced fuel consumption, and significantly lower emissions. These benefits make CNG a promising alternative fuel for urban commuters who are increasingly conscious of both economic and environmental concerns. Coimbatore, a major industrial hub in South India, is known for its robust manufacturing sector, vibrant economy, and progressive consumer base.

2. LITERATURE REVIEW

2.2 Kumar, P. (2021), "Awareness of Eco-Friendly Vehicles"

This study explored consumer awareness of eco-friendly two-wheelers, particularly CNG bikes. It found that while environmental consciousness is growing, knowledge about CNG bikes remains limited. The study highlighted that the adoption of CNG bikes could be enhanced with better marketing strategies and governmental support. A significant barrier is the lack of refueling stations, which deters many potential buyers. The research emphasized the importance of public awareness campaigns.

2.2 Challenges in CNG Bike Adoption (Mishra, S., 2020)

Mishra's research focused on the challenges surrounding the adoption of CNG-powered bikes in India. It identified key barriers, such as limited refueling infrastructure, concerns over performance, and low consumer awareness. While Bajaj's efforts in promoting CNG bikes were recognized, the study emphasized the need for public awareness campaigns to clarify the benefits of CNG technology. The research also highlighted the importance of government support to develop the necessary infrastructure.

2.3 The Future of CNG Two-Wheelers (Khan, F., 2021)

Khan's research analyzed the future potential of CNG-powered two-wheelers in India. The study found that while consumers appreciate the environmental benefits of CNG bikes, concerns over infrastructure and performance remain prevalent. It highlighted Bajaj as a key player but identified the slow adoption rate due to infrastructure limitations. The research concluded that education on the economic benefits of CNG bikes could drive adoption. Partnerships between manufacturers and policymakers were recommended for infrastructure development.

2.1 OBJECTIVES OF THE STUDY

- To analyze the demographic factors that influence consumer preferences and purchase intentions for CNG-fueled bikes.
- To investigate how environmental concerns and economic benefits, including eco-friendliness, cost savings, fuel efficiency, and overall value, influence consumer preferences and purchase intentions for CNG-fueled bikes.
- To examine the awareness and knowledge levels of consumers regarding CNG fueled bikes in Bajaj, including their understanding of benefits, features, and advantages.
- To evaluate consumer perceptions of CNG fueled bike performance and safety, assessing factors such as engine power, fuel efficiency, and reliability.
- To identify the key factors influencing consumer purchase intentions and recommendations for CNG fueled bikes in Bajaj, informing marketing strategies and product development.

3. RESEARCH METHODOLOGY

The study employs a descriptive research design using both primary and secondary data. A structured survey was conducted among 150 respondents in Coimbatore. The primary data was collected through questionnaires focusing on awareness, preferences, and challenges in CNG bike adoption. The secondary data was obtained from academic journals, government reports, and industry publications. Statistical tools such as Chi-Square analysis and Regression analysis were used for data interpretation.

4. DATA ANALYSIS AND INTERPRETATION

4.1 Chi-Square Analysis (Economic Benefit vs Awareness Level)

HYPOTHESIS

Null Hypothesis (H₀): There is no significant relationship between economic benefit and awareness level among respondents.

Alternative Hypothesis (H₁):

There is a significant relationship between economic benefit and awareness level among respondents.

- **Chi-Square Value:** 216.581
- **Significance (p-value):** 0.000 ($p < 0.05$)
- **Interpretation:** There is a significant relationship between economic benefits and awareness level. Consumers with higher awareness levels recognize the cost-effectiveness of CNG bikes, whereas those with lower awareness levels perceive CNG bikes as expensive or inconvenient.

4.2 Regression Analysis (Purchase Intention vs Environmental Concern)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.342 ^a	.117	.111	2.96166

a. Predictors: (Constant), purchase intention

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	172.369	1	172.369	19.651	.000 ^b
	Residual	1298.171	148	8.771		
	Total	1470.540	149			

a. Dependent Variable: environmental concern

b. Predictors: (Constant), purchase intention

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.500	.702		7.838	.000
	purchaseinten	.357	.080	.342		

a. Dependent Variable: environmental concern

- **R-Square Value:** 0.117 (11.7% of the variance in environmental concern is explained by purchase intention).
- **Significance (p-value):** 0.000 ($p < 0.05$)
- **Coefficient (β):** 0.357 (Positive relationship between purchase intention and environmental concern).
- **Interpretation:** Consumers who are more environmentally conscious are more likely to consider purchasing CNG bikes.

5. FINDINGS, RECOMMENDATIONS, AND CONCLUSION

5.1 Key Findings

1. **Demographics:** The majority (77.3%) of respondents belong to the 21-40 age group, and 73.3% are male.
2. **Awareness Levels:** Awareness of CNG bikes remains low, with most consumers lacking knowledge about refueling infrastructure.
3. **Economic Considerations:** Consumers recognize the cost-effectiveness of CNG bikes but are hesitant due to infrastructure limitations.
4. **Performance & Safety:** ANOVA results indicate no significant difference in consumer perception regarding performance and safety.
5. **Purchase Intention & Environmental Concern:** A significant positive correlation exists between purchase intention and environmental awareness.
6. **Infrastructure Challenges:** The lack of refueling stations is the primary deterrent to adoption.

5.2 Recommendations

1. **Enhancing Awareness:** Public awareness campaigns should be conducted to educate consumers about CNG bikes.
2. **Infrastructure Development:** Expansion of CNG refueling stations is essential to increase adoption rates.
3. **Government Incentives:** Subsidies and tax benefits should be introduced to encourage consumers to switch to CNG bikes.
4. **Improved Marketing Strategies:** Companies like Bajaj should focus on targeted advertising highlighting the cost and environmental benefits of CNG bikes.
5. **Technological Advancements:** Further innovation in CNG bike performance and mileage efficiency will improve consumer confidence.

5.3 Conclusion

The study reveals that the consumer base for CNG-fueled bikes is predominantly young, educated, and male, indicating a need for more inclusive marketing strategies to attract a diverse audience. Despite concerns about alternative fuel vehicles, there is no significant difference in consumer perceptions regarding the performance and safety of CNG bikes. This suggests that marketing efforts should focus on building trust and confidence rather than addressing major performance concerns. Additionally, purchase intention is strongly influenced by environmental concerns, highlighting the importance of eco-friendly messaging to drive demand. Consumers who are more aware of CNG technology also recognize its economic benefits, reinforcing the need for educational initiatives and financial incentives to boost adoption. Businesses and policymakers must collaborate to increase public awareness about CNG bikes, ensuring that consumers understand their cost-effectiveness, fuel efficiency, and long-term sustainability. Strengthening infrastructure, such as expanding CNG refueling stations, can further encourage adoption. Additionally, government subsidies and incentives can make CNG bikes a more attractive option for budget-conscious consumers. Public awareness campaigns should emphasize the environmental benefits of CNG over conventional fuels, positioning it as a viable and sustainable alternative. Furthermore, partnerships between manufacturers and policymakers can enhance consumer trust and address potential concerns regarding fuel availability. Real-world demonstrations and test rides can also help potential buyers experience the performance of CNG bikes firsthand. As sustainability becomes a key priority, businesses should leverage digital marketing and social media to educate and engage consumers effectively. Safety enhancements and technology improvements should be prioritized to strengthen consumer confidence in CNG-fueled two-wheelers. With strategic efforts, the adoption of CNG bikes can be accelerated, contributing to a greener and more cost-efficient transportation system.

6. REFERENCES

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