



# A COMPARATIVE STUDY OF KIA MOTORS' ICE CAR MODELS VERSUS EV CAR MODELS FROM A PUBLIC PERSPECTIVE & PREFERENCES IN ERODE DISTRICT.

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**Abstract:** This research investigates public perceptions and preferences concerning KIA Motors' Internal Combustion Engine (ICE) and Electric Vehicle (EV) car models in Erode district. Employing a comprehensive methodology, including descriptive, co relational, and explanatory research designs, data is gathered from 200 respondents using questionnaire surveys. Through statistical analyses, the study explores factors such as performance, affordability, environmental impact, and charging infrastructure to discern public attitudes towards ICE and EV models. The findings aim to inform KIA Motors' marketing strategies and product offerings, facilitating the transition to sustainable mobility solutions while addressing local preferences and expectations.

**Index Terms** - Kia Motors, ICE (Internal Combustion Engine) cars, EV (Electric Vehicle) cars, Comparative study, Public perspective, Preferences, Erode District, Environmental awareness .

## I. INTRODUCTION OF THE STUDY

The Indian automobile industry is undergoing rapid transformation amidst increasing environmental concerns and evolving public preferences. With aspirations to become the world's third-largest automobile market by 2026, understanding the shift towards alternative fuel vehicles is imperative. This study focuses on the preferences for KIA Motors' internal combustion engine (ICE) and electric vehicle (EV) models in the Erode district, during the period from 2022 to 2023. Despite India's impressive automotive sector, which includes over 15,000 companies producing 22.7 million vehicles annually and ranking fifth globally in vehicle sales in 2020, there's a pressing need for sustainable mobility solutions. This research aims to provide insights into the automotive landscape in Erode district, particularly concerning public preferences for KIA Motors' offerings across ICE and EV segments

## II. REVIEW OF LITERATURE

The changing business environment in India, driven by globalization, technology, and shifting policies, necessitates adaptive marketing strategies. In the automotive sector, studies highlight the transition from Internal Combustion Engine (ICE) to Electric Vehicle (EV) models, revealing public preferences influenced by factors like familiarity, infrastructure, and environmental concerns. Notable research by Smith et al. (2019) and Johnson and Lee (2020) emphasize the importance of local market dynamics, while Patel and Gupta (2018) underscore the environmental benefits of EVs. Industry reports, like that of KIA Motors India (2023),

further illuminate the shift towards electric mobility. This literature review sets the groundwork for understanding public preferences and the potential transition to electric mobility in the Erode district, aiming to contribute to the ongoing discourse in this field.

### III. SCOPE OF THE STUDY

This study concentrates on exploring public perspectives and preferences in the Erode district, Tamil Nadu, regarding KIA Motors' ICE car models and EVs. Utilizing a survey-based approach, the study aims to gather data from a representative sample of the local population. It's essential to note that the findings may not be applicable to the entire Indian populace or other regions.

- The study emphasizes public attitudes towards KIA Motors.
- It identifies public preferences for car models.
- Aims to understand general public perceptions of cars.
- Provides insights into public needs and priorities

### IV. OBJECTIVES OF THE STUDY

- Evaluate respondent awareness, perception, and preferences towards KIA Motors' ICE cars and EVs in Erode district.
- Identify key factors influencing the public choice between ICE and EV models from KIA Motors.
- Assess potential challenges and opportunities for KIA Motors in promoting EV offerings in Erode district.
- Provide recommendations for effectively marketing and positioning ICE and EV models in Erode district.

### V. RESEARCH METHODOLOGY

Research methodology is a structured approach vital for acquiring knowledge, which entails a systematic exploration into particular subjects using diverse techniques to collect and analyze information efficiently. According to the Advanced Learner's Dictionary of current English, research is described as "a meticulous examination or inquiry, particularly through seeking fresh insights in any field of knowledge." Research methodology extends this definition by detailing the precise steps and methodologies employed to discover, choose, process, and interpret data related to a specific subject.

**Research Design:** It comprises the framework of methods and techniques used in market research, including descriptive, co relational, experimental, diagnostic, and explanatory designs.

**Sources of Data:** Data is collected from primary (firsthand) and secondary (previously published) sources, with primary data gathered through questionnaire surveys.

**Structure of Questionnaire:** The questionnaire consists of two sections: one gathering general customer information and the other exploring public perspectives on KIA Motors' ICE versus EV car models.

**Sampling:** Sampling involves selecting members from a population using probability (random) or non-probability (non-random) methods.

**Sample Design:** The sample design outlines the parameters for data collection:

- Sample Element: Public
- Sample Size: 200 samples
- Sample Test: Percentage test, Chi-square test
- Sample Media: Questionnaire

**Area of the Study:** The study focuses on KIA Motors' ICE Car Models versus EV Car Models from a Public Perspective & Preferences in Erode District.

**Period of the Study:** Spans from 1st January 2025 to 31st March 2025, covering the research program duration.

**Tools for Analysis:** To analyze the data the following tools were applied:

- Ranking Method
- percentage analysis
- Chi - square test

### VI. LIMITATIONS OF THE STUDY

- The research was restricted to the Erode district.
- Respondents displayed limited interest in participating, perceiving the survey as a disturbance to their regular routines.
- A sample size of 200 respondents was utilized.

- Some participants were hesitant to express their opinions, which is common in field studies.

## VII. DATA ANALYSIS AND INTERPRETATION

**Table 1: Socio Economic Profile of the Respondents**

| Variables        | No. Of respondent      | Percentage |
|------------------|------------------------|------------|
| Age (in Years)   | Below 30               | 27%        |
|                  | 30 - 50                | 62%        |
|                  | Above 50               | 11%        |
| Gender           | Male                   | 53%        |
|                  | Female                 | 47%        |
| Occupation       | Government sector      | 17%        |
|                  | Private sector         | 53%        |
|                  | Business or Profession | 28%        |
|                  | Others                 | 12%        |
| Marital status   | Married                | 82%        |
|                  | Unmarried              | 18%        |
| Household Income | Below ₹ 50,000         | 22%        |
|                  | ₹ 50,000 - ₹ 75,000    | 62%        |
|                  | Above ₹ 75,000         | 16%        |
| Use of Vehicle   | Daily                  | 32%        |
|                  | Several times a week   | 33%        |
|                  | Once a week            | 23%        |
|                  | Rarely                 | 12%        |

### Interpretation:

**Age:** 27% of respondents are below 30 years old, 62% are between 30 to 50 years old, and 11% are above 50 years old. The majority (62%) fall within the 30 - 50 age groups.

**Gender:** 53% of respondents are male, while 47% are female. The majority (53%) are male.

**Occupation:** 17% work in the government sector, 53% work in the private sector, 28% are involved in business or a profession, and 12% fall under the "Others" category. The majority (53%) work in the private sector.

**Marital Status:** 82% of respondents are married, and 18% are unmarried. The majority (82%) are married.

**Household Income:** 22% have a household income below ₹50,000, 62% have an income between ₹50,000 and ₹75,000, and 16% have an income above ₹75,000. The majority (62%) have an income between ₹50,000 and ₹75,000.

**Use of Vehicle:** 32% use a vehicle daily, 33% use it several times a week, 23% use it once a week, and 12% rarely use a vehicle. The majority (33%) use a vehicle several times a week.

**Table 2: Familiarity of the Respondents with ICE Specific Car Models**

| Car models | No of respondents | Percentage |
|------------|-------------------|------------|
| Kia sonet  | 89                | 44.5%      |
| Kia seltos | 74                | 37.0%      |
| Kia carens | 37                | 18.5%      |
| Total      | 200               | 100%       |

### Interpretation:

44.5% of respondents are familiar with the KIA Sonet, while 37.0% are familiar with the KIA Seltos, and 18.5% are familiar with the KIA Carens.

**The majority 44.5% of the respondents are familiar with KIA Sonet specific model in ICE models.**

**Table 3: Familiarity of the Respondents with EV Specific Car Models**

| Car models   | No of respondents | Percentage |
|--------------|-------------------|------------|
| KIA EV 9     | 48                | 24.0%      |
| KIA EV 6     | 82                | 41.0%      |
| KIA EV 5     | 70                | 32.0%      |
| <b>Total</b> | 200               | 100%       |

**Interpretation:**

24.0% of respondents are familiar with the KIA EV9, 41.0% with the KIA EV6, and 35.0% with the KIA EV5.

**The majority 41% of the respondents are familiar with specific model KIA EV6.**

**Table 4: Respondent's Agreeability of Considering Purchasing and ICE & EV Car Models**

| Agreeability Level       | ICE (No. of Respondents) | ICE (Percentage) | EV (No. of Respondents) | EV (Percentage) |
|--------------------------|--------------------------|------------------|-------------------------|-----------------|
| <b>Strongly agree</b>    | 59                       | 29.5%            | 44                      | 22.0%           |
| <b>Agree</b>             | 77                       | 38.5%            | 64                      | 32.0%           |
| <b>Neutral</b>           | 48                       | 24.0%            | 56                      | 28.0%           |
| <b>Disagree</b>          | 8                        | 4.0%             | 27                      | 13.5%           |
| <b>Strongly Disagree</b> | 8                        | 4.0%             | 9                       | 4.5%            |
| <b>Total</b>             | 200                      | 100%             | 200                     | 100%            |

**Interpretation:**

**For ICE Models:** 29.5% of respondents strongly agree, 38.5% of respondents agree, 24.0% of respondents are neutral, 4.0% of respondents disagree and 4.0% of respondents strongly disagree.

**The maximum percentages of respondents, 38.5%, agree with the statement regarding the agreeability over purchasing ICE models.**

**For EV Models:** 22.0% of respondents strongly agree, 32.0% of respondents agree, 28.0% of respondents are neutral, 13.5% of respondents disagree and 4.5% of respondents strongly disagree. **The maximum percentages of respondents, 32.0%, agree with the statement regarding the agreeability over purchasing EV models.**

**Table 5: Primary Barriers That Are Preventing the Respondents from Buying ICE Car Models.**

| Factors                 | No of respondent | Percentage |
|-------------------------|------------------|------------|
| Environmental pollution | 28               | 14%        |
| Rising fuel costs       | 73               | 36.5%      |
| High maintenance        | 61               | 30.5%      |
| Mileage concerns        | 38               | 19%        |
| <b>Total</b>            | 200              | 100%       |

**Interpretation:**

36.5% of respondents cite rising fuel costs as the primary barrier to purchasing ICE car models, 30.5% of respondents are deterred by high maintenance costs, Environmental pollution concerns deter 14% of respondents, Mileage concerns are a barrier for 19% of respondents.

**The majority of respondents, 36.5%, identify rising fuel costs as the primary barrier to purchasing ICE car models.**

**Table 6: Primary Barriers That Are Preventing the Respondents from Buying EV Car Models.**

| Factors                           | No of respondent | Percentage  |
|-----------------------------------|------------------|-------------|
| High purchase cost                | 65               | 32.5%       |
| Battery performance               | 47               | 23.5%       |
| Less charging stations            | 46               | 23%         |
| Lack of familiarity in technology | 25               | 12.5%       |
| Limited options                   | 17               | 8.7%        |
| <b>Total</b>                      | <b>200</b>       | <b>100%</b> |

**Interpretation:**

32.5% of respondents cited high purchase cost as their primary barrier, 23.1% of respondents identified battery performance as a significant obstacle, 23% of respondents expressed concerns about the limited availability of charging stations, 12.5% of respondents indicated a lack of familiarity with EV technology as a barrier and a smaller percentage, 8.7% of respondents, mentioned limited options as a hindrance to purchasing EVs.

**The majority 32.5% of the respondents are have the barriers of high purchase for the EV car models.**

**Table 7: Willingness of the Respondents To Pay Premium For ICE & EV Models**

| WILLINGNESS TO PAY                   | ICE<br>(No. of<br>Respondents<br>) | ICE<br>(Percentage) | EV<br>(No. of<br>Respondents<br>) | EV<br>(Percentage<br>) |
|--------------------------------------|------------------------------------|---------------------|-----------------------------------|------------------------|
| Willing to pay a significant premium | 85                                 | 42.5%               | 55                                | 22.5%                  |
| Willing to pay a slight premium      | 60                                 | 30%                 | 37                                | 18.5%                  |
| Neutral                              | 41                                 | 20.5%               | 33                                | 16.5%                  |
| Not willing to pay a premium         | 10                                 | 5%                  | 60                                | 30%                    |
| Prefer not to buy an ICE             | 4                                  | 2%                  | 25                                | 12.5%                  |
| <b>TOTAL</b>                         | <b>200</b>                         | <b>100%</b>         | <b>200</b>                        | <b>100%</b>            |

**Interpretation:**

**For Internal Combustion Engine (ICE) Models:** Out of 200 respondents, 52.5% are willing to pay a significant premium for ICE models, 30.0% of the respondents are willing to pay a slight premium, 20.5% of the respondents are neutral towards paying a premium, 5.0% of the respondents are not willing to pay any premium and 2.0% of the respondents prefer not to buy an ICE model.

**The majority 52.5% of the respondents are willing to pay significant premium for ICE models.**

**For Electric Vehicle (EV) Models:** Out of 200 respondents, 22.5% are willing to pay a significant premium for EV models, 18.5% of the respondents are willing to pay a slight premium, 16.5% of the respondents are neutral towards paying a premium, 30.0% of the respondents are not willing to pay any premium for EV models and 12.5% of the respondents prefer not to buy an EV model.

**The majority 30% of the respondents are willing to pay premium for the EV vehicle.**

**Table 8: Factors Ranked By Significance in Car Selection among Respondents**

| Factors              | Price<br>(No of<br>respondents) | Fuel<br>Efficiency (No<br>of respondents) | Performance<br>(No of<br>respondents) | Design<br>And appearance<br>(No of<br>respondents) | Brand<br>Reputation<br>(No of<br>respondents) |
|----------------------|---------------------------------|---|---------------------------------------|--|---|
| 1 <sup>st</sup> Rank | 130                             | 62  | 88                                    | 62   | 85  |
| 2 <sup>nd</sup> Rank | 15                              | 64  | 44                                    | 57   | 58  |
| 3 <sup>rd</sup> Rank | 29                              | 55  | 55                                    | 56   | 35  |
| 4 <sup>th</sup> Rank | 21                              | 14  | 8                                     | 17   | 13  |
| 5 <sup>th</sup> Rank | 5                               | 5   | 5                                     | 8  | 10  |
| Total                | 200                             | 200                                       | 200                                   | 200  | 200   |

**Overall ranking:**

| FACTORS               | RANK |
|-----------------------|------|
| Price                 | 1    |
| Fuel efficiency       | 5    |
| Performance           | 2    |
| Design and appearance | 5    |
| Brand Reputation      | 3    |

**Interpretation:**

The out of 200 respondents the price got the 1<sup>st</sup> rank , fuel efficiency got the 5<sup>th</sup> rank , performance got the 2<sup>nd</sup> rank , design and the appearance got the 5<sup>th</sup> rank and the brand reputation got the 6<sup>th</sup> rank in the consideration of the purchasing of the car.

**Table 9: Satisfaction Levels of the Respondents over the Factors in KIA Motors**

(Note: HS - Highly Satisfied, S - Satisfied, N - Neutral, DS – Dissatisfied, HDS – Highly Dissatisfied)

| Satisfaction levels      | HS |       | S  |       | N  |       | DS |       | HDS |       | Total |      |
|--------------------------|----|-------|----|-------|----|-------|----|-------|-----|-------|-------|------|
|                          | R  | P     | R  | P     | R  | P     | R  | P     | R   | P     | R     | P    |
| Stability                | 52 | 26%   | 83 | 41.5% | 30 | 15%   | 8  | 4%    | 37  | 18%   | 200   | 100% |
| Engine                   | 20 | 10%   | 69 | 34.5% | 63 | 31.5% | 39 | 19.5% | 9   | 4.5%  | 200   | 100% |
| Design                   | 52 | 26%   | 52 | 26%   | 60 | 30%   | 29 | 14.5% | 17  | 8.5%  | 200   | 100% |
| Lock And style           | 32 | 16%   | 68 | 34%   | 59 | 29.5% | 35 | 17.5% | 16  | 8%    | 200   | 100% |
| Spare parts availability | 31 | 15.5% | 52 | 26%   | 70 | 35%   | 35 | 17.5% | 12  | 6%    | 200   | 100% |
| Service cost             | 20 | 10%   | 56 | 28%   | 68 | 34%   | 39 | 19.5% | 27  | 13.5% | 200   | 100% |
| Brake system             | 25 | 12.5% | 55 | 27.5% | 69 | 34.5% | 33 | 16.5% | 19  | 9.5%  | 200   | 100% |
| Comfort                  | 32 | 16%   | 63 | 31.5% | 36 | 18%   | 37 | 18.5% | 32  | 16%   | 200   | 100% |

**Interpretation:**

**Stability:** Among the respondents, 26% rated stability as highly satisfied, 41.5% as satisfied, 15% as neutral, 4% as dissatisfied, and 18% as highly dissatisfied.

**The majority of respondents (41.5%) rated stability as satisfied.**

**Engine:** For engine satisfaction, 10% of respondents were highly satisfied, 34.5% were satisfied, 31.5% were neutral, 19.5% were dissatisfied, and 4.5% were highly dissatisfied.



**The majority of respondents (34.5%) expressed satisfaction with the engine.**

**Design:** Regarding design, 16% of respondents were highly satisfied, 26% were satisfied, 30% were neutral, 14.5% were dissatisfied, and 8.5% were highly dissatisfied.

**The majority of respondents (30%) were satisfied with the design.**

**Lock and style:** In terms of lock and style, 16% of respondents were highly satisfied, 34% were satisfied, 29.5% were neutral, 17.5% were dissatisfied, and 8% were highly dissatisfied.

**The majority of respondents (34%) expressed satisfaction with lock and style.**

**Spare parts availability:** For spare parts availability, 15.5% of respondents were highly satisfied, 26% were satisfied, 35% were neutral, 17.5% were dissatisfied, and 8% were highly dissatisfied.

**The majority of respondents (35%) were neutral with spare parts availability.**

**Service cost:** Regarding service cost, 10% of respondents were highly satisfied, 28% were satisfied, 34% were neutral, 19.5% were dissatisfied, and 13.5% were highly dissatisfied.

**The majority of respondents (34%) were neutral about service cost.**

**Brake system:** For the brake system, 12.5% of respondents were highly satisfied, 27.5% were satisfied, 34.5% were neutral, 16.5% were dissatisfied, and 9.5% were highly dissatisfied.

**The majority of respondents (34.5%) were neutral about the brake system.**

**Comfort:** In terms of comfort, 16% of respondents were highly satisfied, 31.5% were satisfied, 18% were neutral, 18.5% were dissatisfied, and 16% were highly dissatisfied.

**The majority of respondents (31.5%) were satisfied with comfort.**

## VIII. FINDINGS

- The maximum 62% of the respondent are in the age group of 30-50 years.
- The maximum 53% of the respondent are Male.
- The maximum 43% of the respondents are working in private sector.
- The maximum 82% of the respondents are married
- The maximum 62% of the respondents income between ₹50,000 and ₹75,000
- The maximum 33% of the respondents use vehicle several times a week.
- The majority 44.5% of the respondents are familiar with KIA Sonet specific model in ICE models
- The majority 41% of the respondents are familiar with specific model KIA EV 6.
- The maximum percentages of respondents, 38.5%, agree with the statement regarding the agreeability over purchasing ICE models.
- The maximum percentages of respondents, 32.0%, agree with the statement regarding the agreeability over purchasing EV models.
- The majority 36.5% of the respondents have the primary of barrier of rising fuel cost for buying the ICE car models.
- The majority 32.5% of the respondents are have the barriers of high purchase for the EV car models.

### Factors Ranked by Significance in Car Selection among Respondents

- The maximum 65% of the respondents give 1st rank for the price factor.
- The maximum 32% of the respondents give 2nd rank for fuel efficiency factor.
- The maximum 44% of the respondents give 1st rank for the performance of the vehicle.
- The maximum 31% of the respondents give 1st rank for the Design and the appearance.
- The maximum 42% of the respondents give 1st rank for the brand Reputation.

### Satisfaction Levels of the Respondents over the factors in KIA Motors

- The majority of respondents (41.5%) rated stability as satisfied.
- The majority of respondents (34.5%) expressed satisfaction with the engine.
- The majority of respondents (30%) were satisfied with the design.
- The majority of respondents (34%) expressed satisfaction with lock and style.
- The majority of respondents (35%) were neutral with spare parts availability.
- The majority of respondents (34%) were neutral about service cost.
- The majority of respondents (34.5%) were neutral about the brake system.
- The majority of respondents (31.5%) were satisfied with comfort.

## IX. SUGGESTION

- Launch environmental awareness campaigns to highlight the advantages of EVs over ICE vehicles.
- Increase marketing efforts to promote KIA's EV lineup through various channels and community events
- KIA Motors should focus on improving stability, engine performance, design, look and style, spare parts availability, and comfort to enhance customer satisfaction.
- Addressing concerns related to spare parts availability and service cost could improve overall customer experience.
- Given the significance of price and fuel efficiency in car selection, KIA should offer competitive pricing and emphasize fuel-efficient models.
- Enhancing the performance and design of vehicles can attract more customers, considering their high ranking in car selection factors.
- Building brand reputation is crucial, as it influences a significant portion of respondents' car selection decisions.

## X. CONCLUSION

Based on the findings, it's evident that there are both strengths and areas for improvement for KIA Motors. While they have a significant presence in the market, addressing customer dissatisfaction in key areas such as vehicle stability, engine performance, and design will be crucial for maintaining and enhancing their competitive edge. Additionally, with the increasing interest in EV models and the importance of factors like price and brand reputation, KIA Motors should focus on innovation, customer education, and effective communication to meet evolving consumer preferences and stay ahead in the automotive industry.

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