

A STUDY ON COMPARING COMPENSATION STRATEGIES FOR STARTUPS VS ESTABLISHED COMPANY

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Abstract: This study explores consumer perceptions and preferences towards petrol, diesel, and electric vehicles (EVs), focusing on factors such as environmental awareness, cost, performance, and maintenance. Conducted in Coimbatore and Tiruppur with 125 respondents, the research reveals that while diesel cars remain the most preferred (44.2%), interest in electric vehicles is steadily rising (21.7%), especially among younger demographics. Respondents associate EVs with advantages like instant torque, lower operating costs, and reduced noise pollution. However, concerns such as high upfront costs and limited charging infrastructure persist. Maintenance cost and fuel efficiency are the most influential factors driving consumer choice, overshadowing environmental impact. Most respondents receive information from social media, highlighting its influence on automotive awareness. The study provides valuable insights for manufacturers and policymakers to tailor strategies promoting sustainable mobility and enhancing EV adoption by addressing infrastructure gaps and improving affordability.

Keywords: Consumer Perception, Electric Vehicles, Fuel Type Preference

I. INTRODUCTION

The automotive industry is undergoing a significant transformation with the rise of electric vehicles (EVs) as a promising alternative to traditional petrol and diesel-powered cars. This shift is driven by a combination of environmental concerns, advancements in technology, and evolving consumer preferences. As countries around the world strive to reduce carbon emissions and combat climate change, the adoption of cleaner and more sustainable transportation options has become a priority. Understanding consumer perception towards different types of vehicles is crucial for policymakers, manufacturers, and marketers to effectively navigate this transition. This study aims to explore the attitudes, preferences, and behaviours of consumers towards petrol, diesel, and electric cars. By examining factors such as environmental awareness, cost considerations, performance expectations, and brand loyalty, this research seeks to provide valuable insights into the driving forces behind consumer choices.

STATEMENT OF THE PROBLEM

In the rapidly evolving automotive industry, understanding consumer perception towards different types of vehicles—petrol, diesel, and electric—is vital for manufacturers, policymakers, and environmental advocates. Despite the growing awareness of environmental sustainability and the increasing adoption of electric vehicles (EVs), petrol and diesel cars continue to dominate the market in many regions. This study aims to explore the factors influencing consumer preferences and perceptions towards these three types of vehicles, identifying the key motivators, barriers, and demographic variations that shape their choices. The findings will provide insights for stakeholders to design better strategies for promoting sustainable transportation solutions and meeting consumer needs more effectively. A few studies have been conducted on Consumer Behaviour towards Electric vehicles.

OBJECTIVES

1. To examine consumer perceptions and attitudes towards Petrol, Diesel & Electric Cars
2. To identify the key factors influencing consumer preferences for Petrol, Diesel & Electric Cars
3. To compare consumer perceptions of Petrol, Diesel & Electric Cars in terms of performance, Fuel Efficiency, Environmental Impact and Cost
4. To measure the overall satisfaction of consumers with petrol, diesel & electric cars

II. RESEARCH METHODOLOGY**RESEARCH AREA**

The research is conducted in Tiruppur.

RESEARCH PERIOD

The research is conducted over a period of 4 months from December 2024 to March 2025.

NUMBER OF SAMPLES

Sample size taken for the study is 130

RESEARCH TOOLS

For this study

1. Simple Percentage analysis

$$\text{PERCENTAGE} = \frac{\text{Number of respondents}}{\text{Total respondents}} \times 100$$

2. Chi-Square analysis

$$\chi^2 = \frac{(O - E)^2}{E}$$

III. REVIEW OF LITERATURE

1. **Praveen Kumar (2013)** India may consider small-scale reinforcements instead of a major overall to address the load issues locally. It is advisable to promote home charging. Location, population density, traffic flow and safety must be carefully considered before implementing large-scale charging infrastructure.
2. **Philippe lebeau (2015)** This study looked into how urban logistics systems might incorporate electric vehicles. Lower last-mile expenses could be achieved by a fleet equipped with various technologies. Among minivans, electric automobiles are frequently the most competitively equipped models.
3. **Fanchao Liao (2017)** This study compared psychological and economic theories of consumer demand for electric cars. Electric vehicles (EV) are considered very useful when looking at their economic and technical aspects. These include how much they cost to buy and use, how long they take to charge, how well they work and what brands they offer. The density of charging stations has a favorable effect on the distribution and usability of electric cars.
4. **Pretty Bhalla (2018)** The analysis and conclusions show that while people are aware of the environmental benefits, governments and EV manufacturers should invest more to increase vehicle and social acceptance by expanding infrastructure and emphasizing technology as a means to increase trust. . The choice of a person and a car is influenced by several aspects such as price, availability of infrastructure, comfort, technology, social acceptance and trust.

DATA ANALYSIS, INTERPRETATION & INFERENCE

TABLE 1 The Preference Of Car According To The Respondents

Response	No Of Response	Percentage %
Diesel	53	44.16 %
Petrol	28	23.33 %
Electric	26	21.66 %
Hybrid	13	10.83 %
Total	120	100 %

INTERPRETATION

Diesel cars (44.2%) are the most popular, indicating that many respondents may prefer fuel efficiency and torque benefits, often associated with long-distance or heavy-use driving. Electric vehicles (EVs) at (23.3%) show a growing interest, which could be due to environmental concerns and advancements in EV technology. Petrol cars (21.7%) are still a

significant choice, possibly due to affordability and availability. Hybrid cars (10.8%) have the least preference, suggesting that people might either go fully electric or stick with traditional fuel-based options.

If Yes, Which type of car do you currently own or prefer ?

120 responses

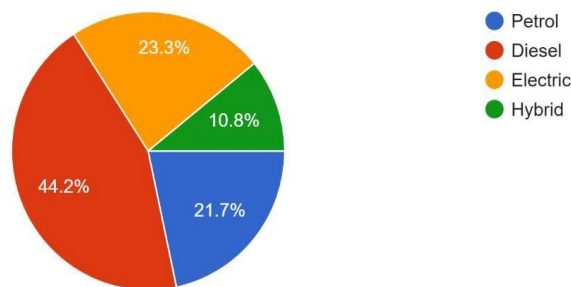


TABLE 2 The Factors Influencing Car Preference According To The Respondents

Response	No Of Response	Percentage
Maintenance Cost	50	40 %
Environmental Impact	35	28 %
Fuel Efficiency	32	25.6 %
Initial Purchase Cost	8	6.4 %
Total	125	100 %

INTERPRETATION

Maintenance cost is consumers' No. 1 concern for new cars: 40% of those surveyed say it's the most important factor for long-term affordability and reliability. Fuel efficiency is, at 28%, a close second, reflecting a concern for running costs. Cost to buy is also important, cited by 25.6% of respondents. But environmental impact is of little importance in choosing a car for this group. This indicates that practical, financial concerns outweigh environmental desires when it comes to their car buying decisions.

What is the most important factor influencing your car preference

125 responses

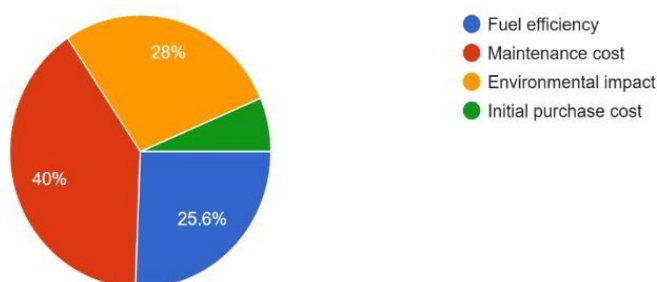


TABLE 3 The Advantages Of Electric Cars

Response	No Of Response	Percentage
Lower operating costs	49	39.2 %
Smooth and quiet ride	41	32.8 %
Zero tailpipe emissions	26	20.8%
Wide availability of charging stations	9	7.2 %
Total	125	100 %

INTERPRETATION

Most people (39.2%) see cost savings on fuel and maintenance as the biggest advantage of electric cars. Comfort is also a key factor, with 32.8% valuing the smooth and quiet ride. While 20.8% prioritize zero emissions, financial and driving benefits seem more appealing. Only 7.2% see charging station availability as a major advantage, indicating infrastructure concerns..

What is the biggest advantage of electric cars?
125 responses

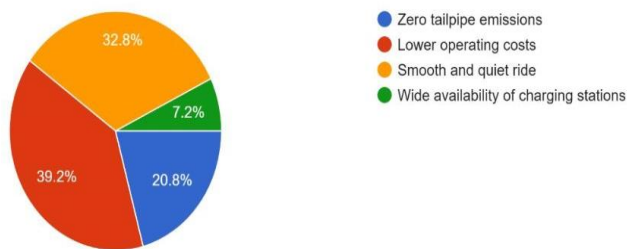


TABLE 4 The Disadvantage Of Electric Car

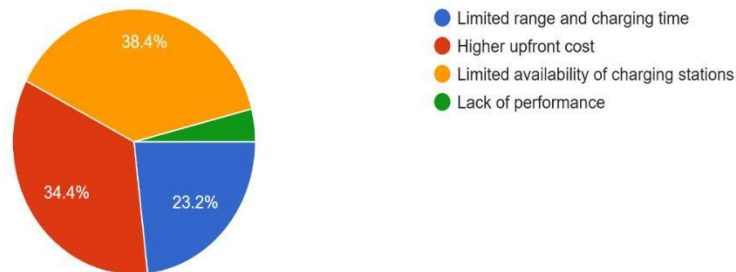
Response	No Of Response	Percentage
Limited availability of charging stations	48	38.4 %
Higher upfront cost	43	34.4 %
Limited range and charging time	29	23.2 %
Lack of performance	5	4 %
Total	125	100 %

INTERPRETATION

The main concerns with electric cars are the lack of charging stations (38.4%) and the high upfront cost (34.4%), making accessibility and affordability major challenges. Some people also worry about range and charging time (23.2%), but performance isn't really an issue. Improving charging networks and making EVs more affordable could encourage more people to switch.

What is the biggest disadvantage of electric cars?

125 responses



CHI- SQUARE ANALYSIS

HYPOTHESIS:

H₀ . There is no significant association between the categorical variables under study.

H₁ - There is a significant association between the categorical variables under study.

Formula :

$$\chi^2 = \frac{(O - E)^2}{E}$$

O = Observed frequency

E = Expected frequency

OBSERVED FREQUENCY TABLE

AGE	OWN A CAR	NOT OWN A CAR	TOTAL
18-25	45	5	50
25-35	51	5	56
35-45	13	1	14
Above 45	5	0	5
TOTAL	114	11	125

Own a Car in age group of 18-25:

$$E = \frac{\text{Row total} \times \text{Column total}}{\text{Grandtotal}}$$

$$= \frac{114 \times 50}{125}$$

= 45.6 Not own a car in the age group of 18-25:

$$E = \frac{\text{Row total} \times \text{Column total}}{\text{Grandtotal}}$$

$$= \frac{50 \times 11}{125}$$

$$= 4.4$$

Own a Car in age group of 25-35:

$$E = \frac{\text{Row total} \times \text{Column total}}{\text{Grandtotal}}$$

$$= \frac{114 \times 56}{125}$$

$$= 51.072$$

Not own a car in the age group of 25-35:

$$E = \frac{\text{Row total} \times \text{Column total}}{\text{Grandtotal}}$$

$$= \frac{11 \times 56}{125}$$

$$= 4.928$$

Own a Car in age group of 35-45:

$$E = \frac{\text{Row total} \times \text{Column total}}{\text{Grandtotal}}$$

$$= \frac{114 \times 14}{125}$$

$$= 12.768$$

Not own a car in the age group of 35-45:

$$E = \frac{\text{Row total} \times \text{Column total}}{\text{Grandtotal}}$$

$$= \frac{11 \times 14}{125}$$

$$= 1.232$$

Own a Car in age group of 45 above:

$$E = \frac{\text{Row total} \times \text{Column total}}{\text{Grandtotal}}$$

$$= \frac{114 \times 5}{125}$$

$$= 4.56$$

Not own a car in the age group of 45 above:

$$E = \frac{\text{Row total} \times \text{Column total}}{\text{Grandtotal}}$$

$$= \frac{11 \times 5}{125}$$

$$= 0.44$$

EXPECTED FREQUENCY TABLE

Age Group	E(Invested)	E(Not Invested)	Total
18-25	45.6	4.4	50
25-35	51.072	4.928	56
35-45	12.768	1.232	14
45 above	4.56	0.44	5
Total	114	11	125

TABLE TO ASSESS CHI- SQUARE VALUE

	Observed (O)	Expected (E)	(O - E)	(O - E) ²	(O - E) / E
18-25 Invested	45	45.6	-0.6	0.36	0.00789474
18-25 Not Invested	5	4.4	0.6	0.36	0.08181818
26-35 Invested	51	51.072	-0.072	0.005184	0.0001015
26-35 Not Invested	5	4.928	0.072	0.005184	0.00105195
36-50 Invested	13	12.768	0.232	0.053824	0.00421554
36-50 Not Invested	1	1.232	-0.232	0.053824	0.04368831
51 above Invested	5	4.56	0.44	0.1936	0.04245614
51 above Not Invested	0	0.44	-0.44	0.1936	0.44
	Observed (O)	Expected (E)	(O - E)	(O - E) ²	(O - E) / E

$$\chi^2 = \frac{(O - E)^2}{E}$$

$$= 0.621226$$

DEGREES OF FREEDOM (df):

The degrees of freedom for the chi – square analysis is calculated as

$$\begin{aligned} df &= (r - 1) \times (c - 1) \\ &= (4 - 1) \times (2 - 1) \\ &= 3 \end{aligned}$$

o For df = 3, the critical value from the chi-square distribution table is approximately **7.815** at a 0.05 significance level.

INFERENCE :

If the chi-square value is high enough (or the p-value is really small, usually below 0.05), it means there's strong evidence that the two things we're comparing are connected in some way. In that case, we reject the idea that there's no relationship.

On the other hand, if the chi-square value is low (or the p-value is bigger than 0.05), it means we don't have enough proof to say there's a connection. So, we stick with the idea that the variables are probably not related.

IV. RECOMMENDATIONS

To boost EV adoption, infrastructure like charging stations must be expanded, and financial incentives should be provided to reduce upfront costs. Awareness campaigns should leverage social media to influence consumer decisions. Manufacturers should continue improving EV performance and affordability while addressing practical concerns like servicing and range.

V. CONCLUSION

The survey reflects a youthful and car-owning demographic with a growing interest in electric vehicles, tempered by concerns over infrastructure and costs. While traditional fuel types currently dominate, environmental considerations are becoming increasingly influential. Manufacturers and policymakers should focus on enhancing EV infrastructure, addressing environmental impacts, and leveraging digital platforms to meet evolving consumer preferences and drive sustainable growth in the automotive sector.

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