

A Study on Consumer Satisfaction towards CNG Cars in Erode City

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Abstract — This research intends to evaluate consumer contentment with the use of Compressed Natural Gas (CNG) vehicles in Erode City by investigating important aspects such as cost efficiency, performance, environmental advantages, and the presence of CNG refueling stations. With CNG gaining recognition as a more sustainable and cleaner option compared to traditional petrol and diesel, it is crucial to comprehend consumer perceptions and satisfaction levels to encourage its broader use. The study utilizes primary data gathered from CNG vehicle users in Erode City through structured questionnaires. Different factors, such as fuel efficiency, maintenance expenses, comfort while driving, availability of CNG refueling stations, and overall user satisfaction, are evaluated to identify the elements affecting consumer contentment. Moreover, the research investigates the significant obstacles encountered by CNG car owners, including inadequate infrastructure, a shortage of fuelling stations, and elevated initial costs for vehicle conversion, which could influence long-term satisfaction and the likelihood of recommending CNG cars to others.

The study's results offer important understanding of consumer preferences, expectations, and aspects needing enhancement to boost the acceptance of CNG vehicles in Erode. By tackling consumer issues and enhancing infrastructure facilities, automobile producers, policymakers, and government bodies can develop efficient strategies to encourage sustainable mobility options. Additionally, the research adds to the current understanding of alternative fuel vehicles and provides actionable suggestions for enhancing consumer satisfaction and promoting the adoption of CNG vehicles as a sustainable transit choice in urban settings.

Keywords— Cars, CNG, Consumer, Fuelling, Satisfaction, Vehicles

I. INTRODUCTION

In Erode, CNG cars are gaining popularity because of their economic advantages and positive impact on the environment. Due to increasing fuel prices, numerous consumers are choosing CNG vehicles because they provide superior fuel efficiency at a reduced operating cost compared to petrol or diesel vehicles.

Moreover, CNG produces fewer emissions, making it an environmentally friendly option that contributes to lowering air pollution in cities. Car manufacturers such as Maruti Suzuki, Tata Motors, and Hyundai are broadening their CNG model offerings to meet the increasing demand. With the ongoing development of CNG infrastructure in Erode, an increasing number of consumers are anticipated to transition to this environmentally friendly fuel alternative.

As fuel prices rise and environmental issues grow, numerous consumers in Erode City are considering alternative fuel choices, such as Compressed Natural Gas (CNG) vehicles. CNG vehicles are becoming more popular because of their lower fuel expenses, diminished emissions, and lasting financial advantages. Nonetheless, customer satisfaction relies on several elements like fuel efficiency, accessibility of CNG refueling stations, vehicle performance, upkeep expenses, and general convenience.

A major benefit of CNG vehicles is their affordability. In comparison to petrol and diesel vehicles, CNG provides substantial fuel savings, making it a desirable choice for individuals and commercial vehicle users alike. Moreover, CNG is a more environmentally friendly fuel, helping to decrease air pollution and aiding India in its pursuit of sustainable transportation. Nonetheless, obstacles like the scarcity of CNG stations, worries regarding vehicle performance, and elevated initial conversion expenses affect customer satisfaction.

In Erode, the use of CNG is just beginning, with an increasing amount of refuelling stations and car dealerships providing factory-installed CNG vehicles. CNG car owners typically value the cost-effectiveness and ecological advantages, but encounter challenges such as lengthy refuelling lines and few service centers. Enhancing consumer satisfaction can significantly benefit from the expansion of CNG infrastructure, raising awareness, and offering government incentives.

This research seeks to evaluate consumer perspectives on CNG vehicles in Erode City, examine major satisfaction elements, and pinpoint areas needing enhancement.

Grasping consumer attitudes will assist policymakers, car manufacturers, and fuel station owners in improving the acceptance and convenience of CNG vehicles in the area.

II. STATEMENT OF THE PROBLEM

Various types of CNG vehicles are offered in the market. The majority of buyers favor a quality vehicle at a low cost. The contest is online for producers. Here, we examine the level of satisfaction among consumers when they choose CNG cars.

Although there is growing awareness of environmental sustainability and affordable alternatives to conventional fuel vehicles, the uptake of Compressed Natural Gas (CNG) cars continues to be quite minimal. This research aims to explore the elements affecting consumer satisfaction with CNG vehicles, such as performance, fuel efficiency, environmental advantages, infrastructure accessibility, and general user experience.

Grasping these elements is essential for manufacturers, policymakers, and marketers to enhance the adoption rate and tackle consumer concerns. The research will examine the obstacles and viewpoints that could impede the expansion of CNG vehicle adoption in the area.

III. OBJECTIVES OF THE STUDY

- To determine the factors that affect consumers' decisions when choosing CNG cars
- To examine about the consumer level of satisfaction towards CNG cars
- To explore the awareness of the respondent about CNG cars
- To evaluate the performance and reliability of CNG cars from the perspective of users
- To identify the problems faced by the respondents, while using the CNG cars

IV. SCOPE OF THE STUDY

This research examines the extent of consumer satisfaction with CNG vehicles in Erode City. It will examine different facets of consumer experiences, such as performance, fuel economy, ecological effect, cost efficiency, and the accessibility of refueling infrastructure for CNG vehicles.

The research will additionally investigate the elements affecting consumer choices, including maintenance simplicity, after-sales support, and the perceived advantages of transitioning to CNG vehicles.

Surveys and interviews will be conducted with CNG car owners in the city to gather data for a thorough examination of current satisfaction rates and obstacles to greater adoption.

The research will concentrate on Erode City and will solely examine the views of consumers who have already bought CNG vehicles. The results of this research will bear local significance and could guide policies and approaches for advancing sustainable transportation in the area.

V. RESEARCH METHODOLOGY

This study has utilized both primary and secondary data gathering. The secondary data were obtained from multiple journals, magazines, and websites. The initial data was gathered using the Questionnaire Method. Simple Random Methods were employed in the research, and the sample size consists of 150. To examine the goals of the research, various statistical techniques and tests, including percentage analysis, chi-square analysis, and Weighted Average score, were employed in the study.

VI. RESULT AND DISCUSSION

TABLE I
DEMOGRAPHIC PROFILE OF THE RESPONDENTS

Factors	Category	No.of Respondents	Percentage
Age	18-25	31	21
	26-40	96	64
	41-60	14	9
	Above 60	9	6
	Total	150	100
Gender	Male	110	73
	Female	40	27
	Total	150	100
Educational	Illiterate	37	25

Qualification	School level	77	51
	College level	36	24
	Total	150	100
Marital Status	Single	55	37
	Married	95	63
	Total	150	100
Family Size	Below 3	43	29
	4-5	80	53
	6-7	12	12
	Above 7	9	6
	Total	150	100
Monthly Income	Below Rs.20000	39	26
	Rs.20001-Rs.40000	56	37
	Rs.40001-Rs.60000	31	21
	Above Rs.60000	24	16
	Total	150	100
Occupation	Private employee	61	41
	Government	40	27

	employee		
	Business	26	17
	Unemployed	23	15
	Total	150	100

Source: Primary Data

Inference

From the above table it is inferred that,

- Majority (64%) of the respondents fall under the age group of 26-40 years.
- Majority (73%) of the respondents are male.
- Majority (54%) of the respondents are College level education
- Majority (63%) of respondents are married.
- Majority (53%) of the respondents has 4-5 members in their family.
- Majority (37%) of the respondent's monthly family income is between Rs.21,000 – Rs.40,000.
- Majority (41%) of the respondents are private employee category

TABLE II
FACTORS AFFECTING CONSUMER ATTITUDE

Factors	Category	No.of Respondents	Percentage
Mode of Awareness of CNG Cars	Print Media Advertisement	44	29
	Online Advertisement	40	27
	Friends & Relatives	37	25
	Exhibition	20	13
	Others	9	6
	Total	150	100

Reason for Choosing CNG Cars	Price	40	27
	Fuel efficiency	50	33
	Mileage	35	23
	Convenience	25	17
	Total	150	100
Brand Using	Maruti Suzuki Ertiga CNG	75	50
	Hyundai Aura CNG	28	19
	Maruti Suzuki Wagon R CNG	25	17
	Tata Nexon CNG	12	8
	Others	10	6
	Total	150	100
Kilometres of Drive per week	Less than 50 km	48	32
	51km-100km	62	42
	101km-150km	26	17
	More than 200km	14	9
	Total	150	100
Availability of Fuelling Station	Sufficient	40	27
	Insufficient	110	73
	Total	150	100

Period of Refilling	Daily	27	18
	Weekly	37	25
	Monthly	29	19
	Once as needed	57	38
	Total	150	100
Opinion about Fuel Price	Reduce fuel prices	59	40
	Maintaining current price	38	25
	Maintaining current price	22	15
	Offer loyalty programs or discounts at refuelling stations	16	10
	No changes needed	15	10
	Total	150	100
Comfort level of CNG Cars	Comfortable	79	53
	Uncomfortable	39	26
	Neutral	32	21
	Total	150	100
Availability of Spare parts	Available	78	52
	Moderate available	39	26
	Moderate	33	22

	available		
	Total	150	100
Opinion about Pollution Reduction	Very positive	59	39
	Positive	43	29
	Neutral	34	23
	Negative	9	6
	Very negative	5	3
	Total	150	100
Recommend ing by Others to Buy	Yes	99	66
	No	51	34
	Total	150	100

Source: Primary Data

Inference

From the above table it is inferred that,

- Majority (29%) of the respondents source of awareness through print media advertisements.
- Majority (33%) of the respondents are fuel efficiency to choose CNG Vehicle.
- Majority (50%) of the respondents Maruti Suzuki Ertiga CNG brand care using.
- Majority (42%) of the respondents 51km-100km per week drive in CNG cars.
- Majority (73%) of the respondents feel Availability of Fuelling Station is insufficient.
- Majority (38%) of the respondents refilling once as need.
- Majority (40%) of the respondents opinion to reduce fuel prices.
- Majority (53%) of the respondents opinion is comfortable for CNG cars.
- Majority (52%) of the respondents opinion is Available for CNG cars spare parts.
- Majority (39%) of the respondents very positive opinion about pollution reduction by the CNG cars.
- Majority (66%) of the respondents are recommending to others buy.

There is no significant relationship between Gender, Marital Status, Members in the family, Monthly Income, Occupation and level of satisfaction regarding organic fruits and vegetables.

TABLE III
CHI-SQUARE TEST

Factor	Degrees of freedom	Calculated Value (χ^2) at 5% level	Table Value	Accepted / Rejected
Age	6	0.9884	0.3211	Rejected
Gender	2	0.9999	3.3585	Accepted
Monthly income	6	0.9992	0.0813	Rejected
Educational qualification	4	0.9996	0.0121	Rejected
Family size	6	0.9946	0.2137	Rejected

From the table, the calculated Chi-square (χ^2) values for Age, Monthly Income, Educational Qualification, and Family Size are less than their respective table (critical) values at the given degrees of freedom. Hence, the null hypothesis is accepted for these factors. This indicates that there is no significant relationship between these variables and the level of satisfaction regarding CNG cars.

However, for Gender, the calculated χ^2 value is greater than the table value. Therefore, the null hypothesis is rejected for gender, indicating that gender has a significant relationship with the level of satisfaction regarding CNG cars.

TABLE IV
TOTAL SATISFACTION LEVEL

Satisfaction Level	No. of Respondents	Percentage
Satisfied	79	53
Neutral	39	26
Dissatisfied	32	21
Total	150	100

Source: Primary Data

From the above table it is inferred that, majority (53%) of the respondents are satisfied with using CNG car.

TABLE V
FACTORS INFLUENCING TO PURCHASE

Weighted Average Score (W)		5	4	3	2	1	Total Score	Weighted Average	Rank
Price & Offer	X	93	36	10	2	9			
	WX	465	144	30	4	9	652	18.06	1
Speed & Mileage	X	58	65	14	2	11			
	WX	290	260	42	4	11	607	16.81	2
Performance	X	60	44	35	6	9			
	WX	300	176	105	12	9	602	16.68	3
Size , Colour & Design	X	56	43	25	13	13			
	WX	280	172	75	29	13	569	15.77	6
Resale value	X	64	52	14	10	10			
	WX	320	208	42	20	10	600	16.62	4
Availability	X	64	42	24	8	12			
	WX	320	168	72	8	12	580	16.06	5

It is concluded from the above analysis the maximum of the respondents are influenced by " Price & offer of the product "

TABLE VI
PROBLEMS FACED BY THE RESPONDENTS WHILE USING CNG CARS

Weighted Average Score (W)		5	4	3	2	1	Total Score	Weighted Average	Rank
Price & Offer	X	93	36	10	2	9			
	WX	465	144	30	4	9	652	18.06	1
Speed & Mileage	X	58	65	14	2	11			
	WX	290	260	42	4	11	607	16.81	2
Performance	X	60	44	35	6	9			
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Resale value	X	64	52	14	10	10			
	WX	320	208	42	20	10	600	16.62	4
Availability	X	64	42	24	8	12			
	WX	320	168	72	8	12	580	16.06	5

The above analysis portrays the ranking of the problems influencing to use CNG car products of the respondents. It could be observed that Maximum of respondents is ranked "Lower Resale Value" as the first with a weighted score of 17.75 points. The second rank given to the "Higher Insurance Premiums" with a weighted score of 17.69 points. The third rank occupied "High Initial Conversion Cost " with a weighted score of 17.60 points. The fourth rank occupied "Added Weight " with a weighted score of 16.19 points. The fifth rank occupied " Limited Refuelling Stations " with a weighted score of 15.69 points. The sixth rank occupied " Longer Refuelling Time " with a weighted score of 15.77 points.

It is concluded from the above analysis that the maximum of the respondent influenced by " Lower Resale Value ".

VII. SUGGESTIONS

- To give advertisement about the CNG cars which make more knowledge for the consumer to purchase CNG cars product advertisement is required.
- Introduce more varieties of CNG cars to improve the quality of the product.
- Reduction of price will be better, to purchase more product.
- A change in the product is needed to attract the consumer and reduce the price of the product which make easy to buy.
- Need improvisation in quantity and also considered the price of the cars.
- Improve the availability of the cars.

VIII. CONCLUSION

This research focused on the evaluation of "Consumer Satisfaction Regarding CNG Cars" through a survey method carried out with 150 sample participants to assess consumer satisfaction with the quality, price, and quantity of CNG car usage.

A lot of them choose CNG car products due to their environmental advantages and high quality. It produces favorable outcomes for the customers. CNG vehicles also offer discount vouchers for products at affordable rates. CNG vehicles provide an extensive selection of top-quality items. Understanding consumer needs is essential to enhance their experience effectively.

The research concludes that CNG vehicle offerings play a crucial role in assessing consumer satisfaction levels. The results indicate that most respondents were aware of CNG car products, which facilitates the promotion of CNG vehicles. This specific research has emphasized both the significance and contentment with this product as well as the influence of CNG vehicles. This research also provides a chance to explore various aspects and uncover information pertaining to consumer satisfaction.

REFERENCES

- [1] Narayan, R., & Pillai, S. The impact of government subsidies on the adoption of CNG as an alternative fuel. *Journal of Energy Policy*, 14(3), 125-140 (2002).
- [2] Rao, P., & Patel, M. Consumer motivation for early adoption of CNG cars. *International Journal of Automotive Studies*, 7(2), 98-110 (2003).
- [3] Sinha, A., & Verma, R. Cost-effectiveness of CNG cars in urban transport. *Indian Journal of Transport Economics*, 9(4), 220-235 (2004).
- [4] Sharma, D., & Gupta, V. Consumer concerns regarding CNG refuelling infrastructure. *Journal of Consumer Behaviour*, 5(3), 173-188 (2006).
- [5] Kumar, A., & Mehta, S. Consumer satisfaction and economic benefits of CNG cars in India. *Journal of Energy Economics*, 11(2), 45-62 (2008).
- [6] Singh, R., Sharma, P., & Verma, T. The evolving perception of CNG cars with infrastructure expansion. *International Journal of Green Transport*, 3(1), 77-92 (2009).
- [7] Rajesh, P., & Mehta, K. Maintenance challenges in CNG vehicles. *Journal of Automotive Engineering*, 15(5), 233-248 (2010).
- [8] Choudhury, K., Mishra, B. B., & Mohanty, P. K. An empirical study of car selection factors. *International Journal of Marketing & Business Studies*, 8(3), 122-137 (2012).
- [9] Kanagavel, K. R., & Jayakrishnan, J. Consumer perceived risk in car purchase: A study in India. *Journal of Consumer Research*, 21(2), 89-104 (2013).