



Impact of Uttar Pradesh EV Policy and Government Subsidies on Customer Purchase Intention towards Electric Two-Wheelers: A Study of Lucknow City Consumers

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Abstract

The rapid rise in air pollution levels in urban India and the increasing trend of sustainability in transport worldwide have made electric vehicles (EVs) an important strategy to prevent any kind of environmental harm. In response, the Government of Uttar Pradesh implemented the Electric Vehicle Manufacturing and Mobility Policy 2022, offering substantial benefits like a ₹5,000 discount for purchasing two-wheelers, full road tax exemption, and a complete exemption from registration costs. Despite these policy steps, there is very little empirical evidence related to the effect of government subsidy and policy incentives for electric vehicles on consumer purchasing intentions. The purpose of this study is to investigate the effects of electric vehicle policy of Uttar Pradesh and its incentives on consumer purchasing intention of electric two-wheelers in Lucknow.

A theoretical account on connecting the relationship between policy and adoption of EVs by integrating the TPB theory and SOR model in Indian context has been presented. This empirical evidence reveals policy interventions to be useful: promote awareness -campaigning's via digital media and community-based campaigns, increase subsidy for higher-income groups and accelerate the building of charging facilities. Regarding the marketing aspect, the EV manufacturers must use policies in the marketing messages to ensure that potential consumers can make purchases.

This study filling up the research gap present in literature.

The study proves policy-based policy benefits, the findings in the city of Lucknow.

Introduction

The movement towards sustainable transport across the world has made electric vehicles (EVs) an important choice for reducing the negative impact on the environment as well as the problems related to air pollution. In India, which is the third-largest carbon dioxide emitter across the globe, the issue of environment is critical, considering that it is believed that the transport sector will account for half of the total greenhouse gas emissions in 2030. While the plans of the Indian government imply that about 30% of all the vehicles will be electric by 2030, the usage of electric two-wheelers is below 1% of the entire market.



Literature Review

1. Theoretical Frameworks in EV Purchase Intention Research

2. Theory of Planned Behaviour (TPB)

Developed by Ajzen in 1991, TPB had often been explored in investigating the purchase intent towards purchasing an EV. TPB posits that behaviour intent is a combined influence of behavioural attitude towards the behaviour, the subjective norm and the perception behaviour control toward performing the behaviour. Studies including Wang et al. 2016 and Paul et al. 2016 have adapted TPB to the use of hybrid electric vehicle adoption intention and eco product adoption intentions, revealing that consumers with high environmental awareness made better purchase decision.

2.2 Stimulus-Organism-Response (SOR) Framework

One of the recognized theoretic foundations for research of purchase intention of electric two-wheeler is SOR theory. In 2023 Divyanshu Saxena and Dr Rishi Manrai carried research with 450 customers from Delhi /NCR, they used SOR theory, as in how the stimulus (stimulus factors: - perceiving economic benefits, environmental concerns, user friendly experience, government support and subjective norms) impact the attitude and buy in intention, whereas safety serves as moderating Variable. Stimulus with highest correlation was perception on economic befits towards purchase intention ($r = 0.539$ and $\text{sig} \leq 0.001$) followed by subjective norms ($r = 0.482$) and government support ($r = 0.448$).

3. Government Subsidies and Policy Incentives

3.1 Global Evidence on Subsidy Impact

International research has repeatedly shown that subsidies, particularly those from governments, have played a significant role in uptake of EVs. The impact of financial subsidies and reduction in EV costs in incentivizing EV uptake has been explored in several countries including New Zealand, Norway and Canada. Financial incentives also played an important part in accelerating the adoption rate of electric cars.

The impact of government incentive policy on market penetration of Battery Electric Vehicle to the Australian automobile market were studied and identified policy support was important tool for accelerating the adoption EV.

3.2 Indian Context: FAME Schemes and State Policies

Multiple projects under the Indian government have also enabled EVs-these include purchase-incentivised FAME I and FAME II schemes where consumers have been compensated based on the battery pack size (at INR5000per kWh). Government policies and tax incentives, such as FAME II, were identified as the key drivers for sales based on the questionnaire responses; thus, subsidies influence the consumers' decisions. Government subsidies though are not only reason for ev adoption but remain an important catalyst.

3.3 Uttar Pradesh EV Policy 2022

The Uttar Pradesh government launched the *Electric Vehicle Manufacturing and Mobility Policy 2022* with a budget allocation of ₹100 crores for two-wheelers, targeting maximum 2 lakh EVs. Key incentives include:

Incentive	Benefit
Purchase Subsidy	15% of ex-factory cost up to ₹5,000 per two-wheeler
Road Tax Exemption	100% waiver for EVs sold and registered in UP (Oct 2022-Oct 2025)
Registration Fee Waiver	100% exemption for EVs purchased Oct 2025-Oct 2027



Incentive	Benefit
Policy Extension	Extended till October 2027 with continued incentives

As of last available data, more than two lakh units of EVs have been registered in Uttar Pradesh in the first year of the policy and this is three times higher compared to last year. Under this policy, 30,000 crore investment is expected.

3.4 Subsidy Impact on Purchase Intention

According to the study of Saxena and Manrai (2023) government subsidies strongly influence attitude towards purchasing an EV ($\beta = 0.448$, $p < 0.001$). With the inclusion of government subsidies and tax incentives and lower operational costs it was easier for those who bought an EV in India to decide to purchase as several participants in the study had opted to purchase the specified EV owing to a government subsidy.

Research Gap

Numerous literary works deal with broad subsidizes like FAME II but are silent about the EV policy of a specific state such as the UP EV Policy 2022. However, few researchers have examined the effects of various policy incentives (5000 subsidized EV prices, total tax exemption, zero registration charges) on Purchase intention.

Research Gap: Lack of empirical study examining the UP EV Policy 2022-2027 on Purchase Intentions of Two Wheeler Vehicles

Objectives

1. The effect of UP state policy incentives on an electric two-Wheeler purchase intentions of the consumer living in Lucknow city.
2. To observe the effects of subsidies provided by government (Rs.5000 on motorcycles) on consumers' buying behaviour.
3. To explore association between economic incentive and electric two-wheeler purchase intentions of the consumer

These research objectives provide a **comprehensive framework** for investigating the impact of Uttar Pradesh EV policy and government subsidies on customer purchase intention towards electric two-wheelers in Lucknow city, ensuring the study addresses both theoretical gaps and practical policy implications

Research Methodology

Research Design

Aspect	Description
Type of Research	Descriptive and explanatory research
Approach	Quantitative (primary) with exploratory elements
Methodology	Survey-based cross-sectional study



Aspect	Description
Nature	Empirical research using structured questionnaire
Time Horizon	One-time data collection (cross-sectional)
Purpose	To examine relationships between policy incentives and purchase intention

Justification: This research design is appropriate for examining the impact of UP EV policy and government subsidies on purchase intention, as it allows for statistical analysis of relationships between variables and generalization of findings to the Lucknow consumer population.

Study Area

Parameter	Details
Location	Lucknow City, Uttar Pradesh, India
Geographic Coverage	Urban Lucknow (10 major zones: Hazratganj, Aliganj, Indira Nagar, Gomti Nagar, Rajajipuram, Kanpur Road, Sultanpur, Vrindavan Colony, Mahanagar, Sitapur Road)

3. Population and Sampling

3.1 Target Population

Category	Definition
Population	All consumers (age 18+) residing in Lucknow city who may purchase two-wheelers
Eligible Respondents	- Age 18 years or above - Resident of Lucknow for minimum 1 year - Interested in purchasing two-wheeler within next 2 years - or considering electric/petrol two-wheeler
Population Size	Approximately 25-30 lakh (urban Lucknow population)

3.2 Sampling Technique

Aspect	Method
Primary Method	Convenience Sampling (non-probability)



Aspect	Method
Secondary Method	Stratified Random Sampling (for demographic representation)
Combined Approach	Convenience + Stratified sampling
Convenience sampling is practical for accessing consumers at EV showrooms, colleges, residential areas, and commercial hubs	
Stratified sampling ensures representation across income groups, age categories, and occupation types	

Sample Size

Calculation Method	Formula	Result
Cochran's Formula	$n = Z^2 \times p(1-p) / e^2$	385 respondents
Rule of Thumb	10× number of questionnaire items	750 respondents
Practical Consideration	Time, budget, feasibility	350 respondents
Final Decision	Balanced approach	350-400 respond

4. Data Collection

4.1 Types of Data

Data Type	Source	Collection Method
Primary Data	Lucknow consumers	Structured questionnaire survey
Secondary Data	Government reports, journals, websites	Literature review, policy documents



4.2 Primary Data Collection Instrument

Aspect	Details
Instrument	Structured questionnaire
Format	Online (Google Forms) + Offline (printed)
Total Items	75 items
Sections	12 sections
Question Types	- Multiple choice (demographics) - 5-point Likert scale (60 items) - Open-ended (5 items)

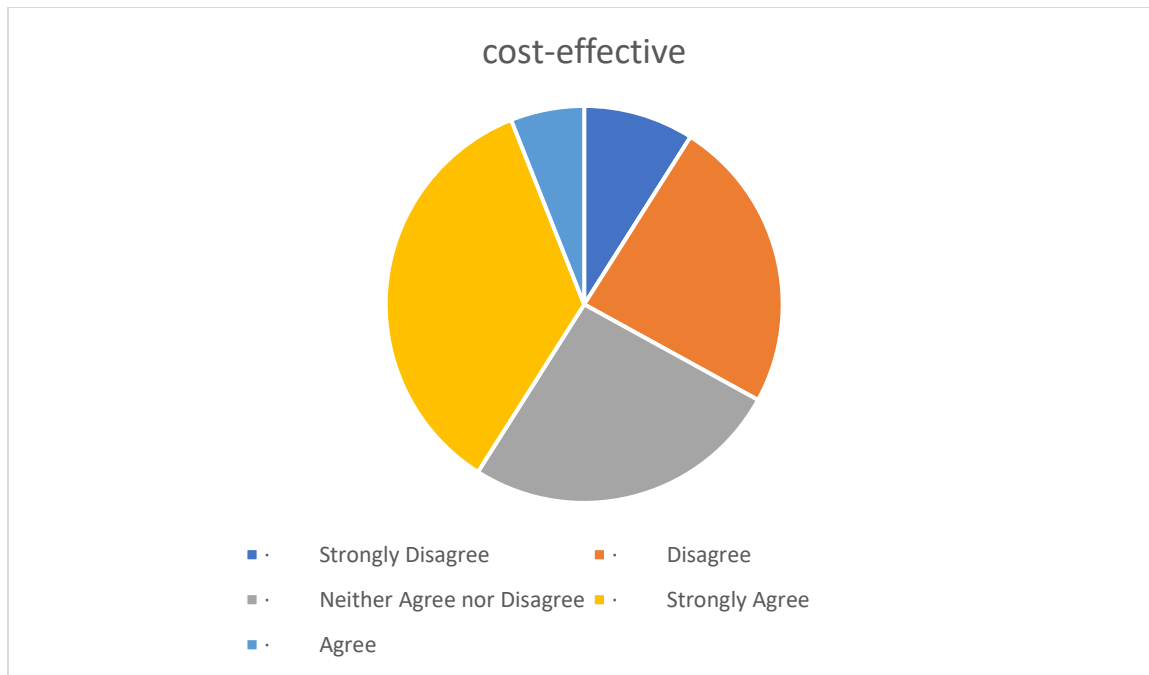
Data Collection Locations

Location Type	Specific Places	Target Respondents
EV Showrooms	Ola Electric (Hazratganj), Ather (Indira Nagar), TVS (Rajajipuram), Bajaj (Kanpur Road), Hero (Gomti Nagar)	100 respondents
Colleges/Universities	University of Lucknow, KKC College, College, BBDA University	70 respondents
Residential Areas	Aliganj, Indira Nagar, Gomti Nagar, Vrindavan Colony, Mahanagar	100 respondents
Commercial Hubs	Hazratganj, Indira Nagar Shopping Complex, Kapoorthala	50 respondents
Public Places	Fun Mall, Sahara Ganj Mall, Lucknow railway station (Charbagh)	30 respondents



Question 1

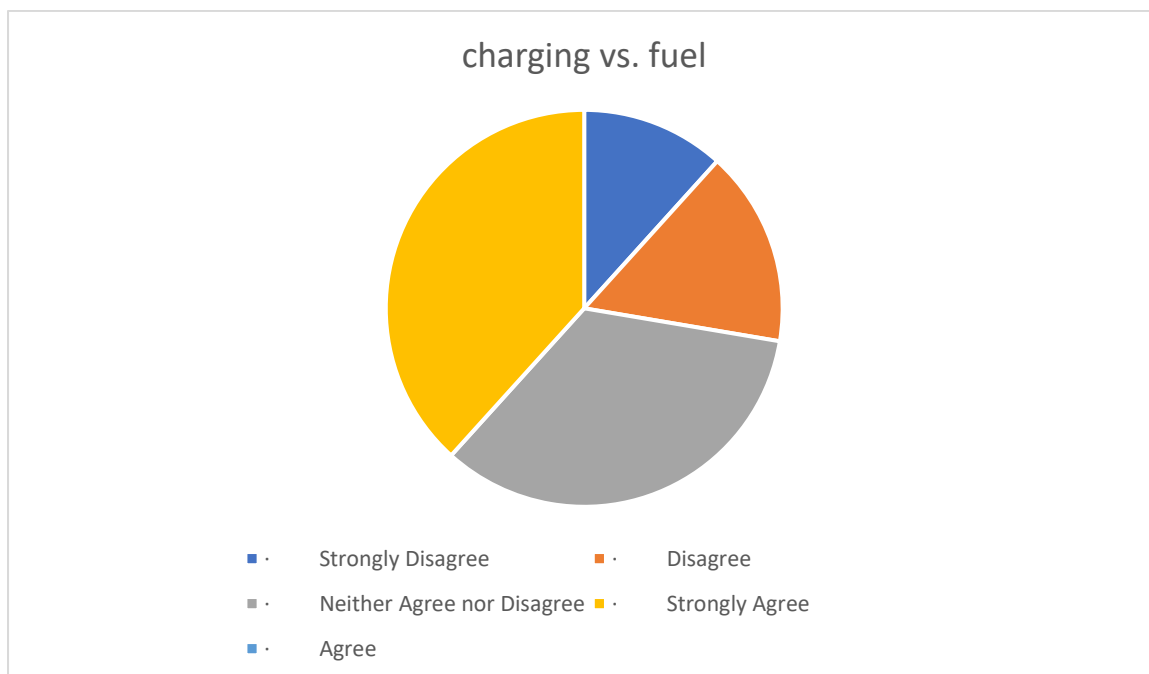
The government subsidy on electric two-wheelers significantly reduces the purchase cost?



Interpretation: Most of respondents strongly agree that government subsidy on electric two-wheelers significantly reduces the purchase cost

Question 2

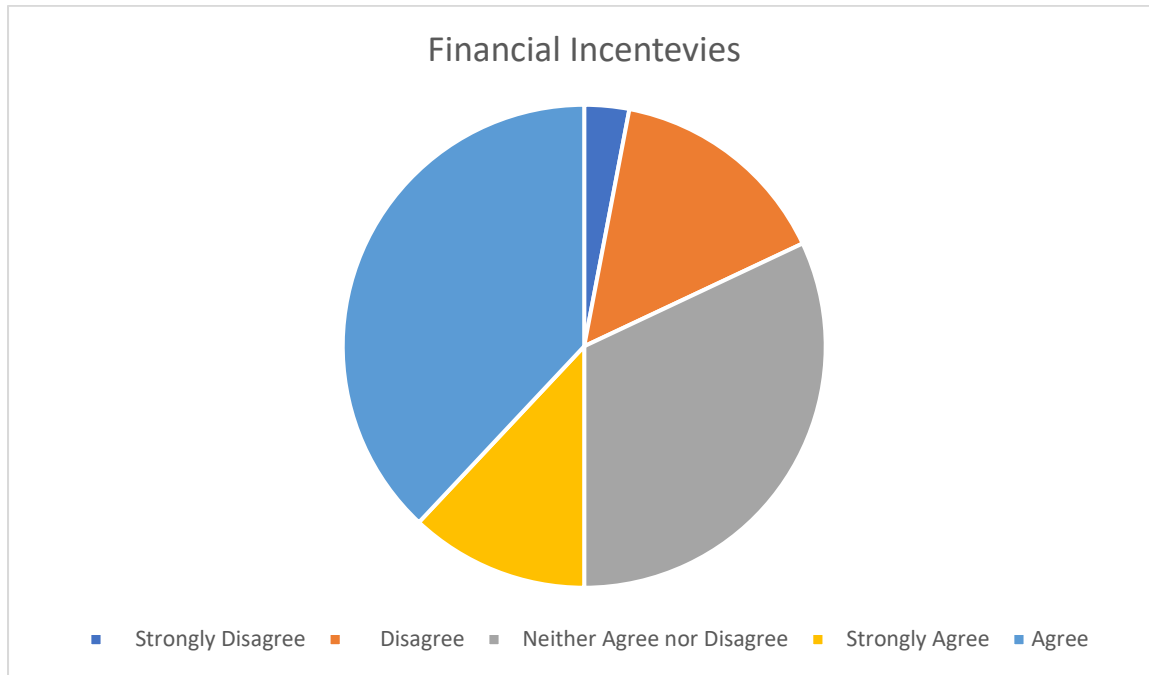
Lower running costs (charging vs. fuel) attract me to electric vehicles



Interpretation: Most of respondents strongly agree that ev attracts more than fuel

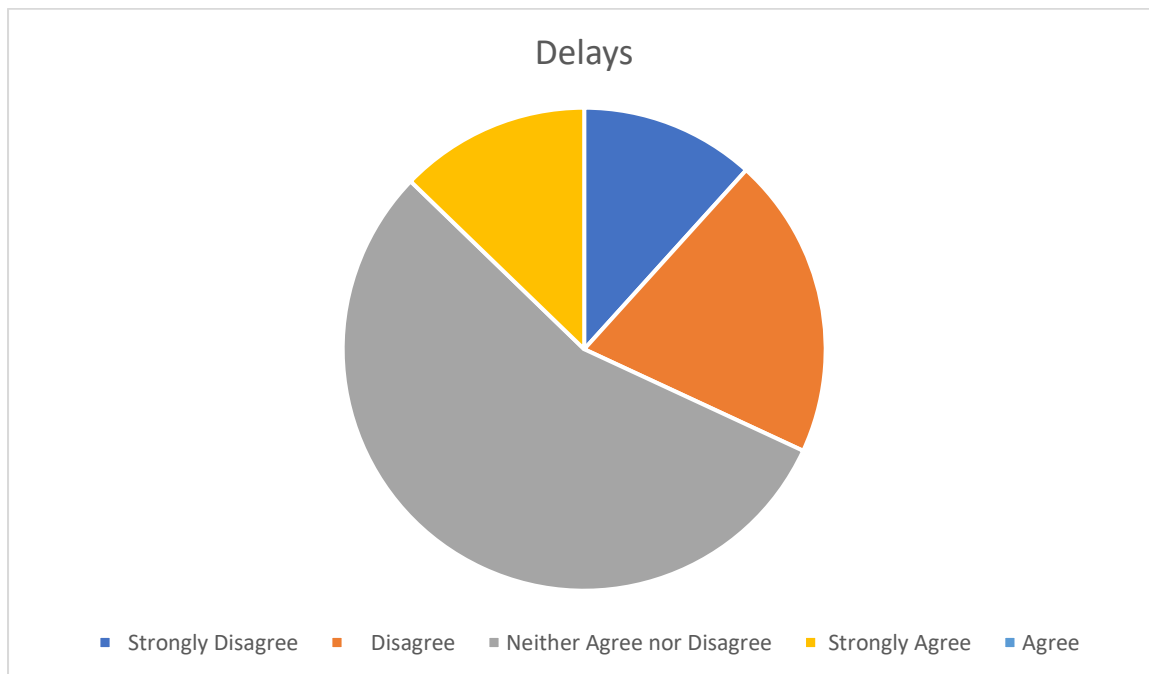


3 Financial incentives (such as lower registration fees or road tax) encourage me to consider an electric two-wheeler?



Interpretation: Most of respondents agree that financial incentives (such as lower registration fees or road tax) encourage me to consider an electric two-wheeler.

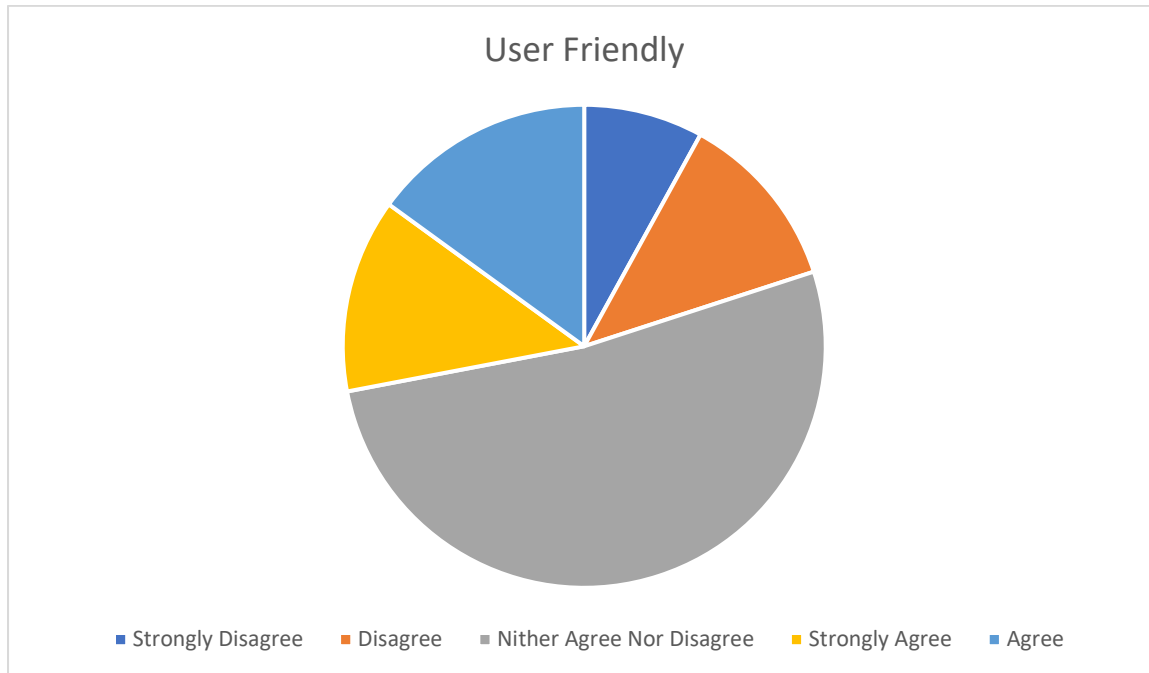
4 The subsidies/incentives promised by the government will actually be received without major delays?



Interpretation: Most of respondents Neither Agree nor Disagree for subsidies/incentives promised by the government are actually received without major delays

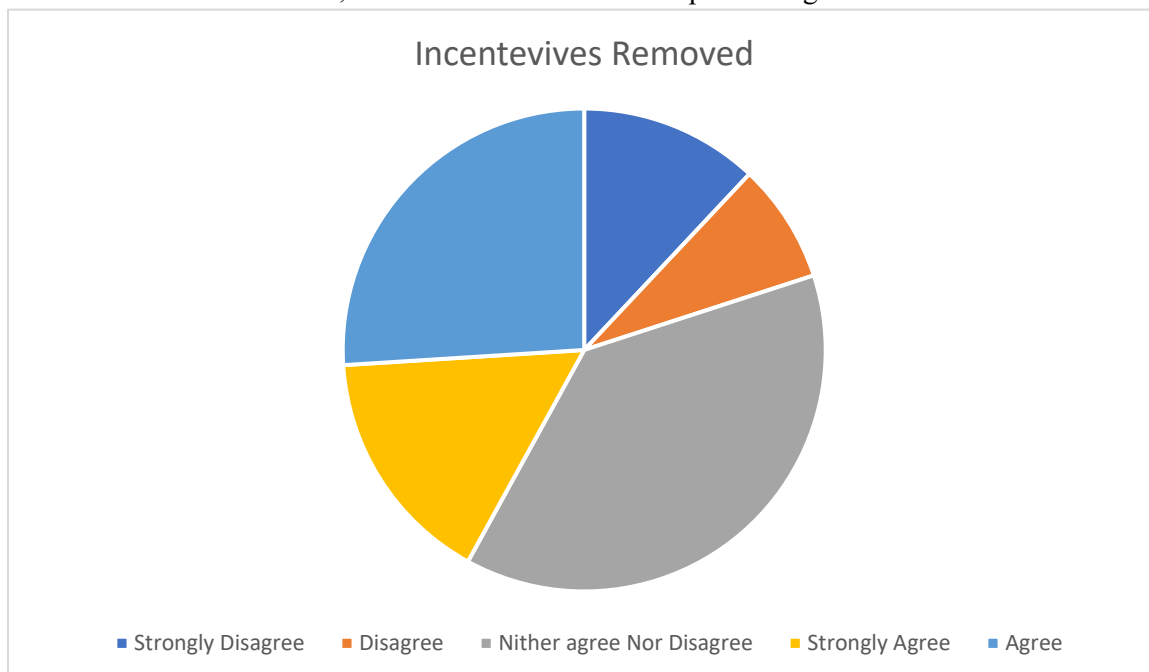


5 Policy-related procedures (e.g., documentation, claiming benefits) are simple and user-friendly?



Interpretation: Most of respondents Neither Agree nor Disagree for policy-related procedures (e.g., documentation, claiming benefits) are simple and user-friendly

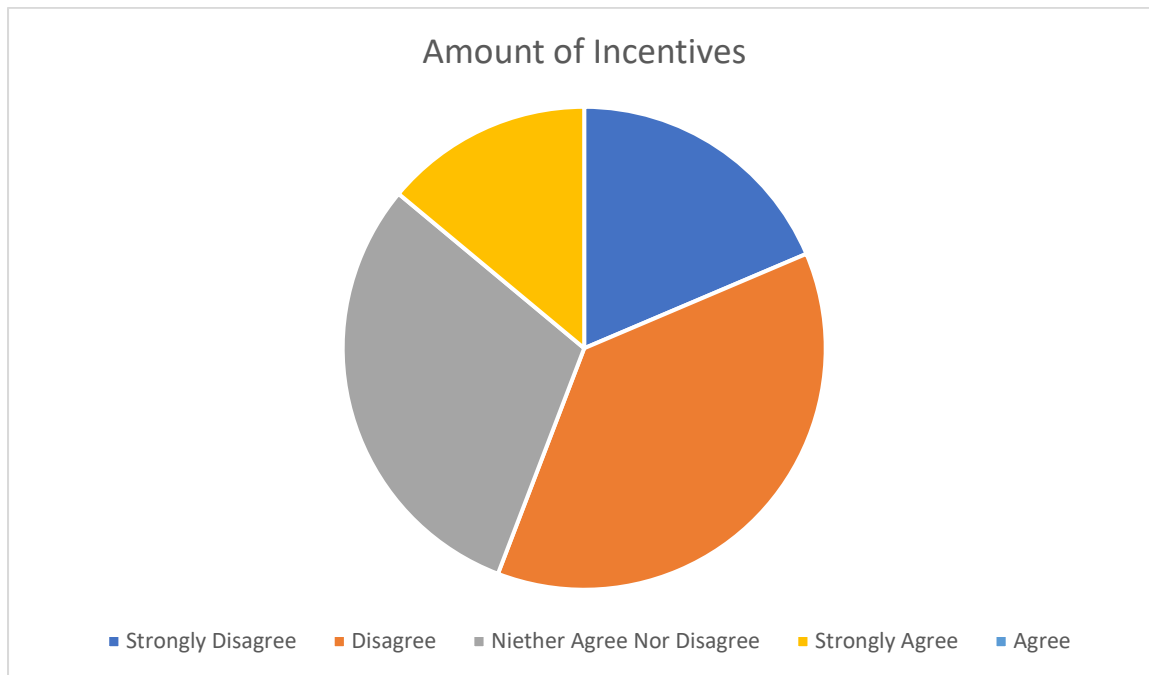
6 If subsidies were removed, I would be less interested in purchasing an electric two-wheeler?



Interpretation: Most of respondents Neither Agree nor Disagree for If subsidies were removed, one would be less interested in purchasing an electric two-wheeler while Second Largest opinion was that they agree to not buy if incentives were removed.

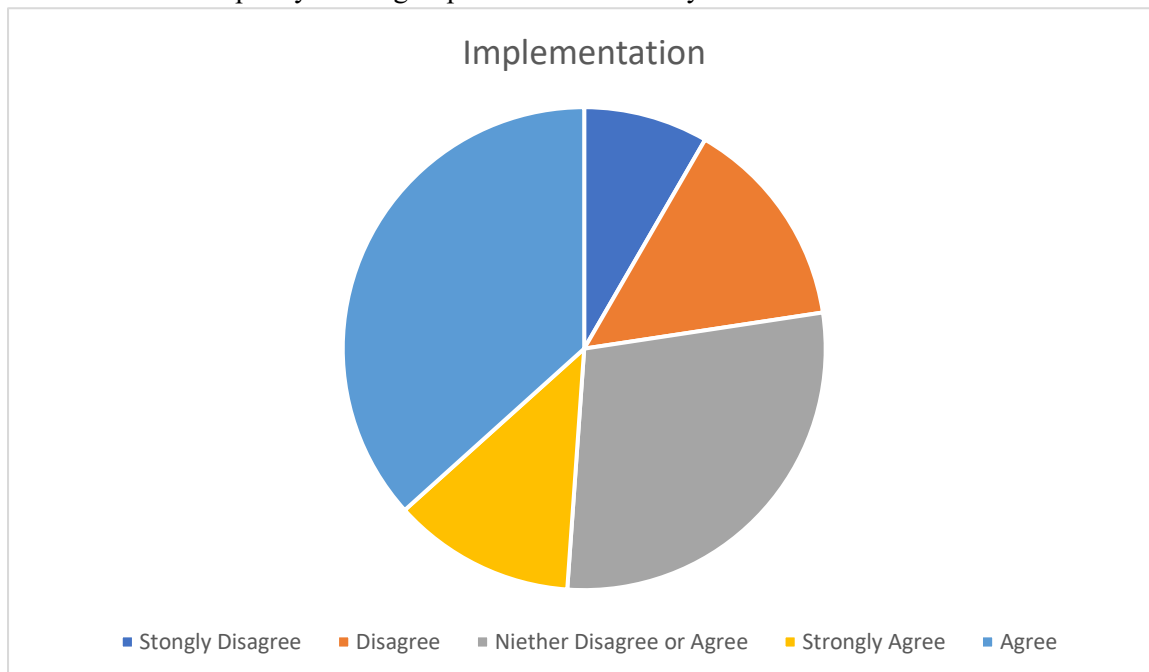


7 The current level of subsidies for electric two-wheelers is sufficient to motivate customers?



Interpretation: Most of respondents Neither Agree nor Disagree for the current level of subsidies for electric two-wheelers is sufficient to motivate customers while Second Largest opinion was that they disagree to not buy for present number of incentives.

8 I believe the EV policy is being implemented effectively in Lucknow?



Interpretation: Most of respondents agree for the EV policy is being implemented effectively in Lucknow while Second Largest opinion was that they Neither Agree nor Disagree for proper implementation of Government policies.



Conclusion-

The study reveals that the government policies have a significant influence on the perception towards electric two-wheelers in Lucknow city. The awareness about government policies regarding electric two-wheelers and the demand for subsidy enhances positive attitude of the respondents towards the adoption of electric two-wheels in the study area.

The increased levels of awareness about governmental incentives encourages the respondents to opt for electric two-wheelers as a viable and economical substitute for the petrol driven two-wheelers.

The credibility of the government is an important aspect which when incorporated properly would induce the potential buyers to purchase the electric two-wheelers.

A simplified and hassle-free procedure for availing the incentives offered by the government would motivate and encourage more people to invest in two-wheelers. At the same time, a complex and ambiguous procedure reduces the chances that people would go for two-wheelers, despite the benefits that they might possess.

The incentives offered by the government play a vital role in influencing the demand for two-wheelers. The perception about the amount and credibility of the reimbursement amount also plays a significant role in influencing the demand for two-wheelers in Lucknow city. If people feel that the subsidy would be sufficient to meet their demands and the credibility of the government system is established, then there are greater possibilities for people to invest in two-wheelers. Simultaneously, if the perceptions about the amount of subsidy are unfavourable; despite the environmental and monetary benefits that two-wheelers possess, there are less possibilities for people to invest in two-wheelers.

Therefore, it is essential for the government to ensure an elaborate and wide spread awareness campaign regarding the policies and the benefits associated with the policies related to two-wheelers. The government must strive hard to assure the general public about the credibility of the policies to ensure potential demand for two-wheelers. This would enable the government to successfully take advantage of the demand and supply aspects, in order to motivate people to invest in two-wheelers in Lucknow city

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