

## **The Impact of Consumer Barriers on The Slow Adoption of Electric Vehicles in The Western Province of Sri Lanka**

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The purpose of this study is to investigate the macro-environmental constraints that contribute to the sluggish adoption of electric vehicles (EVs) in Sri Lanka, with a focus on the Western Province. While many countries are moving toward more ecologically friendly modes of transportation, the adoption of electric vehicles in Sri Lanka remains gradual. This study aims to identify the major barriers limiting customers from purchasing EVs, such as financial, technological, environmental, and infrastructural issues. Furthermore, the study intends to analyze how these barriers influence consumer views and decisions, which contribute to the overall reluctance to switch from traditional fuel-powered vehicles to electric alternatives.

The study adopts a quantitative research design, with survey data obtained from 402 Western Province inhabitants, the majority of whom do not possess electric vehicles. A systematic questionnaire was sent to collect data on customer views toward EVs and the macro-environmental factors influencing their purchasing decisions.

The collected data was analyzed using SPSS software, including tests for reliability, validity, and normality. Cronbach's Alpha was applied to measure the internal consistency of the constructs, while demographic analysis helped identify trends across different consumer segments, such as age, gender, and income. The study focused on determining how technological, financial, environmental, and infrastructural factors collectively influence consumer behavior in Sri Lanka's Western Province.

The findings of the study reveal several significant barriers to EV adoption. Financial constraints emerged as one of the leading factors, with the high upfront cost of EVs acting as a primary deterrent. Many respondents expressed concerns about the lack of financial incentives and the affordability of EVs compared to traditional vehicles. Infrastructural inadequacies, particularly the limited availability of charging stations, contribute to “range anxiety,” which further discourages potential EV buyers. Technological barriers, such as doubts about battery life and maintenance challenges, also play a role in slowing down EV adoption. Although many consumers acknowledge the environmental benefits of EVs, the study found that these advantages are often outweighed by concerns about cost and practicality.

The research is confined to the Western Province of Sri Lanka, which may limit the generalizability of the findings to other regions. Furthermore, the use of convenience sampling may induce bias because the sample may not fully represent the overall population. More research is needed to determine the long-term effects of policy measures, like as subsidies or tax cuts, on EV adoption rates throughout different parts of the country. Furthermore, qualitative research could provide more detailed insights into consumer attitudes and cultural aspects influencing EV adoption decisions in Sri Lanka. This study's findings have major consequences for policymakers and industry stakeholders. The findings emphasize the importance of specific financial incentives, such as subsidies or low-interest loans, in making electric vehicles more accessible to the general population. Advancing EV infrastructure, like charging stations, would eventually be a breakthrough in favor of defeating the range anxiety caused by electric vehicles thereby boosting consumer confidence in the use of electric vehicles. Campaigns designed to raise awareness among the masses regarding the long-term benefits economic or environmental would be more effective in changing consumer attitudes by encouraging them to adopt sustainable forms of transportation. The study also recommended that the government collaborate with the private sector in drawing up a holistic EV adoption strategy that covers both infrastructure development and consumer education.

**Keywords:** *Consumer Barriers, Electric Vehicles, Financial Constraints, Infrastructure, Technological Barriers in Sri Lanka*