Barriers and Drivers for Electric Vehicle Adoption in Developing Countries

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Abstract

Electric vehicles (EVs) present a promising solution for addressing environmental concerns and promoting sustainable urban mobility in developing countries. However, several barriers hinder their widespread adoption. This study investigates the barriers and drivers influencing EV adoption in developing countries, with a focus on the following factors: high upfront cost, limited charging infrastructure, limited availability and variety of EV models, range anxiety, and lack of awareness and education. The high upfront cost of EVs poses a significant barrier to adoption, as it may exceed the purchasing power of consumers in developing countries. Furthermore, the limited availability of public charging stations contributes to range anxiety and discourages potential EV buyers. Additionally, the lack of diverse EV models in the market limits consumer choice and may deter those with specific requirements or preferences. Lack of awareness and education about EV technology, charging options, and government incentives further hinder adoption. On the other hand, several drivers can promote EV adoption. The environmental benefits of EVs, such as reduced air pollution and greenhouse gas emissions, resonate with the growing awareness and concern for environmental issues in many developing countries. Supportive government policies and incentives, including subsidies, tax benefits, and exemptions, can significantly influence the financial attractiveness of EVs. Rising fuel costs and the volatility of imported fossil fuel prices provide an additional motivation to shift to EVs as a more stable and potentially cheaper source of energy. Technological advancements and economies of scale in the EV industry are expected to decrease the cost of EVs, making them more affordable and attractive to consumers. Lastly, EVs contribute to addressing urban mobility challenges by reducing local emissions, noise pollution, and congestion, making them a viable option for sustainable transportation in developing countries.

Keywords: *Electric vehicle adoption, Developing countries, Barriers, Drivers, Sustainable urban mobility*

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