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The Impact of Public Charging Infrastructure on the Adoption of Electric Vehicles

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Abstract : The discussion on public charging infrastructure is usually framed around the 'chicken-egg' challenge of consumers feeling reluctant to purchase without the necessary infrastructure and policymakers reluctant to invest in the infrastructure without the demand. However, public charging infrastructure may be more crucial to electric vehicle (EV) adoption than previously thought. Historically, access to residential charging was thought to be a major factor in potential for growth in the EV market as it offered a guaranteed place for a vehicle to be charged. The purpose of this study is to understand how the built environment may encourage uptake of EVs by seeking a correlation between EV ownership and public charging points in an urban and densely populated city such as London. Using a statistical approach with data from the Department for Transport and Zap-Map, a statistically significant correlation was found between the total (slow, fast and rapid) number of public charging points and a number of EV registrations per borough – with the strongest correlation found between EV registrations and rapid chargers. This research does not explicitly prove that there is a cause and effect relationship between public charging points EVs but challenges some of the previous literature which indicates that public charging infrastructure is not as important as home charging. Furthermore, the study provides strong evidence that public charging points play a functional and psychological role in the adoption of EVs and supports the notion that the built environment can influence human behaviour.

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