

Usage pattern of e-scooter services

Background

E-scooters have become a common sight in cities. This has led to both positive and negative reactions and it is unclear if they have a role to play in a transport efficient society. There is thus a need for better knowledge about how these vehicles are used, reasons for usage, possible rebound effects, environmental impact and resource consumption, etc. In this project, we intend to contribute to addressing this knowledge gap. The objective of this project work is to understand where and when electric scooters are used in cities. The project is a collaboration between Chalmers University and Research Institute of Sweden (RISE).

Data

We have collected data on the use of electric scooters via publicly available data by "scraping" from the network from operators in 16 cities. Each student will be assigned to one of the cities. The second database available consists of points of interest in the cities and networks of public transport as a basis for analysis of travel patterns.

Task description

In this project, we look into where these trips are generated? And where they are attracted? We answer to following questions: Where these services are used the most? Are there any hot spots which are attracting people (e.g. recreational centers, shopping malls)? What are the activity density and population density of the areas with a high number of trips? What is the public transport accessibility and coverage (e.g., the number of bus stops)? etc.

Methods:

Statistical analysis to map overall indicators of usage patterns in different cities, such as average rental time and mileage and how these are distributed over the day, between weekdays and throughout the season. Spatial regression models or similar models will be used to understand from and to which places e-scooter users travel. These models are regression models that model the demand for e-scooter services as a function of sociodemographic (e.g., population) and spatial characteristics of different neighborhoods/areas (e.g., number of bus stops, number of recreational units in the area) of cities.

Requirements

The project is suitable for students with the ability to work independently and in a team. Suitable Background is knowledge in statistics, mathematical modelling (regression models) and programming with Matlab/python/R. Knowledge of transportation systems or transport modelling is desirable.

Starting date: Spring 2021

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