



Can shared rides compete with public transport?

General description

Modern taxi services, also known as ride-hailing services like Uber and Lyft, offer in addition to private rides also shared rides, where travellers pay less while allowing for longer travel and/or waiting time. Shared rides are mainly seen as an alternative to private rides, however their potential can go beyond that. In particular, they may serve as an alternative to conventional public transport, offering a better service (in terms of shorter travel times, waiting times, door-to-door) for a competitive price.

Offering a shared ride service is not trivial. Services can be attractive only if the travel time is short and price is low. Yet, the price can be low only if the number of co-passengers is high (so that single commission is now split over many sharing travellers). However, sharing with many people is likely to induce extra detours and delays. On top of that, if the demand is high enough to bundle multiple travellers into a single vehicle, we may expect that the public transport alternative may be of high quality (frequent and fast), which makes it difficult to compete. **What is then the niche for shared rides services?**

Assignment description

In this graduation project you will use a shareability algorithm recently developed at the Smart Public Transport Lab, where trip demand for Amsterdam and other Dutch cities is matched into shared rides. You will:

- use and develop state-of-the-art shareability algorithms, open source PT route planners, transit network design algorithm and techniques.
- analyze and compare two dataset to understand how shared rides may compete with PT;
- find spatial and temporal patterns, identify target socio-demographical groups and try to induce a critical mass needed for shared rides to become profitable;
- identify areas and relations with high potential for shared rides and target operations there.
- determine if and how shared rides can become an appealing alternative in Amsterdam

Candidate background

T&P or TIL students who have knowledge and interest in network and demand analyses and have very good programming skills, in particular with Python and have affinity with optimisation. Able to handle large datasets and large-scale computational requirements.

Research group

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