Student Thesis

Shaping Future Mobility:
Assessment of the external cost of shared micromobility

Challenges like urbanization, scarcity of space or the necessary reduction of local and global emissions require the comprehensive introduction of new forms of mobility. Especially in densely populated areas, transportation systems are under pressure. Innovative solutions are needed to create more sustainable, safer and liveable urban spaces. Shared micromobility poses a promising solution to this challenge. Shared Bicycles, E-Bikes, Scooters and Mopeds are often considered the most promising way to transform our cities. They consume less resources (e.g. materials or space), allow for door to door mobility and are fun to use. When shared, they enable a large share of the urban population to benefit from multimodal mobility and are therefore socially desirable. However, certain aspects are suspect to further investigation. For example, accidents occuring in active forms of mobility induce societal costs. Fleets of shared vehicles occupy public spaces that could for example be used for green spaces otherwise and therefore cause opportunity cost to society. It is therefore necessary to quantify the external costs of the different modes. Resulting numbers can subsequently be used to guide policy and decision makers.
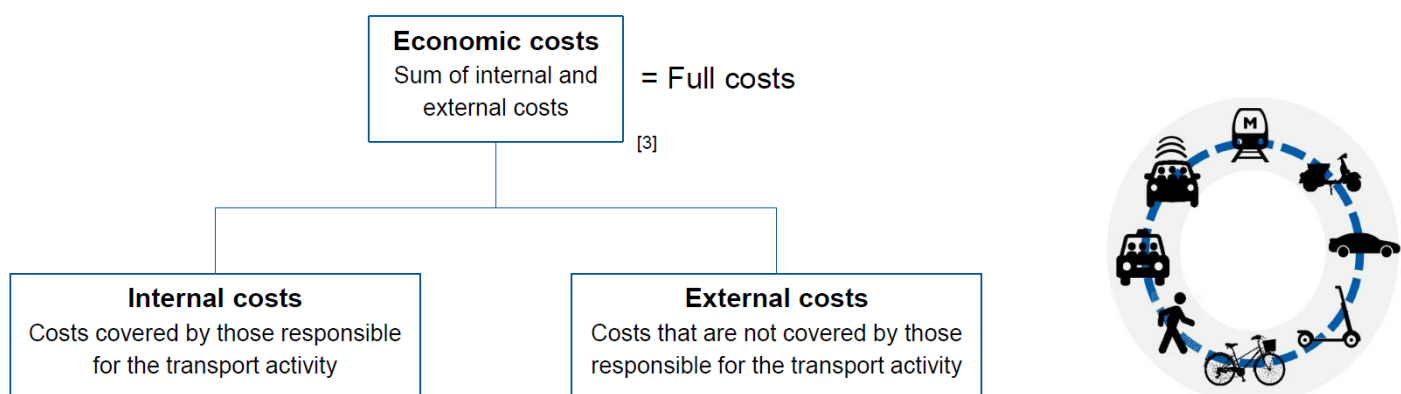
The aim of this thesis is the application and evolution of an existing methodology [1] for the assessment of external costs. The existing methodology was previously developed for various modes of transport and is now to be applied to real world large scale datasets of different modes of transport and multiple suppliers. The (pre-)processing of the available data is therefore equally important as a literature review identifying possible entry points for improvement.

Please send your application including CV, grade report and letter of motivation to:

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[1] Schröder et al. 2022, Ending the myth od mobility at zero costs: An external cost analysis