Demand-responsive transport services: assessing user acceptance and the influence of rurality

(7) Verkehr

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Motivation and research objectives

This contribution focuses on demand-responsive transport (DRT) services and public transport in rural areas taking a socio-scientific approach. Rural areas, in contrary to urban areas, face hampering conditions for the provision of public transport such as long distances, topographic difficulties, high access to private cars, and few car-related stress factors. Based on previously conducted qualitative research (systematic literature review, focus groups, interviews), this quantitative study (1) explores the travel habits and (2) factors influencing the mode decision, thus (3) creating evidence for the impact of rurality on the design and introduction of (new) public transport offers, specifically in rural areas.

Methodology

To explore specific aspects of travel behavior in rural areas, we designed a survey consisting of a demographic and an experimental part. To generate comparable results, the demographic part is designed following the Austrian mobility survey "Österreich Unterwegs" [1] but beyond that includes a translated version of the *Unified Theory of Acceptance and Use of Technology* (UTAUT) [2] that has been previously applied to explore public transport decisions [3]–[5] and the acceptance of the novel DRT services [6]. The experimental part consists of a choice-based conjoint analysis, a stated preference method suitable to measure consumers or user preferences, estimate the trade-offs between attributes and reveal potentially hidden factors [7], [8]. Seven attributes investigate the transport modes, travel cost, duration, and contextual factors. The conditional display of four attributes combined in one graphical element facilitates comprehension [9], [10]. The design was realized with Sawtooth Software (version 9.8.1) and pre-tested for a sample size of 200 participants. The current pandemic situation required the adaption to an online-only format.

In an ongoing first phase, the survey takes place in a rural Carinthian region with three active DRT services. The second phase will include other rural regions in Carinthia in September 2021.

Expected results and discussion

We expect to gain insights on the influence of various factors, such as sociodemographic and social-psychological variables, and consider the contextual aspect of rurality and its effect on the acceptance of DRT as a part of public transport and on travel habits. The results of the UTAUT scale will reveal key constructs influencing the use intention and serve as a base for practical implications. The influence of the factors *necessity to transport goods or persons* and *design of the path to the service access point* that were identified in the preceding, qualitative studies will be explored in the conjoint analysis. We expect to present their influence on the mode decision, the latter factor marking a specific barrier in uneven regions. A comparison between the Austrian modal split and the gained data is expected to strengthen the significance of a distinction between urban and rural regions when designing, implementing and evaluating (novel) public transport offers. Besides the introduction of the UTAUT scale for DRT services in German language, we plan to discuss the relevance of the introduced factors and their influence on mode decisions.

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