
Observing the effects of different disturbances on route choice in public transport

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Conference Paper STRC 2022

STRC

22th Swiss Transport Research Conference

Monte Verità / Ascona, May 18 – 20, 2022

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May 2022

Abstract

Public transport networks are affected daily by disturbances of varying degrees. While big service disturbances are rare, delays and cancelled runs are more frequent and they affect daily the passengers. Despite this, most of the work on passengers' behaviour focuses on big disturbances. In this work, we analyse how different network disturbances affect public transport passengers, regarding the chosen route and the travel cost. For this purpose, we exploit a large-scale travel survey based on GPS tracking, and AVL data of public transport operations in Zurich, Switzerland. We quantify the disturbances in the network, which are relevant for a specific passenger's trip, with a metric of service degradation. We evaluate the effects of disturbances on travel costs, comparing the passenger's chosen route with three expected behaviours ("timetable", "no information", "full information"), based on the available alternatives with and without disturbances. Our analysis identifies that small disturbances and delays have significant effects on travel cost, although marginal effects on route choice. Moreover, in case of "good disturbances", i.e. variations of the operations including less costly alternatives, passengers do not exploit the new available alternatives, suggesting a need of better information in these cases.

Keywords

Public Transport; Disturbances; Tracking; Passenger Behaviour; Route Choice