Passengers' Behavior Analysis under the Public Transport Disruption: An Agent-Based Simulation

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Abstract : This paper study the travel behavior of passengers in a public transport disruption under information provision strategies. We develop a within-day approach for multi-agent simulation to evaluate the behavior of the agents, under comprehensive scenarios through various information exposure, equilibrium, and non-equilibrium scenarios. In particular, we quantify the effects of information strategies in disruption situation on passengers' satisfaction, number of involved agents, and the caused delay. An agent-based micro-simulation model (MATSim) is applied for the city of Zürich, Switzerland, for the purpose of activity-based simulation in a multimodal network. Statistic outcome is analysed for all the agents who may be involved in the disruption. Agents' movement in the public transport network illustrates agents' adaptations to available information about the disruption. Agents' delays and utility reveal that information significantly affects agents' satisfaction and delay in public transport disruption. Besides, while the earlier availability of the information causes the fewer consequent delay for the involved agents, however, it also leads to more amount of affected agents.