



Understanding the influential factors to promote social-beneficial travel behavior in public transport

Problem description

Imagine you are waiting at a platform for a train, which turns out to be so crowded that you have to stand through the entire journey. Even worse, you might be denied boarding. This commonly happens on busy routes during rush hours, while unexpected train cancellations will make the situation even more challenging. One way to address overcrowding is by advising people on sub-optimal paths for themselves but beneficial for the whole, to balance demand. Who will follow the advised social-beneficial paths? And under which conditions? Those are questions to be investigated in this project.

Assignment

You will design and conduct a stated preference survey to investigate the influential factors regarding travelers' compliance behavior with the social-beneficial paths. Your tasks include

- Pre-define a list of potential influential factors by reviewing the relevant literature.
- Design a stated preference survey considering the potential influential factors.
- Perform the survey with carefully selected participants to better reflect the heterogeneity in behavior.
- Analyze the survey results to understand the roles of the defined factors, and to what extent.

Candidate background

You are expected to have interest and knowledge in public transport and behavior science, and skills in data analysis and programming (preferably Python).

References

The following references focus on road transport systems, aiming to provide inspirations for your study on public transport systems.

- van Essen, M., Thomas, T., van Berkum, E., & Chorus, C. (2020). Travelers' compliance with social routing advice: evidence from SP and RP experiments. *Transportation*, 47, 1047-1070.
- van Essen, M., Eikenbroek, O., Thomas, T., & van Berkum, E. (2019). Travelers' compliance with social routing advice: Impacts on road network performance and equity. *IEEE transactions on intelligent transportation systems*, 21(3), 1180-1190.

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