An experimental study of happiness and travel behavior modification

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Abstract
The study of travel well-being has emerged as a major area of research motivated by limitations in travel behavioral models that focus heavily on the generalized cost of travel and project evaluation methods that are mostly based on the estimation of travel time savings to users. A number of recent efforts have attempted to measure travel happiness, travel liking, and commuting stress through self-reported or physiological means.

In previous research, we measured travel and activity well-being through a cross-sectional commuting satisfaction survey. However, we then postulated that when people are in a commuting routine, they don’t engage in a cognitive process of evaluating their travel happiness. Only when people evaluate their options and reconsider their decisions will they think of their travel happiness. Therefore, in a subsequent stage, we investigated the measurement of travel well-being in a way that accounts for the routine nature of travel. We conducted an experiment at three employment centers in Switzerland requiring 30 habitual car drivers to switch temporarily to public transportation for their commute to work. After this intervention, participants reported significantly different levels of happiness with their commute by car compared to what they reported when they were in a routine. In addition, a number of participants continued to commute by public transportation after the required trial.

In this paper, we test the above mentioned hypothesis in the context of a larger experiment conducted at the Massachusetts Institute of Technology (MIT) as part of an institute-wide program providing a one-month free public transportation pass to employees who commute to work by car. 73 car drivers who were willing to switch to public transportation for at least 2-3 days were recruited for the study. Their travel diaries were recorded for 3 weeks during the monthly pass program and for a week after the expiration of the pass. In addition, their commute satisfaction, perceptions, and attitudes towards car and public transportation were measured before and after the public transportation trial. As in the Swiss study, two main findings emerged. First, the measures of happiness with the commute by car collected before and after the public transportation trial were statistically significantly different, which supports the hypothesis that the travel happiness measure collected when people are in a routine is different from that collected when people reconsider their options. The implications for the measurement of well-being could apply to other domains involving routine behavior. Second, a number of participants continued to commute by public transportation after the required trial, which suggests that a temporary change in behavior might be effective in inducing behavioral modification or at least in affecting people's choice sets. This has policy implications for public transportation agencies or institutions that are trying to encourage car drivers to shift to public transportation. A future follow-up with the participants is planned in order to measure the longer term impacts of the intervention on their travel happiness and mode choice.

In addition to presenting a descriptive analysis showing changes in travel happiness, perceptions, and attitudes for participants in the MIT experiment, we develop a modeling framework combining a mode switching model and a travel happiness model and determine the relevance of different travel happiness measures in choice behavior. A model will be estimated separately for the MIT data and another model combining the MIT and Swiss data will be considered.