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Title THE IMPACT OF ACTIVITIES WHILE TRAVELING ON THE SUBJECTIVE VALUATION OF TRAVEL TIME

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Abstract Travel time is usually considered a disutility to minimize. However, some studies have suggested that travelers might value travel time per se, due to its possible contribution to personal fulfillment (e.g. through relaxation and distraction from the activities of a daily routine) and the enjoyment of specific features of the trip, e.g. landscape. Further, certain attributes of the travel options, including the amenities available while traveling (e.g. on-board features on private vehicles or public transportation) and the ability to engage in additional activities (“multitask”) during a trip may affect the evaluation of the utility of travel time. Finally, commuters seek to minimize waiting time but also to increase the utility of that time through engaging in additional activities. This process is further facilitated by modern information and communication technology (ICT) devices. Thanks to ICT, not only can travelers reduce waiting time (e.g. through accessing information about arrival times for public transportation), but they can be better prepared for a wait and make more profitable use of the waiting time through the access to a wider set of possible activities.

The objective of this study is to investigate the impact of activities while traveling on travelers’ evaluation of the utility of travel time through the analysis of survey data collected in Northern California. We analyze data collected through a survey administered both online and in a paper version among commuters using different transportation modes in Northern California (specifically, along the transportation corridor between the State capital, Sacramento, and the San Francisco Bay Area). The total sample available for the study includes 2849 cases, after filtering out frivolous, inconsistent or severely incomplete cases.

The survey included nine sections, which respectively collected information on (a) the respondent’s views on 12 different dimensions of personal attitudes and preferences (commute benefit, high-density living, mode preference, status/trend-setting, subjective well-being, technology, time pressure-preference, time pressure-reality, travel liking, travel minimizing, travel utility and work liking) and personality traits related to time use and multitasking; (b) attitudes and measures related to polychronicity and multitasking preferences, tendencies and values (including the statements used in the computation of the Polychronic/Monochronic Tendency Scale (Lindquist and Kaufman-Scarborough, 2007) and the Inventory of Polychronicity Values (Bluedorn et al. 1999)); (c) information about the respondent’s habits and engagement in daily activities and the related enjoyment; (d) attitudes toward waiting; (e) perceptions of various transportation commute modes; (f) information about a recent typical commute trip, including primary

transportation mode, other modes that were used, travel time and distance, and the activities carried out while traveling; (g) information related to the use of internet while traveling, and opinions about the potential increased attractiveness of public transit services if free internet Wi-Fi connection were available; (h) information about the regular daily commute characteristics; and (i) personal information and sociodemographic traits.

The subjective valuation of travel time is the dependent variable in our study and was measured by asking “In terms of its value to you, how would you rate the time you spent on this recent commute?” with the answers recorded through a five-point ordinal variable ranging from “Mostly wasted time” to “Mostly useful time”. We estimate both linear regression models and ordered probit models to explain this rating depending on several groups of explanatory variables, i.e. attitudinal factors, primary mode of transportation, age, gender, etc. and, in particular, the engagement in a variety of activities while commuting.

The models were initially estimated for the pooled sample of travelers in the dataset. Later, we segmented the models based on the primary mode of transportation used on the commute, speculating that the impact of factors influencing the individual’s perception of travel time would differ between “active” modes (i.e. those requiring the individual’s attention and/or a large amount of physical effort for the completion of the trip, e.g. driving alone or biking) and “passive” modes (i.e. modes in which respondents are “passively transported” and can more easily multitask, e.g. public transportation).

Turning first to descriptive statistics, the lowest value of usefulness of travel time is perceived by car drivers. Possible explanations behind this low evaluation include the fact that commuters who drive alone to work are likely not to engage in any other activities but driving during their trip. Moreover, driving is probably the commute mode that requires most personal effort and attention. Other travel modes like local bus are also associated with poor evaluation of the utility of travel time. These modes are often rather crowded during peak hours. This reduces the travel comfort and the ability to perform additional activities while traveling.

Overall, the majority of respondents in the sample stated that they engaged in more than one activity while traveling. Activities carried out while traveling varied from daydreaming, viewing scenery, eating, or listening to music, to more technologically-oriented activities, such as using a smartphone, laptop computer or tablet to work, read electronic documents, answer to emails, play videogames, etc. The results from the model estimation highlight the important role of several factors, including multitasking, in explaining respondent’s perceived utility of travel time. For instance, the actual duration of a commuting trip is found to have a negative effect on the perceived utility of travel time in both models. This effect is larger in magnitude for active modes, for which other activities

can be carried out only with difficulty (and/or a significant amount of physical effort is required for longer trips, as in the case of biking).

Some travel modes, including commuter rail (among the passive modes) and bicycle (among the active ones), allow passengers to engage in various activities. For these modes, the activities performed while traveling contribute to increasing the perceived utility of travel time. In particular, commuter trains afford a more conducive environment for conducting activities while traveling, i.e. they are better equipped and have higher standards of comfort onboard. Several additional variables, including gender, age, job type and the specific types of activities conducted while traveling, are found to significantly affect the individual's valuation of travel time. The results from the research contribute to establishing a more systematic study of the different factors affecting the relationship between on-trip activities and perceived travel utility, further advancing previous research through the inclusion of a rich set of attitudinal and personality variables.