Uncovering the influence of commuters’ perception on the reliability ratio
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Abstract
The dominant method for measuring values of travel time savings (VOT) and values of travel time reliability (VOR) is discrete choice modeling. Generally, the data sources for these models are: stated choice experiments, and revealed preference observations. There are few studies using revealed preference data. These studies have only used travel times measured by devices such as loop detectors, and thus the perception error of travelers has been largely ignored. In this study, the influence of commuters’ perception error is investigated on data collected of commuters recruited from previous research (Carrion and Levinson (2012), Zhu (2010)). The subjects’ self-reported travel times from surveys, and the subjects’ travel times measured by GPS devices were collected. The results indicate that the subjects reliability ratio is greater than 1 in the models with self-reported travel times. In contrast, subjects reliability ratio is smaller than 1 in the models with travel times as measured by GPS devices.

Objectives
Understand the influence of perception error on the Reliability Ratio.
Compare confidence intervals of reliability ratio with travel times from GPS data, and travel times from Survey data.

Data
GPS: 39 subjects following no instruction from researchers in a period of 8 to 13 weeks.
Electronic Survey: Comprehensive evaluation of bridge alternatives by the 39 subjects.

Conclusions
This study presents novel results that are starting to scratch the surface of the influence of perception on the valuation of travel time. At the moment, there is none to little effort in favor of intersecting two main research areas in the transportation literature: travelers’ perception of travel time; and travelers’ valuation of travel time with a greater emphasis on the valuation of travel time reliability. There are already several studies identifying that subjects’ perception of travel times has been found to be a significant factor in studies. Travelers overestimate or underestimate the actual travel times they experience. Therefore, it is likely that revealed preference studies may be underestimating or overestimating the value of travel time savings, and value of travel time reliability as the objective travel time distributions (measured from devices) differ from the subjective travel time distributions (self reported by travelers).