



Assessing Importance and Satisfaction Judgments of Intermodal Work Commuters with Electronic Survey Methodology

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In designing policy for public transportation offerings for work commuters, it is important to understand the importance travelers place on

various attributes of the offerings and their experience with current offerings. Respondents with low involvement tend to reduce cognitive effort by using limited ranges of Likert-type rating scales that are often highly correlated across scales in a questionnaire. To the extent that direct ratings for both importance and satisfaction reflect such response sets, the quality of measurement and the ability to offer statistical inference is reduced. Developments in multivariate methodology in the assessment of respondent ratings of service offerings provide an opportunity to advance the study of public transportation usage in work commuting. This report uses multivariate methods to assess importance and satisfaction with current service offerings in two questionnaire studies. The studies use samples of work commuters in corridors where high-technology firms are the predominant employers. Both studies exclusively use electronic data collection from the commuter samples.

The following issues and questions are addressed:

- Recognizing limitations of Likert-types scale ratings.
- The contribution of multivariate methods for assessment of importance and satisfaction.
- Design and implementation of conjoint measurement of importance of trip attributes.
- Design and implementation of Rasch models of satisfaction.
- Assessing importance and satisfaction in an electronic questionnaire.
- Results from samples of work commuters in high-tech corridors.

Study Methods

A design in conjoint methodology was implemented in an electronic questionnaire for assessing importance weights of attributes. A Rasch model was implemented to assess satisfaction with attributes of current service offerings in work commuting. Results of the first study were used to calibrate the Rasch model. The second study confirmed the results of the conjoint analysis in the first study and reported results for the refined Rasch scaling of satisfaction.

Findings

Study I found a highly significant correlation between the set of conjoint-derived importance weights of attributes of available service offerings with results of an independent exercise in

This report uses developments in multivariate methods to assess importance and satisfaction with current service offerings in two studies of work commuting.

which respondents allocated a fixed budget to improve these attributes. This suggests that, in addition to their measurement qualities, the conjoint-derived weights have predictive capabilities in applications to the assessment of public transportation offerings.

Results with the Rasch modeling of satisfaction in study 2 indicate that the attribute-based scales are reliable and can jointly constitute an adequate composite measure of satisfaction. The Rasch items also were shown to provide a basis for discriminating between POV and public transport commuters. Finally, a hierarchical decomposition of the predictor variables indicated that two variables—dissatisfaction with uncertainty about travel time and the income level of a respondent—best predict POV commuters.

Policy designed to increased use of public transportation in work commuting can benefit from the increased comprehensiveness and accuracy of the methods introduced in this research.

Policy Recommendations

Conjoint and Rasch methodology can be particularly useful for detailed segmentation of commuter markets. Commuters can be segmented on the basis of their attribute importance and satisfaction scores with different attributes as cross-classified by their sociodemographic profiles. A previous study demonstrated that commuters in corridors where different employers predominate make very different trade-offs between attributes of service offerings, even when the corridors are in close physical proximity. The present studies support these results and indicate methodological basis to improve assessment that can be accessed by designers and planners.

About the Author

Steven Silver is a professor in the Lucas Graduate School of Business and the Department of Marketing and Decision Sciences at San Jose State University.



To Learn More

For more details about the study, download the full report at transweb.sjsu.edu/project/1127.html

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