

# Missing Data in Willingness-to-pay Measures and Its Influences in Analyses

Jane Lu Hsu

Department of Marketing, National Chung Hsing University, 250 Kuo Kuang Road,  
Taichung, 40227, Taiwan

jlu@dragon.nchu.edu.tw

**Keywords:** Missing data, Willingness-to-pay measures, Quantitative analysis.

**Abstract.** Missing data in willingness-to-pay measures appears in nearly every dataset utilizing consumer surveys. This study utilizes consumer survey data to examine the differences in distributional properties using various missing data replacement methods, including replacing by mean or median values of the complete observations, replacing by predicted values of multiple regressions, replacing by predicted values of simultaneous system equations, replacing by cluster means, and utilizing Bayesian approach to estimate the posterior distributions for missing observations. Results of this study indicate that for datasets of consumer surveys with relatively large portions of missing data, replacing the incomplete observations with the mean or median values of complete observations can distort the distributional properties of the variables. Clustering or Bayesian approach is recommended to maintain the distributional properties of variables to the third and the fourth moment (skewness and kurtosis). Missing data in willingness-to-pay measures needs to be dealt with thorough considerations in quantitative analyses. The implication of this study is that missing data should not be ignored in willingness-to pay measures and researchers need to be aware of different approaches in handling missing data in quantitative analyses.