

# **Design and Analysis of Discrete Choice Experiments for Models with Response Time**

William Li\*

University of Minnesota, Minneapolis, USA & Fudan University, China [wli@umn.edu](mailto:wli@umn.edu)

Stefano Barone

University of Palermo, Palermo, Italy [stefano.barone@unipa.it](mailto:stefano.barone@unipa.it)

Alberto Lombardo

University of Palermo, Palermo, Italy [alberto.lombardo@unipa.it](mailto:alberto.lombardo@unipa.it)

Deqiang Zou

Fudan University, Shanghai, China [deqiang.zou@gmail.com](mailto:deqiang.zou@gmail.com)

In choice experiments respondents undergo a questionnaire which is nowadays mostly submitted through the internet. One method of analysis adopts the Multinomial Logit (MLN) model. We show that the MLN analysis can be enhanced by using an additional response which can be easily observed and recorded by electronically submitted questionnaires. In practice, modern survey platforms like “Qualtrics” (the one used for this work) can be used to record the so called “response latency”, i.e. the time taken by the respondent to make the choice and select the most preferred profile in the choice set. We use the response latency model to deduce the relative weight of importance of the profiles for each choice set and respondent. This type of response can be used in place of the simpler and less informative dichotomous choice variable in the MLN model. As a result, a more reliable estimate of the optimal profile can be obtained, implying lower risks for new investments and marketing decisions. A comparison between the proposed model and the existing MNL model is made.

**Key Words:** Choice designs, response latency, multinomial logit model