59th World Statistics Congress
Hong Kong. 25-30 August, 2013

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

William Li*
in collaboration with Stefano Barone**, Alberto Lombardo**, Deqiang Zou***

## Abstract

A sector of conjoint analysis (experimental design in marketing research) is made of the so called choice experiments. In choice experiments respondents undergo a questionnaire which is nowadays mostly submitted through the internet. The questionnaire proposes to the respondent a sequence of choice sets each one including two or more profiles, being a profile a specific combination of attribute levels. The respondent selects the preferred profile for each choice set. Responses given by a sample of respondents are analysed through suitable methods aimed to eventually find the best combination of attribute levels.

One method of analysis adopts the Multinomial Logit (MLN) model. In this article the authors show the results of the MLN analysis compared with another model of analysis which uses an additional response which can be easily recorded by electronically submitted questionnaires. In practice, modern survey platforms like "Qualtrics" (the one used for this work) can 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.

Thanks to a response latency model further refined in this work, it is possible 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 dichotomous choice variable in the MLN model.

The two models and methods of analysis are deeply compared and it is critically discussed when it is better to use one or the other method.

As a result, a more reliable estimate of the optimal profile comes up, implying lower risks for new investments and marketing decisions.

* Carlson School of Management, University of Minnesota, Minneapolis, USA

** Department of Chemical, Managerial, Information and Mechanical Engineering, University of Palermo, Italy

*** School of Management, Fudan University, Shanghai, China