Department of Mathematics and Statistics

Colloquium Series

Using Design of Experiments
to Determine Consumer Preference
with Applications to Health Science

Prof. Jessica Jaynes
CSU Fullerton

Abstract: A discrete choice experiment (DCE) is a survey method that gives insight into individual preferences for particular attributes. They provide a rich source of data to assess real-life decision-making processes, which involve trade-offs between desirable characteristics. Traditionally, methods for constructing DCEs focus on identifying the individual effect of each attribute. However, an interaction effect between two attributes better represents real-life trade-offs and provides us a better understanding of subjects' competing preferences. The choice of the design for a DCE is critical because it determines which attributes' effects and their interactions are identifiable. We propose the use of blocked fractional factorial designs to construct DCEs and address some identification issues by utilizing the known structure of blocked fractional factorial designs. These designs are easy to construct and for many practical scenarios are readily available in the literature. Further, we discuss the implementation of our design methodology with an application in health sciences pertaining to college students' snack selection and nutritional ingredient attributes.

Keywords: experimental design, discrete choice, consumer preferences

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