A population choice experiment for testing axioms of stochastic discrete choice

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Abstract

We conducted an experiment suitable for testing axioms of stochastic discrete choice, including regularity, random utility and various forms of stochastic transitivity, for population level choice probabilities. Participants are representative of the Canadian adult population. The experiment features 32 different choice domains, including fine art, travel itineraries, and pizza toppings. For each domain, there is a set of five related objects, and for each of its 26 doubleton and larger subsets, we observe the choices of 40 participants. This allows us to measure population probabilities with some precision; since we do this for all non-degenerate menus of a given domain, we expose every implication of each of the axioms to possible falsification. Each participant faces exactly one menu from each domain, making this a strictly between-subject design; unlike similar studies with within-subject or mixed designs, the standard assumption that choices are independent, and on each menu, identically distributed, is innocuous. For each domain, we report Bayes factors giving evidence for or against each of the axioms.

Key words: Discrete choice, Choice axioms, Choice experiment, Context effects, Random utility, Bayesian inference

JEL codes: C11, C12, C15, C35, C91, D01, D90.

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