

Handling resolvable uncertainty from incomplete choice scenarios
Elicited choice probabilities versus discrete choices

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Abstract

Forecasting choice behavior for new health care, environmental, or transportation programs and services is challenging because actual data is often unavailable. In order to derive estimates of the demand for such programs and services, researchers must often resort to data derived from hypothetical choice scenarios. An increasing popular way of doing this is by means of hypothetical (Discrete) Choice Experiments (DCE). Respondents participating in a hypothetical DCE are likely to be provided with only a subset of the information deemed relevant or even necessary for conducting a real life choice. Manski (1990) argues that even under best case hypothesis, intentions stated during DCE surveys will not be good predictors of future behavior, since scenario descriptors will always be at least in part “incomplete”. Such unavoidable incompleteness will, to some extent, be resolved in a real choice context. This gives rise to a component of uncertainty referred to as “resolvable uncertainty”, as opposed to unresolvable uncertainty, which refers to components that remain unknown even in the actual choice situation. Cognizant of this fact, analysts are faced by an extrapolation problem in which assumptions are likely to be crucial and hence matter. Elicitation of statements of subjective choice probabilities (ECP) in lieu of discrete choices has the potential to overcome this issue as it allows respondents to explicitly state uncertainty about their choice. It turns out that this approach might afford the additional advantage of being less econometrically demanding.

In the present paper we compare the ECP approach with the standard DCE approach using a randomized split sample design in a health care context. More specifically, we study postgraduate medical students’ preferences for establishing in a general practice in rural Denmark. The results show some differences with respect to willingness-to-pay estimates, but remarkable similarities with respect to forecasting abilities, suggesting that the validity of the far less econometrically demanding ECP approach would seem to be at least as good as the usual more econometrically demanding DCE approach. Furthermore, we extend the model of the ECP approach by distinguishing between those with at least some resolvable uncertainty and those with only unresolved uncertainty by using separate simultaneous equations related to the choice attributes. This is done by fitting a logit distribution to the two extreme probability processes (zero and

one) and a Beta distribution to the intermediate process. While this extended model provides extra insight into the degree of preference heterogeneity, its results show no extra accuracy in forecasting.