Optimal weight constraint elicitation for additive multi-attribute utility models

Gert van Valkenhoef[1,2] and Tommi Tervonen[3]

g.h.m.van.valkenhoef@rug.nl, tervonen@ese.eur.nl
[1] *Department of Epidemiology, University Medical Center Groningen, The Netherlands*
[2] *Faculty of Economics and Business, University of Groningen, The Netherlands*
[3] *Econometric Institute, Erasmus University Rotterdam, The Netherlands*

Abstract

We consider the elicitation of incomplete weight information for the additive utility model. In this setting, the feasible weight space is bounded by linear constraints obtained from a decision maker. These can be elicited either indirectly as pair-wise comparisons of reference alternatives or directly as intervals for criteria trade-off ratios. We show how to choose the next elicitation question that maximizes the information gain on the ranking of the decision alternatives, and propose a stopping criterion for the elicitation process.