WWZ Research Seminar
Faculty of Business and Economics, University of Basel

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## "Handling uncertainty in cost-effectiveness analysis in the presence of risk aversion."


**Abstract**

Cost-effectiveness analysis has been advocated and is widely used to inform policy and decision makers in setting priorities for resource allocation. Since the costs and effects of health care interventions are uncertain, much research interest has focused on handling uncertainty in cost-effectiveness analysis. The most widely used method to summarize uncertainty in cost-effectiveness analysis is the cost-effectiveness acceptability curve, which estimates the probability that an intervention is cost effective for a wide range of threshold ratios. However, by estimating the uncertainty associated with incremental costs and effects, information about the uncertainty associated with the costs and effects of the individual programs is lost, which may be important to inform risk-averse decision makers. We suggest to penalize the expected net monetary benefit (NMB) of a program for its downside risk (i.e. bad risk), which preserves the uncertainty of the individual programs and rank orders programs according to their risk-adjusted NMB. The cost-effectiveness risk-aversion curve (CERAC) is introduced, which estimates the net benefit-to-risk ratio for a wide range of threshold rations. The CERAC is a helpful additional tool to inform decision and policy makers who are risk averse, and can easily be constructed using the results of a cost-effectiveness analysis.


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