

Risky Choice

MODELS AND EXPERIMENTS IN RISK AND RATIONALITY, Bertrand Munier and Mark J. Machina (eds), Dordrecht, Netherlands: Kluwer Academic Publishers, 1994, ISBN 0-7923-3031-5, 438 pp.

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This edited book contains papers originally presented at the 6th Foundations and Applications of Utility, Risk and Decision Theory (FUR VI) conference, held in 1992 at the Ecole Normale Supérieure de Cachan, in France. The editors provide an insightful general introductory discussion on important questions to be considered in the study of risk and rationality. These comments will be very helpful for behavioral decision theorists who will find some familiar authors and approaches and some less familiar ones (particularly by economists), all working on relevant topics. Each of the six sections also has a general overview of the three to four papers in the section. The papers in each section are well connected and each makes a valuable contribution in the form of a specific question related to the topic discussed.

In the section titled 'Psychological Aspects of Risk-Bearing' three papers are devoted to study how individuals choose among risky alternatives. First, Assilly describes a developmental approach to study the risk-taking behavior of children, which attributes risk taking to a focus on the outcome of the risk rather

than on the associated probability. Second, Cadet discusses well-known 'framing' and 'context' effects and shows interactions between framing and the number of attributes or the mode of presentation. He attributes this to a cognitive memory overload. Third, Shoemaker and Hershey extend their previous studies regarding the effect of response mode on estimating utility, finding an interaction between response mode and probability. Of particular value in this paper is a simple anchoring model proposed to explain these effects. Whereas many studies have simply focused on demonstrating the existence of phenomena, these three papers provide models and systematic investigations to explain the phenomena.

The second section introduces new concepts in the study of risk aversion. Montesano provides a new way to measure an individual's aversion towards uncertainty, decomposing an individual's aversion to uncertainty into two parts: risk aversion due to outcome variability and risk aversion due to uncertainty. Eeckhoudt and Schlesinger examine the relationship between risk aversion and prudence, both defined as properties of a person's utility function. Rothenberg introduces a new concept called 'embodied risk' where a participant's own effort can effect changes in the stochastic process which determines the outcome, and he applies the concept to spousal abuse.

The third section on 'Non-Expected Utility Models and Tests' contains two papers which introduce new experimental methods to estimate an individual's preferences. Carbone and Hey compare non-expected

utility models with expected utility by eliciting the entire ranking of many lotteries rather than only comparing lotteries in pairs. They note difficulties with noisy data, a problem all experimenters in this field face, but few address. The paper would have been more informative if it had provided a motivation for using the technique of eliciting the complete ranking over the more standard pairwise method, since the advantages are not clear. Abdellaoui and Munier introduce the 'Closing In' method which estimates a lottery indifferent to a given one through a sequential process. The construction of indifference curves using this method provides an important improvement in comparing several models of non-expected utility.

Next, Sarin and Wakker emphasize the difference in preference exhibited between gains and losses, a property which leads to a non-additive probability. They derive a simple axiomatization of cumulative prospect theory. The fourth paper by Nobel Laureate Maurice Allais provides a comprehensive overview of his contributions and their relationship to recent developments.

The fourth section contains papers presenting different approaches for 'Multiple Criteria Decision-Making Under Uncertainty' by Zaras and Martel, Cao and Protzen, and Pellegrin. This section balances two important topics of multiple criteria decision making: how to integrate incomplete preference information and how to aid the decision-making process.

The fifth section extends the relatively context-free theoretical studies of risk to the contexts of agricultural management and financial economics.

The last section titled 'Gambles and Social Choice' covers multi-person decision strategy in game theory

and social choice. Camerer and Karjalainen found 'ambiguity aversion' in strategic game situations. They also provide extensive commentary on experimental methodological difficulties and possible real-world economic consequences of ambiguity aversion. Laffond, Laine and Laslier apply the graph-theoretical concept of a 'composed tournament' to areas such as social choice. The last chapter by Umbhauer investigates information transmission in signaling games where, for example, the consumer decides the purchase not on the quality but just on the price set by a market producer.

Overall, the book has many strengths, it covers a very large range from the psychological aspects of decision under risk to more applied areas such as game theory and social choice. Within each section, the book covers the important problems in the area with balance. The consistent general theme of the book is to criticize a traditional approach and to provide at least two new approaches to the same problems. For example, in eliciting preference relations, the new approaches are to obtain a complete ranking of the given set of lotteries or to use a sequential choice method. Most of the papers in the book combine both theoretical improvements and experimental tests of the new approaches in the laboratory or in applied areas. The title of the book, *Models and Experiments in Risk and Rationality*, is appropriate to describe the material in it. Unlike many other works in the field, experimental tests are integrated into the work at all levels rather than being relegated to a single specialized chapter.

It is not easy to edit a book to have a consistent and systematic theme both globally and locally, particularly from the papers presented in a conference; the editors did an excellent job.