

*Progress in Decision, Utility and Risk Theory*, Edited by Attila Chikán (Norwell, Mass.: Kluwer Academic Publishers 1991).

Reviewer: Patrick L. Brocket, University of Texas at Austin

This book contains a selection of papers originally presented at the Fourth International Conference on the Foundations and Applications of Utility, Risk and Decision Theory in Budapest in June of 1988. As the name suggests, the book focuses primarily on such topics as expected utility versus alternative utility models, fundamental concepts of risk and uncertainty, developments of game theory, and investigations of real decision-making behavior under uncertainty and/or in risky situations. Many of the discussions in the papers are closely related to economics and consequently have potential applicability for academic researchers in risk management and insurance. In fact, Nobel laureates in economics, Herbert A. Simon and Maurice Allais, were among the participants.

Altogether, the volume comprises 34 papers on various topics, many of which might be of use to risk management researchers. The lead article by Maurice Allais, for example, gives a concise overview of the history and theory of cardinal utility functions (whose usage has become fundamental to many theoretical approaches to insurance demand and feasible insurance pricing in the finance, actuarial and insurance literatures). Herbert Simon, however, in a very cogent article, criticizes the assumptions of subjective expected utility theory for decision making under uncertainty. Drawing upon results from cognitive sciences, he argues that agenda formation, attention focusing, and alternative generation and problem formulation should be the basic components of a more realistic model for decision making. This also has implications for insurance demand modeling.

This book also contains several reports on experiments or applications involving utility theory and exhibits failures, biases, and inconsistencies. Alternative decision and risk analysis models are then discussed by numerous authors in articles that are mostly theoretical. For example, Bogardi and Kelly provide a very good application of fuzzy set theory as a prospective analytical device in risk analysis. I believe that this is important for insurance researchers because of the fundamental role of fuzziness in modeling ambiguity in insurance coverages. Other theoretical contributions include notions of game theory (and their extensions), and alternative notions of "increasing risk" and "risk aversion."

A final section of the book is devoted to the analysis of various sorts of risk-taking behavior. For example, from a corporate perspective, Aiginger states that the main responses of firms to increasing uncertainty is to increase flexibility. He then discusses some implications of this response using empirical data. Cohen presents an axiomatic model for subjects, taking into account simultaneously or alternatively the security factor—which "makes people attach special importance to the worst outcomes of risky decisions"—and the potential factor—which "reflects heightened attention to the best outcomes of decisions." In dealing with definitions of risk-aversion, Montesano points out

that two definitions of risk aversion (the risk premium definition and the mean preserving spread definition) consider two different questions. Finally, Szprio shows that it may be optimal for utility maximizing risk seekers to engage in insurance and gambling activities simultaneously, trying to take advantage of a moral hazard situation.

In general, this book is a good addition to the library of the economic-risk and utility type researcher; however, I would recommend this book more for a university library than for that of a risk management researcher. (I view the actuarial/insurance risk theory researcher as taking a somewhat different perspective from that of the economist view illustrated in this book). The articles are, in general, well written and diverse in scope and level of mathematical prerequisites; and I believe that the articles by Allais and Simon are particularly accessible and worthwhile if you are doing theoretical research of this type.

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