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Review of "Essays in the Theory of Risk Bearing"

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Comments

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important is the quantity of money created and not the particular credit channels by which the money is introduced.

This book is a welcome contribution to the growing monetary literature and should be read by all serious students in the field. The one criticism, or rather complaint, I would like to voice concerns the fact that we did not have the opportunity to read it much sooner. Because most of the evidence ends in 1966, it is clear that much of this book was completed at least 5 years ago. Although neither Cagan nor the National Bureau is known for an emphasis on current policy problems, this publication lag still seems shocking and, with any reasonable discount rate, represents a significant cost to society. It is also disappointing that the study ends in 1966 because the behavior of interest rates is somewhat unique in the period since then in terms of the extremely large amplitude of cyclical movement and the apparent substantial decrease in the lag of adjustment of price anticipations (the Fisher effect). It therefore would have been quite instructive if the study could have been extended to the more recent period.

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Essays in the Theory of Risk-Bearing. By KENNETH J. ARROW.
Chicago: Markham Publishing Co., 1971. Pp. vii+278. \$10.95.

This volume provides an edited collection of Kenneth Arrow's many contributions to contemporary analysis in the economics of uncertainty. The 12 essays are all previously published, except that the third essay, "The Theory of Risk Aversion," is a considerably expanded version of earlier published work on the same topic.

Essay 1, "Alternative Approaches to the Theory of Choice in Risk-Taking Situations," provides a comprehensive introduction to the problems posed by uncertainty for economic analysis. This includes discussion of probabilistic versus nonprobabilistic, and subjectivist versus relative frequentist views of the treatment of uncertain consequences of decision. A traditional nontechnical treatment of utility theory is provided—beginning with the Bernoulli solution to the Saint Petersburg game and progressing through the von Neumann-Morgenstern-Ramsey utility construction, Wald minimax loss, and Savage minimax regret criteria for the evaluation of uncertain consequences.

The second essay provides an axiomatic approach to choice under uncertainty. The expected utility theorem is proved in an unusual way by exploiting the economic concept of independent goods. This is achieved by showing that conditional probability distributions over consequences behave like independent goods in ordinary riskless utility theory. Following Ramsey and Savage, it is shown that the axiom of probabilistic beliefs can be derived from other assumptions such as the postulate that preferences among bets are independent of the prizes.

The third and fourth essays, "The Theory of Risk Aversion" and "The Role of Securities in the Optimal Allocation of Risk-Bearing," are the most influential contributions in the book. They are representative examples of two distinct uses of theory in economic analysis: (1) the use of theory to explain and understand observable economic behavior and institutions, and (2) the use of theory to derive the performance characteristics of non-observed economies and institutions suggested by a reinterpretation of the arguments and equations of a received theory, or by a mathematical formalism. Thus, essay 3 seeks to give precision to the concept of risk aversion for the purpose of explaining observed aspects of investment, insurance, risk sharing, and liquidity demand behavior. Essay 4 solves a long-standing intellectual problem in economic theory. The general equilibrium model of the economy is a deep sophisticated treatment of a naïve world of certainty, costless information, and costless transactions. Essay 4 removes the certainty stricture on this model by the simple device of reindexing the commodity space so that cereal is not cereal, but cereal-if-it-rains and cereal-if-it-shines. This expansion of the ordinary commodity space to a state-contingent commodity space, where states are uncertain, permits the general equilibrium world of certainty and all its results to apply to a general equilibrium world of uncertainty. All that is required, as Arrow shows, is for there to exist securities markets in state-contingent claims, that is, "lottery tickets" paying \$1 conditional on state θ occurring. It is a remarkable commentary on the nature of the human mind that such a contribution (and it is indeed) should be considered to have solved a problem. In a sense one can say that it is a sleight-of-hand dodge of the problem, and it certainly constitutes what earlier generations of graduate students would have called an "empty box." On the other hand, I find it useful and insightful to imagine a world of Arrow certificates in which every good event has its price and every bad event has its insurance premium so that every portfolio is sharply turned to individual attitudes toward risk. What is not a legitimate use of the state-contingent securities model is to make judgments to the effect that the real world economy is inefficient because there "are not enough markets." The real economy is not solving the intellectual problem of how to introduce uncertainty into Pareto-Walras models of general equilibrium. The economy must invent claim instruments and institutions that permit risk sharing while economizing on the transactions and information costs of supporting such instruments and institutions. To this end the economy has invented limited-liability legal institutions, common shares, priority debt instruments, options, rights, warrants, multiple-hazard insurance policies, share cropping, oil and gas exploration leases, life insurance policies for key management and research personnel, and so on. These real-world institutions lead to risk-sharing contracts with the important property that return contingencies depend upon collections of elemental states. Thus, all states that yield a profit provide a proportionate share of such profits to the common stock holder. Real world contracts are indivisible packages of Arrow certificates. One must assume that men have invented such packages out of considerations of economy.

Essays 5–11 represent applications of the concepts of essays 3 and especially 4 to insurance markets, invention (or the production of information), medical care, and control in large corporations. In these essays, Arrow is concerned to point out some of the limitations inherent in real-world markets for risk shifting. Thus, in insurance there is the problem of “moral hazard,” wherein the purchase of insurance may change incentives and therefore the probabilities upon which the insurance company relies to compute premiums. Unlimited fire or health insurance creates incentives for arson and inessential medical treatment. Investment in the production of new knowledge tends to be inadequate because of the public good property of information—if I have it, there is not less for you to have. But institutional devices mitigate these limitations. Arrow suggests that coinsurance, whereby the insured pays for a portion of the loss, is an institutional response to the incentive failures resulting from moral hazard. In medical care, market failure may occur “because medical care belongs to the category of commodities for which the product and the activity of production are identical,” so that the consumer cannot test the product before consuming it. It seems to me that the problem simply stated is that the physician is in the position of deciding what and how much of his services the customer should buy. The preconditions of consumer sovereignty are not present, and the physician is confronted with a conflict of interest that is not subject to the usual market discipline. The same is true of automobile repairing in which the customer cannot usually be assumed to be competent to judge what he should buy. The repairman often decides for him and the complaints are legion. This has led to a new institution—the diagnostic center, which conducts no repair services, but specializes in the diagnosis of automobile ills. Thus may the customer hope to buy information untainted by the repairman’s conflict of interest. Such an institution, it would seem, might perform a similar function in health care.

I have used this book in graduate classes and would recommend it for courses in decision theory, utility theory, and the economics of uncertainty.

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Managerial Comparisons of Four Developed Countries: France, Britain, United States, and Russia. By DAVID GRANICK.

Cambridge, Mass.: M.I.T. Press, 1972. Pp. viii+394. \$15.00.

The shoes began dropping on the second page of the introduction with Professor Granick’s confession of “very serious problems of presentation.” The hints of disarray to come were discounted by the author’s reassurance that various chapters were written for different audiences—some for all readers, some for industrial sociologists, some for business administration specialists, and others for economists. The author has in actuality written three or four books and attempted to integrate them into one.

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