Review of “Karl H. Borch: Economics of Insurance”


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Alas! When you, now a professor, start reading any of the eight chapters, you will remember those happy days some twenty years ago, when you have been working on your doctoral dissertation. Those days, economic theory, mainly understood as general equilibrium, was facing (at least) two fascinating challenges: the one to mention here was uncertainty, the other game theory.

Step by step, paper by paper, the body of microeconomic theory became enlarged and enriched by decisions under risk and, in the sequel, by the many facets of asymmetric information, signaling, and agency theory. While poring over Pratt's measure of risk aversion (1964) and Herstein and Milnor's reformulation (1953) of the von Neumann / Morgenstern axioms, you will have benefited from Karl Borch's great ability to express everything in a clear and easily understandable way: During 1960-70, Borch published a well-known textbook on decision theory and, in addition, some twenty contributions to the theory of risk applied to insurance.

Insurance, as conceived by Borch, professor at the Norwegian School of Economics and Business Administration in Bergen, Norway, is much more than a mere application of the theory of decisions under risk, and, in particular, beyond what can be grasped by the traditional actuarial thinking in terms of expected values. According to Borch, insurance should be understood as a field of economics, focusing on institutions and markets as well as on risk.

So you may well visualize that insurance is provided by big (why?) companies, which face a certain probability of ruin, and you may ask what can be learnt from insurance companies that went bankrupt. Further on, insurance companies seek reinsurance, and you may wonder about the extent, and, you may speculate why only a small number of firms do exist who provide reinsurance. To go on, insurance, as a service that implies moral hazard, is offered on markets, which exhibit aspects of limited competition. And since there are more than a few reasons why these markets may turn out to be oligopolistic, game theory appears as the appropriate and natural tool to analyze the economics of insurance:

"The power of game theory . . . In other words, the bargaining strength of the group will determine the premium. There can be little doubt that this is a more realistic approach to the problem than one based on more orthodox actuarial considerations of 'fairness.'" (p.281)

This mixtum compositum of risk theory on the one hand and of game theory on the other, in fact, sets the line along which Karl Borch raises questions and gives answers both by mathematical argumentation and verbatim in his most pioneering and stimulating work. The "economics of insurance" is a book on which Borch was working during his last years, and which has been now, after his death in 1986, published by Knut A. Aase and Agnar Sandmo, who undertook minor editing only.
So the book is much more than a memorial to a famous scholar. It is an advanced textbook, indeed, that gives a vivid testimony of how insurance, as a field of scientific endeavor, can and should be developed from the economic point of view: take microeconomics as a basis and enrich your tool box by the theories of games and of uncertainty.

As always, there are good news and bad news. The good news first: Borch covers all related topics, ranging from "Insurance and Utility Theory" (chap. 2) through "Life Insurance" (chap. 4), "Business insurance" (chap. 5), till "Household insurance." You will neither miss an analysis of "Uninsurable Risks" (chap. 7, pp. 315-362) nor the relation between "Risk Theory and Government Supervision" (chap. 8).

To each question analyzed, Borch shows the reader how different points of view (historic, actuarial, economic, institutional) contribute, taken all together, to form a well-balanced answer. Excellent, how the author addresses the reinsurance problem and how the risk premium in a reinsurance market is determined. Fascinating, how Borch deals with the insurance paradox (p. 257), which was already recognized by Irving Fisher (1930) and later revisited by Yaari (1965). The reader will find many illuminating historic notes (e.g. chap. 1) and many hints on the history of thoughts and ideas. Consequently, it is a sound textbook, not just a research monography.

In some parts and points of the book, however, Borch left same homework to his epigones who will, in coming years, write other textbooks on the same subject. While repeatedly referring to the axioms of expected utility in the lump, Borch avoided to present a concise statement of measurable utility. He refers to "linearity in probability," but what that axiom actually means, remains veiled and hazy. Measures of risk aversion, not to speak of alternative measures of risk aversion, are not presented in an appropriate way. Since several authors concluded that some forms of insurance can only be explained by non-expected-utility theory, the reader could expect more than just the hint on p. 142. Finally, the reader may miss hints on economic models that try to value the human life.

But "bad news" of that type can be understood. Obviously, Borch was working on the "economic mechanism" and put less stress on perfectly providing the elements needed - in this book. In a line, the reader cannot find an analysis of probabilistic insurance, which puzzled so many writers and readers. Hints to the related work by Arrow and others seems to scarce to me.

In some places, however, even the presentation of the economic mechanism in its most general form still needs some ingenious simplification in order to allow for better understanding. So on p. 71, e.g., Borch admits that the "price concept we have introduced appears forbiddingly complicated . . .." Why not start with the simple special case right now?

Thus the epigones have to rework at least some of the material presented by the great scholar. In addition, they have to add new research that emerged during the last ten years or so, research that is not included for obvious reasons.

But what are these new lines of research related to insurance that should become integrated in a "second edition"? It seems to me that some parts of modem finance should be reflected (portfolio approach to risk taking, the market price of risk, risk-sharing), at first. Secondly, the arbitrage pricing theory for deriving equilibria more elegantly. Thirdly, the literature on incentives and information (though Borch, on p. 271, refers to Stiglitz, 1974), and, finally the theory of financial intermediation. Until a book on insurance will be published that covers these aspects, Karl Borch's "economics of insurance" will remain my favorite reference.