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Psychological Economics in the Late 1990s

Games and Human Behavior: Essays in Honor of Amnon Rapoport

Edited by David V. Budescu, Ido Erev, and Rami Zwick. Based on a Chapel Hill, NC, workshop, August 1996. Hillsdale, NJ: Erlbaum, 1999. xiii + 427 pp. Paper, \$39.95.

After decades of splendid isolation from its sister social sciences, economics is beginning to engage meaningfully again with cognitive and social psychology. The current volume, a festschrift for Amnon Rapoport, is a landmark on the path of reengagement. A special session of the summer 1996 Mathematical Psychology workshop gathered an interdisciplinary group of researchers at Chapel Hill, North Carolina, to present papers in honor of Rapoport's 60th birthday, and the published collection of 16 chapters (with 25 authors) grew out of the workshop papers.

Progress since the last comparable collection, Hogarth and Reder (1987), is remarkable. That earlier collection revealed a vast methodological gulf between economists and psychologists with a common interest in bargaining and individual choice. Economists insisted on explicit theory centered on rational choice, and they interpreted experiments strictly through that theoretical lens. Psychologists were more casual about how to construct theories and more pragmatic about interpreting experimental data. These differences induced disagreement even on what sort of experiments are informative. Although the arguments of that era were entertaining and occasionally enlightening (I especially favor Vernon Smith's [1991] contribution highlighting the pivotal role of economic institutions), the gulf seemed too wide to allow much interdisciplinary progress.

The present book reveals a very different and more progressive landscape. Economists wisely continue to rely on explicit theory to structure and interpret the data, but have relaxed their insistence on narrow self-interest as the sole motivation for human behavior. Psychologists, if this book is any indication, have become more appreciative of models constructed from widely accepted first principles, and it is no longer difficult to conduct experiments that everyone recognizes as informative. The book reveals only tentative answers to the most interesting questions, but there is a new sense of common purpose and progress. For this, Amnon Rapoport deserves a portion of the credit, both for the example he sets and the students and coauthors he has influenced, as well as for his direct scientific contributions.

The collection has five parts, each with distinctive questions. Part I, "On Psychology and Economics," has a long overview chapter by the three editors and a brief methodological note by Robin Dawes on demand effects. The editors' overview expresses their hope for "a new common core of axioms and unified methodology" (p. 5) and offers several helpful suggestions: that scarcity in economic-style theoretical models include both cognitive and environmental resources, that preferences are sometimes constructed or revised during the decision process, that they are importantly affected by learning and

adapting, that the clarity of salient cash payments sometimes makes them useful for psychologists as well as economists, and that economists should consider motives beyond self-interest.

Part II offers a snapshot of the very active subfield known as learning in games, which recently has entered the mainstream of economics and game theory (Friedman, 1998). Three leading approaches are showcased here. Chapter 4, by Ido Erev and Al Roth, offers an expansive version of reinforcement learning, in which rules (or cognitive strategies, in the authors' terminology) rather than direct actions are the objects of reinforcement and learning. Colin Camerer and Teck-Hua Ho in chapter 3 summarize their model of learning responsive to the potential payoff of actions not taken as well as the actual payoff reinforcement from chosen actions, thus nesting belief learning and reinforcement learning. Reinhard Selten and Joachim Buchta in chapter 5 at last publish their paper introducing directional learning, a qualitative theory of learning a continuous action. The idea is that one tends to increase (or decrease) the action following trials when such an adjustment would have increased payoff. It will probably take a few more years before a clear consensus emerges on which learning models are most appropriate, but my guess at the moment is that some sort of rule learning model will prevail.

Part III studies equilibrium and learning in coordination games—those with several noncooperative equilibria, some of which are efficient. Rosemarie Nagel in chapter 6 surveys the cottage industry she created in studying “p-beauty contests,” a special type of game with a unique equilibrium (hence not really a coordination game). These games are interesting because they provide a unique perspective on the coordination of beliefs required to achieve equilibrium, and Nagel reports the success of various learning models in capturing most (but not all) of this process. Darryl Seale and James Sundali in chapter 8 and Jack Ochs in chapter 7 survey a longer strand of literature on pure coordination location/congestion games in which approximate equilibrium is achieved much more rapidly than existing learning models would suggest.

Part IV, on two-person bargaining, is the real heart of the collection. Bargaining is economically important but brings to the surface all sorts of behavioral complications that lie dormant in well-functioning markets. Gary Bolton's survey in chapter 9 is especially instructive. He says,

To me, the most encouraging thing about the experiments is the sense that the debate is progressing: there are hypotheses that once were forcefully put forward that no one with a knowledge of the evidence supports anymore. At one time or another the data has forced almost everyone, including myself, to modify their views. The new views tend to be more sophisticated and more encompassing, meaning the new debates and new experiments probe deeper. (p. 205)

The chapter recounts the elimination of six a priori plausible hypotheses and shows that two other explanations remain in the running: a taste for negative reciprocity (willingness at some personal cost to punish an “unfair” bargaining partner) and learning. Specialists in bargaining theory will also want to read carefully the next two chapters, by Werner Güth and by Eytan Weg and Rami

Zwick. The former connects two-person bargaining to first- and second-price auctions, and the latter connects Rubinstein-style (infinite horizon alternating offers) bargaining to a simple reduction called the fold game.

The last part of the book is five chapters on social dilemmas, games in which the noncooperative equilibria are inefficient. Chapter 12, by Harel Goren and Gary Bornstein, studies a two-level version of the tragedy of the commons in which individuals contribute (or not) to their own group, and groups compete for largest number of contributors. Here the no-contribution strategy is inefficient at the group level, but is efficient at the social level and, of course, is individually optimal. The authors find that no-contribution gradually displaces alternative strategies. Samuel Komorita and Craig Parks summarize in the next chapter a series of iterated prisoner's dilemma (the two-person commons tragedy) laboratory experiments with humans, in the traditions of social psychology and Axelrod's famous computer simulations. William Liebrand and David Messick sketch some computer simulations in the following chapter for repeated local interactions based on the prisoner's dilemma. My favorite chapter in this section is by Chris Snijders and Gideon Keren, examining an extensive form version of prisoner's dilemma called trust. By varying the different payoffs, they are able to measure the explanatory power of self- and other-regarding motives such as guilt, regret, risk, and temptation, using a slick probit estimation procedure. The final chapter, by Ramzi Suleiman and David Budes-cu, looks at the tragedy of the commons in a stochastic environment and investigates the effect of simultaneous versus various sequential choice protocols.

I have only two complaints to register about this excellent collection of papers. First, it doesn't cover full-blooded markets, which are of some interest to psychologists and of central interest to economists. Second, I missed the conference and the book increases my regret. It must have been a joy to see such interdisciplinary progress by a large and diverse collection of active researchers. Anyone wishing to understand the state of the frontier between economics and psychology in the late 1990s should read this book.

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