Managerial Decision Making

Edited by
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Introduction

Don A. Moore

This is an exciting time to be studying decision making. The field of decision research is rapidly gaining in stature and influence, and the evidence is all around. Decision research has been expanding in business schools, law schools, schools of medicine, and schools of public policy. In business schools, decision researchers are often in departments of management or organizational behavior, where they study managerial decision making and negotiation. But decision researchers are also well represented in marketing, where they usually study consumer behavior. Decision researchers in finance have made great progress recently studying investment decisions. In accounting, decision researchers study decision making by accountants and auditors. Those in schools of public policy study how policy changes affect behavior. Those in schools of medicine study how physicians and patients make decisions. Of course, decision research is well represented in its home discipline of psychology, including the burgeoning new field of neuroscience. But perhaps the most important impact of decision research has been on economics, where behavioral and experimental economics have made great strides, as signified by the fact that the only two Nobel Prizes in economics awarded to non-economist social scientists have gone to decision researchers: Herbert Simon in 1978 and Daniel Kahneman in 2002. Behavioral economics now has a place in most economics departments.

Decision research has also increased its visibility in the popular press. The recent crop of top selling books based in part or exclusively on decision research includes *Predictably Irrational* (Ariely, 2008), *Nudge* (Thaler & Sunstein, 2008), *Sway* (Brafman & Brafman, 2008), *Your Money and Your Brain* (Zweig, 2008), *Blink* (Gladwell, 2005), *The Wisdom of Crowds* (Surowiecki, 2003), and *The Tipping Point* (Gladwell, 2000). Decision researchers have gained a more prominent role advising policy makers, political campaigns, and corporate executives. I hope that this book will provide a broad perspective on the foundational insights and recent developments in this exciting field.

In selecting papers to include in this book, I have attempted to be broadly representative. Nevertheless, I had to make many difficult choices. These choices were of course driven by my own idiosyncratic perspective. The papers in this book, like the research that has propelled recent advances in the field, can all be characterized as *behavioral* decision research. What is distinctive about behavioral decision research is that it compares what *is* with what *ought* to be (Moore & Flynn, 2008). But this is not the only way in which decision making has been studied. Some research on decision theory or decision analysis helps specify how people ought to make decisions, without considering whether people naturally do what the theory says they should (Hammond, Keeney & Raiffa, 1999; Raiffa, 1997). While it is important to develop normative benchmarks, not knowing how people truly act makes it more difficult to help them improve their decision making. Furthermore, for interactive or strategic decision making, knowing what other people will actually do is essential to success because you have to know what other people are going to do in order to plan your own strategic response.

There is also a great deal of research that examines how people decide, without aiming to specify how they ought to have done so. For example, there are the so-called 'organizational cognition' and 'naturalistic' approaches to the study of decision making. While each of these approaches has made useful contributions, neither compares actual behavior with a normative standard. For instance, research on naturalistic decision making has examined how experts make decisions differently from novices (Zsambok & Klein, 1997). While these differences are clearly interesting, such studies usually cannot specify whether experts could have done even better, and if so, how. Research that identifies itself as the study of organizational decision making (Shapira, 1997) usually focuses on field settings in which it is difficult or impossible to specify the normative standard of what decision makers should have done (Bazerman, 1999).

Great insights are often born from comparing what is with what ought to be. It is this productive tension that makes behavioral decision research powerful, interesting, and controversial. For example, one of the major controversies in behavioral decision research is whether or not people are rational. An intense and sometimes bitter debate raged for a little while on the question of whether the biases documented by behavioral decision research really are errors (Gigerenzer, 1996; Kahneman & Tversky, 1996). This question can only be answered by testing whether actual people make decisions in the way that a perfectly rational person would.

From this debate has emerged a clear consensus: the heuristics on which people rely so heavily in their decision making are, by and large, simple and effective solutions to complex adaptive problems. People try to be rational: we try to earn more money rather than less; we try not to crash our cars; and we try to select the best jobs, spouses, and investments. But that is not the same as having perfect judgement. Making good decisions about where to search for food, who to befriend, and with whom to mate all help increase the chances that our genes will make it to the next generation. But perfect rationality is not a prerequisite for reproductive success. Reproductive fitness, like business success, is first and foremost about doing better than others. A business succeeds when it is better than its competitors – it is not necessary that it be perfect. And so, because no one is perfectly rational, neither evolutionary nor marketplace pressures are sufficient to weed out those who make decision errors due to their being only boundedly rational.

Herbert Simon coined the term 'bounded rationality,' and no understanding of managerial decision making would be complete without an appreciation for his work. He laid many of the stones in the foundation on which the study of decision making has been built. The basic premise of his work is that people are not the perfectly rational utility maximizers that exist in the stylized world of neoclassical economic models. Instead of optimizing, Simon suggested that people 'satisfice' – i.e., settle for options that are sufficiently satisfactory to suffice. Certainly, the notion that people fall short of the ideals of *homo economicus* is not one that belongs exclusively to Simon. But Simon's ability to engage in fruitful discussion with economists about exactly how human behavior deviates from perfect rationality made him uniquely influential.

Simon's work acknowledged the importance of the clear normative standard provided by neoclassical economic theory (Simon, 1955, 1959). This acknowledgement remains the distinctive feature of behavioral decision research. Is this simple feature really so unique? Unfortunately, it is. Too much research fails to think clearly about what the right normative

standard is for judging people's behavior. What would a perfectly rational person do under the circumstances? What would a perfectly profit-maximizing firm do given the situation? Answering this question means achieving a clear understanding of the details of the decision. What are the expected benefits of each possible alternative choice? What are the uncertainties or unknowns associated with each choice? Being able to answer these questions requires that one be able to specify details, such as payoffs and probabilities, that some researchers find it difficult to articulate. Their failure to do so relegates their work to the descriptive domain and keeps it from attaining the power of combining accurate description with clear prescription.

So this book begins with four papers on bounded rationality. Chapters 1 and 2 by Herbert Simon are followed by two more recent elaborations of how exactly human rationality is bounded (Ariely, Loewenstein & Prelec, 2003, Chapter 3; Kahneman, 2003, Chapter 4). Next, the book presents key findings on one of the most basic heuristics on which the human mind relies. Anchoring was named and described by Tversky and Kahneman (1974, Chapter 5). The psychological mechanisms underlying it have been elaborated in subsequent work (Epley & Gilovich, 2001, Chapter 7; Mussweiler, Strack & Pfeiffer, 2000, Chapter 6).

The next few papers are on framing, perhaps the most important bias documented in decision research. (Bounded rationality, by contrast, is not so much a bias as a constraint on human capabilities.) Research on framing shows that people use the information at their disposal in biased ways that reduce the quality of their decisions. The theory was brilliantly articulated by Kahneman and Tversky (1979, Chapter 8), and a great deal of subsequent work has helped elaborate its implications, including the endowment effect (Kahneman, Knetsch & Thaler, 1990, Chapter 9), the equity premium puzzle (Benartzi & Thaler, 1995, Chapter 10), and the effect of decision defaults (Johnson & Goldstein, 2003, Chapter 11).

Part IV is on overconfidence, which has been called the most prevalent and potentially catastrophic problem in judgement and decision making (Plous, 1993). But the evidence of a systematic bias toward overconfidence is controversial and complicated. Some strong claims of bias (Block & Harper, 1991, Chapter 14; Camerer & Lovallo, 1999, Chapter 13; Lichtenstein & Fischhoff, 1977, Chapter 12) are accompanied here by important qualifications and critiques (Moore, 2007, Chapter 15).

Behavioral decision researchers have examined the consequences of human preferences for fairness. Fairness motives lead to a wide variety of irrational behaviors in such domains as economic transactions, social encounters, and negotiations (Babcock, Loewenstein, Issacharoff & Camerer, 1995, Chapter 19; Kahneman, Knetsch & Thaler, 1986, Chapter 16; Messick & Sentis, 1979, Chapter 18; Rabin, 1993, Chapter 17). Fehr's work has attempted to explain how such irrational behavior could nevertheless be evolutionarily adaptive (Fehr & Gächter, 2002).

Recently, there has been a great deal of interest in emotional influences on decision making. Loewenstein (1996, Chapter 21) and Haidt (2007, Chapter 23) make the case for the importance of visceral and emotional influences on behavior. The other papers included on this topic elaborate precisely how emotions affect behavior.

Part VII focuses on the strengths, weaknesses, and idiosyncrasies of human intuitive judgement. The evidence is quite clear that intuitive human reasoning is deeply flawed and leads to incorrect and biased judgements (Dawes, Faust & Meehl, 1989, Chapter 28; Staw, 1975). These biases are made more dangerous by the fact that we are often unaware of how the unconscious mind influences our decisions (Nisbett & Wilson, 1977). But it would be a

mistake to conclude that unconscious mental processing impairs our decisions. Indeed, some good evidence suggests quite the opposite: that the unconscious mind plays an important role with which the conscious mind sometimes interferes in destructive ways (Wilson & Schooler, 1991). Methodological advances have opened up new opportunities for the study of non-conscious thoughts, and the results are provocative (Nosek *et al.*, 2007, Chapter 30). The precise role of unconscious thought remains a controversial topic (Dijksterhuis, Bos, Nordgren & van Baaren, 2006, Chapter 31; Payne, Samper, Bettman & Luce, 2008, Chapter 32).

By highlighting this research on unconscious thought, it was not my intention to imply that the rest of decision research is just about conscious intentional choices in formal decision situations. Those who study decision making do not restrict themselves only to choices that are commonly thought of as formal decision problems. And for the most part, they do not take a strong stand on the question of where in the human mind these decisions get made – in the conscious or unconscious. This research has examined decisions large and small, from whether to start a new firm (Camerer & Lovallo, 1999, Chapter 13) to what product to buy (Nisbett & Wilson, 1977). It has looked at behavior that is rapid and intuitive (Dijksterhuis *et al.*, 2006, Chapter 31; Nosek *et al.*, 2007, Chapter 30) as well as behavior that is more thoughtful and deliberate (Johnson & Goldstein, 2003, Chapter 11).

Indeed, it is my belief that the tools of behavioral decision research can be fruitfully brought to bear on just about any question in the behavioral social sciences. Whenever researchers understand what they are studying well enough to be able to specify a normative standard against which actual behavior can be compared, many great scientific insights become possible. I hope that this book highlights some of these insights and inspires new ones.

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Contents

Part I
Bounded Rationality

[1]

A BEHAVIORAL MODEL OF RATIONAL CHOICE

By HERBERT A. SIMON*

Traditional economic theory postulates an "economic man," who, in the course of being "economic" is also "rational." This man is assumed to have knowledge of the relevant aspects of his environment which, if not absolutely complete, is at least impressively clear and voluminous. He is assumed also to have a well-organized and stable system of preferences, and a skill in computation that enables him to calculate, for the alternative courses of action that are available to him, which of these will permit him to reach the highest attainable point on his preference scale.

Recent developments in economics, and particularly in the theory of the business firm, have raised great doubts as to whether this schematized model of economic man provides a suitable foundation on which to erect a theory — whether it be a theory of how firms *do* behave, or of how they "should" rationally behave. It is not the purpose of this paper to discuss these doubts, or to determine whether they are justified. Rather, I shall assume that the concept of "economic man" (and, I might add, of his brother "administrative man") is in need of fairly drastic revision, and shall put forth some suggestions as to the direction the revision might take.

Broadly stated, the task is to replace the global rationality of economic man with a kind of rational behavior that is compatible with the access to information and the computational capacities that are actually possessed by organisms, including man, in the kinds of environments in which such organisms exist. One is tempted to turn

* The ideas embodied in this paper were initially developed in a series of discussions with Herbert Bohnert, Norman Dalkey, Gerald Thompson, and Robert Wolfson during the summer of 1952. These collaborators deserve a large share of the credit for whatever merit this approach to rational choice may possess. A first draft of this paper was prepared in my capacity as a consultant to the RAND Corporation. It has been developed further (including the Appendix) in work with the Cowles Commission for Research in Economics on "Decision Making Under Uncertainty," under contract with the Office of Naval Research, and has been completed with the aid of a grant from the Ford Foundation.

to the literature of psychology for the answer. Psychologists have certainly been concerned with rational behavior, particularly in their interest in learning phenomena. But the distance is so great between our present psychological knowledge of the learning and choice processes and the kinds of knowledge needed for economic and administrative theory that a marking stone placed halfway between might help travellers from both directions to keep to their courses.

Lacking the kinds of empirical knowledge of the decisional processes that will be required for a definitive theory, the hard facts of the actual world can, at the present stage, enter the theory only in a relatively unsystematic and unrigorous way. But none of us is completely innocent of acquaintance with the gross characteristics of human choice, or of the broad features of the environment in which this choice takes place. I shall feel free to call on this common experience as a source of the hypotheses needed for the theory about the nature of man and his world.

The problem can be approached initially either by inquiring into the properties of the choosing organism, or by inquiring into the environment of choice. In this paper, I shall take the former approach. I propose, in a sequel, to deal with the characteristics of the environment and the interrelations of environment and organism.

The present paper, then, attempts to include explicitly some of the properties of the choosing organism as elements in defining what is meant by rational behavior in specific situations and in selecting a rational behavior in terms of such a definition. In part, this involves making more explicit what is already implicit in some of the recent work on the problem — that the state of information may as well be regarded as a characteristic of the decision-maker as a characteristic of his environment. In part, it involves some new considerations — in particular taking into account the simplifications the choosing organism may deliberately introduce into its model of the situation in order to bring the model within the range of its computing capacity.

I. Some General Features of Rational Choice

The "flavor" of various models of rational choice stems primarily from the specific kinds of assumptions that are introduced as to the "givens" or constraints within which rational adaptation must take place. Among the common constraints — which are not themselves the objects of rational calculation — are (1) the set of alternatives open to choice, (2) the relationships that determine the pay-offs ("satisfactions," "goal attainment") as a function of the alternative that is chosen, and (3) the preference-orderings among pay-offs. The