

BOUNDEDLY RATIONAL CONSUMERS: THREE CHALLENGES FOR COMPETITION LAW

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ABSTRACT

Scholars and enforcement officials debate the merits and implications of “behavioral antitrust”—the application to competition law of empirical evidence showing how human behavior departs systematically and predictably from strict rationality (“bounded rationality”). To advance this conversation, the present Article identifies three closely related but distinct challenges that the bounded rationality of consumers—as opposed to the bounded rationality of managers operating within business firms—poses for antitrust law. The first and most obvious is the prediction challenge—that is, the concern that antitrust rules and practices based on the assumption of consumer rationality may fail to predict the actual behavior of boundedly rational consumers and consequently mistakenly may condone anticompetitive business behavior or prohibit procompetitive behavior. The second and more fundamental challenge is the efficiency challenge, which surfaces where consumer bias weakens the causal link between competition and efficiency. For instance, consumers who systematically overestimate the value of a given product will manifest excessive demand for it, generating inefficiencies in both allocation and production. The third, least noted but perhaps most troubling challenge of all is the welfare challenge. The empirical behavioral evidence suggests that consumer choice is often constructed during the process of choice and shaped by context-specific influences rather than simply expressing preexisting, orderly preferences. Yet if consumer choice and the resulting aggregate demand do not reflect true preferences—and by extension may not maximize individual utility and aggregate social welfare—what is the economic justification for competition law? The Article examines these three challenges closely, finding that extant doctrine and policy can accommodate the prediction challenge with small modifications. Moreover, a more modest version of the standard economic justification for antitrust law weathers the seemingly thorny efficiency and welfare challenges reasonably well, perhaps better than some of the competing, non-welfare justifications for protecting competition in the market.

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INTRODUCTION

Behavioral antitrust seeks to inform competition law doctrine and policymaking by drawing on the large body of empirical behavioral evidence show how individuals systematically and predictably to deviate from the normative model of strict rationality.¹ In recent years behavioral antitrust has become a focus of interest and heated debate, evincing an outpour of commentary not only from scholars,² but even from policy makers and the antitrust agencies.³ Commentators mostly debate the merits and demerits of behavioral antitrust as applied to the business associations and their managers who are the main objects of

¹ See generally Avishalom Tor, *Understanding Behavioral Antitrust*, 92 Tex. L. Rev. 573 (2014). See also Amanda P. Reeves & Maurice E. Stucke, *Behavioral Antitrust*, 86 IND. L.J. 1527 (2011). For earlier applications of behavioral findings to antitrust law dating back a decade or more see

² See, e.g., James C. Cooper & William E. Kovacic, *Behavioral Economics and Its Meaning for Antitrust Agency Decision Making*, 8 J. L. ECON. & POL'Y 779 (2012); Douglas H. Ginsburg & Derek W. Moore, *The Future of Behavioral Economics in Antitrust Jurisprudence*, 6 COMPETITION POL'Y INT'L 89 (Spring 2010); Max Huffman, *Marrying Neo-Chicago with Behavioral Antitrust*, 78 ANTITRUST L. J. 105 (2012) [hereinafter Huffman, *Neo-Chicago with Behavioral Antitrust*]; Maurice E. Stucke, *Reconsidering Competition*, 81 MISS. L.J. 107 (2011) [hereinafter Stucke, *Reconsidering*]; Maurice E. Stucke, *Behavioral Antitrust and Monopolization*, 8 J. COMPETITION L. & ECON. 545 (2012) [hereinafter Stucke, *Monopolization*]; Avishalom Tor & William J. Rinner, *Behavioral Antitrust: A New Approach to the Rule of Reason after Leegin*, 2011 U. ILL. L. REV. 805 (2011); Gregory Werden et al., *Behavioral Antitrust and Merger Control*, 167 J. INSTITUTIONAL & THEORETICAL ECON. 126 (2011); Joshua D. Wright & Judd E. Stone II, *Misbehavioral Economics: The Case Against Behavioral Antitrust*, CARDOZO L. REV. 1517 (2012); Avishalom Tor, *The Market, the Firm, and Behavioral Antitrust*, in THE OXFORD HANDBOOK OF BEHAVIORAL LAW AND ECONOMICS (Doron Teichman & Eyal Zamir eds. forthcoming 2014) [hereinafter Tor, *The Market*]; Nicolas Petit & Norman Neyrinck, *Behavioral Economics and Abuse of Dominance: A Fresh Look at the Article 102 TFEU Case-Law* (May 15, 2010) (unpublished manuscript), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1641431.

³ Elizabeth M. Bailey, *Roundtable Interview with Joseph Farrell and Carl Shapiro*, 9 ANTITRUST SOURCE 1, 7–8 (Feb. 2010); Amelia Fletcher, Chief Economist, Office of Fair Trading (U.K.), Address at the European Commission Consumer Affairs Conference, *What Do Policy-Makers Need from Behavioural Economists?*, (Nov. 28, 2009), available at http://ec.europa.eu/consumers/conferences/docs/AF_presentation_en.pdf; Alison Oldale, *Behavioral Economics and Merger Analysis*, 6 COMPETITION POL'Y INT'L 139 (Spring 2010); J. Thomas Rosch, Comm'r, Fed. Trade Comm'n, Remarks at the Vienna Competition Conference, *Observations Regarding Issues that Lie Ahead*, (June 9, 2010), available at <http://www.ftc.gov/speeches/rosch/100609viennaremarks.pdf> [hereinafter Rosch, *Issues that Lie Ahead*]; Press Release, European Union Comm'n for Consumers, *Why Consumer Behave the Way They Do: Commissioner Kuneva Hosts High Level Conference on Behavioural Economics* (Nov. 28, 2008), available at <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/08/1836&format=HTML&aged=0&language=EN&guiLanguage=en>; see also OFFICE OF FAIR TRADING, THE IMPACT OF PRICE FRAMES ON CONSUMER DECISION MAKING (2010), available at http://www.of.gov.uk/shared_of/economic_research/OFT1226.pdf; ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT, HEARING ON COMPETITION AND BEHAVIOURAL ECONOMICS (June 13, 2012) (materials available at http://www.oecd.org/competition/abuse/workinprogress.htm#June_2012) (representatives of competition authorities from over 30 jurisdictions discussing behavioral economics and antitrust).

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the antitrust laws.⁴

The legal consequences of consumers' bounded rationality, on the other hand, so far have been debated primarily as they relate to consumer protection and paternalistically-motivated regulation more generally.⁵ Indeed, though even critics of the behavioral approach concede that consumers may be boundedly rational,⁶ the implications of consumers' systematic deviations from rationality for antitrust law are yet to be thoroughly examined.⁷

To this end, this Article explains that the bounded rationality of consumers—whose demand for products and services shapes the market behavior of business firms—has important implications for antitrust law. Specifically, the bounded rationality of consumers poses three related but distinct challenges for antitrust law: The first and most obvious of these—as well as the one that has already received some limited attention in the behavioral antitrust debate—is the *prediction challenge*: Legal rules and practices based on the assumption of consumer rationality may fail to predict the actual behavior of boundedly rational consumers with the resulting consumer demand and consequently may condone anticompetitive business behavior or

⁴ E.g., Amitai Aviram & Avishalom Tor, *Overcoming Impediments to Information Sharing*, 55 ALA. L. REV. 231 (2004); Harry S. Gerla, *The Psychology of Predatory Pricing: Why Predatory Pricing Pays*, 39 SW. L.J. 755 (1985); Reeves & Stucke, *supra* note __, at __; Stucke, _____; Avishalom Tor, *Illustrating a Behaviorally-Informed Approach to Antitrust Law: The Case of Predatory Pricing*, 18 ANTITRUST 52 (2003) [hereinafter Tor, *Predatory Pricing*]; Avishalom Tor, *The Fable of Entry: Bounded Rationality, Market Discipline, and Legal Policy*, 101 MICH. L. REV. 482 (2002) [hereinafter Tor, *Entry*]; Werden et al., *supra* note __, at __; Wright & Stone, *supra* note __, at __.

⁵ Such applications appear most notably in the burgeoning literature pro and con various forms of “soft paternalism”—namely, governmental intervention aimed at partly overcoming some undesirable consequences of consumers' bounded rationality. See, e.g., Colin Camerer et al., *Regulation for Conservatives: Behavioral Economics and the case for “Asymmetric Paternalism,”* 151 U. PA. L. REV. 1211 (2003); Jonathan Click & Gregory Mitchell, *Government Regulation of Irrationality: Moral and Cognitive Hazards*, 90 MINN. L. REV. 1620 (2006); Gregory Mitchell, *Libertarian Paternalism is an Oxymoron*, 99 NW. U. L. REV. 1245 (2005); Cass R. Sunstein & Richard H. Thaler, *Libertarian Paternalism is Not an Oxymoron*, 70 U. CHI. L. REV. 1159 (2003); RICHARD H. THALER & CASS R. SUNSTEIN, *NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS* (2008). In fact, most of the l

⁶ See, e.g., Cooper & Kovacic, *supra* note 2, at __; Ginsburg & Moore *supra* note __, at __; Werden et al., *supra* note __, at __; Wright & Stone, *supra* note __, at 1523, 1549.

⁷ In fact, even some of those behavioral antitrust scholars who considered the implications of consumers' bounded rationality found its lessons primarily in employing antitrust towards the ends traditionally ascribed to consumer protection law and similar regulatory interventions. See Huffman, *supra* note __, at __; Max Huffman & Daniel B. Heidtke, *Behavioral Exploitation Antitrust in Consumer Subprime Mortgage Lending*, 4 WM. & MARY POL. REV. 77 (2012); Reeves & Stucke, *supra* note __, at __; Stucke, *supra* note __, at __. Notably, a recent but growing body of related research in economics, under the title of “behavioral industrial organization,” is beginning to study formal models in which rational firms interact with boundedly rational consumers, including in differently competitive settings. See generally Steffen Huck & Jidoung Zhou, *Consumer Behavioural Biases in Competition: A Survey* (UK Office of Fair Trading, 2011) (offering a first systematic survey of these formal models).

prohibit procompetitive behavior.⁸

The second, the *efficiency challenge*, concerns situations in which consumer bias weakens, occasionally even severs, the causal link between competition and efficiency.⁹ When consumers systematically overestimate the value of a given product for them, for instance, there will be excessive demand for that product that in turn may generate inefficiencies in both allocation and production.¹⁰ And although competition will sometimes help ameliorate consumer bias, there are important cases where it will fail to do so. In fact, the same competitive processes that the antitrust laws seek to protect and promote on occasion will sometimes facilitate, rather than inhibit, consumer bias and its resulting inefficiencies.¹¹

The third and least-noted challenge, but perhaps the most troubling of all three, is the *utility challenge*. The empirical behavioral evidence suggests that consumer choice not only deviates from the assumptions of rationality in predictable ways, but is often constructed in an ad-hoc fashion during the process of choosing and subject to context-specific influences.¹² Yet if those consumer preferences that are revealed by consumer demand in the market do not manifest consumers' true preferences, what is the economic justification for antitrust law?¹³ The construction of preferences cuts deeper than consumer bias or judgment errors, because it threatens an even more foundational link in microeconomic theory, between consumer choice on the one hand and consumers' individual utility (and thus social welfare) on the other. Indeed, a perfectly competitive market in which demand is driven by constructed preferences while consumers make no errors of judgment can generate seemingly efficient production and allocation. However, these apparently efficient outcomes may still fail to promote individual utility and social welfare, if the market machinery is based on constructed demand that is divorced from consumers' true

⁸ See Reeves & Stucke, *supra* note 1, at ____; Tor, *Understanding Behavioral Antitrust*, *supra* note 1, at ____.

⁹ E.g., Bar-Gill, *Competition and Consumer Protection: A Behavioral Economics Account*, in *The Pros and Cons of Consumer Protection* 12, 14, 25-27 (Swedish Competition Authority, 2012); Maurice E. Stucke, *Is competition always good?*, J. ANTITRUST ENFORC. 1, 12-17 (2013).

¹⁰ Bar-Gill, *id.* at ____.

¹¹ See, Tor, *The Market*, *supra* note 2, at ____.

¹² See, e.g., THE CONSTRUCTION OF PREFERENCES (Paul Slovic et al. eds., 200_) (collecting some key articles showing different aspects of the effects of context, content, and more on individuals' choice behavior).

¹³ See Alexander Morrell, Comment, *Behavioral Antitrust and Merger Control*, 167 J. INST. THEORETICAL ECON. 143, 146-47 (2011) (criticizing Werden et al.'s argument that the behavioral evidence should be ignored, regardless of its validity, if it makes current practices in welfare economics obsolete); Max Huffman, *Marrying Neo-Chicago with Behavioral Antitrust*, 78 ANTITRUST L. J. 105, 117 (2012); Stucke, *Reconsidering*, *supra* note __, at 186-88; Werden et al., *supra* note __, at 137 ("...[I]rrational decision making by consumers destroys the analytic basis of welfare economics.").

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preferences.

The better to understand the nature and scope of the challenges that boundedly rational consumers pose for antitrust law, this Article examines each challenge in turn, evaluating carefully both the underlying empirical and theoretical behavioral evidence and its legal implications. Ultimately, this evaluation reveals that the prediction challenge is more common than many commentators realize in those market settings that the antitrust laws are concerned with, but can largely be addressed without dramatic changes in extant rules, doctrines, or enforcement practices. The efficiency challenge, though significant, turns out to weaken the competition-efficiency link in some settings, but rarely to sever it altogether, particularly when viewed in comparison to the relevant alternative of less competitive markets rather than in the abstract, standing alone. In the same vein, the closer analysis of the behavioral evidence on preference construction shows that consumer demand often retains a meaningful, if imperfect, correlation with real consumer preferences and utility. Insofar as it remains a source of some concern regarding the efficacy of antitrust as a means for promoting social welfare, moreover, the construction of consumer preferences is equally, perhaps even more, troublesome for competing antitrust goals such as consumer sovereignty or consumer choice.

Organizationally, Part I highlights the main contours of the evidence on the boundedly rationality of consumers, with particular attention to way markets at different times facilitate or inhibit rationality on their part. Part II examines the prediction challenge and its implications for antitrust doctrine and enforcement practices. Part III briefly explains the important distinction between the two related efficiency and welfare challenges, while Parts IV-V explain and evaluate these two challenges in turn. Part VI concludes.

I. BOUNDEDLY RATIONAL CONSUMERS

Antitrust law and economics (following basic microeconomic theory) assumes that consumers are strictly rational actors.¹⁴ Yet a voluminous behavioral literature in psychology and economics documents robust and systematic deviations of individuals from strict rationality.¹⁵ Since

¹⁴ For a typical exposition of the role of consumer rationality in economic analysis see, e.g., WILLIAM J. BAUMOL & ALAN S. BLINDER, *MICROECONOMICS: PRINCIPLES & POLICY* 85–98 (12th ed. 2012). See also Bennett et al., *supra* note 2, at 115–17 (providing an informal description of the role of consumers in antitrust’s model of market competition.); Werden & Froeb, *Unilateral Competitive Effects of Horizontal Mergers*, in *HANDBOOK OF ANTITRUST ECONOMICS* 44, 66–70 (Paolo Buccirossi ed. 2008).

¹⁵ Some key cites and findings in this literature, with specific application to the law, can be found in Christine Jolls et al., *A Behavioral Approach to Law and Economics*, 50 *STAN. L. REV.* 1471 (1998); Russell B. Korobkin & Thomas S. Ulen, *Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics*, 88 *CAL. L. REV.* 1051 (2000); Avishalom Tor,

this evidence already has been reviewed both in the general legal literature and in antitrust scholarship specifically,¹⁶ the following sections focus only on some specific findings regarding consumer rationality and, in particular, the ways in which the interaction between producers and consumers in markets impact consumer rationality.¹⁷

A. *Bounded Rationality*

The main findings of behavioral decision research on *judgment* and *decision making* (or “choice”), roughly parallel what economists refer to as consumers’ beliefs and preferences.¹⁸ Judgment research is concerned with the intuitive formation of beliefs about the past, present, or future state of the world. Intuitive judgments involve mental processes that are neither completely automatic—like visual perception—nor elaborate and controlled—as when people solve a complex problem using a mathematical formula.¹⁹ Consumers, for example, commonly make intuitive judgments about their own future consumption needs, regarding the quality of different products available in the market, and so on.

The study of decision making, on the other hand, examines how individuals choose among alternative courses of action—choices that economists traditionally consider the manifestation of preexisting preferences,²⁰ but psychological research proves to entail far more complex processes through which preferences are at least partly constructed.²¹ In the present context, consumers routinely choose among competing products and services on the market, based on a variety of psychological processes. Importantly, as we will see later on, besides helping organize the relevant behavioral evidence, the

The Methodology of the Behavioral Analysis of Law, 4 HAIFA L. REV. 237 (2008) [hereinafter Tor, *Behavioral Methodology*].

¹⁶ E.g., Armstrong & Huck, *supra* note __; Bennett et al., *supra* note __; Reeves & Stucke, *supra* note __; Tor, Behavioral Antitrust, *supra* note 1.

¹⁷ Part II-III therefore draw heavily on the more detailed analysis recently offered in Tor, *The Market*, *supra* note __, at ____; and Tor, Behavioral Antitrust, *supra* note 1, at ____.

¹⁸ E.g., Nicholas Barberis & Richard H. Thaler, *A Survey of Behavioral Finance*, in 2 ADVANCES IN BEHAVIORAL FINANCE 1, 12–22 (Richard H. Thaler ed., 2005) (dividing relevant psychological findings among the domains of beliefs and preferences); Colin F. Camerer, *Individual Decision Making*, in HANDBOOK OF EXPERIMENTAL ECONOMICS 587 (John H. Kagel & Alvin E. Roth eds., 1995) (same).

¹⁹ See, e.g., Daniel Kahneman & Shane Frederick, *Representativeness Revisited: Attribute Substitution in Intuitive Judgment*, in HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT 49, 50 (Thomas Gilovich et al. eds., 2002) [hereinafter Kahneman & Frederick, *Representativeness Revisited*]; see also RICHARD NISBETT & LEE ROSS, HUMAN INFERENCE (1980) (comparing intuitive inferences with the requirements of formal reasoning).

²⁰ See, e.g., MARK BLAUG, THE METHODOLOGY OF ECONOMICS 142–44 (2d ed. 1992) (providing a short, non-technical overview of revealed preferences theory).

²¹ See generally CHOICES, VALUES, AND FRAMES (Daniel Kahneman & Amos Tversky eds., 2000); The Construction of Preferences

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distinction between errors and biases of judgment (or erroneous beliefs) on the one hand and constructed preferences of the other has significant implications for behavioral antitrust.²²

One significant focus of judgment and decision research has been the study of whether, how, and why human behavior deviates from normative standards of rationality.²³ Scholars compare intuitive judgments with the normative standards that probability theory offers for the formation and updating of beliefs.²⁴ Such judgments require—at least implicitly—that individuals assess the probability of different outcomes, a task for which people use cognitive heuristics (mental shortcuts), immediate affective reactions, and more.²⁵ These heuristic processes, which help real-world, boundedly rational consumers economize on their limited cognitive resources,²⁶ also generate some predictable and systematic errors or biases.²⁷

Based on the beliefs they form through judgment (or otherwise), consumers make their choices over products and services in the market. For the hypothetical rational actor, decision making is a straightforward matter, a mere revelation of preexisting, well-ordered, preferences that always maximizes subjective expected utility (SEU).²⁸ When faced with risky or uncertain prospects—such as the need to choose among products or services whose quality or long-term benefits can be learned only over time (“experience goods”) or perhaps not at all (“credence goods”)—the rational consumer factors in her subjective judgments of the value and probability of these alternatives, as well as her risk

²² For a useful elaboration of the distinction between *judgment* and *decision making* see, e.g., Robyn M. Dawes, *Behavioral Decision making and Judgment*, in 1 HANDBOOK OF SOCIAL PSYCHOLOGY 497, at 497–99, 530–33 (Daniel T. Gilbert et al. eds, 4th Ed 1998). See also Daniel Kahneman, *Preface*, in CHOICES, VALUES, AND FRAMES ix–xi; Mitchell, *Taking Behavioralism Too Seriously? The Unwarranted Pessimism of the New Behavioral Analysis of Law*, 43 WM. & MARY L. REV. 1907, 1920 n.20 (2002) (making a similar distinction based on the conventions of behavioral decision research and discussing it at length).

²³ See Tor, *Behavioral Methodology*, *supra* note __, at Part II.A–B (a general examination of the main psychological research and findings in the area of deviations from rationality in judgment and decision making outcomes); see also William M. Goldstein & Robin M. Hogarth, *Judgment and Decision Research: Some Historical Context*, in RESEARCH ON JUDGMENT AND DECISION MAKING 3, 4–6 (William M. Goldstein & Robin M. Hogarth eds., 1997).

²⁴ See, e.g., Dawes, *supra* note 83.

²⁵ See Tor, *Behavioral Methodology*, *supra* note __, at 249–50.

²⁶ See Tor, *Behavioral Antitrust*, *supra* note __; Tor, *Behavioral Methodology*, *supra* note __ (offering a brief discussion of the development of the concept of bounded rationality);

²⁷ See, e.g., Kahneman & Frederick, *Representativeness Revisited*, *supra* note 81, at 51. See also Tor, *Behavioral Methodology*, *supra* note __, at 245.

²⁸ E.g., BLAUG, *supra* note 82, at 229–30 (stating that “some regard the most characteristic feature of neoclassical economics . . . [is] its insistence on methodological individualism: the attempt to derive all economic behavior from the action of individuals seeking to maximize their utility, subject to the constraints of technology and endowments. This is the so-called *rationality postulate*, which figures as a minor premise in every neoclassical argument,” and explaining the concept further (emphasis added)). For a discussion of rational choice theory in law, see Korobkin & Ulen, *supra* note __, at 1060–66.

preferences.²⁹

However, much as in the case of belief formation through judgment, a wealth of psychological evidence reveals that real, boundedly-rational individuals systematically and predictably deviate from the theoretical model of rational choice in important respects.³⁰ The same sensitivity to subtle contextual cues that helps people intuitively navigate complex real-world situations also leads them predictably to violate the normative requirements for SEU maximization by acting inconsistently in different contexts, with respect to different subject-matters, frames of presentation, reference points, and more.³¹

Originally, and to a significant extent until the present day, the study of consumer judgment and decision making largely is an extension of general behavioral decision research.³² This is neither alarming nor surprising; after all, consumers are individual decision makers and by and large are likely, therefore, to behave as other boundedly rational individuals do.³³ However, over the last decades consumer researchers increasingly emphasize those psychological processes that are specific to the consumer context.³⁴

For Example, biases in consumers' inferences about products and their attributes were examined in many studies.³⁵ Consumer researchers

²⁹ See e.g., Bennett et al., *supra* note __, at __.

³⁰ See, e.g., Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 *ECONOMETRICA* 263 (1979); Amos Tversky & Daniel Kahneman, *Rational Choice and the Framing of Decisions*, in *RATIONAL CHOICE* 670 (Robin M. Hogarth and Melvin W. Reder eds., 1986).

³¹ The literature in this area is voluminous. See generally CHOICES, VALUES, AND FRAMES, *supra* note 83 (an important collection of articles in this area); Dawes, *supra* note 83, at 499–530 (reviewing and discussing some of the basic decision making phenomena that violate the axioms of rational choice). For one review and legal application of some basic decision-making findings see Tor, *Behavioral Methodology*, *supra* note __, at 258–72.

³² See, e.g., Bettman et al., *Consumer Psychology*, 37 *ANN. REV. PSYCH.* 257 (1986) (developing an elaborate integrative framework for the study of consumer choice while simultaneously and interchangeably discussing general and consumer-specific behavioral findings); Frank R. Kardes et al., *Consumer Inference: A Review of Processes, Bases, and Judgment Contexts*, 14 *J. CONSUM. PSYCH.* 250 (2004) (same with respect to inferences regarding products, which concern judgment processes). Cf. Itamar Simonson et al., *Consumer Research: In Search of Identity*, 52 *ANNU. REV. PSYCHOL.* 249, 252 (2001) (noting that in many respects consumer research is an extension of more basic research in psychology as well in some other behavioral disciplines).

³³ See Simonson et al., *supra* note __, at 255 (explaining that "...the central BDT [behavioral decision theory] issues of judgment and choice are directly relevant to the most researched area in marketing and consumer behavior, namely, influences on purchase decisions.").

³⁴ See generally Barbara Loken, *Consumer Psychology: Categorization, Inferences, Affect, and Persuasion*, 57 *ANN. REV. PSYCH.* 453 (2006); Alice M. Tybout, *Consumer Psychology*, 45 *ANN. REV. PSYCH.* 131 (1994). See also Simonson et al., *supra* note __, at 262 (offering quantitative evidence for the decreased proportion over time—between the late '60s and the late '90s—of consumer research that merely applies extant behavioral phenomena or extends them slightly, compared to research that studies new phenomena that are specific to consumer behavior, even while the former category still predominated the latter at the end of the period by a 2:1 ratio).

³⁵ See, e.g., Kardes et al., *supra* note __ (reviewing a wide range of inference processes in

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also pay particular attention to the specific ways in which sellers and marketers impact consumer behavior, such as the use of brands, advertising, sales promotions, and more.³⁶ Furthermore, numerous theoretical and empirical contributions seek to understand the motivations and priorities that help consumers determine the strategies they employ when evaluating products and choosing among them, the better to understand consumer choice.³⁷

Overall, the clear conclusion that emerges from the extensive empirical literature in this area is that consumer choice is often constructed rather than preexisting, generated for the purpose of making a particular choice and shaped to a significant degree by the specific psychological processes involved in making the choice, as well as the specific context in which the choice is made.³⁸

[[TO BE COMPLETED with a few key illustrations of the construction of consumer choice.³⁹]]

B. Consumers in the Market

The empirical behavioral research offers much evidence—primarily from the laboratory but also from the field—showing that consumers deviate systematically from the rational choice model assumed by traditional antitrust law and economics. However, antitrust law is concerned not with consumer behavior in the abstract but, rather, with the demand for products and services, aggregated over numerous consumers in the market.⁴⁰ Furthermore, as already noted, consumer behavior in the market is shaped significantly by the market environment and the producer-firms who compete within it to supply consumer demand. At times, producers foster consumer rationality, while at other times producers exploit the bounded rationality of

consumer judgment, including reliance on intuitive heuristics).

³⁶ See, e.g., Loken, *supra* note __, at __; Tybout, *supra* note __, at 145-55.

³⁷ E.g., Bettman et al., *supra* note __ (reviewing the key frameworks in this area and offering their own integrative “consumer goals” approach).

³⁸ See, e.g., James R. Bettman et al., *supra* note __; Sarah Lichtenstein & Paul Slovic, *The Construction of Preference: An Overview*, in CONSTRUCTION OF PREFERENCE, *supra* note __, at 1 (“The central idea is that in many situations we do not really know what we prefer; we must construct our preferences as the situation arises.”). As the authors explain:

The variability in the ways we construct and reconstruct our preferences yields preferences that are labile, inconsistent, subject to factors we are unaware of, and not always in our own best interests. Indeed, so pervasive is this lability that the very notion of a “true” preference must, in many situations, be rejected.

Id. at 2 (emphasis added). See also Paul Slovic, *The Construction of Preference*, 50 AM. PSYCHOL. 364 (1995).

³⁹ Bettman et al., *id.* at __; Lichtenstein & Slovic, *id.* at __.

⁴⁰ See, e.g., *Pac. Bell Tel. Co. v. Linkline Comm’n*, 555 U.S. 438 (2009); *Leegin Creative Leather Prods. v. PSKS, Inc.*, 551 U.S. 877 (2007); *Bell Atl. Corp. v. Twombly*, 550 U.S. 544 (2006).

consumers and even attempt to enhance deviations from rationality.⁴¹ However, because this Author has recently discussed at some length the complex interplay between consumers and producers in the market, the following paragraphs, only emphasize the key conclusions of this analysis.⁴²

For consumers, markets supply not only goods and services but also the information that can help them form more rational beliefs and make more rational decisions. When markets offer better and more readily available information, consumers' judgments and decisions may be more accurate and better aligned with their preferences. The available evidence on consumer behavior, however, paints a more complex picture. For one, the products and services that consumers must choose among will not always justify a commitment of significant time, cognitive, or financial resources to make optimal judgments and decisions, leading consumers rationally to ignore relevant information.⁴³

However, producers who expect to benefit from consumers' educated choices may respond by providing relevant information to consumers via advertising campaigns, marketing, and similar efforts.⁴⁴ Such responses not only tap the superior information that producers already possess about their products and services, but also offer significant economies of scale, given the low cost of offering the same (or similar) information to additional consumers.⁴⁵ Nevertheless, insofar as numerous competing producers offer such information, extolling the superiority of their wares, consumers still must determine which

⁴¹ See, e.g., Oren Bar-Gill, *surpa* note __, at 12, 15 (noting, with respect to the interaction between consumers and producers that: "[t]he behavioral economics model . . . is context dependent" such that "[w]hile the analysis and discussion below are often stated in general terms, implementation must be market specific" and "[t]he severity of the behavioral market failure, and the ability of competition to mitigate the welfare costs of the behavioral market failure, will vary from market to market").

⁴² Tor, *Behavioral Antitrust*, *supra* note __, at __; Tor, *The Market*, *supra* note __, at __.

⁴³ Cf. Melvin A. Eisenberg, *The Limits of Cognition and the Limits of Contract* 47 STAN. L. REV. 211 (1995) (discussing rational ignorance regarding contractual terms as a form of bounded rationality); Richard A. Posner, *The Law and Economics of Contract Interpretation*, 83 TEX. L. REV. 1581, 1585-86 (2005) (discussing consumer ignorance with respect to standard-form contracts).

⁴⁴ See, e.g., Justin P. Johnson & David P. Myatt, *On the Simple Economics of Advertising, Marketing, and Product Design*, 96 AM. ECON. REV. 756 (2006); Phillip Nelson, *Advertising as Information*, 82 J. POL. ECON. 729 (1974); Stigler, *supra* note 248, at 220-24.

⁴⁵ See, e.g., Johnson & Myatt, *supra* note 251, at 766-68-; Nelson, *supra* note 251, at 729-34; Stigler, *supra* note 248, at 220-24. Recent scholarship further suggests that producers may possess better information regarding consumers' behavior than do consumers themselves. See Oren Bar-Gill & Oliver Board, *Product-Use Information and the Limits of Voluntary Disclosure*, 14 AM. L. & ECON. REV. 235 (2012); Oren Bar-Gill & Franco Ferrai, *Informing Consumers about Themselves*, 3 ERASMUS. L. REV. 93 (2010) (both arguing the significance of product use information and the need to regulate its disclosure). *But see* Emir Kamenica et al., *Helping Consumers Know Themselves*, 101 AM. ECON. REV. 417 (2011) (showing that requiring firms to inform consumers about themselves decreases consumer expenditure at given prices but can increase equilibrium prices, offsetting the direct benefit of this information).

products and services best match their preferences.⁴⁶

In some cases, the opportunity profitably to provide consumers with unbiased information and advice will attract an additional set of market participants—namely, information intermediaries—to fulfill this function.⁴⁷ These specialized service providers, ranging from long-standing outlets aimed at the general public, such as “consumer reports,” through more recent internet databases and services, to personalized consultants and advisors, can help improve the quality of consumers’ judgments and decisions.

Yet despite the increasing abundance of information—and occasionally because of it—many consumers still commonly and routinely make product and service choices that are suboptimal for them.⁴⁸ Even when competition is present, producers in some markets prefer to offer only partial or opaque information to limit the ability of consumers to evaluate their products.⁴⁹ Specifically, producers can benefit by designing products that lead more naive consumers to make inferior, costly decisions—as in the case of some credit card plans—that both increase producers’ profits and subsidize the superior products chosen by more sophisticated consumers, helping attract the latter as well.⁵⁰ In other instances, sellers develop products that are more complex than necessary to satisfy consumer demand—such as where certain cellular service plans are concerned⁵¹—making it exceedingly

⁴⁶ See, e.g., DAN F. SPULBER, *MARKET MICROSTRUCTURE: INTERMEDIARIES AND THE THEORY OF THE FIRM* (1999). Producers can benefit from exploiting or even generating consumers’ deviations from rationality, not only by offering biased information but also by shaping consumer perceptions of and preferences for their products. See generally OREN BAR-GILL, *SEDUCTION BY CONTRACT: LAW, ECONOMICS, AND PSYCHOLOGY IN CONSUMER MARKETS* (2012).

⁴⁷ See FRANK ROSE *THE ECONOMICS, CONCEPT, AND DESIGN OF INFORMATION INTERMEDIARIES: A THEORETIC APPROACH* (1999); Thomas F. Cosimano, *Intermediation*, 63 *ECONOMICA* 131 (1996) (offering a model showing the conditions for beneficial intermediation and the costs its presence imposes on sellers who do not use it); Dan F. Spulber, *Market Microstructure and Intermediation*, 10 *J. ECON. PERSP.* 135 (1996). See also Stigler, *supra* note 248, at 216-17 (discussing the role of distributors as information intermediaries).

⁴⁸ See, e.g., Oren Bar-Gill & Elizabeth Warren, *Making Credit Safer*, 157 *U. PA. L. REV.* 1, 26-55 (2008) (citing U.S. GOV’T ACCOUNTABILITY OFFICE, *CREDIT CARDS: INCREASED COMPLEXITY IN RATES AND FEES HEIGHTENS NEED FOR MORE EFFECTIVE DISCLOSURES TO CONSUMERS* 6 [hereinafter *GAO, INCREASED COMPLEXITY REPORT*]); Oren Bar-Gill, *Seduction by Plastic*, 98 *Nw. U. L. REV.* 1373, 1395-1408 (2003).

⁴⁹ See, e.g., GAO, *INCREASED COMPLEXITY REPORT* *supra* note 255, at 6 (finding that “[m]ost financial products such as mortgage loans and credit cards are too complicated and lengthy for [them] to fully understand”); BAR-GILL, *supra* note 253, at 28-32.

⁵⁰ Xavier Gabaix & David Laibson, *Shrouded Attributes, Consumer Myopia, and Information Suppression in Competitive Markets*, 121 *Q. J. ECON.* 505, 519-20 (2006).

⁵¹ See Adi Ayal, *Harmful Freedom of Choice: Lessons from the Cellphone Market*, 74 *LAW CONTEMP. PROB.* 91 (examining the ways in which the complexity of cellphone usage contracts might be harmful to consumers); Bar-Gill, *Competition and Consumer Protection*, *supra* note 131, at 11-13, 21-22. See also Michael Grubb, *Selling to Overconfident Consumers*, 99 *AM. ECON. REV.* 1770 (2009) (where observed cell phone plans were structured to exploit consumer overconfidence).

difficult to compare among competing offerings.⁵²

All in all, while those current-day markets for consumer products and services typically offer abundant information that can facilitate better judgments and decisions, consumers still face significant challenges. Where the interests of producers and consumers diverge substantially and competing producers or intermediaries do not have sufficient incentives to promote more rational consumer behavior, the latter are at a fundamental disadvantage.⁵³ This situation may be partially remedied through the services of intermediaries, but consumers still face substantial judgment and decision limitations, particularly with respect to less familiar products that are consumed infrequently.

II. THE PREDICTION CHALLENGE

Real, boundedly-rational consumers form beliefs and make choices that often do not accord with the rational actor model. Competition in the market sometimes facilitates consumer rationality, but frequently does so only to a limited degree, if at all, and occasionally even promotes less—rather than more—rational consumer behavior. Yet while these observations are a familiar source of concern in discussions of consumer protection and regulation, it is not obvious that even persistent consumer deviations from rationality pose an antitrust problem. After all, antitrust law focuses on the supply side, primarily prohibiting anticompetitive horizontal and vertical restraints, monopolization, and mergers that may substantially lessen competition. And though whenever firms compete in the market they are competing to supply consumer demand, consumers as such do not figure prominently in antitrust doctrine.⁵⁴

A closer look suggests, nevertheless, that even while consumers typically are relegated to the backstage of the antitrust drama, the assumption of consumer rationality does play a meaningful role in some areas of the law. Insofar as consumers in fact are boundedly rational, therefore, the standard account of producers' conduct may be off the mark. This is most likely to happen where the law addresses the acquisition or maintenance of market power—notably, in some aspects of monopolization doctrine and horizontal merger enforcement—in markets for consumer goods and services. Beyond these areas, the bounded rationality of consumers at times may affect our interpretation

⁵² See Huck & Zhou, *supra* note __, at __; Tor, *Behavioral Antitrust*, *supra* note __, at __ n. __ (reviewing relevant empirical evidence and formal economic models for this proposition).

⁵³ See generally Huck & Zhou, *supra* note __, at __.

⁵⁴ E.g., Huck & Zhou, *supra* note __, at 5 (“Most traditional analyses of competition focus on the supply side....Consumers feed into these models simply in the form of well-behaved demand functions.”)

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of some vertical restraints that shape the interaction between retailers and consumers.

A. Aftermarket Power

The consumer behavior aspects of aftermarket power analysis have been implicitly raised by the Supreme Court in *Eastman Kodak Co. v. Image Technical Services, Inc.*,⁵⁵ which affirmed the denial of summary judgment to the defendant, a manufacturer of business copiers. The plaintiffs alleged that Kodak's requirement that buyers of its machines service the copiers exclusively with the manufacturer's original parts amounted to illegal tying under Section 1 and monopolization under Section 2 of the Sherman Act.⁵⁶

The *Kodak* dissent argued for summary judgment based on the assumption that consumers of copiers are rational decision makers. In the face of rational consumers, a competitive market in copiers necessarily prevents Kodak from exercising power in the sale of parts for its own machines, even if consumers who already possess Kodak machines are "locked-in" to using these parts.⁵⁷ The dissent reasoned that any increase in the price of parts and services in the aftermarket that sought to exploit the power resulting from lock-in would effectively make Kodak's machines more costly in the competitive primary market for copiers.⁵⁸ Rational consumers, who take into account the future costs of parts and services over the copier's lifetime, would find the machines less attractive. Yet if this were the case, Kodak could not charge higher prices for parts, because that would entail losing copier sales to competitors in the primary market.⁵⁹

This rationality-based argument was rejected, however, by the Court's majority that ruled Kodak could have exercised power in the aftermarket for the sale of machines parts even while the primary market for copiers was competitive.⁶⁰ The majority's position can be explained on behavioral grounds. Though perfectly rational consumers in the primary market would have sufficed to deter Kodak from exploiting its aftermarket power, the same does not necessarily hold for boundedly rational consumers who do not incorporate all the future costs of parts over the copiers' lifetime into the primary market price. Importantly, the majority's conclusion did not require a positive finding that Kodak in fact exercised power in the parts aftermarket, since the Court only affirmed the denial of summary judgment by the court of

⁵⁵ 504 U.S. 451 (1992).

⁵⁶ *Id.* at ____.

⁵⁷ *Id.* at 490-91 (Scalia, J., dissenting).

⁵⁸ *Id.* at 494-95 (Scalia, J., dissenting).

⁵⁹ *Id.* at 495 (Scalia, J., dissenting).

⁶⁰ *Id.* at 476-78.

appeals. Kodak's actual aftermarket power depended on the proportion of those myopic consumers who do not take future costs effectively into account versus their sophisticated counterparts (who do account for future costs), as well as on the intensity of competition from other copier manufacturers for primary market sales.⁶¹

Thus, even without fully examining the efficiency consequences of the tying of copier parts, *Kodak* illustrates how markets can encourage firms to adopt different competitive strategies depending *inter alia* on the degree of bounded rationality manifested by their consumers. In such cases, antitrust cannot assume that primary market competition always will prevent the exploitation of aftermarket power, nor that the market inevitably will facilitate such exploitation. Instead, the plausibility of this conduct and its competitive consequences will depend on the circumstances of the specific market at hand.

Yet the bounded rationality of consumers reveals not only additional circumstances where otherwise unnoticed aftermarket power may prevail, but also the efficiency of business practices that could be anticompetitive if consumer were all perfectly rational. This may be the case, for instance, where boundedly rational consumers may misattribute the outcomes of inferior service or parts to the quality of a manufacturers' product. If this were the case in *Kodak*, defendant could have argued that its aftermarket tying was necessary to preserve its brand reputation with boundedly rational consumers and therefore procompetitive on balance.⁶² If reliable empirical evidence of such an effect on consumer perceptions were available, a behaviorally-informed evaluation of *Kodak* might have favored defendant rather than plaintiffs given the competitiveness of the primary market for copiers.⁶³

B. Tying, Bundling, and Rebate Schemes

Beyond aftermarket power, antitrust scholars argued that, when they are directed at consumers, the practices of product tying, bundling, and rebate schemes sometimes may exert more powerful effects than traditional models acknowledge.⁶⁴ For example, behavioral findings on consumer inertia, the endowment effect, loss aversion, and the impact of defaults on choice indicate that consumers may find it difficult to switch from one product to a competing one, even where the objective costs of

⁶¹ See Bar-Gill, *supra* note __ [2012, 2013]; Bennett et al., *supra* note __, at __.

⁶² In fact, Kodak did make a similar argument as part of its defense, albeit without addressing consumer rationality directly or substantiating its assertion. Thus, defendant maintained that its policies were legal because they were based on valid business reasons, among them the need to avoid blame for equipment breakdown following "inferior ISO service...." 504 U.S. 451, at 483.

⁶³ Tor, *Behavioral Antitrust*, *supra* note __, at __.

⁶⁴ See Bennett et al., *supra* note __, at 121-22; Petit & Neyrinck, *supra* note __, at 8-11; see also Salinger, *supra* note __, at 72; Stucke, *Monopolization*, *supra* note __, at 564-67.

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switching are small.⁶⁵ Indeed, both theoretical arguments and experimental tests suggest that rebate schemes and other loyalty programs have stronger effects on the behavior of real consumers than rationality-based models expect them to have.⁶⁶ Some analysts therefore argue that dominant firms can use bundling, tying and similar devices to foreclose competition more effectively than antitrust currently assumes.⁶⁷

While this may be the case, further analysis suggests that the potential susceptibility of consumers to behavioral manipulation by firms will not always advantage monopolists or dominant firms. The stickiness of consumer behavior frequently redounds to incumbents' benefit because new entrants and smaller competitors may find it more difficult than standard models predict to attract consumers on the basis of lower price or higher quality alone.⁶⁸ Yet sufficiently large multiproduct firms with a small share in a given product market may profitably expend resources on shaping consumer behavior and, consequently, exert greater competitive pressure on incumbents than commentators tend to assume when faced with boundedly rational consumers.⁶⁹

Moreover, much like discussion of aftermarket power and the *Kodak* case above, some tying and bundling practices that may not have obvious procompetitive benefits in a world of strictly rational consumers, may turn out to be justified when directed at boundedly rational consumers. It is notable, in fact, that in the 1936 *IBM* case defendant already argued that requiring its lessees to buy for use in its machines only the tabulating cards it produced was justified because defective competing cards would cause consumer dissatisfaction with the machine.⁷⁰ This argument was quickly dismissed by the Court,

⁶⁵ See Bennett et al., *supra* note __, at 121; Stefano DellaVigna, *Psychology and Economics: Evidence from the Field*, 47 J. ECON. LITERATURE 315, 322-23; Petit & Neyrinck, *supra* note __, at 9-10; Salinger *supra* note __, at 76; Stucke, *Monopolization*, *supra* note __, at 564-67.

⁶⁶ See Martin Beckenkam & Frank P. Maier-Rigaud, *An Experiment of Article 82 Rebate Schemes*, 2 COMP. L. REV. 1 (Supp. I, 2006); Alexander Morell, Andreas Glöckner & Emanuel Towfigh, *Sticky Rebates: Rollback Rebates Induce Non-Rational Loyalty in Consumers – Experimental Evidence*, Max Planck Institute for Research on Collective Goods, July 2009, available at http://www.coll.mpg.de/pdf_dat/2009_23online.pdf; see also Economides & Lianos, *supra* note 134, at 544.

⁶⁷ See Bennett et al., *supra* note __, at 121; DellaVigna, *supra* note 133, at 322-23; Petit & Neyrinck, *supra* note __, at 9-10; Stucke, *Monopolization*, *supra* note __, at 564-67; see also Nicholas Economides & Ioannis Lianos, *The Elusive Antitrust Standard on Bundling in Europe and in the United States in the Aftermath of the Microsoft Cases*, 76 ANTITRUST L. J. 483, 544 (2009).

⁶⁸ See Bennett et al., *supra* note 7, at 118; Petit & Neyrinck, *supra* note 7, at 8-10; Stucke, *Monopolization*, *supra* note 7, at 564-67.

⁶⁹ Tor, *Behavioral Antitrust*, *supra* note __, at __. But see Bennett et al., at 119 (noting only the potential hindrance to dynamic competition bounded rationality of consumers poses but neglecting its potentially procompetitive effects).

⁷⁰ *IBM v. United States*, 298 U.S. 131, 138-39 (1936)

which noted that “others are capable of manufacturing cards suitable for use.”⁷¹ Yet, if unsurprisingly, this response—which highlights the possibility of objectively comparable cards—does not address the concern that some boundedly rational consumers will mistakenly attribute to IBM’s machines faulty performance that in fact resulted from defective cards.⁷²

C. *Unilateral Effects in Merger Enforcement*

Systematic bias on the part of consumers may be troublesome for other key aspects of merger enforcement as well. For one the agencies need to predict the reaction of consumers to price changes following the merger, a task for which they commonly employ customer surveys.⁷³ Yet scholars noted that the surveys designed by the agencies may not take into account the possible impact of behavioral factors on consumers.⁷⁴ To illustrate, consumers who exhibit framing effects will react more strongly to price increases for the focal product they are surveyed about than to price reductions in substitute products, notwithstanding the analytical equivalence of the two possibilities.⁷⁵ In the presence of framing effects, therefore, the survey might overestimate the consumers’ willingness to switch away from the focal product, suggesting overbroad product markets that underestimate the market share and potentially the power of the focal product.⁷⁶

Moreover, the bounded rationality of consumers may impact even the more technical, quantitative aspects of demand estimation in the

⁷¹ *Id.* at 139.

⁷² The Court offered a similar response a decade later, in the next significant tying decision it faced, when International Salt tried to justify the tying of salt to its leased canning machines as a means for minimizing its repair costs, on the grounds that other manufacturers could produce salt that meets the machines specifications. *Int’l Salt Co. v. United States*, 332 U.S. 392, 398 (1947). However, unlike in *IBM*, International Salt’s argument itself turned on the objective quality of competitors’ salt rather than on customer perceptions.

⁷³ See Stephen Hurley, *The Use of Surveys in Merger and Competition Analysis*, 7 J. COMP. L. & ECON. 45 (2011) (discussing the potential and limitations of surveys in merger enforcement); Graeme Reynolds & Chris Walters, *The Use of Customer Surveys for Market Definition and the Competitive Assessment of Horizontal Mergers*, 4 J. COMP. L. & ECON. 411 (2008) (discussing the prevalent use of customer survey in the U.K.’s merger enforcement process); Darren S. Tucker, Scott L. Reiter & Kevin L. Yingling, *The Customer is Sometimes Right: The Role of Customer Views in Merger Investigations*, 3 J. COMP. L. & ECON. 551 (2007) (arguing that customers can provide important information regarding several merger issues including, inter alia, demand substitution). Note that the reliance on survey is more likely where more direct evidence of consumer behavior, such as point-of-sale scanner data for consumer goods, is not available.

⁷⁴ Cf. Bennett et al., *supra* note 7, at 119 (noting that “passive” consumers can reduce both the overall price elasticity of a product or its cross-elasticity with other products).

⁷⁵ See Reeves & Stucke, *supra* note 2, at 1533–34 (discussing framing as an explanation for this phenomenon).

⁷⁶ See *id.* at 1534 & n.47 (discussing status quo bias). See generally Baker, *supra* note __, at 148–66 (explaining how broadly defined markets underestimate participants’ market shares and vice versa when market are defined too narrowly).

merger review process. The standard practice in demand estimation assumes consumer rationality regarding the choice among competing products and services that generates aggregate demand.⁷⁷ Hence, merger predictions that fail to account for systematic biases in consumer demand—whereby consumers, for instance, over- or under-react to changes in the relative prices of products in a given market—may result in erroneous predictions of merger outcomes.⁷⁸

Some economists aver that there is little reason for alarm because merger assessments already account for any systematic consumer bias by drawing on data regarding consumers' actual choices in the relevant product market.⁷⁹ This argument refers in particular to simulation models,⁸⁰ but is relevant to other empirical methods that predict merger effects based in part on demand estimation.⁸¹ However, simulation and other structural models are primarily relevant for those limited merger categories in which sufficient quantitative data is available—typically from point-of-sale scanners or similar sources—such as those taking place between suppliers of consumer goods.⁸² Even where abundant consumer-level data exists, however, the bounded rationality of consumers counsels caution in interpreting the outcomes of simulation models to guide merger evaluations.⁸³

⁷⁷ DAVIS & GARCES, *supra* note 76, at 491-99; Bennett, *supra* note 7, at 119; Werden & Froeb *supra*, at 66-70.

⁷⁸ Tor, *Behavioral Antitrust*, *supra* note __, at __.

⁷⁹ See, e.g., Wedren et al., *supra* note 7, at 137 (arguing that “[i]n estimating the parameters of the demand system from data on actual choices merger assessment takes account of the actual decisions made in the marketplace, normally with high-frequency aggregate data collected at the point of sale[.]” even while conceding that behavioral deviation can complicate demand estimation); Wright & Stone, *supra* note 7, at 1523.

⁸⁰ See, e.g., Oliver Budzinsky & Isabel Ruhmer, *Merger Simulation in Competition Policy: A Survey*, 6 J. COMPETITION L. & ECON. 277 (2009); Coate & Fischer, *supra* note 455, at 442; Aviv Nevo & Michael D. Whinston, *Taking the Dogma out of Econometrics: Structural Modeling and Credible Inference*, 24 J. ECON. PERSP. 69 (2010); Daniel L. Rubinfeld, *Current Issues in Antitrust Analysis* in COMPETITION POLICY AND THE ECONOMIC APPROACH: FOUNDATIONS AND LIMITATIONS 81, 88-91 (JOSEF DREXL ET AL. EDS. 2011) (discussing the main approaches to merger simulation and some of their limitations).

⁸¹ See, e.g., DAVIS & GARCES, *supra* note 76, at 499 (noting the centrality of demand estimation in empirical methods of merger analysis).

⁸² See Coate & Fischer, *supra* note 455, at 442.

⁸³ E.g., Elizabeth M. Bailey, *Behavioral Economics: Implications for Antitrust Practitioners*, Antitrust Source, June 2010, art. 4, at 1, 4-5 (noting the dependence of critical loss analysis on assumptions regarding the standard shape of the demand curve); Oliver Budzinsky & Isabel Ruhmer, *Merger Simulation in Competition Policy: A Survey*, 6 J. Competition L. & Econ. 277 (2009) (reviewing numerous shortcomings of the different classes of models used in merger simulation, including the reliance of some on restrictive, rationality-based assumptions regarding the shape of the demand function); Daniel Hosken et al., *Demand System Estimation and Its Application to Horizontal Merger Analysis* (FTC, Working Paper No. 246, 2002), available at http://www.ftc.gov/sites/default/files/documents/reports/demand-system-estimation-and-its-application-horizontal-merger-analysis/wp246_0.pdf (noting that one significant limitation of logit models is their restrictive assumption of the independence of irrelevant alternatives, one of the axioms of rational choice); see also Oldale, *supra* note __, at 141 (noting that, even where

D. Resale Price Maintenance

Finally, the bounded rationality of consumers may also shed some light on vertical price restraints. The long standing debate over the appropriate legal treatment of resale price maintenance (RPM) has been focused on the balance of the harms and benefits of the practice assuming that it is employed by strictly rational firms.⁸⁴ More recent scholarship revealed, however, that some manufacturers use RPM excessively and to their own detriment when it is legal, for behavioral reasons, rather than to pro- or anti-competitive ends as traditionally understood.⁸⁵

Though the focus of the behavioral analysis of resale price maintenance is on the bounded rationality of manufacturers, not that of consumers, it is interesting to note that one argument for minimum RPM that manufacturers have been advancing repeatedly for nearly a century, but economists summarily reject, is the “loss leader” concern.⁸⁶ Manufacturers argue that retailers discount attractive products, selling them even below wholesale prices, to attract customers and increase sales and profits from other products at quantities that more than compensate for the retailers’ losses on the former loss leaders.⁸⁷ Manufacturers oppose the use of their products as loss leaders despite the short term wholesale profits the practice generate, believing that frequent discounts diminish the reputation and value of both the specifically discounted products and the manufacturer’s brand writ large.⁸⁸

However, even economists who favor RPM reject the loss leader argument, holding that discounting would not change rational consumer

demand is estimated based on actual aggregate data, a behaviorally informed understanding of the factors shaping consumer demand “could highlight possible ways in which the merger might affect the demand function itself, and so suggest reasons why demand should not be treated as a given”). See generally ABA Section on Antitrust Law, *Econometrics: Legal, Practical, and Technical Issues* 133–37, 269–309 (2005) (offering a nontechnical introduction to merger simulation methods and noting their many limitations, including the reliance of different models on assumptions regarding the behavior of market participants and certain properties of consumer demand).

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⁸⁵ Tor & Rinner, *supra* note __, at 807.

⁸⁶ *Id.* at 813; cf. Howard P. Marvel, *The Resale Price Maintenance Controversy: Beyond the Conventional Wisdom*, 63 ANTITRUST L. J. 59, 73-77 (1994). But see Barak Y. Orbach, *Antitrust Vertical Myopia: The Allure of High Prices*, 50 ARIZ. L. REV. 261, 277-82 (2008) (arguing that consumers sometimes value high prices in and of themselves).

⁸⁷ Tor & Rinner, *supra* note __, at 813; Howard P. Marvel & Stephen McCafferty, *The Welfare Effects of Resale Price Maintenance*, 28, J. L. & ECON. 363, 375 (1985).

⁸⁸ See, e.g., AM. FAIR TRADE COUNCIL INC., *RESALE PRICE MAINTENANCE BY MEANS OF FAIR TRADE LAW IN FORCE APRIL 1, 1942*, at 3 (1942); see also *Leegin*, 551 U.S. at 833 (noting that one of the reasons Leegin stated for adopting its RPM policy was the “concern that discounting harmed Brighton’s brand image and reputation”).

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perceptions of the quality of standard goods.⁸⁹ Yet notwithstanding the economists' offhanded rejection, the empirical research in marketing long has identified a persistent positive relationship between price and perceptions of quality, in both the laboratory and the field, for a broad range of products.⁹⁰

The implications of loss-leader effects on consumers for antitrust doctrine, however, are not necessarily in line with the manufacturers' traditional argument, even if some concerns of the latter are more realistic than economists allow. For example, if the retail prices favored by manufacturers send exaggerated quality signals that would not survive retail competition absent RPM, discounted prices that diminish perceptions of quality may harm manufacturers even while generating efficiency gains overall.⁹¹

All in all, the bounded rationality of consumers challenges the standard antitrust account in a number of areas. With real-world consumers, for example, aftermarket power may exist where rationality-based models would predict its absence, and tying, bundling, or rebates may exert greater force on consumer behavior than traditionally assumed. At times, the bounded rationality of consumers could provide justification—such as the need to preserve brand reputation in the face of likely misattribution—for the adoption of practices that otherwise appear anticompetitive. In the area of merger enforcement, the presence of boundedly rational consumers may require some modification of merger practices and further caution in the use and interpretation of quantitative demand estimation methods. And resale price maintenance was found to impact some boundedly rational consumers in otherwise unrecognized ways, which benefit the manufacturers adopting the practice but may not translate to overall efficiency gains or change the legal evaluation of the practice overall.

It thus appears that even while the bounded rationality of consumer challenges the traditional account in a number of areas, it can be accommodated without radical changes in extant doctrines and

⁸⁹ Tor & Rinner, *supra* note 7, at 813. Economists may find the argument compelling with respect to a narrow class of goods whose “luxury” value indeed derives in part from their relatively high price. *See, e.g.*, Laurie Simon Bagwell & B. Douglas Bernheim, *Veblen Effects in a Theory of Conspicuous Consumption*, 86 AM. ECON. REV. 349 (1996); Harvey Liebenstein, *Bandwagon, Snob and Veblen Effects in the Theory of Consumers' Demand*, 64 Q. J. ECON. 183 (1950). *See also* the sources *infra* n. 90 discussing empirical evidence for a persistent positive correlation between perceptions of price and quality.

⁹⁰ *See generally* Valarie A. Zeithaml, *Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence*, 52 J. MARKETING 2 (1988) (“Price reliance is a general tendency in some consumers to depend on price as a cue to quality.”); Donald R. Lichtenstein, Nancy M. Ridgway & Richard G. Netemeyer, *Price Perceptions and Consumer Shopping Behavior: A Field Study*, 30 J. MARKETING RES. 234 (1993) (describing “a positive association between price and perceived quality”).

⁹¹ Tor, *Behavioral Antitrust*, *supra* note ___, at ___.

enforcement practices.

III. JUDGMENT AND EFFICIENCY VS. CHOICE AND WELFARE

Present day antitrust law is based on neoclassical microeconomic foundations that show how competition generates efficiency in allocation and production.⁹² This increased efficiency and the resulting social welfare gains serve to justify the costly legal machinery of antitrust.⁹³ Once the bounded rationality of real consumers is acknowledged, however, the causal link between competition on the one hand and efficiency and social welfare on the other hand is attenuated, occasionally even severed,⁹⁴ thereby posing the two related challenges that the following Parts address in turn.

For analytical purposes, it is important to distinguish between the forms of boundedly rational consumer behavior that bring about the efficiency and welfare challenges, respectively, despite the similarities and close relationship of these categories.⁹⁵ The efficiency challenge of Part IV follows from *errors of judgment*, when consumer demand is based on misperceptions of product parameters such as quality, value, price, or one's own future demand for the product or some of its features. In such cases, as illustrated below, consumer misperception generates distorted demand and inefficiencies follow suit.⁹⁶ Competition may diminish these inefficiencies but typically does not eradicate them altogether and at times even exacerbates the problem.

Nevertheless, consumers who manifest systematic misperceptions of product parameters could be revealing their genuine, preexisting preferences for the products and services they demand all the same. Hence, if these consumers were to learn of their judgment mistakes and correct them, their choice behavior would generate undistorted demand, resembling that of the hypothetical rational consumers currently employed in antitrust law. In a market inhabited by such consumers, once unbiased, competition still maximizes social welfare.

In contrast, the consumers whose behavior gives rise to the welfare challenge manifest *constructed choices*.⁹⁷ That is, they choose products

⁹² See, e.g., AREEDA ET AL., *ANTITRUST ANALYSIS: PROBLEMS, TEXT, AND CASES* (7th Ed. 2013).

⁹³ *Id.*, at ____.

⁹⁴ Cf. Huck & Zhou, *supra* note __, at 6 (“Perhaps the most striking result of the [behavioral industrial organization] literature so far is that increasing competition . . . may not always make consumers better off and in specific circumstances may even make consumers worse off.”).

⁹⁵ For further explanation of the distinction between errors of judgment and errors of choice and their potentially distinct normative ramifications, see Tor, *Behavioral Methodology*, *supra* note __, at 244-72. But see Werden et al., *supra* note 7, at 137 (failing to distinguish among the different types of deviations from strict rationality and claiming that “...irrational decision making by consumers destroys the analytic basis of welfare economics.”).

⁹⁶ Cf. Stucke, *Reconsidering*, *supra* note __, at 34.

⁹⁷ See, e.g., Bettman et al., *supra* note __, at 187-88; Slovic, *supra* note __, 369.

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and service not only based on their preexisting preferences, as the rationality assumption requires.⁹⁸ Instead, their choices of one product over another vary with the particular way in which products and information about them are displayed in the market, the specific format or procedure they use to make their choices, the nature of other available products, and the characteristics of the specific product and decision maker.⁹⁹ For example, rather than choosing just on the merits of its price and features in relation to their preexisting preferences, a new sound system will appear more or less attractive to consumers depending on how the same information about is presented to them; the particular mode of choice—say, in store or online—even when faced with the same products and substantive information; or the specific set of sound systems from which they happen to make their choice.¹⁰⁰

As Part V explains and illustrates in detail, constructed consumer choice raises the prospect of competition that fails to advance social welfare, even while appearing to satisfy consumer preferences. In principle, consumers with constructed preferences need not make any errors of judgment regarding product parameters or even their own future demand for it. Yet, in this case, the seemingly efficient allocation and production brought about by competition necessarily will reflect whichever ad-hoc, constructed preferences that consumer demand happens to manifest, rather than consumers' "true" preferences. Insofar as competition does not maximize the satisfaction of the true preferences, however, it cannot be said to maximize social welfare. Indeed, the strongest version of the constructed preferences view—namely, one asserting that consumer demand reveals *only* constructed preferences—stands in sharp contrast to the welfare-based justification for promoting competition.¹⁰¹

⁹⁸ E.g., John W. Payne et al., *Measuring Constructed Preferences: Towards a Building Code*, 19 J. RISK & UNCERTAINTY 243, 245 (1999) (explaining that “[t]wo major tenets of the constructive perspective on preferences are that 1) expressions of preferences are generally constructed at the time the valuation question is asked and 2) the construction process will be shaped by the interaction between the properties of the human information processing system and the properties of the decision task . . . leading to *highly contingent decision behavior*.”) (emphasis added);

⁹⁹ See, e.g., *id.*, at 246-47 (briefly summarizing some of the major conclusions of the empirical research on the construction of preferences); Amos Tversky, *Contrasting Rational and Psychological Principles in Choice*, in WISE CHOICES: DECISIONS, GAMES, AND NEGOTIATIONS 5, 6-7 (RICHARD J. ZECKHAUSER ET AL. EDS., 1996).

¹⁰⁰ E.g., Tversky, *supra* note __, at 6-17 (explaining the economic requirements of description invariance, procedure invariance, and context independence that underlie rational choice models, and reviewing some illustrative evidence for their systematic violation due to the constructive processes of individual choice behavior).

¹⁰¹ See the discussion *infra* Part V. See also Huffman, *Neo-Chicago with Behavioral Antitrust*, *supra* note __, at 117; Stucke, *Reconsidering*, *supra* note __, at 186-88; Alexander Morrell, Comment, *Behavioral Antitrust and Merger Control*, 167 J. Inst. Theoretical Econ. 143, 146-47 (2011) (criticizing Werden et al.'s argument that the behavioral evidence should be ignored, regardless of its validity, if it makes current practices in welfare economics obsolete); Werden et al., *supra* note __, at 127 (implying behavioral evidence could be used to challenge the assumption

Finally, though in reality consumer behavior may exhibit both errors of judgment and the construction of choice, the following Parts address the efficiency and welfare challenges separately to clarify their distinct characteristics and antitrust implications.

IV. THE EFFICIENCY CHALLENGE

A. *The Challenge*

Boundedly rational consumers may exhibit systematic errors when making judgments about products and services. For example, consumers' intuitive judgment errors in the market can lead them systematically to overestimate or underestimate the value or quality of products and services, in either absolute or relative terms.¹⁰² [TEXT ON illustrative UNDERLYING PSYCH PROCESSES] For example, consumers may underestimate the value of home insurance or overestimate the relative quality of a branded drug compared to a bioequivalent generic alternative.

When such mistakes of judgment occur, demand will be distorted. Consumers will demand either smaller or greater quantities of the affected products than they would have done absent their errors, depending on the nature of the mistakes that dominate in the specific case. This distorted demand will generate inefficiencies even in a perfectly competitive market. Competition in such a market will still drive product prices down to marginal cost, as it does under the traditional rationality assumption. Yet with distorted demand, instead of directing their limited resources to ends that in fact are more valuable to them, consumers will expend the wrong proportion of their resources on the affected product.

Besides the inefficiencies directly caused by consumer bias, moreover, producers who seek to maximize their profits by fulfilling consumer demand—which in this case is distorted—will channel resources to the production of the affected product. The misdirection of these productive resources away from uses that in truth are more valuable to consumers thus brings about further inefficiencies.¹⁰³

At times, as our earlier analysis showed, producers and intermediaries will facilitate more rational consumer behavior, but this

that consumers maximize utility via choice).

¹⁰² Cf. Huck & Zhou, *supra* note __, at 10-14 (offering a taxonomy of the possible effects of behavioral biases on consumer behavior).

¹⁰³ See Huck & Zhou, *supra* note __, at 7 (noting that "...even if competition is perfect, it is unable to eradicate allocative inefficiencies that may arise in response to distortions driven by biases. For example, biases and the cross subsidies they generate may lead to overproduction of goods that in the end will be thrown away or suboptimal design of product that may have too much of one attribute or too little of another.").

will not always be the case.¹⁰⁴ For instance, producers who benefit from mistakenly excessive demand for their products will scarcely seek to remedy consumer bias. And even sellers who would like to help consumers correct those errors that depress the demand for their products may be reluctant to commit resources to consumer education unless they can recoup their investment.¹⁰⁵ Thus, where more rational judgments would increase demand, but educated consumers can turn to other producers, the individual producers' incentive to invest in improving consumer judgment is limited.¹⁰⁶

Indeed, in recent years a growing economic literature in behavioral industrial organization began exploring the impact of consumers' bounded rationality on market outcomes. The primary focus of this literature is formal economic modeling that examines, in each case, the effects of a single category of mistakes and how it shapes competition by rational sellers who respond to, exploit, or even facilitate consumers' deviations from strict rationality.¹⁰⁷ Occasionally, scholars also employ experimental markets to test the behavior of real participants when faced with different product and market designs.¹⁰⁸

For present purposes, the main lesson of this literature is that specific types of distorted demand will lead to different market outcomes. Besides the general weakening of the competition-efficiency link when the bounded rationality of consumers is taken into account, increased competition can in fact *diminish* efficiency when faced with certain types of systematic consumer mistakes, as the following paragraphs briefly illustrate.

Real consumers may have difficulty determining the quality of some products ex-ante, particularly when quality or long-term benefits can be learned only over time ("experience goods") or perhaps not at all by the consumer herself ("credence goods"). In these cases, consumers must judge product quality under uncertainty and will occasionally form erroneous beliefs, thinking lower quality products to be of higher quality or vice versa.¹⁰⁹

At times, the presence of bounded rational consumers—in particular, ones who rely on their experience with a seller—can improve outcomes compared to a market with perfectly rational consumers only. Thus, Huck and Tyran model a simple trust game in which consumers

¹⁰⁴ See *supra* Part I.

¹⁰⁵ See Tor, *Behavioral Antitrust*, *supra* note __, at ____.

¹⁰⁶ See Gabaix & Laibson, *supra* note __, at __.

¹⁰⁷ For a recent survey see Huck & Zhou, *supra* note __, at 6 ("The literature is very model-oriented and mainly theoretical."). See also RAN SPIEGLER, *BOUNDED RATIONALITY AND INDUSTRIAL ORGANIZATION* (2010) (The first book to provide an overview of this subfield).

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¹⁰⁹ Huck & Zhou, *supra* note __, at 47 (explaining that in standard models consumers typically do not experience "surprises" regarding product quality).

can either purchase or avoid the market (which they prefer to ending up with a low quality product).¹¹⁰ They find that when consumers are all rational, product quality is low and the market breaks down, since firms prefer to produce low quality and consumers expect that and avoid purchasing.¹¹¹ The presence of boundedly rational, “reciprocal” consumers—ones who will give the product a chance but will cease buying it if experience reveals the product to be of low quality—can improve market outcomes, essentially because they provide sellers with an incentive to provide high quality products.¹¹² Moreover, market outcomes under competition (duopoly) are better than under monopoly, once consumers may be informed by the experiences of other consumers.¹¹³

Yet when consumers are unable to determine product quality altogether—essentially the case of credence goods—competition unsurprisingly fails to generate efficient outcomes. Thus, Spiegler models the extreme case of an objectively worthless product or service (such as “quack” healing technique) that improves consumer outcomes with a certain positive probability that is no different from the improvement odds of consumers who do not purchase the service.¹¹⁴ If consumers reason anecdotally, relying on random, casual stories regarding the quality of treatments as if they revealed the actual quality of treatments, they attribute the occasional success to skill rather than luck.¹¹⁵ Consequently, consumers who choose to participate in the market suffer a welfare loss.¹¹⁶

In this case, competition among providers does not necessarily improve outcomes. On the one hand, competition among providers tends to drive prices down. On the other hand, however, an increased number of providers increase the number of anecdotes of success, which facilitate the purchase of useless services.¹¹⁷ Further analysis shows, moreover, that the presence of some providers who offer valuable services still fails to generate an efficient outcome.¹¹⁸ Firms can reduce the price pressure of competition by creating artificial product differentiation (e.g. a broad range of “treatments”) as well.¹¹⁹ And, finally, the results generalize also to more common settings, where the

¹¹⁰ Steffen Huck & Jean-Robert Tyran, *Reciprocity, Social ties, and Competition in Markets for Experience Goods*, 36 J. SOC.-ECON. 191 (2007).

¹¹¹ *Id.* at 194.

¹¹² *Id.* at ___.

¹¹³ *Id.* at 199-202.

¹¹⁴ Ran Spiegler, *The Market for Quacks*, 73 Rev. Econ. Stud. 1113 (2006).

¹¹⁵ *Id.* at 1113.

¹¹⁶ *Id.* at ___.

¹¹⁷ *Id.* at 1118.

¹¹⁸ *Id.* at 1118-19.

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service provides some benefits, for instance, but consumers cannot distinguish between the providers' skill and luck (as may be the case for most of the public with respect to the mutual fund industry).¹²⁰

Beyond mistaken evaluations of the value or quality of products, boundedly rational consumers may occasionally even misjudge product prices, particularly when pricing schemes are complex.¹²¹ This may be the case, for example, in markets such as that for cellular service, where individual consumption can vary substantially over time or involves different types of services (e.g. voice, data, messaging).¹²²

One particular case of complex pricing concerns multidimensional products or services—namely, those possessing multiple elements that impact the overall price or value.¹²³ Consumers who purchase life or health insurance, for example, need to calculate tradeoffs across a large number of contingencies, and insurance companies can contribute to the difficulty of this task by applying different reimbursement policies to different scenarios.

As Spiegler suggests, consumers facing this complexity or “obfuscation” may resort to simplifying heuristics, judging products based on a small sample of dimension that they find most important.¹²⁴ When competing over such consumers, firms must trade off the need to win consumers against the need to take advantage of consumers' limitations to maximize profits. A basic model shows that firms respond to greater competition with greater obfuscation, rather than with more competitive pricing. Importantly, moreover, under plausible assumptions, increased competition (in the sense of a larger number of competing sellers) can lead to greater inefficiency.¹²⁵

At other times, sellers may break prices down to multiple components in an effort to reduce the transparency of final prices and make meaningful price comparisons more difficult for consumers.¹²⁶ If different sellers use similar price schemes, competition may make

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¹²² See, e.g., Bar-Gill, *supra* note __, at __; Bennet et al., *supra* note __, at __; Charlotte Duke et al., *The Impact of Price Frames* (OFT Report 2010); Charlotte Duke et al., *Partitioned Pricing Research: A Behavioural Experiment* (OFT Report August 2013).

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¹²⁴ Ran Spiegler, *Competition over Agents with Boundedly Rational Expectations*, 1 THEO. ECON. 207 (2006).

¹²⁵ *Id.* at __ (showing this result in an extension of the basic model, that when there are diminishing returns to quality—a highly plausible assumption—and firms control both price and quality).

¹²⁶ E.g., Duke et al., 2010 Report, *supra* note __, at __. Note that the present case is distinct from situations in which sellers introduce different price elements gradually or after “baiting” consumers with a superficially attractive offer (e.g. “drip” pricing), since the latter strategies operate primarily by constructing consumer preferences and therefore belongs in Part V *infra*. (After all, before they purchase a product consumers usually know the ultimate price, if perhaps not exactly how it compares to the pricing and features of competing products.)

matters better.¹²⁷ For this reason, however, firms have a strong incentive to coordinate and avoid the same price structures.¹²⁸ Barring that, increased competition will lead sellers will seek artificially to create additional, different price schemes, much like the case of artificial product differentiation discussed above.¹²⁹

Finally, beyond misjudgments of quality or price, consumers may also make systematically biased predictions of their own future demand for a product or for some of its specific attributes.¹³⁰ [TEXT ON UNDERLYING PSYCH PROCESSES—e.g. insufficient awareness of one’s own hyperbolic discounting leading to overestimation;¹³¹ self-control problems leading to underestimation;¹³² overoptimism working both ways, depending on the case¹³³]

When consumers overestimate their future demand they may excessively consume at present, purchasing a larger number of units than they will need or too large a bundle (such as a cellphone data plan or a gym membership) than is necessary to fulfill their actual demand later on.¹³⁴ Those who underestimate their future demand, on the other hand, may purchase ill-fitting products (say, a basic product lacking some beneficial add-on features) or bundles that are too small and require additional, often more costly, purchases later on.¹³⁵

In the case of demand overestimation, a simple monopoly model in which unneeded units are not delivered shows, for instance, how this bias translates to a transfer from consumers to sellers that increases the monopoly deadweight loss beyond the standard case.¹³⁶ Moreover, overestimation of demand still generates inefficiencies even under perfect competition in this model, since firms make positive profit by selling units they later need not deliver.¹³⁷

Firms who respond to consumers’ mistakes in estimating their own demand will design contracts accordingly. When consumers overestimate demand, firms will offer high fixed fees and low per-use charges (as in the case of gym memberships), while the opposite pattern

¹²⁷ Huck & Zhou, *supra* note __, at 43; Michele Piccione & Ran Spiegler, *Price Competition under Limited Comparability*, 127 Q. J. ECON. 91 (2012).

¹²⁸ *Id.* & Annex B, Box 4 (offering a simple model of sellers’ price frame choice).

¹²⁹ Piccione & Spiegler, *supra* note __, at __.

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¹³¹ See Stefano DellaVigna & Ulrike Malmédier, *Contract Design and Self-Control: Theory and Evidence*, 119 Q. J. ECON. 353 (2004); Stefano DellaVigna & Ulrike Malmédier, *Paying not to go to the Gym*, 96 AM. ECON. REV. 694 (2006). See generally George Loewenstein & Drazen Prelec, *Anomalies in Intertemporal Choice: Evidence and an Interpretation*, 107 Q. J. ECON. 573 (1992).

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¹³⁶ Huck & Zhou, *supra* note __, at 23 & Annex B, Box 1.

¹³⁷ *Id.*

of low fixed fees and high per-use charges will be offered in response to demand underestimation (e.g., introductory offers for credit cards).¹³⁸ Notably, while firms' pricing strategies in these case exploit biased consumers, their more rational counterparts may benefit from this state-of-affairs.¹³⁹ The latter, for instance, will enjoy the low upfront fees while avoiding the higher per-use charges (e.g., taking advantage of introductory credit card offers but avoiding late payment fees).

Most importantly for our analysis here, however, is the observation that firms' strategic responses to systematic consumer bias in estimating demand create allocative inefficiencies, with resources directed to less valuable ends by both consumers and firms.¹⁴⁰ Even while competition again does not eliminate these inefficiencies, moreover, it does force firms to compete away profits to win over biased consumers through price structures that appear more attractive ex-ante.¹⁴¹

In fact, the *Kodak* case discussed in Part _ above illustrates this market dynamic in which firms react to consumers' underestimation of their own demand, in the particular case of aftermarket power.¹⁴² As explained there, one possible account is that, faced with boundedly rational consumers who underestimate their future demand in the aftermarkets, Kodak was able to exploit its power in copier parts and service, notwithstanding a competitive primary market for copiers.¹⁴³ If the evidence were to show this indeed to be the case, the ultimate welfare loss here would have depended, first, on the relative proportions of sophisticated and myopic consumers and, second, on the intensity of primary market competition. At any rate, however, a potentially significant loss to efficiency remains even when the primary market is fully competitive, so long as the machines sold in the primary market are subsidized by the aftermarket, with an overconsumption in the former and under-consumption in the latter.¹⁴⁴

B. Judgment, Competition, and Efficiency

The preceding section explained how systematic judgment errors on the part of consumers can translate into significant inefficiencies that competition cannot always eliminate. Occasionally, moreover,

¹³⁸ See DellaVigna & Malmedier, *Contract Design*, *supra* note __; DellaVigna & Malmedier, *Paying*, *supra* note __. See also Kfir Eliaz & Ran Spiegler, *Contracting with Diversely Naive Agents*, 73 REV. ECON. STUD. 689 (2006) (generalizing this result for more complicated contracts and a broader range of consumer naiveté, showing that firms will also offer different contracts to screen more from less sophisticated consumers).

¹³⁹ See Gabaix & Laibson, *supra* note __, at __.

¹⁴⁰ E.g., Huck & Zhou, *supra* note __, at 27.

¹⁴¹ Huck & Zhou, *supra* note __, at 28.

¹⁴² *Supra* __.

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¹⁴⁴ See Bennett et al., *supra* note __, at 119 n.25 (discussing the effects of aftermarket exploitation).

increased competition appeared to facilitate strategic responses to consumer bias by sellers that made matters worse instead of promoting efficiency as antitrust law assumes to be the case. This state of affairs poses a clear challenge to the efficiency justification for competition policy, insofar as the bounded rationality of real consumers weakens the competition-efficiency link, sometimes even severs it altogether.

However, the closer scrutiny of the following paragraphs shows that even a less-than-perfect relationship between competition and efficiency still offers meaningful guidance for antitrust law, for a number of reasons. First, behavioral industrial organization models show that substantial inefficiencies can remain in a variety of competitive settings, but they also indicate that, even with real, boundedly rational consumers, many market settings reasonably approximate the predictions of traditional rationality-based models.¹⁴⁵

Second, while few models assume that consumers all exhibit a particular mistake of judgment, in most cases the magnitude of inefficiencies borne of bounded rationality depends on the proportion of more to less rational consumers.¹⁴⁶ Yet the broader empirical evidence shows that behavioral deviations from rationality, even when robust and common, are not universal and occasionally leave a substantial minority of individuals whose judgments better approximate rationality.¹⁴⁷ Hence, particularly in those markets that offer better opportunities for learning from experience, or where sellers or intermediaries do have sufficient incentives to educate consumers, inefficiencies should be more limited under competition.

Third, the important inquiry—at least insofar as the efficiency justification for antitrust is concerned—is not whether competition always breeds efficiency, but whether increased competition tends to generate more efficient outcomes compared to diminished competition. For instance, we should ask whether more competitive markets tend to be more efficient than markets that are monopolized or subject to direct regulation of price or other product features.

Once the question is posed this way, however, the answer becomes quite clear. Specifically, even in behavioral industrial organization models, increased competition often improves market outcomes compared to monopoly or to diminished competition.¹⁴⁸ [EXAMPLES] And while in some cases competition does generate further inefficiencies, the circumstances that bring about such “harmful

¹⁴⁵ [EXAMPLES]

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¹⁴⁷ See Tor, *Behavioral Antitrust*, *supra* note __, at ___ (summarizing some of the evidence of this heterogeneity). See generally Avishalom Tor, *Law in a Behaviorally-Complex World* (manuscript on file with author) (offering an in-depth analysis of the empirical evidence regarding individual differences in rationality and its implications for legal design).

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competition” are somewhat limited in scope.¹⁴⁹ [EXAMPLES]

In other cases, the strategic responses of rational producers to the predictable mistakes of some boundedly rational consumers render regulatory alternatives to competition similarly inefficient or, quite frequently, effective only under very specific circumstances.¹⁵⁰ [EXAMPLES]

Furthermore, even where simple models suggest that direct regulation of price or other product or market characteristics can be more efficient than competition, the reality involved in implementing such regulation is likely to be far more challenging, as the public choice literature reveals at length.¹⁵¹ In fact, by now there is ample evidence of the particular pitfalls of attempts at direct price and product regulation.¹⁵²

Caution regarding the likely benefits of regulatory alternatives to competition is further suggested by the evidence of individuals’ bounded rationality, since not only consumers but regulators as well may manifest systematic errors of judgment.¹⁵³ And while regulators are better positioned than individual consumers, they still are at a substantial disadvantage when faced with sophisticated firms who react strategically to governmental interventions.¹⁵⁴

Finally, at least in some of those markets where competition alone may generate significant inefficiencies, regulatory schemes are already in place. Industries that revolve around credence goods—such as the services of professionals that most consumers cannot judge on their own, like medical or legal services—are subject to professional regulation. In the same vein, many aspects of the financial and telecommunications industries are presently under regulatory schemes. [And while this regulation typically is not aimed primarily at BR...]

Together these related arguments suggest that competition is adequate to the task and usually far better in promoting efficiency compared to the alternatives of diminished competition or direct regulation, its imperfect record on that score notwithstanding.

V. THE WELFARE CHALLENGE

A. *The Challenge*

Beyond exhibiting systematic judgment errors, instead of making their choices based only on relevant information and their preexisting,

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¹⁵³ See, e.g., James Cooper & William Kovacic...

¹⁵⁴ Tor, *Behavioral Antitrust*, *supra* note __, at ____.

orderly preferences, real consumers also manifest constructed choices.¹⁵⁵ Specifically, consumers' product choices partly depend on irrelevant factors including the particular way in which products and information about them are displayed (or framed), the procedure they use to elicit their choices, and more. The construction of consumer choice raises a fundamental challenge to antitrust by offering the visage of competition that appears to satisfy consumer demand yet fails to advance social welfare.¹⁵⁶ The seemingly efficient allocation brought about by competition that in fact responds to ad-hoc, constructed consumer preferences—or, even worse, competition among producers to *construct* consumer preferences—may thus be a mirage rather than the means for promoting a consumers' "true" preferences.

To appreciate the significance of the welfare challenge to antitrust, this Part first highlights three key aspects of the empirical evidence of rational choice violations in this area: The impact of framing (a violation of description invariance); the effects of the process through which choices are made (a violation of procedure invariance); and the ways in which the context of choice (e.g. the presence of other options that are not chosen, a violation of context independence).¹⁵⁷

Thereafter the analysis turns to consider how the construction of preferences shapes competition in the market, again drawing on the recent literature in behavioral industrial organization. In particular, this Part focuses on the role of reference dependence (including context and framing effects, loss aversion, and the related status quo bias) on consumers' willingness to pay for products,¹⁵⁸ as well as on their willingness to search and consider alternative products and services.¹⁵⁹

[TO BE COMPLETED]

As we have seen with respect to judgment errors, therefore, the

¹⁵⁵ See, e.g., Bettman et al., *supra* note __, at 187-88; Slovic, *supra* note __, 369.

¹⁵⁶ See Huffman, *Neo-Chicago with Behavioral Antitrust*, *supra* note __, at 117; Morrell, *supra* note __; Stucke, *Reconsidering*, *supra* note __, at 186-88; Werden et al., *supra* note __, at 127 (implying behavioral evidence could be used to challenge the assumption that consumers maximize utility via choice).

¹⁵⁷ See generally Tversky, *supra* note __, at 6-17 (explaining the requirements of description invariance, procedure invariance, and context independence that underlie rational choice models, and reviewing some illustrative evidence for their systematic violation due to the constructive processes of individual choice behavior). See also DANIEL KHANEMAN & AMOS TVERSKY (EDS.), *CHOICES, VALUES, AND FRAMES* (2000) (a leading collection of key articles in this area). For a summary review of behavioral findings on choice and their legal application see Tor, *Behavioral Methodology*, *supra* note __, at ____.

¹⁵⁸ E.g., Paul Heidhues & Botond Koszegi, *Competition and Price Variation When Consumers are Loss Averse*, 98 AM. ECON. REV. 1245 (2008); Jidong Zhou, *Reference Dependence and Market Competition*, 20 J. ECON. & MGMT. STRAT. 1073 (2011)

¹⁵⁹ See Mark Armstrong et al., *Prominence and consumer search*, 40 RAND J. ECON. 209 (2009); Carlin, B., *Strategic price complexity in retail financial markets*, 91 J. FIN. ECON. 278 (2009); Glenn Ellison & Alexander Wolitzky, *A Search Costs Model of Obfuscation*, 43 RAND J. ECON. 417 (2012).

construction of consumer preferences exerts substantial effect on market outcomes. Loss aversion, for instance, serves to magnify the perceived differences—in both price and product features—among substitute products.¹⁶⁰ A number of the behavioral deviation from rational choice in this area appear to soften competition, while some can intensify it. Moreover, insofar as the status quo bias and related phenomena facilitate inertia in consumer choice, both price and product quality may suffer.

The behavioral industrial organizational research tends to take such “nonstandard” preferences as given and proceeds only to examine their effects on competition and efficiency.¹⁶¹ The significance of the evidence of constructed preferences, however, goes well beyond its immediate implications for the competitive process. Insofar as firms compete to shape consumer choice rather than supply products and service that satisfy preexisting preference, the welfare justification for protected competition appears far weaker than is acknowledged by antitrust law.

B. Choice, Competition, and Welfare

Much like in the case of the efficiency challenge, a closer look at the evidence on constructed consumer choice and its policy implications largely rehabilitates antitrust’s welfare-promoting mission. As before, the analysis here shows competition to be an imperfect yet acceptable means for advancing social welfare. Most importantly, increased competition is found clearly to perform this task better than the alternatives of diminished competition or direct government regulation of consumer choice.

The reasons for which at least a weak form of the competition-welfare link withstands scrutiny are multifarious: First, notwithstanding the extensive evidence for preference construction, a substantial fraction of preferences is inherent and not particularly malleable.¹⁶² Second, even many of those preferences that initially are constructed in the market may stabilize over time, forming meaningful and even coherent

¹⁶⁰ Huck & Zhou, *supra* note __, at __.

¹⁶¹ See, e.g., Huck & Zhou, *supra* note __, at 16 (While expressing some implicit skepticism regarding that position, noting how “[t]he literature typically takes the stand that consumers evaluate outcomes relative to a reference point because this is what they prefer. These preferences may be non-standard but they are preferences, says the literature.”) (footnote omitted).

¹⁶² See, e.g., Ravi Dahr & Nathan Novemsky, *Beyond Rationality: The Content of Preferences*, 18 J. CONSUM. PSYCHOL. 175 (2008); Itamar Simonson, *Will I Like a “Medium” Pillow? Another Look at Constructed and Inherent Preferences*, 18 J. CONSUM. PSYCHOL. 155 (2008); Itamar Simonson, *Regarding Inherent Preferences*, 18 J. CONSUM. PSYCHOL. 191 (2008); Caleb Warren et al., *Value and Preferences: Defining Preference Construction*, 2 WILEY INTERDIS. REV. COG. SCI. 193 (2011).

constructs for evaluating consumer welfare.¹⁶³ Third, some constructed preferences reflect, if imperfectly, consumers' preexisting, higher-order preferences and therefore deserve a modicum of respect.¹⁶⁴ Fourth and most importantly, the ultimate test of competition in this context is not how it promotes absolute social welfare but, whether from the perspective of welfare increased competition is superior or inferior to diminished competition or direct regulation of choice. Here, once again echoing the preceding discussion of the competition-efficiency link, despite its limitations, increased competition appears to outperform its main policy alternatives. In fact, some indirect forms of regulation—such as the standardization of some product information—may better complement competition rather than substituting for it as a means for promoting social welfare.

CONCLUSION

[To be completed]

¹⁶³ E.g., James R. Bettman et al., *Preference Construction and Preference Stability: Putting the Pillow to Rest*, 18 J. CONSUM. PSYCHOL. 170 (2008).

¹⁶⁴ See, e.g., *id.* at 171 (discussing the notion of choice “primitives” that are differentially activated by contextual and task factors).

