

# THE EMPTY PROMISE OF BEHAVIORAL ANTITRUST

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## ABSTRACT

*Microeconomic theory has long guided competition law. Using price and game-theoretic models, antitrust has settled on rules that have endured because they are more coherent, easier to understand, and simpler to apply than those of any other methodology. In application, these rules predict the market consequences of business transactions innumerable in form and uncertain in outcome. But this coherent framework is now under attack. Entranced by the larger “behavioral law and economics” movement, certain academics have questioned the pillars of doctrine built upon the foundation of rational-choice theory. In their view, bounded rationality, willpower, and self-interest afflict firms’ and consumers’ decisionmaking, inducing systemic departures from the predictions of neoclassical economics and game theory. Current antitrust laws, they argue, fail to account for those departures from rationality. Because these rules and standards produce what they regard as unduly permissive treatment, behavioral antitrust scholars urge more interventionist policy.*

*This Article contends that, whatever its virtues for the larger field of law and economics, behavioral economics can play no useful role in contemporary antitrust policy. It is hopelessly vague, untethered to a theory, and reliant on biases that routinely operate in opposing directions. Although it can sometimes describe the past, it is incapable of predicting the future—a fatal shortcoming for any method of antitrust analysis. We test whether behavioral antitrust can produce a coherent theory for predicting the market effects of impugned re-*

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*straints on trade and exclusionary conduct. In doing so, we show that the biases prove either too much—all results are possible—or too little, canceling themselves out and reverting to the (rational) mean. The suggested utility of behavioral antitrust depends entirely upon which biases are thought to explain the conduct in question. But because the movement lacks any method for determining the explanatory power of a particular bias ex ante, choosing between conflicting biases is either a random act or a political one.*

*We also show what the behavioralists must be loath to mention. Despite the claimed empirical superiority of behavioral antitrust, on one key point the psychological literature has failed to supply it with the evidence or theory critical for its application: the frequency with which one set of biases dominates others. Without this key bit of inductive fact or deductive logic, all that remains of the approach is conjecture or cynical manipulation. We conclude that the behavioral movement is a non-event for antitrust policy today.*

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#### INTRODUCTION

Antitrust law has evolved incrementally over the past several decades into a coherent body of doctrine. Policymakers have drawn on the price and game-theoretic insights of modern industrial organization to formulate rules and standards with distinct substantive and administrative advantages. The law that has emerged is logical, simple to understand, usefully predictive, and—for those reasons—relatively easy to apply. Illustrations

tively, ease of entry defeats monopolization claims;<sup>1</sup> mergers effecting modest increases in concentration pass muster under the agencies' review standards;<sup>2</sup> complaints alleging behaviors that make no economic sense fail to state a claim;<sup>3</sup> a manufacturer can require its retailers not to sell below a minimum price;<sup>4</sup> firms with less than fifty percent of a market cannot monopolize that market as a matter of law;<sup>5</sup> and firms have no duty to deal with their competitors unless they have unilaterally terminated a profitable course of prior dealing.<sup>6</sup> Many such rules now form the basis for the administration of competition law not just in the United States but in most of the world as well.

Critical assumptions about the rationality of individuals and firms lie at the heart of current analysis. Consumers respond rationally to the price and quality signals that sellers of desired goods provide. They will buy products and services that provide them with the most relative value, compare competing products sensibly, and switch to rival products should the quality-price mix of their initial choice rise unacceptably. And they will continue to remain informed of changes in the marketplace that might lead them to switch.

By the same token, firms are assumed to be rational profit-maximizers, endeavoring to make as much profit as they can. Because their profits come from sales, they must be attuned to shifts in consumer demand, the need for new products, the actions of their rivals, and the possibility of making greater profits in some new market. And they must respond correctly to all of these forces if they are to become and remain profitable. Economists have derived these rationality assumptions and deployed

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1. See *United States v. Syfy Enters.*, 903 F.2d 659, 666–69 (9th Cir. 1990).

2. See DEP'T OF JUSTICE & FED. TRADE COMM'N, HORIZONTAL MERGER GUIDELINES § 5.3 (2010), available at <http://www.justice.gov/atr/public/guidelines/hmg-2010.pdf>, [<http://perma.cc/7SKR-GZHZ>].

3. See *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 587 (1986).

4. See *Leegin Creative Leather Prods., Inc. v. PSKS, Inc.*, 551 U.S. 877, 896–97 (2007).

5. *Bailey v. Allgas, Inc.*, 284 F.3d 1237, 1250 (11th Cir. 2002); *Nobody in Particular Presents, Inc. v. Clear Channel Commc'ns Inc.*, 311 F. Supp. 2d 1048, 1098–99 (D. Colo. 2004); see also *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 424 (2d Cir. 1945).

6. See generally *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585 (1985); see also *Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 409 (2004).

them in the service of a straightforward, coherent, and predictive methodology that has dominated antitrust law and policy for the past thirty-five years. That analytic method uses models based on constrained optimization and noncooperative game theory. Pursuant to this inductive analysis, economists have empirically tested their models based on observed economic behavior. Since the 1970s, price and game theories have dominated the structuralist approach to industrial economics that previously held sway under the Harvard School of Economics.

Now, however, competition policy is approaching a crossroads. Some academics and regulators have begun to challenge antitrust's theoretical and evidentiary underpinnings, questioning what they perceive to be the laissez faire policy encouraged by the conventional account.<sup>7</sup> They argue that the price-theoretic view that the Chicago School first propounded—a methodology that has long rationalized, structured, and guided antitrust enforcement—is deeply flawed, its core assumptions unrealistic, its “goals” indistinct and unattainable, its key terminology indeterminate, and its implementation a form of politics masquerading as neutral decisionmaking.<sup>8</sup>

This critique seeks to import into antitrust law lessons drawn from behavioral economics, which purports to enrich the realism of economic thinking by incorporating insights from cognitive psychology.<sup>9</sup> Decrying the rational-choice assumptions underlying conventional antitrust analysis, behavioral scholars contend that the psychological literature yields revolutionary insights for competition policy. Drawing on experimentally observed departures from rational choice, they have identified biases that lead firms and consumers to act contrary to their self-interest and hence to the predictions of neoclassical and

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7. See J. Thomas Rosch, Comm'r, Fed. Trade Comm'n, Remarks at the New York Bar Association Annual Dinner: Implications of the Financial Meltdown for the FTC 2–5 (Jan. 29, 2009), available at <http://ftc.gov/speeches/rosch/090129financialcrisisnybarspeech.pdf>, [<http://perma.cc/DCZ7-2L3S>]; see also generally Maurice E. Stucke, *Reconsidering Antitrust's Goals*, 53 B.C. L. REV. 551 (2012) [hereinafter *Reconsidering Goals*]; Maurice E. Stucke, *Behavioral Economists at the Gate: Antitrust in the Twenty-First Century*, 38 LOY. U. CHI. L.J. 513 (2007) [hereinafter *Twenty-First Century*].

8. See generally, e.g., Stucke, *Reconsidering Goals*, *supra* note 7.

9. See Amanda P. Reeves & Maurice E. Stucke, *Behavioral Antitrust*, 86 IND. L.J. 1527, 1570–71 (2011).

game theories.<sup>10</sup> Using this literature, which focuses on reference points, heuristics, and mental biases in lieu of expected-utility maximization, behavioral antitrust scholars claim an ability to supplant, or more modestly to complement, the conventional approach to antitrust analysis.<sup>11</sup>

This Article makes two claims. First, behavioral antitrust rests on a series of observations that necessarily look backward and offer neither a model against which to assess business behavior nor a theory by which to predict its future effects. We do not argue that neoclassical economic analysis is infallible or that its predictions are invariably accurate. Nor do we steadfastly defend a non-interventionist antitrust policy. We argue instead that, because it lacks a predictive component, behavioral economics adds nothing to competition policy beyond what empiricism has long contributed. In that respect, no one can doubt that empirical observation has long been at the core of industrial organization and that it has shaped the development and refinement of neoclassical theory. But this fact makes behavioral antitrust redundant as an advocate for empiricism and useless when the relevant effects of impugned behavior will arise in the future, and must therefore be predicted.

Second, we show that behavioral antitrust is malleable to the point of being meaningless. In this respect, we part company with those skeptics of behavioral antitrust who believe that the field can serve an ancillary role in contemporary antitrust jurisprudence.<sup>12</sup> We demonstrate that antitrust behavioralists can advance any number of inconsistent positions simply by according more weight to certain amorphous biases than to others. Choosing among these inconsistent positions requires an act of faith, an act of political will, or both. But it can hardly claim to be a form of applied economic theory. For that reason, the indeterminate nature of behavioral antitrust invites ill-informed policy. Because the behavioral literature accommodates any number of policy objectives within the ambit of com-

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10. *See id.*

11. *Id.* at 1543 (“The purpose of behavioral economics is to augment neoclassical economic theory by providing more realistic assumptions of human behavior.”).

12. *See, e.g.,* Roger Van den Bergh, *Behavioral Antitrust: Not Ready for the Main Stage*, 9 J. COMPETITION L. & ECON. 203, 203 (2013) (concluding that “[b]ehavioral antitrust is a side act and not (yet) ready for the main stage”).

petition enforcement, behavioral antitrust lends itself to political argument masquerading as economics. In practice, it almost invariably advances interventionist prescriptions.

After contextualizing our larger discussion in Part I, this Article describes some of the many biases identified by psychologists that can cause irrational decisionmaking. In Part II, we test those biases by attempting to apply them to the analysis of several fundamental antitrust enforcement problems. In doing so, we show that the biases prove either too much—all results are possible—or too little, canceling themselves out and reverting to the (rational) mean. We also show what the behavioralists must be loath to mention: despite the claimed empirical superiority of behavioral antitrust, the psychological literature has failed to supply it with the evidence or theory critical for its application. That missing evidence relates to the frequency with which, and the situations when, one set of biases dominates the others. Without this key bit of inductive fact or deductive logic, all that remains of the approach is conjecture at best, or cynical manipulation at worst.

## I. A BRIEF OVERVIEW OF BEHAVIORAL ANTITRUST

### A. *The Core Principles of Behavioral Antitrust*

The behavioral antitrust literature has three core tenets.<sup>13</sup> First, contemporary antitrust is wrong to embrace rational-choice theory,<sup>14</sup> which mistakenly assumes perfect rationality, self-interest, and willpower.<sup>15</sup> Pointing to surveys and studies that demonstrate firms' and especially consumers' tendency to act irrationally,<sup>16</sup> behavioral antitrust scholars urge policymakers to jettison conventional economics in favor of a "more real-

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13. Part III critiques the behavioral antitrust literature.

14. *E.g.*, Russell B. Korobkin & Thomas S. Ulen, *Law and Behavioral Science: Removing the Rationality Assumption from Law & Economics*, 88 CALIF. L. REV. 1051, 1055 (2000) ("The use of rational choice theory enabled the law-and-economics movement, in its early days, to achieve significant advances in understanding the interaction between legal rules and society. But now . . . the rationality assumption severely limits its continued scholarly development.").

15. *See id.* at 1065 (stating that "thick" versions of rational choice theory integrate the assumption that actors will seek to maximize their self-interest, which can lead to behavioral predictions that are more easily falsifiable by empirical evidence).

16. *See id.* at 1070.

istic" theory of decision making founded on psychology.<sup>17</sup> They point out that in the real world, economic actors possess bounded rationality,<sup>18</sup> exercise limited willpower,<sup>19</sup> and deviate periodically from self-interested conduct.<sup>20</sup>

Second, cognitive biases identified by the psychological literature provide antitrust policymakers with the basis for a theory that can better predict market outcomes.<sup>21</sup> In researching the causes of irrational behavior, cognitive psychologists have identified heuristics, or mental shortcuts, that people use—often unconsciously—to make choices in complex situations.<sup>22</sup> Because these heuristics omit relevant information bearing on a decision, they can lead to irrational conduct. For instance, the endowment effect may cause people to value items they possess more than identical items that they do not, inducing them to act contrary to their interests, such as by holding losing stocks longer than they should.<sup>23</sup> Psychologists have charted a great many biases that

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17. See Reeves & Stucke, *supra* note 9, at 1571 (urging competitive authorities to partake in more empirical research into behavioral psychology and economics to better understand "the competitive dynamics of particular markets and how legal and informal norms interact to influence individual behavior and competition generally").

18. See *id.* at 1532–33 ("[B]ounded rationality acknowledges the distinction between reasoning versus intuition. Consumers are not perfectly objective and rational Bayesians, who readily update prior factual beliefs whenever appraised of reliable information."). Reeves and Stucke posit that individuals give undue weight to evidence that supports their beliefs, and discount evidence that undercuts their beliefs, rather than continually updating their prior factual beliefs when relevant and reliable empirical data become available, as a rational agent would. *Id.* at 1533.

19. *Id.* at 1535 ("Bounded willpower . . . refers to when we knowingly engage in actions known to be detrimental and therefore act contrary to our long-term interests."). Reeves and Stucke cite neurological research that suggests that "in situations that involve a short-term gain even at a long-term cost, we may not engage in the cost-benefit analysis expected under rational choice theory." *Id.*

20. See *id.* at 1536–37 (stating that people care about treating others fairly, sometimes at their own expense, or without the thought or expectation that their actions will be repaid). Reeves and Stucke also state that religious norms can influence "individuals' propensities for fairness and willingness to punish unfairness," which differs from the rational actor assumption that people seek to maximize their wealth and "generally do not care about other social goals to the extent they conflict with personal wealth maximization." *Id.* at 1536–37.

21. See *supra* notes 7, 9.

22. See DANIEL KAHNEMAN, THINKING, FAST AND SLOW 109–95 (2011).

23. See Allan L. Shampine, *The Role of Behavioral Economics in Antitrust Analysis*, ANTITRUST, Spring 2013, at 65, 68 ("The endowment effect is a consumer's tendency to demand greater compensation to forfeit something than to acquire it. Here,



impact behavior. If behavioral antitrust scholars can marshal these cognitive defects to craft an overarching theory of choice, competition policymakers could then mold and apply superior rules to the pertinent market phenomena.<sup>24</sup>

Third, markets are less likely to self-correct than is commonly supposed.<sup>25</sup> Rational consumers analyze all available information, quickly responding to price increases or unwelcome contractual terms by shifting purchases elsewhere.<sup>26</sup> Similarly, rational firms quickly capitalize on changes in consumer demand, altering production and making price-output decisions that maximize their profits.<sup>27</sup> The combined effect generates high levels of competition and, hence, efficiency. Because neo-classical economics (supposedly) assumes market efficiency, it follows that a cautious antitrust policy focused on avoiding Type I errors<sup>28</sup>—mistaken condemnations of pro-competitive practices—is warranted. Laissez faire is the policy of the day.<sup>29</sup> Behavioral antitrust rejects that view and urges a more interventionist approach.<sup>30</sup>

Of these three claims, the central assertion is that behavioral theory can predict market outcomes more accurately than the

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consumers react more strongly to surcharges than to discounts because a surcharge is perceived as taking something away from the consumer.”).

24. See Reeves & Stucke, *supra* note 9, at 1571.

25. Stucke, *Reconsidering Goals*, *supra* note 7, at 556 (“Adopting the Chicago School’s simplifying assumptions of self-correcting markets, . . . some courts and enforcers sacrificed important political, social, and moral values to promote certain economic beliefs.”).

26. See Joshua D. Wright & Judd E. Stone II, *Misbehavioral Economics: The Case Against Behavioral Antitrust*, 33 *CARDOZO L. REV.* 1517, 1523 (2012) (“[F]undamental antitrust tools, such as market definition, would be of little use without the assumption of rational consumer substitution in response to price changes.”).

27. See Shampine, *supra* note 23, at 65 (explaining how rational firms are able to exploit consumers’ “quirks” in changing their demand to increase prices).

28. For a more in-depth discussion by the authors concerning Type I errors, see Alan Devlin & Michael Jacobs, *Antitrust Error*, 52 *WM. & MARY L. REV.* 75, 94–97 (2010) (explaining error analysis in antitrust).

29. See Jonathan B. Baker, *Economics and Politics: Perspectives on the Goals and Future of Antitrust*, 81 *FORDHAM L. REV.* 2175, 2183 (2013) (explaining that the laissez-faire approach relies on “private enterprise to organize production and trade with little or no supervision to ensure that firms compete[.]”).

30. See James C. Cooper & William E. Kovacic, *Behavioral Economics and Its Meaning for Antitrust Agency Decision Making*, 8 *J.L. ECON. & POL’Y* 779, 800 (2012) (“Much work in the nascent field of behavioral antitrust prescribes expanded use of competition law to correct consumer harm that arises from biased firm behavior.”).

conventional approach.<sup>31</sup> Unless this claim is true, behavioral antitrust is meaningless. This is because the hallmark of theory is prediction.<sup>32</sup> When empirical evidence is sufficient to answer the antitrust question of interest, theory is unnecessary. For example, if empirics could tell an enforcement agency or court whether a proposed merger will increase price, whether below-cost pricing will entrench a particular monopolist's position, or whether a dominant firm's refusal to share its infrastructure will enhance long-term investment in innovation, there would be no need for economic models. But when sufficient data are unavailable, antitrust enforcers must turn to theory. They must do so often, for the counterfactual needed to judge the effects of a restraint—that is, the world but for the challenged behavior—does not exist. Today's standard account relies on neoclassical models of price theory and on game theory to provide answers in these settings.<sup>33</sup> Can behavioral antitrust do better? Scholars in that movement claim that the answer is yes, as they must if they are to contribute meaningfully to either antitrust practice or theory.<sup>34</sup>

It is this central claim—the view that behavioral economics can more accurately predict outcomes—that we scrutinize in Part II and find wanting. To place that discussion in context, it is first necessary to discuss the cognitive biases most likely to be relevant to competition policy and to outline prospect theory, which plays a central role in behavioral economics.

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31. See Reeves & Stucke, *supra* note 9, at 1570 (“We believe that behavioral economics identifies enough holes in the simplistic rationality assumption to fortify the argument for more empirical work in antitrust policy.”). Reeves and Stucke advocate for more empirical research into how competition works in particular markets in particular communities at particular time periods, and the interplay among private institutions, government institutions, and informal social, ethical, and moral norms. *Id.* at 1571.

32. Wright & Stone, *supra* note 26, at 1527 (“Economic methodology has long required that competing models succeed or fail based on their predictive power.” (citing Milton Friedman, *The Methodology of Positive Economics*, in *ESSAYS IN POSITIVE ECONOMICS* 3, 3–16 (1953) and George J. Stigler, *Nobel Memorial Lecture: The Process and Progress of Economics* (Dec. 8, 1982), in *NOBEL LECTURES IN ECONOMIC SCIENCES: 1981–1990*, 57, 57 (Karl-Göran Maler ed., 1992)).

33. See, e.g., ROGER D. BLAIR & DAVID L. KASERMAN, *ANTITRUST ECONOMICS* 232–34 (Oxford Univ. Press, 2d ed. 2009) (explaining different uses of game theory in antitrust analysis). Neoclassical price theory assumes “rationality,” such that actors choose to maximize their preferences subject only to their budgetary or other constraints, such as imperfect information.

34. See, e.g., Reeves & Stucke, *supra* note 9, at 1571.

*B. Cognitive Biases and Prospect Theory*

A hallmark of the behavioral antitrust literature is its focus on bounded rationality,<sup>35</sup> which describes how economic actors fail both to absorb and to process all information relevant to a decision, and thus arrive at suboptimal outcomes.<sup>36</sup> In particular, cognitive limitations cause people to rely on rules of thumb—known as heuristics—to help them make decisions in complex situations.<sup>37</sup> Predominantly through experiments, and later with some empirical work, cognitive psychologists have documented systemic deviations from rational choice and identified biases that account for those deviations.<sup>38</sup>

Framing effects, for example, can materially affect decisionmaking. Because most people would rather avoid a loss than achieve an equivalent gain, presenting identical payoffs in terms of losses or gains can cause test subjects to make divergent choices.<sup>39</sup> Amos Tversky and Daniel Kahneman conducted a famous experiment that confronted participants with a hypothetical situation in which a fatal disease was expected to kill 600 people.<sup>40</sup> The experimenters created two problems. In the first, two treatments were available: programs A and B. They told participants in the study that, “[i]f Program A is adopted, 200 people will be saved” and that, “[i]f Program B is adopted, there is 1/3 probability that 600 people will be saved, and 2/3 probability that no people will be saved.”<sup>41</sup> Most people chose Program A, which was a risk-averse choice.<sup>42</sup> The researchers then presented a different group of participants with the second problem. Again, two treatments were at hand: Programs C and D,

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35. See, e.g., *id.* at 1532–35.

36. *Id.*

37. See Wright & Stone, *supra* note 26, at 1530 (“Behavioral economics . . . attempts to address irrational human behavior in light of limited cognitive capacity and inherent cognitive failings.”).

38. See generally *ADVANCES IN BEHAVIORAL ECONOMICS* (Colin F. Camerer et al. eds., 2004) (collecting some of the most influential articles in behavioral economics).

39. In fact, on average, people weigh losses about twice as heavily as they do gains. KAHNEMAN, *supra* note 22, at 284 (explaining that the “‘loss aversion ratio’ has been estimated in several experiments and is usually in the range of 1.5 to 2.5”).

40. Amos Tversky & Daniel Kahneman, *The Framing of Decisions and the Psychology of Choice*, 211 *SCI.* 453, 453 (1981).

41. *Id.*

42. *Id.*

which were identical to A and B, save that they were framed differently. They told the subjects of the study that “[i]f Program C is adopted 400 people will die,” and that “[i]f Program D is adopted there is a 1/3 probability that nobody will die, and 2/3 probability that 600 people will die.”<sup>43</sup> Although the options were statistically identical to those in the first problem, more than three-quarters of the participants chose Program D.<sup>44</sup>

Another well-known example involves the tendency to irrationally weigh sunk costs in one’s decisions. Logically, such costs should have no bearing on an individual’s choice going forward. Yet, few treat by-gones as by-gones. A further well-documented phenomenon is the endowment effect, which leads some to value what they possess more than an identical item that they do not.<sup>45</sup> For that reason, gaps emerge between some people’s maximum buy and minimum sell prices, even though rationally the two should be identical.<sup>46</sup> Interestingly, the effect seems absent in situations where items are held for trading in a market environment, and seems more or less pronounced from culture to culture.<sup>47</sup>

Other examples abound. Optimism bias causes people to exaggerate their odds of success.<sup>48</sup> Hyperbolic discounting causes excessive emphasis on costs and benefits experienced today and underestimation of those occurring in the future.<sup>49</sup> Anchor-

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43. *Id.*

44. *Id.*

45. See Ofer Tur-Sinai, *The Endowment Effect in IP Transactions: The Case Against Debiasing*, 18 MICH. TELECOMM. & TECH. L. REV. 117, 119 n.5 (2011) (describing the endowment effect as “a manifestation of ‘loss aversion’” (citing Daniel Kahneman et al., *Experimental Tests of the Endowment Effect and the Coase Theorem*, 98 J. POL. ECON. 1325, 1326 (1990))).

46. *Id.* at 121–22 (citations omitted).

47. See KAHNEMAN, *supra* note 22, at 298–99.

48. See Joshua D. Wright & Judd E. Stone II, *Still Rare Like a Unicorn? The Case of Behavioral Predatory Pricing*, 8 J.L. ECON. & POL’Y 859, 864 (2012) (“[I]ndividuals accurately assess potential risks in the abstract but discount these risks significantly when applying them to their own situations,” indicating that individuals generally think that bad events happen to others, but not themselves.).

49. See Joshua D. Wright & Douglas H. Ginsburg, *Behavioral Law and Economics: Its Origins, Fatal Flaws, and Implications for Liberty*, 106 NW. U. L. REV. 1033, 1043 (2012) (“[H]yperbolic discounting entails placing an extremely high weight upon the present, after which future values decline exponentially.”); see also Wright & Stone, *supra* note 48, at 864 (indicating that individuals have “time-inconsistent

ing bias leads people to over-weight one of many relevant factors simply because it is prominent in their minds.<sup>50</sup> Tversky and Kahneman demonstrated this bias by asking subjects in an experiment to estimate the percentage of African nations that are U.N. members.<sup>51</sup> Those first asked whether the answer was more or less than ten percent responded with a lower number than those first asked whether the answer was more or less than sixty-five percent.<sup>52</sup> Although the higher-or-lower query is irrelevant to the principal question, it skewed the result by placing a specific figure in the participants' minds. These are just some of the cognitive biases that bear on human decisionmaking, which often departs from the stylized rationality assumed in neoclassical economics and game theory.

Cognitive psychologists have endeavored to formulate a cohesive theory that accounts for the most significant biases that distort decisionmaking. The most successful result is prospect theory, which is the principal model that cognitive psychologists use to explain real-world choice. In their view, this model is more accurate than conventional expected-utility theory, which fails to account for the fact that it is not net wealth that determines individual utility, but outcomes judged by a reference point.<sup>53</sup> A graphical representation of prospect theory follows:

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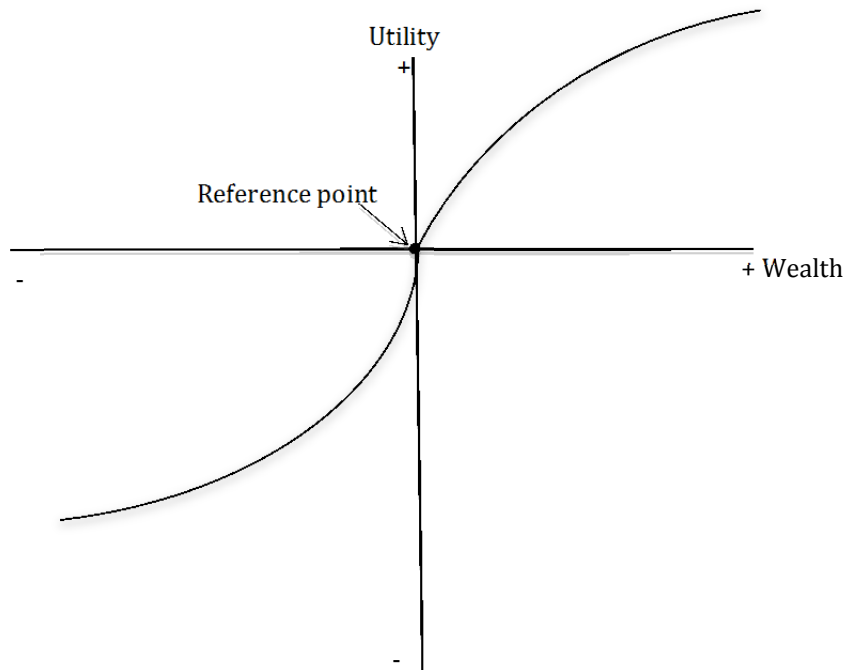
preferences" and that they irrationally weight the value of present benefits over future ones).

50. See Amos Tversky & Daniel Kahneman, *Judgment under Uncertainty: Heuristics and Biases*, 185 SCI. 1124, 1128 (1974).

51. *Id.*

52. *Id.*

53. For an in-depth discussion of prospect theory, see Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 ECONOMETRICA 263, 286 (1979).



Notice that utility depends not on the absolute change in wealth, but on the change relative to a reference point. Furthermore, the curve is S-shaped, which reflects diminishing marginal utility of both income gains and losses. In addition, the slope of the curve is steeper in the loss quadrant than in the gains quadrant due to loss aversion.

Importantly, prospect theory is purely descriptive. It seeks only to explain—not to predict—real-world behavior. Determining the reference point by which an actor judges the desirability of a change in wealth obviously lies at the heart of prospect theory.<sup>54</sup> Yet no model within the theory explains how to identify this point. It may be the status quo,<sup>55</sup> or it may instead be a past

54. See Wright & Ginsburg, *supra* note 49, at 1042 (“Prospect theory posits that decisionmakers evaluate and maximize expected outcomes not in isolation but rather relative to an initial reference point.”).

55. See, e.g., Daniel Kahneman et al., *Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias*, 5 J. ECON. PERSP. 193, 197–98 (1991) (explaining that one aspect of loss aversion is that individuals generally have a tendency to remain at the status quo because “the disadvantages of leaving it loom larger than advantages”); Kahneman & Tversky, *Prospect Theory*, *supra* note 53, at 286 (acknowledging that the status quo is often the reference point).

choice, a goal, a promised reward, average behavior in society, or something else.<sup>56</sup> In practice, behavioral economists often match a free-floating “reference point” to observed behavior.<sup>57</sup> In other words, they typically determine the reference point exogenously—after observing the behavior rather than before. As a result, prospect theory looks backward, rather than forward, and thus does not permit adherents to predict conduct in the way that those who use rational-choice theory can.

Having sketched an outline of behavioral economics, we move to the central issue in this Article, which is whether behavioral antitrust can, as advertised, “carry antitrust into the twenty-first century” and away from “‘dead,’ ‘sick,’ and ‘peaked out’ . . . rational choice theories.”<sup>58</sup> The answer is a resounding “no.”

## II. THE EMPTY PROMISE OF BEHAVIORAL ANTITRUST

Behavioral antitrust is indeterminate, and—if adopted—would set antitrust afloat without a rudder. Its tools are simply a patchwork of observed anomalies that behavioral scholars have not shown to be systemic in the field of industrial organization.<sup>59</sup> At present, it questions current theoretical assumptions and predictions without building a superior alternative. It tears down, but it does not build up. For that reason, the behavioral account of competition cannot generate coherent rules of decision. Indeed, the various and conflicting parts of behavioral economics can support the entire spectrum of political views about the aims of antitrust enforcement. Certain academics and commentators have seized on the malleability of behav-

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edging that most measures of gains and losses are based on deviations from the status quo, or “one’s current assets”).

56. See Kahneman & Tversky, *supra* note 53, at 286 (“[T]here are situations in which gains and losses are coded relative to an expectation or aspiration level that differs from the status quo.”).

57. See Reeves & Stucke, *supra* note 9, at 1536–37 (illustrating the concept that individuals care about treating others fairly by stating that people base their choices on an established reference point of “fairness”).

58. Stucke, *Twenty-First Century*, *supra* note 7, at 513, 516.

59. See Elizabeth M. Bailey, *Behavioral Economics: Implications for Antitrust Practitioners*, ANTITRUST SOURCE, June 2010, at 1, 6 (2010) (“[T]here is little research that provides evidence suggesting that firms deviate from profit-maximizing behavior in a systematic or persistent way.”).

ioral analysis in an attempt to reject the laissez faire implications of neoclassical economics in favor of an interventionist mandate.<sup>60</sup> But others could use the same analysis to propose less intervention. Anything goes.

To explain observed departures from strict rationality, behavioral economists appeal to a wide variety of psychological biases of the kind introduced above.<sup>61</sup> Doubtless, these biases possess considerable explanatory power in elucidating *ex post* why certain firms and consumers failed to behave “rationally.” A distinct and far more formidable question, however, is whether the identified quirks that accompany human decision-making can inform a coherent theory producing more accurate market predictions than price and game theory. Behavioral economics has not yet proposed such a theory, and likely cannot ever propose one.<sup>62</sup> The sheer number of cognitive biases upon which the discipline focuses confounds predictability, not least because their effect on behavior is multi-directional. Any policy prescription based on those biases will inevitably be incoherent and capricious.

This Part examines the cognitive biases that populate the behavioral antitrust literature, testing whether, as advertised, they can improve the predictive power of conventional economic analysis of problems in competition law. It finds that they cannot. The deficiencies in human reasoning identified by behaviorists cannot be collated into a unitary theory because there is no organizing principle. All-encompassing, *ex ante* reviews of potentially applicable biases either show too much—every outcome is feasible—or too little, suggesting that deviations from rationality obliterate each other on the scale of the larger market.

We begin by exploring two fundamental premises underlying conventional antitrust economics. The first posits that an increase in the price of a firm’s product will trigger a substitution effect as some consumers shift their purchases toward function-

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60. See Max Huffman, *Marrying Neo-Chicago with Behavioral Antitrust*, 78 ANTI-TRUST L.J. 105, 106 (2012) (“Until very recently, all of the writing advocating Behavioral Antitrust favored increased antitrust enforcement.”).

61. See *supra*, Part I.B, examining cognitive biases identified by behavioral antitrust literature.

62. For more discussion on the integration of behavioral psychology in antitrust analysis, see generally Wright & Stone, *supra* note 26.



ally interchangeable products (substitutes).<sup>63</sup> The second asserts that one firm's supra-competitive profits will attract new entry by other firms outside the relevant market.<sup>64</sup> These principles are indispensable to neoclassical price theory. Together, they predict market self-correction independent of government intervention in industries not subject to subadditive production functions (natural monopoly),<sup>65</sup> and thus justify the use of competition laws rather than regulation in such markets.

The truth of these premises matters fundamentally. Conventional price theory expects high rates of substitution and entry when information is abundant and symmetric and barriers to penetrating the market are low. The behavioral literature attacks these fundamental premises of modern antitrust law and suggests that heightened governmental intervention in markets, more aggressive antitrust enforcement, and greater use of regulation may be justified. Yet, behavioral economics equally supports the opposite conclusion, implying that markets may work better than supposed, which recommends a more lax application of competition rules. After demonstrating the general indeterminacy of behavioral antitrust, we discuss three business practices that have historically attracted antitrust scrutiny—predatory pricing, refusals to deal, and product tying—and use them to show that the behavioral account offers no help in resolving specific antitrust problems.

A. *Price-Induced Substitution as a Constraint on Market Power*

The proposition that consumers will substitute away from more expensive products to lower-priced, substitute goods lies

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63. See RICHARD A. POSNER, *ANTITRUST LAW* 148–49 (2d ed. 2001) (emphasizing the importance of price elasticity in antitrust analysis and noting that a sufficiently large price increase “will make poor substitutes at the competitive price look good to consumers, will induce producers of other products to make even costly adaptations in their production processes in order to produce the monopolized product, and may even induce the creation of entirely new firms to produce it”).

64. See *id.* at 64.

65. The Supreme Court has declined to intervene in cases where corporations acquire monopoly power through non-exclusionary means because of anticipated market self-correction. See *Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 407 (2004) (stating that the ability of a firm to charge monopolistic prices, at least in the short run, “is an important element of the free-market system . . . [and] induces risk taking that produces innovation and economic growth”).

at the heart of antitrust policy.<sup>66</sup> It reflects the assumption that consumers buy the products that best satisfy their preferences, subject to operative (e.g., budgetary) constraints.<sup>67</sup> The degree to which this proposition holds true in actual markets dictates the degree of appropriate intervention through the competition laws. The more immediate and powerful the substitution effect, the weaker is the case for aggressive antitrust enforcement. Conversely, in a market where relative price movements had no effect on demand, each seller would enjoy monopoly power, for no other seller would constrain its ability to charge supra-competitive prices.<sup>68</sup>

Substitution matters enormously to antitrust. Envision an unconcentrated, competitive market comprised of twenty identical firms possessing five percent market share each. Following a cycle of consolidation, one firm emerges with a thirty percent market share, a second with fifteen percent, and the remaining eleven unchanged with five percent each. The “Herfindahl–Hirschman Index” or “HHI,” which measures industry concentration, would rise from 500 to 1400.<sup>69</sup> The antitrust-enforcement agencies consider any merger producing an HHI of less than 1500 to be unlikely to produce anticompetitive effects.<sup>70</sup> The basis for that presumption is a prediction— informed by price theory —that the two largest firms could not restrict industry output (and thus raise price) because consumers would abandon them in favor of their smaller rivals, who

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66. See POSNER, *supra* note 63, at 148.

67. See *id.*

68. In such a setting, there would be no normative case for an antitrust regime, which rests on the premise that markets unfettered by artificial restrictions on competition tend toward efficiency. Government regulation or control would have to follow to avoid the problem of monopoly power.

69. The Herfindahl-Hirschman Index is calculated by “determining the market share of each participant, squaring each firm’s market percentage, and adding the resulting figures together.” Neil B. Cohen & Charles A. Sullivan, *The Herfindahl-Hirschman Index and the New Antitrust Merger Guidelines: Concentrating on Concentration*, 62 TEX. L. REV. 453, 476 (1983).

70. In 2010, the Department of Justice and the Federal Trade Commission updated their Horizontal Merger Guidelines, which classify markets into three types based on their HHI: an HHI below 1500 is considered “[u]nconcentrated”; an HHI between 1500 and 2500 is considered “[m]oderately [c]oncentrated”; and an HHI above 2500 is considered “[h]ighly [c]oncentrated.” DEP’T OF JUSTICE & FED. TRADE COMM’N, *supra* note 2, at § 5.3.

would then increase their production, leaving price unchanged.<sup>71</sup> If substitution does not occur, then the merger guidelines produce an incorrect rule.

Price theory predicts high levels of substitution between products serving closely related functions.<sup>72</sup> In general, this component of the conventional model warrants optimism about market self-correction. If one accepts these implications, then absent empirical evidence that an unconcentrated market is not self-correcting, one would assume anticompetitive behavior to be short-lived.<sup>73</sup> In short, the prospect of substitution constrains the exercise of market power. Policymakers, especially in the United States, have generally accepted this account, if only implicitly.<sup>74</sup>

What does the behavioral literature say about this, perhaps the most critical question in antitrust law? It offers a litany of biases, some of which might add to, while others of which might detract from, the market's tendency to self-correct through prompt consumer substitution. Because these biases can point in opposite directions, as a matter of predictive theory, they shed no light on the question of substitution.

### 1. *Biases Suggesting a Lack of Substitutability*

Rational consumers process available information and respond to price increases by abandoning their former suppliers in favor of cheaper ones. A number of cognitive biases that fetter rational choice may frustrate this tendency, however, inducing consumers to stay with their pre-existing suppliers even in the face of increased cost.

First, status quo bias leads individuals to remain with the devil they know instead of switching to one they do not.<sup>75</sup> This

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71. *Id.* at § 5.1.

72. See Wright & Stone, *supra* note 26, at 1523 (highlighting the importance of the substitution effect in defining markets, stating that “fundamental antitrust tools, such as market definition, would be of little use without the assumption of rational consumer substitution in response to price changes”).

73. See *Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 389, 407 (2004).

74. *Id.*

75. For a deeper discussion of the status quo bias, see generally Robert L. Scharff & Francesco Parisi, *The Role of Status Quo Bias and Bayesian Learning in the Creation of New Legal Rights*, 3 J.L. ECON. & POL'Y 25 (2006).

predisposition may create a “stickiness” that inhibits fluid substitution, causing consumers to continue purchasing from a known seller that increases price.<sup>76</sup> Second, “anchoring” bias leads people to overweight an implicit reference point, such as satisfaction with a particular vendor’s product, when determining whether they might derive greater satisfaction from a substitutable good sold by a competing firm.<sup>77</sup> If consumers are happy with a product the price of which later increases, this bias may lead them irrationally to emphasize the value of remaining with the more expensive product.

Third, when consumers who did not switch from a more expensive product subsequently learn that they missed out on better deals from other companies, they may engage in post-purchase rationalization.<sup>78</sup> In doing so, they might conclude that they were right not to shift their purchases, perhaps by persuading themselves that the higher-priced product is superior. In such an event, they may not correct their mistake by then switching their purchases. At the extreme, they might even increase purchases of the more expensive product, thanks to a separate bias called irrational escalation.

Fourth, a firm exercising newly found market power might be able to increase price without causing its buyers to shift purchases significantly to competitors. For example, it may offer its product on terms that, to a rational actor, would correspond with a monopoly price, but that appear competitive to consumers whose supply of relevant information is constrained by bounded rationality. Framing effects<sup>79</sup> or hyperbolic discount-

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76. See Cooper & Kovacic, *supra* note 30, at 787 (explaining that a combination of “cognitive shortcomings create[s] inertia to maintain a current course of action rather than to take new action that would increase expected utility”).

77. See, e.g., Avishalom Tor & William J. Rinner, *Behavioral Antitrust: A New Approach to the Rule of Reason After Leegin*, 2011 U. ILL. L. REV. 805, 821.

78. See Robert A. Prentice, *Moral Equilibrium: Stock Brokers and the Limits of Disclosure*, 2011 WIS. L. REV. 1059, 1093 (applying to stock broker Jonathan Haidt’s argument that post-action “moral reasoning” is an attempt to create plausible rationalizations for previously made decisions while conceding that “everyone else” also engages in these rationalizations of previously reached conclusions (citing Jonathan Haidt, *The Emotional Dog and Its Rational Tail: A Social Intuitionist Approach to Moral Judgment*, 108 PSYCHOL. REV. 814, 814 (2001))).

79. See Wright & Stone, *supra* note 26, at 1530–31 (“The premise behind a framing effect is that an individual presented with an identical set of options surrounded by different environs will make different choices.”).

ing<sup>80</sup> may lead purchasers enthusiastically to embrace deals presented as mark-downs or to enter into contracts that impose onerous terms felt only in the future.

Fifth, pessimism bias may induce consumers to exaggerate the search and negotiation costs entailed in shifting purchases away from a known entity with which they have an established course of dealing.<sup>81</sup> When imperfect information obscures the existence of superior deals, consumers may continue to purchase from a company with which they have had a satisfactory relationship. In doing so, they may even discount observed instances of better deals, as yet another bias—conservatism bias<sup>82</sup>—suggests that people irrationally favor prior beliefs over valuable new evidence that contradicts those beliefs. This discounting effect may be especially powerful if consumers had thought of the price-increasing firm as the purveyor of the best product or the provider of the best deal. The Semmelweis reflex<sup>83</sup> may thus cause consumers to reject or discount evidence of other products' superiority because that evidence contradicts an established belief.

## 2. Biases Indicative of Rapid Substitution

The preceding account discussed cognitive biases that might dampen price-induced substitution, and thus justify more anti-trust intervention than the conventional account would suggest. Behavioral antitrust cannot claim, however, that those biases are usefully predictive. Not only are they context dependent, but other biases operate in precisely the opposite direction. Cognitive psychology has identified many aspects of human reasoning that might lead consumers to abandon a price-increasing firm in greater numbers than conventional theory might suggest. First,

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80. See Wright & Ginsburg, *supra* note 49, at 1043 (“[H]yperbolic discounting generates time-inconsistent preferences.”).

81. “[P]essimism bias occurs when an individual overestimates the occurrence of adverse events.” *Id.* at 1044 n.46.

82. Lawrence A. Cunningham, *Behavioral Finance and Investor Governance*, 59 WASH. & LEE L. REV. 767, 784 (2002) (defining conservatism bias as “the slow updating of beliefs in the face of new information”).

83. Elizabeth Harmer Dionne, *Pornography, Morality, and Harm: Why Miller Should Survive* Lawrence, 15 GEO. MASON L. REV. 611, 627 (2008) (explaining that the Semmelweis Reflex is a phenomenon where one “rejects new information without further thought, inspection, or experimentation”).

loss aversion may spur purchasers to make great efforts to avoid the costs incurred in continuing to buy from a price-increasing firm.<sup>84</sup> Second, if some consumers observe others switching to a less expensive substitute, a bandwagon effect may cause a cascade away from the higher-priced product.<sup>85</sup> Third, optimism bias may spur bargain-hunters consistently to seek out better deals.<sup>86</sup> Fourth, recency bias may lead consumers to abandon a firm that had historically offered good deals as they place greater weight on recent observations of poor value.<sup>87</sup> Fifth, lower-priced firms are likely to capitalize on their potential customers' psychology to accentuate the substitution effect.<sup>88</sup> Most obviously, an emerging price gap caused by a firm seeking to exercise market power invites rivals to seize new sales opportunities by marketing their superior terms to consumers, thus taking advantage of a framing effect. Prominent advertisements may be salient in consumers' minds, causing them to abandon their former suppliers quickly.

The preceding discussion shows that cognitive biases are meaningless without empirical validation. Although they may exist in fact, their frequency, prevalence, and appearance defy systematic prediction. And though empirical research has identified some biases that dominate certain actors in particular settings, it has failed to generate a comprehensive theory capable

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84. See Wright & Stone, *supra* note 48, at 863 (explaining that loss aversion occurs when people "assign[] losses greater value than otherwise equally sized gains"); see also Kahneman et al., *supra* note 55, at 199–203 (explaining situations when loss aversion leads to discrepancies between buying and selling prices).

85. See David S. Evans & Richard Schmalensee, *A Guide to the Antitrust Economics of Networks*, ANTITRUST, Spring 1996, at 36, 38 (explaining that a producer may sell a product below its marginal cost in order to attract as many customers as possible, which would increase the value of its product, making it more attractive to customers and leading other sellers to price their products at below marginal cost, thus generating the "bandwagon effect").

86. See Tur-Sinai, *supra* note 45, at 148.

87. See John R. Nofsinger & Abhishek Varma, *Availability, recency, and sophistication in the repurchasing behavior of retail investors*, 37 J. BANKING & FIN. 2572, 2572 (2013) (positing that recency bias is evident in stock purchases when "[i]nvestors are attracted to stocks with recent attention-getting news and events even though they find that 'all that glitters' does not produce positive abnormal returns").

88. See Reeves & Stucke, *supra* note 9, at 1541 ("[B]ehavioral economics is relevant in understanding consumer decision making and how firms compete to help or exploit [] bounded rational consumers.").

of projecting future behavior relating to the operation and direction of those biases.

Absent a guiding theory, the tendency of pertinent biases to pull consumers in opposing directions negates a role for behavioral economics in antitrust.<sup>89</sup> As noted above,<sup>90</sup> prospect theory—the most influential theory in behavioral economics—lacks an organizing principle: that is, a fixed reference point. If biases routinely led consumers to depart from rational behavior, sometimes by substituting away from higher-priced goods too little, and sometimes by substituting too much, they would cancel each other out. If so, the predictions of rational choice theory should be accurate at the market level. But if not, nothing in the behavioral antitrust literature predicts which effect will dominate the other.

### B. *Entry as a Constraint on Market Power*

The second overarching premise of conventional price theory holds that, because capital tends to flow to markets promising the greatest expected return, companies will enter markets in which supracompetitive profits prevail.<sup>91</sup> As both the fact and threat of entry constrain market power, an inverse correlation exists between the potency of entry barriers and the efficacy of market self-correction.<sup>92</sup> Under the conventional account, given no barriers to

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89. Some scholars concede that behavioral economics does not provide a unifying theory of human or firm behavior but posit that “[t]he purpose of behavioral economics is to augment neoclassical economic theory by providing more realistic assumptions of human behavior.” *Id.* at 1543. As we explain below, however, it is not possible to “augment” conventional price theory with behavioral antitrust in the absence of a generalizable theory. To the extent behavioralists claim that empirics should dominate theory, that observation is redundant, for the conventional account has long accepted that principle.

90. *See supra* Part I.B.

91. *See* Avishalom Tor, *The Fable of Entry: Bounded Rationality, Market Discipline, and Legal Policy*, 101 MICH. L. REV. 482, 553 (2002).

92. *See* Matsushita Elec. Indus. Co. v. Zenith Radio Corp., 475 U.S. 574, 591 n.15 (1986) (commenting that entry into the market for television sets was not especially difficult, and that “without barriers to entry it would presumably be impossible to maintain supracompetitive prices for an extended time”); *see also* Frank H. Easterbrook, *The Limits of Antitrust*, 63 TEX. L. REV. 1, 26–27 (1984) (arguing that Japanese manufacturers selling TV sets at less than cost in order to drive U.S. firms out of business could not possibly produce profits by harming competition because to recoup those losses the firms would have to sell their television sets at a high price, which would open the door to new competition).

entry, risk-neutral firms will enter a market when the expected value of entry exceeds the next best investment opportunity.<sup>93</sup>

An enduring debate in the economics literature concerns the definition of market conditions that impede entry.<sup>94</sup> In 1956, Joe Bain famously defined an entry barrier as anything that allows an incumbent to earn supernormal profits without attracting entry.<sup>95</sup> Under that view, capital requirements and scale economies impair free entry and can thus diminish competition. Under George Stigler's 1968 definition, typically associated with the Chicago School, entry barriers are costs that entrants must bear but that incumbents do not.<sup>96</sup> Models adopting Bain's definition are more likely to predict delayed market self-correction. The Chicago School literature usually employs the Stiglerian view that entry barriers exist only if entrants' long-run average costs exceed those of the incumbent.<sup>97</sup> As a result, it tends to model outcomes in which entry occurs more often, more speedily, and more fully than would occur under Bain's account.

1. *Biases Suggesting that Entry Is More Likely than Predicted in the Conventional Account*

Commentators typically think of behavioral antitrust as being synonymous with an interventionist policy. Indeed, many of its advocates offer it in support of greater intervention, as its core feature lies in rejecting the neoclassical model of perfect competition. Yet, the behavioral approach suggests that conventional economics may understate the likelihood of entry in some cases. Numerous cognitive biases support that possibility.

Success begets success. When firms have fruitfully and prominently entered new markets, the availability bias may lead a prospective entrant to overestimate its chance of trium-

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93. See Tor, *supra* note 91, at 492.

94. For a discussion of barriers to entry, see JULIAN O. VON KALINOWSKI ET. AL., 1 ANTITRUST LAWS AND TRADE REGULATION, § 4.05(5)(b) (2d ed. 2013).

95. JOE S. BAIN, BARRIERS TO NEW COMPETITION: THEIR CHARACTER AND CONSEQUENCES IN MANUFACTURING INDUSTRIES 3 (1956).

96. GEORGE J. STIGLER, THE ORGANIZATION OF INDUSTRY 67 (1968).

97. See generally, e.g., Richard J. Gilbert, *The Role of Potential Competition in Industrial Organization*, J. ECON. PERSP., Summer 1989, at 107.



phant entry into an apparently profitable market.<sup>98</sup> Overconfidence or optimism bias<sup>99</sup> would inflate its expectation of success, while the desire to continue earning a high rate of return on invested capital (if the firm has had a fortunate run of things) may produce an anchoring bias,<sup>100</sup> leading it to view supracompetitive profits as the anchor. Should one prospective competitor observe others entering, a bandwagon effect may induce it to join the crowd, generating an irrational charge into the market and producing higher rates of entry than neoclassical economics would predict.<sup>101</sup>

Behavioral economics offers additional reasons for thinking that entry will occur more often than traditional analysis would suggest. Managers may not seek to maximize shareholder value through profit maximization but may try instead to expand the company's scope of operations. That goal may cause firms to enter markets even when the expected value of doing so is less than other available investment opportunities. The framing effect may lead aggressive managers to enter unwisely, inducing them to see entry as a chance to increase the company's profit significantly, while underestimating the risk of loss.<sup>102</sup> If a firm has successfully entered competitive industries in the past, hindsight bias may cause it to conclude wrongly that its odds of success were higher than they actually were, thus biasing upward its calculated expected value of entry in the next instance.<sup>103</sup> The gambler's fallacy would lead to a similar re-

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98. See Amos Tversky & Daniel Kahneman, *Availability: A Heuristic for Judging Frequency and Probability*, 5 *COGNITIVE PSYCHOL.* 207, 208 (1973) ("A person is said to employ the availability heuristic whenever he estimates frequency or probability by the ease with which instances or associations could be brought to mind.").

99. See Wright & Stone, *supra* note 48, at 864 ("Optimism bias speculates that individuals accurately assess potential risks in the abstract but discount these risks significantly when applying them to their own situations.").

100. See Tversky & Kahneman, *supra* note 50, at 1128.

101. See Evans & Schmalensee, *supra* note 85, at 38 (explaining the bandwagon effect).

102. See Wright & Stone, *supra* note 26, at 1530–31.

103. See Reeves & Stucke, *supra* note 9, at 1535 (defining hindsight bias as "our tendency to increase the likelihood of an event's occurrence after learning that it actually did occur").

sult.<sup>104</sup> Even if a firm's prior entries into new markets were not as profitable as hoped, post-purchase rationalization might induce management to conclude that the prior investments were worthwhile and that the firm's practice of joining new industries or sectors should continue.<sup>105</sup>

Selective perception might also enhance the likelihood of entry.<sup>106</sup> Management might focus excessively on favorable conditions in the target market, while disregarding or underweighing potential dangers. Similarly, the representativeness heuristic may lead a firm to believe mistakenly that it possesses the same relevant qualities as a successful company already in the prospect market.<sup>107</sup> That mistaken belief, in turn, may cause the firm to conclude—again mistakenly—that it is well-placed to succeed in the market.

In predicting the prospects of new entry, the likely reaction of firms already in the market is at least as important as the factors described above. Potential biases abound here as well. If a prospective entrant believes that incumbents will accept, rather than fight, new competition, it will view the prospect of entry more favorably. In this regard, a would-be entrant might view acquiescence as likely, on the ground that incumbents experience pessimism bias, causing them to regard as futile costly efforts to exclude entry.<sup>108</sup>

If incumbents were previously incapable of sidelining new competitors, and that failure looms large, the availability heuristic might instill a sense of passive acceptance among incumbent firms.<sup>109</sup> Probability neglect may cause incumbents to dis-

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104. See Justin Pidot, *Deconstructing Disaster*, 2013 BYU L. REV. 213, 237–38 (“The gambler’s fallacy causes people to believe that an unlikely event that has recently occurred is less likely to recur in the near future.”).

105. See Prentice, *supra* note 78, at 1093.

106. See Ellen A. Waldman, *Disputing over Embryos: Of Contracts and Consents*, 32 ARIZ. ST. L.J. 897, 922–24 (2000) (describing how selective perception can be triggered by stress or “information overload” causing individuals to “emphasize information that supports preconceived hypotheses while filtering out or selectively reinterpreting dissonant data” (internal quotation marks omitted)).

107. See Korobkin & Ulen, *supra* note 14, at 1086 (“The ‘representativeness heuristic’ refers to the tendency of actors to ignore base rates and overestimate the correlation between what something appears to be and what something actually is.”).

108. See Wright & Ginsburg, *supra* note 49, at 1044 n.46 (explaining pessimism bias).

109. See Tversky & Kahneman, *supra* note 98, at 208.

count the competitive dangers posed by a new entrant, thus accommodating entry when aggressive competition targeting the entrant in its incipiency, though costly in the short run, would reap dividends later.<sup>110</sup> Finally, should a firm otherwise predisposed to counter new competition observe that its peer companies are accommodating it, the bandwagon effect may induce it to follow its fellow incumbents in passivity.<sup>111</sup>

2. *Other Biases Suggest that Less Entry Will Occur than Under the Conventional Account*

Do psychological factors invariably suggest that entry will take place more promptly and extensively than the conventional view supposes? The preceding account might suggest that the answer is yes, but other biases suggest that it is no.

Status quo bias may instill conservatism in management, creating an incentive not to upset the firm's current business by entering a new market.<sup>112</sup> If a company has met with no success in prior attempts to enter other markets, or has witnessed other firms experiencing the same disappointing outcome, the availability bias may prevent it from entering notwithstanding a high expected value.<sup>113</sup> Hyperbolic discounting may deter entry if, as is likely, commencing operations in a new industry requires high short-run costs in anticipation of earning larger, though potentially excessively discounted, long-term gains.<sup>114</sup> Ambiguity bias may cause a potential competitor to stay its hand due to a lack of information concerning incumbents' responses to entry.<sup>115</sup> In addition, loss aversion may forestall entry despite large expected value if management presents the

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110. See Cass R. Sunstein, *Probability Neglect: Emotions, Worst Cases, and Law*, 112 YALE L.J. 61, 62–63 (2002) (proposing the idea of “probability neglect,” in which individuals “tend to focus on the adverse outcome, not on its likelihood [so] they are not closely attuned to the *probability* that harm will occur” (emphasis in original)).

111. Cf. Evans & Schmalensee, *supra* note 85, at 38 (describing a situation in which firms see other firms taking action and follow suit).

112. See Kahneman et al., *supra* note 55, at 197–98; Scharff & Parisi, *supra* note 75, at 26.

113. See Tversky & Kahneman, *supra* note 98, at 208.

114. See Wright & Ginsburg, *supra* note 49, at 1043.

115. For further discussion on the role of ambiguity in decisionmaking, see Tor, *supra* note 91, at 524–31.

entry decision to the board as entailing a non-trivial chance of significant loss.<sup>116</sup>

As noted, a firm's entry decision depends importantly on the anticipated reaction of incumbents. Analysis founded on rational profit maximization suggests that firms with market power<sup>117</sup> are likely to accommodate entry.<sup>118</sup> Attempts to deter entry through strategies such as limit or predatory pricing normally produce losses for companies adopting those strategies.<sup>119</sup> Game theory<sup>120</sup> demonstrates that a rational firm would fight entry in the present term only if it could deter entry in the future by fostering a reputation for aggressiveness or by raising its rivals' costs.<sup>121</sup> The economic literature suggests that the circumstances in which this is a feasible outcome are narrow.

But perhaps the conventional account is mistaken. The endowment effect may induce management to cherish their commanding market position, causing them to be risk-preferring in fighting new entrants.<sup>122</sup> If incumbents have successfully warded off other entrants in the past, and those victories are prominent in management's thinking, the availability heuristic may spur them to fight intruders once again.<sup>123</sup> Or suppose that a monopolist is subject to optimism or overconfidence bias<sup>124</sup> and concludes that the time and cost required to exclude a new arrival are less than is actually the case. Imagine that, by virtue of this bias, the incumbent believes it can create a fearsome reputation for deterring entry more easily than is true. Similarly, status quo bias may induce firms in the market

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116. See Wright & Stone, *supra* note 48, at 862–63.

117. The Supreme Court has defined market power as “the ability of a single seller to raise price and restrict output.” *Eastman Kodak Co. v. Image Technical Servs. Inc.*, 504 U.S. 451, 464 (1992) (citation omitted) (internal quotation marks omitted).

118. See DENNIS W. CARLTON & JEFFREY M. PERLOFF, *MODERN INDUSTRIAL ORGANIZATION* 352–64 (4th ed. 2005).

119. *Id.*

120. Joseph Kattan & William R. Vigdor, *Game Theory and the Analysis of Collusion in Conspiracy and Merger Cases*, 5 *GEO. MASON L. REV.* 441, 444 (1997) (“Game theory is the study of market performance when firms appreciate that their behavior influences the conduct of their competitors and of the ultimate market outcome.”).

121. See John B. Kirkwood & Richard O. Zerbe, Jr., *The Path to Profitability: Reinvigorating the Neglected Phase of Merger Analysis*, 17 *GEO. MASON L. REV.* 39, 95–96 (2009).

122. See Shampine, *supra* note 23, at 68.

123. See Tversky & Kahneman, *supra* note 98, at 208.

124. See Wright & Stone, *supra* note 48, at 864.

to take costly measures to maintain prevailing conditions, even if doing so entails loss of profit.<sup>125</sup> Notably, even if incumbents are wholly mistaken in their calculus, those mistakes are irrelevant. What matters is what the potential entrant believes the incumbents will do. If it concludes that biased decisionmaking will induce incumbents to adopt an irrationally aggressive posture, it may not enter.

Judges and regulators cannot simply add up the biases on the opposite sides of the calculus, assign each an equal weight, and then determine which side weighs more. In the absence of empirical evidence, behavioral antitrust leaves us to analyze each case ad hoc, and to determine without guidance the “risk profile” of the various parties in order to decide which biases are most pronounced under the circumstances. All biases merit consideration, but none is dispositive or even *prima facie* correct.

As a stand-alone model of decisionmaking, this approach is unavailing. Absent a hierarchy of biases, the behavioral approach allows judges and regulators to decide cases entirely with their intuitions. It lacks rules, and so it cannot be applied consistently or coherently. Perhaps it could serve the small ancillary role of supplementing the neoclassical account of entry with incremental adjustments. But even in that role, the behavioral account is unhelpful; the indeterminate and contradictory nature of the biases at play could equally support greater or lesser entry barriers than one would otherwise assume from the relevant industry’s characteristics.

Ultimately, the sole question of interest in this setting is how promptly and on how large a scale entry will occur. Conventional theory, modified and improved through empirical validation, gives regulators and courts useful rules of thumb for answering that question. Given the equivocal nature of its analysis of entry, behavioral economics has little, if anything, to offer in improving—let alone replacing—the conventional economic approach.

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125. See Kahneman et al., *supra* note 55, at 197–98; Scharff & Parisi, *supra* note 75, at 26.

C. *Behavioral Analysis of Specific Business Practices*

The problems of indeterminacy outlined above are not limited to substitution and entry. Because behavioral antitrust operates only in hindsight, it has no value for policymakers charged with predicting whether markets can fully and promptly correct short-term imperfections or whether intervention is required to restore competition. Consider three business practices that neoclassical economics and game theory have determined generally to be efficient but occasionally harmful to competition: predatory pricing, unilateral refusals to deal, and product tying and bundling.

Predatory pricing involves a dominant firm setting its price below cost to entrench its monopoly, principally by denying fringe rivals the scale necessary to achieve economies in production and by fostering an aggressive reputation so as to deter entry.<sup>126</sup> Concerned with the risk of mistakenly deterring price-cutting, and informed by the game-theoretic literature showing that the strategy is generally an irrational and ineffective means by which to exclude equally or more efficient competitors, the law takes a skeptical view of predatory-pricing claims.<sup>127</sup> To prevail, a plaintiff must establish not only that a dominant firm set price below cost, but also that a dangerous probability exists that in the future the predator will recoup its losses.<sup>128</sup> This law, which demands much of a plaintiff, reflects the premise that below-cost pricing will not usually harm competition, as future entry will promptly remedy any subsequent attempt by the would-be predator to exercise market power and recoup its losses.<sup>129</sup>

Unilateral refusals to deal occupy a controversial position within competition law. When a dominant firm controls a physical or technological infrastructure necessary for viable operation in a market, competitors denied access to the infrastructure may seek a court order compelling the dominant firm

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126. CARLTON & PERLOFF, *supra* note 118, at 352–57; *see also* Matsushita Elec. Indus. Co. v. Zenith Radio Corp., 475 U.S. 574, 577–78 (1986) (describing alleged scheme of predatory pricing).

127. CARLTON & PERLOFF, *supra* note 118, at 357–59.

128. *See* Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp., 509 U.S. 209, 222–24 (1993).

129. *See* Matsushita, 475 U.S. at 591 n.15 (“[W]ithout barriers to entry it would presumably be impossible to maintain supracompetitive prices for an extended time.”).

to share its infrastructure on fair and reasonable terms.<sup>130</sup> U.S. law recognizes a duty to deal only in narrow circumstances—specifically, where the parties formerly engaged in a mutually profitable course of dealing, and when the dominant party terminated that dealing suddenly and without a valid business justification.<sup>131</sup> The law takes this view out of concern that mandatory sharing would reduce incentives to invest *ex ante*.<sup>132</sup>

Product tying arises when a dominant seller requires its customers to purchase a second good (the tied product) as a condition of buying the tying good.<sup>133</sup> These restraints often yield overriding efficiencies, particularly where the items sold together are economic complements.<sup>134</sup> The practices reduce search and negotiation costs, entail production-side savings, facilitate interoperability, and typically result in lower combined prices and higher output because they eliminate the double marginalization caused by divided ownership.<sup>135</sup> They can sometimes harm competition, though, by denying rivals scale in the tied product markets or by bolstering the dominant firm's position in the tying market.<sup>136</sup> Although price theory suggests that even a monopolist in the tying-goods market cannot profitably charge a double markup<sup>137</sup> by using tie-ins to

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130. See Marina Lao, *Networks, Access, and "Essential Facilities": From Terminal Railroad to Microsoft*, 62 SMU L. REV. 557, 567 (2009) (explaining that natural monopolies make the strongest case for compulsory access due to "high fixed costs and low marginal costs making duplication of the facility infeasible, inefficient or socially wasteful").

131. See *Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 409 (2004); *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585, 608–09 (1985); see also Daniel E. Troy, Note, *Unclogging the Bottleneck: A New Essential Facility Doctrine*, 83 COLUM. L. REV. 441, 460–62 (1983) (explaining why courts should only impose a duty to deal in certain situations, and not generally).

132. See Troy, *supra* note 131, at 462.

133. See, e.g., *Ill. Tool Works, Inc. v. Indp. Ink, Inc.*, 547 U.S. 28, 31–38 (2006).

134. See, e.g., Alan Devlin, *A Neo-Chicago Perspective on the Law of Product Tying*, 44 AM. BUS. L.J. 521, 550–51 (2007) (explaining efficiencies that arise from product tying in the form of transaction cost efficiency, complementary effects, and price discrimination).

135. See *id.* at 547–48.

136. See DEP'T OF JUSTICE, COMPETITION AND MONOPOLY: SINGLE-FIRM CONDUCT UNDER SECTION 2 OF THE SHERMAN ACT, 82–83 (2008), available at <http://www.usdoj.gov/atr/public/reports/236681.pdf>, [<http://perma.cc/Z895-XCJX>].

137. Double markup occurs when a firm already has monopoly power and separately marks its product up to maximize its own profit. See Jordan Barry, *When*

achieve monopoly in an otherwise-competitive tied market, this outcome necessarily holds true only for fixed-proportions tying.<sup>138</sup> It also ignores the possibility that a dominant share of a tied market may enable the tying firm to realize future profit opportunities in that market.<sup>139</sup>

Under today's antitrust rules, a firm can violate the law by product tying only if it has monopoly power in the tying product market and its actions substantially foreclose its rivals in the market for the tied product.<sup>140</sup> Many economists have argued that the Supreme Court should relax these rules.<sup>141</sup> The strength of their argument hinges in part on whether consumers will react rationally to contractual restraints that require them to purchase the tied products only from the tying firm: in particular, whether they will add the price of the tied product to the purchase price of the tying good. If buyers rationally combine the present tying-product price and the later tied-good price, sellers will be unable to charge a second monopoly price. If buyers discount the future, or otherwise focus only on the tying-good price that they have to pay today, sellers may be able to extract a second monopoly price later when lock-in has occurred.<sup>142</sup> The strength of their arguments also depends on the assumption that new entry is likely to occur in the tying and tied product markets, should the tie-in prove inefficient.

Because a similar analysis applies to these practices as to the overarching questions of substitution and entry, we provide a

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*Second Comes First: Correcting Patent's Poor Secondary Incentives Through an Optional Patent Purchase System*, 2007 WIS. L. REV. 585, 601–02.

138. See Einer Elhauge, *Tying, Bundled Discounts, and the Death of the Single Monopoly Profit Theory*, 123 HARV. L. REV. 397, 402 (2009).

139. See *id.* at 413–16.

140. See *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 17–18 (1984); John E. Lopatka & William H. Page, *Antitrust on Internet Time: Microsoft and the Law and Economics of Exclusion*, 7 SUP. CT. ECON. REV. 157, 163 (1999).

141. See Elhauge, *supra* note 138, at 477–78 (arguing for a quasi-per se rule that would “condemn[] ties based on tying market power absent offsetting efficiencies” but would “not apply to products that have a fixed ratio and lack separate utility”); Christopher R. Leslie, *Cutting Through Tying Theory with Occam's Razor: A Simple Explanation of Tying Arrangements*, 78 TUL. L. REV. 727, 821–22 (2004) (“Some tying arrangements have potentially procompetitive benefits, for example those tying arrangements that a seller uses to break into a monopolized market.”).

142. See *Eastman Kodak Co. v. Image Technical Servs., Inc.*, 504 U.S. 451, 469–71 (1992).



table highlighting the offsetting insights of a non-exhaustive list of behavioral biases on the ultimate effect of the restrictions:

<b>Restraint</b>	<b>Biases Protecting Competition</b>	<b>Biases Harming Competition</b>
Predatory Pricing	Irrational escalation Bandwagon effect Endowment effect Optimism bias Status quo bias Aversion to sunk costs Overconfidence bias	Loss aversion Hyperbolic discounting Pessimism bias Anchoring Overconfidence bias
Refusal to Deal	Optimism bias Anchoring bias Bandwagon effect Reputational goals Incentive to grow share	Loss aversion Sunk-cost aversion Pessimism bias Exaggerate low probability Status quo bias Availability bias
Tying and Bundling	Loss aversion Availability bias Framing effect Anchoring bias Bandwagon effect Overconfidence bias	Anchoring bias Availability bias Endowment effect Sunk-cost aversion Post-purchase rationalization Selective perception

Thus, behavioral antitrust is a disorganized amalgam of context-dependent biases that operate in varying directions and to varying degrees. No behavioral theory of antitrust exists, nor does one appear to be possible. Indeed, the preceding analysis illustrates the fatal problems that result from the absence of an organizational principle in complex environments with many explanatory variables. Next, we critique the scholarship that has promoted behavioral antitrust. We find it to be deficient and unconvincing.

## III. DEBUNKING THE BEHAVIORAL ANTITRUST LITERATURE

Although still in its infancy, the behavioral antitrust literature has reached the point where an overarching thesis has emerged, comprised of three related propositions. According to the first tenet, the conventional economic account of antitrust fails because its analysis rests on unrealistic assumptions of rationality and market efficiency.<sup>143</sup> Second, antitrust's attachment to neoclassical economics blinds policymakers to evidence at variance with the conceptually attractive, but ultimately erroneous, notion that irrational behavior either does not exist or cannot endure.<sup>144</sup> As a corollary, behavioral antitrust scholars almost uniformly take issue with what they perceive to be the laissez faire nature of the modern antitrust enterprise.<sup>145</sup> The third proposition argues that, because firms and consumers are systemically irrational, society cannot rely on private contract to fashion efficient outcomes.<sup>146</sup> For certain scholars, this means that antitrust's relatively passive role in modern times should give way to a policy founded on "promoting" competition.<sup>147</sup>

In assailing the rationality foundation of modern antitrust theory, however, behavioral scholars reveal a serious misapprehension of their target. For the reasons that follow, the aca-

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143. See Maurice E. Stucke, *Reconsidering Competition*, 81 MISS. L.J. 107, 109–10 (2011) (arguing the main problem with the Chicago, post-Chicago, and Harvard Schools of antitrust thought is that they "assume a marketplace of rational profit-maximizing firms and consumers with perfect willpower").

144. See Rosch, *supra* note 7, at 5 ("[I]n the real world – as opposed to the worlds of political and economic theory – markets are not perfect; . . . imperfect markets do not always correct themselves; and . . . business people do not always behave rationally.").

145. See Stucke, *Reconsidering Goals*, *supra* note 7, at 593–95 (identifying what he believes to be six "paradoxes" that have emerged from the laissez faire beliefs that have emerged following the financial crisis and the Great Recession).

146. See Thomas J. Horton, *The Coming Extinction of Homo Economicus and the Eclipse of the Chicago School of Antitrust: Applying Evolutionary Biology to Structural and Behavioral Antitrust Analyses*, 42 LOY. U. CHI. L.J. 469, 508 (2011) ("[I]t is naïve (and a denial of history) to assume that businesspersons will not sometimes aggressively resort to cutthroat and irrational predatory tactics to destroy their competitors and the competitive process itself.").

147. See Maurice E. Stucke, *Better Competition Advocacy*, 82 ST. JOHN'S L. REV. 951, 1030–31 (2008) (explaining how different antitrust policies could promote competition).

demic literature promoting behavioral economics' application to antitrust is flawed.

A. *Behavioral Scholars Err in Criticizing the "Realism" of Neoclassical Antitrust Economics*

Above all, the behavioral antitrust literature criticizes the economic assumptions of rationality, profit maximization, and efficiency that underlie modern competition policy.<sup>148</sup> This critique, though, targets a straw man, characterizing the standard economic account in inaccurate and easily caricatured terms. One commentator derides "the suffocating straitjacket of neoclassical economics and its unrealistically static models,"<sup>149</sup> while others urge that "one cannot assume that markets operate as efficiently as the Chicago School predicts."<sup>150</sup> Yet another maintains "the assumption that humans behave as perfectly rational, profit-maximizing actors has taken center stage in modern antitrust law."<sup>151</sup> In contrast, "behavioral economics . . . has questioned the assumption that humans always behave perfectly rationally."<sup>152</sup> Former FTC Commissioner J. Thomas Rosch, a prominent advocate of behavioral antitrust, has suggested that "the orthodox and unvarnished Chicago School of economic theory is on life support, if it is not dead."<sup>153</sup>

If this criticism were true, it would be hard not to embrace the realistic behavioral enterprise. But this critique exists only in the writings of behavioral scholars, who conjure an image sharply at odds with the reality of price theory. The perfect-

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148. See Cooper & Kovacic, *supra* note 30, at 780; Korobkin & Ulen, *supra* note 14, at 1055–56; Reeves & Stucke, *supra* note 9, at 1528; Shampine, *supra* note 23, at 65; Stucke, *Reconsidering Goals*, *supra* note 7, at 556–57.

149. Horton, *supra* note 146, at 471.

150. Reeves & Stucke, *supra* note 9, at 1531.

151. Amanda P. Reeves, *Behavioral Antitrust: Unanswered Questions on the Horizon*, ANTITRUST SOURCE, June 2010, at 1, [www.americanbar.org/content/dam/aba/publishing/antitrust\\_source/jun10\\_FullSource6\\_24.authchckdam.pdf](http://www.americanbar.org/content/dam/aba/publishing/antitrust_source/jun10_FullSource6_24.authchckdam.pdf), [<http://permra.cc/TU4G-B827>].

152. *Id.*

153. Rosch, *supra* note 7, at 2. In doing so, Rosch draws uncritical reference to the financial crisis, the causes and effects of which have no obvious bearing on the propriety of microeconomic analysis of competition phenomena outside the financial sector. For an explanation of why the financial crisis sheds little light on the neoclassical foundation of antitrust law, see Alan Devlin, *Antitrust in an Era of Market Failure*, 33 HARV. J.L. & PUB. POL'Y 557, 559–60 (2010).

competition model is an abstraction used to facilitate analysis, not a description of every bit of economic life.<sup>154</sup> Used as a benchmark, the model shows that market inefficiencies are ubiquitous.<sup>155</sup> The notion that the neoclassical model of perfect competition reflects the neoclassical view of actual competition is seriously mistaken.<sup>156</sup>

Behavioralists' criticism of rational choice theory's assumed rationality is equally wrong. Neoclassical models assume profit and utility maximization by firms and consumers to generate predictions. They make no claim that individual, real-world actors are invariably rational. Rather, they maintain that the impulse to maximize profit and utility—along with opportunities for learning, competitive pressures, and canceling-out effects—is sufficiently strong that the explanatory variables price theory highlights correlate in statistically significant fashion with actual market outcomes. In short, the conventional approach enjoys a strong organizational principle that facilitates specific predictions.

When empirical evidence is unavailable, policymakers can use the forecasts price theory generates with relatively high confidence. Conversely, when empirical evidence is available, agencies and courts can rely on it. In that event, econometricians can also use the data to test the accuracy of the theory's predictions. The more closely the theory matches the observed data, the more confidently policymakers can apply price theory when they next determine the propriety of impugned commercial behavior in an evidence-deprived environment. To the extent that mismatches emerge, economists can modify and improve the theory to reflect the new data.

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154. Judge Richard Posner responds to the idea that “new institutional economics ought somehow to displace the rest of microeconomics” by stating that it is a view that is “bound up with a dislike of abstraction, a sense that it falsifies reality.” He suggests that these abstractions are useful because, even though they do not provide “complete or even adequate description[s],” the correlations identified by utilizing the assumptions of perfectly competitive industries, perfectly informed consumers, and instantaneous price reactions may “well have causal significance and thus enable prediction and control.” See RICHARD A. POSNER, *OVERCOMING LAW* 430 (1995).

155. See *id.* at 428.

156. See *id.*

Behavioralists miss the point in chastising neoclassical economics for failing to account for observed irrationality or imperfect competition. In assessing the strength of a theory, the relevant question is not whether its underlying assumptions are perfectly realistic; it is whether they are realistic enough to generate accurate predictions.<sup>157</sup> The behavioral literature regularly asks the wrong question about the strength of the conventional approach. Consider its criticism of rational choice theory for failing to account for organizational learning, a process by which firms improve their internal decisionmaking:<sup>158</sup>

Neoclassical economic theory, with its assumption of rational agents, offers few insights on such intrafirm behavior. Logically, if firms behaved as rational profit maximizers, one would not expect this form of competition. Rational firms could not enjoy a competitive advantage in how they search and incorporate knowledge, since they all automatically search for and act upon the optimal amount of information. One would therefore not expect business executives to expend resources on improving their decision processes if they indeed behaved as rational profit maximizers.<sup>159</sup>

Putting aside its incorrect characterization of the neoclassical literature, which routinely models asymmetric and other imperfect forms of information, this argument misses the point. The important question is whether rational choice models predict commercial behavior more accurately and easily than other available theories.<sup>160</sup> To the extent that firms remedy poor decisionmaking through organizational learning, their ultimate behavior is more likely to track the predictions of neoclassical economics. That is the question that matters to antitrust policy.

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157. *See id.* at 430 (“[A] theory is not necessarily false just because the assumptions on which it rests are unrealistic.”).

158. Reeves & Stucke, *supra* note 9, at 1542–43.

159. *Id.* at 1543.

160. *See* Maurice E. Stucke, *Is Intent Relevant?*, 8 J.L. ECON. & POL’Y 801, 819 (2012). (“[T]he problem with a vague preference, such as utility maximization, is that the economic theory, while easily explaining behavior retrospectively, cannot predict behavior.”).

B. *In Focusing on Empiricism, Behavioral Antitrust Reveals Its Emptiness*

According to a leading article promoting behavioral antitrust, “whatever its label, behavioral economics at its core is empirical.”<sup>161</sup> No doubt an accurate representation, this statement seems intended as an indictment of neoclassical economics for its supposed detachment from data. But neoclassical economics is deeply empirical. Deductive economists deploying neoclassical theory use data regularly to gauge the accuracy of the underlying theory and its predictions.<sup>162</sup>

This fact has escaped some of the academics advancing behavioral antitrust. One of them asserts that “it cannot be seriously disputed that empirically testing rational choice theory’s predictive value, and its simplistic (and some may say unflattering) assumptions on human behavior, has beneficial value.”<sup>163</sup> But empirical validation of that very kind is a defining characteristic of neoclassical economics.<sup>164</sup> It occurs at the end of the deductive process, while behavioral antitrust, being (nominally) inductive, begins with empirical observation. Because it is only nominally inductive, however, behavioral antitrust ends where it starts, at empirical observation. It induces no general principles nor postulates from what it observes.

Other scholars contend that behavioral economics “draws into question our reliance on economic theory when the evidence suggests otherwise.”<sup>165</sup> Similarly, they argue, “behavioral economics can play an important role . . . by explaining how actual, real-world evidence that contradicts (or is unexplainable under) a neoclassical economic theory may nevertheless be insightful in understanding whether conduct is pro- or anti-

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161. Reeves & Stucke, *supra* note 9, at 1570.

162. See Joshua D. Wright, *Abandoning Antitrust’s Chicago Obsession: The Case for Evidence-Based Antitrust*, 78 ANTITRUST L.J. 241, 246–47 (2012).

163. Stucke, *Twenty-First Century*, *supra* note 7, at 532.

164. A leading promoter of behavioral economics in the antitrust setting maintains otherwise, contending that “the Chicago School’s theories were never conceived inductively through rigorous empirical testing” and relying for that proposition on a quotation of (then-Professor) Posner in 1979. *Id.* at 534. Whatever the accuracy of that assertion may have been in the late 1970s, it is not true of recent times. See, e.g., Wright, *supra* note 162, at 246–47.

165. Reeves & Stucke, *supra* note 9, at 1543.

competitive.”<sup>166</sup> This line of argument suggests that neoclassical orthodoxy regards price theory as so robust that it should control in the event of an observed inconsistency with data.

The neoclassical account lends itself to no such proposition. The purpose of theory is to generate predictions with which to inform analysis in the absence of sufficient evidence.<sup>167</sup> When the relevant evidence is observable, though, facts supplant theory. Behavioral economics neither adds to nor detracts from this principle. Indeed, the benefits of an evidentiary approach to competition policy are so self-evident and compelling that it ought to control regardless of the theoretical framework that policymakers employ.<sup>168</sup>

Perhaps those who use neoclassical economics in antitrust analysis have grown complacent and fail to test rigorously the accuracy of their models’ predictions as evidence becomes available. If so, the behavioral literature might serve as an apt reminder that theory is always subservient to fact.<sup>169</sup> Indeed, one behavioral antitrust piece concludes that “behavioral economics identifies enough holes in the simplistic rationality assumption to fortify the argument for more empirical work in antitrust policy.”<sup>170</sup> But neoclassical assumptions—as opposed to predictions—have never been offered, or at least should never have been offered, as realistic. The deductive enterprise remains grounded in empirical validation. Nothing in the behavioral movement changes this fundamental point. Antitrust theory must remain tethered to actual market behavior, regardless of whether one’s predisposition lies in rational choice theory or cognitive psychology.

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166. *Id.* at 1545.

167. See POSNER, *supra* note 154, at 430.

168. See *Eastman Kodak Co. v. Image Technical Servs. Inc.*, 504 U.S. 451, 466–67 (1992) (“Legal presumptions that rest on formalistic distinctions rather than actual market realities are generally disfavored in antitrust law.”); Huffman, *supra* note 60, at 107 (“If devotion to empirical study is seen as a fundamental part of Neo-Chicago, it is consistent with, rather than hostile to, Behavioral Antitrust.”).

169. See, e.g., Stucke, *Twenty-First Century*, *supra* note 7, at 516 (calling on the antitrust agencies to “test empirically the predictive value of their Horizontal Merger Guidelines . . . to assess ex ante whether a potential merger may substantially lessen competition or tend to create a monopoly”).

170. Reeves & Stucke, *supra* note 9, at 1570.

Remarkably, behavioral antitrust scholars fail to muster real-world evidence of sustained departures from profit-maximization theory.<sup>171</sup> Rather, the claimed instances of firm-level irrationality are anecdotal and apparently fleeting.<sup>172</sup> Nor do behavioral antitrust scholars claim that the antitrust enforcement agencies are unable to revisit price-theory-informed predictions of no anticompetitive effect that prove to be mistaken. Especially in the merger context—where the government can challenge a consummated acquisition any time that it threatens to substantially lessen competition—regulators can supplement or replace a prediction with information acquired after the merger has been completed.<sup>173</sup> That the agencies have challenged completed mergers in the past and continue to do so today shows that they maintain a watchful eye.<sup>174</sup> Although ex post governmental challenges of previously cleared mergers are infrequent, the low number of challenges suggests that the merger guidelines, informed by neoclassical economics, work well.<sup>175</sup>

Notwithstanding these facts, behavioral antitrust scholars regard the process of merger clearance as emblematic of the neoclassical problem. One notable scholar maintains that agencies do not sufficiently scrutinize consummated mergers, and that legislation should be enacted to facilitate their doing so systematically.<sup>176</sup> This contention, however, begs the question

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171. See Bailey, *supra* note 59, at 6.

172. An economist surveying the literature notes that “anecdotal evidence on deviations appear to be related to non-systematic mistakes or to a firm targeting an interim goal related to revenues or market share that evolves over time to profit maximization” and that the “standard frameworks . . . , absent evidence to the contrary, appear to describe consumer and firm behavior well.” *Id.* at 6–7

173. See *United States v. E.I. du Pont de Nemours & Co.*, 353 U.S. 586, 597 (1957).

174. See, e.g., Scott A. Sher, *Closed but Not Forgotten: Government Review of Consummated Mergers Under Section 7 of the Clayton Act*, 45 SANTA CLARA L. REV. 41, 42 (2004); J. Thomas Rosch, Comm’r, Fed. Trade Comm’n, Remarks Before the ABA Section of Antitrust Law Spring Meeting: Consummated Merger Challenges—The Past Is Never Dead 1 (Mar. 29, 2012), available at [http://ftc.gov/sites/default/files/documents/public\\_statements/consummated-merger-challenges-past-never-dead/120329springmeetingspeech.pdf](http://ftc.gov/sites/default/files/documents/public_statements/consummated-merger-challenges-past-never-dead/120329springmeetingspeech.pdf), [<http://perma.cc/PGZ9-HVGV>].

175. See Bailey, *supra* note 59, at 6 (“[T]here is little research that provides evidence suggesting that firms deviate from profit-maximizing behavior in a systematic or persistent way.”).

176. Stucke, *Twenty-First Century*, *supra* note 7, at 517, 576 (arguing that although months of work go into pre-merger economic models, agencies generally do not revisit their models post-merger “to see if their model got it right,” and



by assuming that more rigorous ex post review of approved mergers would reveal that irrational behavior by the merged entity or its rivals was producing anticompetitive effects. But it would be very surprising if anticompetitive outcomes from approved mergers were the rule rather than the exception. One would not expect two expert agencies possessing many decades of experience in reviewing mergers to tie themselves dogmatically to abstract economic models in disregard of the documentary and testimonial evidence they routinely acquire. If the FTC and Justice Department, clinging to an uncritical commitment to neoclassical orthodoxy, habitually cleared anti-competitive mergers, someone would have noticed.

The same proponent of behavioral antitrust explains the relative absence of ex post merger review, in part, on the ground that:

The government may . . . be hindered in legally challenging the anticompetitive conduct post-merger. For example, the antitrust laws do not prohibit a monopolist from raising prices. Thus, the merging parties may later exercise market power by reducing innovation, quality and services, and increasing prices, which may all go unchallenged.<sup>177</sup>

This is wrong as a matter of law. The government may bring an action under section 7 any time an acquisition threatens to ripen into the prohibited effect.<sup>178</sup> The behavioral antitrust proponent suggests that cognitive biases such as “belief perseverance” and “self-serving bias” may afflict agency decisionmaking, inducing them not to scrutinize deals that they had earlier blessed.<sup>179</sup> If those biases afflict the regulatory agencies, however, then why suppose that their decisions would be less biased ex post than they were ex ante even if they were compelled by statute to revisit cleared acquisitions? Might not confirmation bias lead them to overlook anticompetitive effects and reaffirm their prior decisions? More generally, if biases afflict agency decisionmaking, why trust the govern-

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that the government’s current antitrust theory “needs to be rigorously tested to determine its accuracy in predicting the likelihood of competitive harm”).

177. *Id.* at 578.

178. Indeed, the Supreme Court has permitted the government to challenge a merger some thirty years after it was consummated. See *E.I. du Pont*, 353 U.S. at 597–98.

179. Stucke, *Twenty-First Century*, *supra* note 7, at 579, 582–83.

ment to regulate markets more effectively than the markets regulate themselves?<sup>180</sup>

The behavioralist belief that horizontal merger guidelines reify a theory of rational choice unconnected to empirics is simply incorrect. Consistent with neoclassical economics, factual inquiry occupies center stage in modern merger review.<sup>181</sup> Of late, the major concern of agency-watchers has been the opposite of that voiced by behavioral scholars: that the agencies give excessive weight to unreliable evidence, particularly customer testimony, when that evidence runs counter to theory.<sup>182</sup> As with this testimony, the agencies sometimes confront the vexing problem of how best to use predictive theory and factual evidence when both are imperfect. Behavioral commentators offer no solution. At times, they seem to object to the use of theory in the face of any opposing evidence, even evidence of a qualitatively dubious nature.<sup>183</sup>

### C. Behavioral Economics Is Anti-Theoretical

Even its foremost proponents concede that “[b]ehavioral economics is residual, as it *describes* phenomena that the profit-maximizer model does not explain.”<sup>184</sup> This limited descriptive quality should consign behavioral antitrust to irrelevance as a

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180. See Richard A. Posner, Op-Ed., *Treating Financial Consumers as Consenting Adults*, WALL ST. J., July 22, 2009, <http://online.wsj.com/news/articles/SB10001424052970203946904574302213213148166>, [<http://perma.cc/67LQ-Z47M>].

181. See DEP’T OF JUSTICE & FED. TRADE COMM’N, *supra* note 2, at 8–18 (describing the many facts taken into account in the hypothetical monopolist test).

182. See John D. Bates, *Customer Testimony of Anticompetitive Effects in Merger Litigation*, 2005 COLUM. BUS. L. REV. 279, 282–83.

183. See Separate Statement of Commissioner J. Thomas Rosch at 2–4, *FTC v. Lundbeck, Inc.*, (Nos. 10-3458, 10-3459) (Oct. 3, 2011) (arguing that “[b]oth the district court and panel decisions were classic examples of economic theories (and specifically price theory) preventing a fair and rational judgment” and criticizing reliance on “Lundbeck’s economist and a handful of neonatologists that price cross-elasticity between the two drugs was ‘very low’” over “Lundbeck’s own business documents recognizing the substitutability of, and competition between, the two drugs”). This critique, of course, assumes that the testimony of the expert doctors who decide which drug to use is less illuminative than a defendant’s internal business documents. This is a dubious proposition at best, not least because the latter are notoriously unreliable. See, e.g., Geoffrey A. Manne & E. Marcellus Williamson, *Hot Docs vs. Cold Economics: The Use and Misuse of Business Documents in Antitrust Enforcement and Adjudication*, 47 ARIZ. L. REV. 609, 613 (2005).

184. Stucke, *Twenty-First Century*, *supra* note 7, at 589 (emphasis added).

matter of both analytics and doctrine. The only discrete role that behavioral antitrust can serve in aid of competition policy is the decidedly prosaic function of explaining phenomena after the fact. What antitrust law requires, however, is not subjective post hoc descriptions, but ex ante predictions. Rational choice theory answers this call; behavioral economics does not. Promoters of the behavioral movement are therefore wrong to argue that “reliance on . . . rational-choice theories will recede in the coming years as they fail to explain actual market behavior. Here, the behavioral economics literature . . . will advance competition policy in understanding such behavior.”<sup>185</sup>

Not all behavioral antitrust scholars are blind to this fundamental critique. But they present no substantive response. One of the field’s foremost defenders reacts simply by characterizing “[t]his criticism [as] . . . a plea for ignorance.”<sup>186</sup> But the idea that modern economic analysis unfolds ignorant of, and indifferent to, how its predictions track market outcomes is wrong. Of course, there is room for improving the precision of rational choice theory’s predictions. But better predictions require a better theory, and the behavioral school has no theory to provide, let alone a superior one. “[H]av[ing] a better grasp of reality, and dealing with its hazards”<sup>187</sup> offers little to the antitrust policymaker charged with resolving a complex problem.

A prominent exponent of behavioral antitrust identifies the field as a “gap filler.”<sup>188</sup> This, he asserts, is an important role because “[a]t times neoclassical economic theory cannot easily be reconciled with evidence of the parties’ behavior, intent, motives, or post-merger plans.”<sup>189</sup> But where direct evidence establishes the market effects of an impugned restraint, there is no role for a predictive theory, and hence no need for reconciliation save as a means by which to identify a superior predictive model.

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185. Reeves & Stucke, *supra* note 9, at 1585–86.

186. Stucke, *Twenty-First Century*, *supra* note 7, at 589–90.

187. *Id.* at 590.

188. Maurice E. Stucke, *The Implications of Behavioral Antitrust 2* (Univ. of Tenn. Knoxville Coll. of Law, Legal Studies Research Paper Series, Research Paper No. 192, 2012), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2109713](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2109713), [<http://perma.cc/GAL5-BG5U>].

189. *Id.*

D. *Behavioral Antitrust Cannot Yield More Accurate Predictions*

In contradiction to our conclusions in Part II, certain scholars nevertheless claim that behavioral economics can improve antitrust analysis by making more accurate predictions than the neoclassical model.<sup>190</sup> If the field deserves a meaningful role in antitrust, this claim is of inestimable importance because the ability to forecast market outcomes more precisely than neoclassical economics would require us to take the behavioralists' claims seriously. Unfortunately, behavioral antitrust scholars do no more than *claim* a superior ability to predict than the conventional approach—they neither prove this ability nor explain how it exists.

In principle, one could craft a predictive theory of commercial behavior by empirically identifying previously overlooked or underappreciated explanatory factors and incorporating them within a yet-to-be-discovered framework. Certain rudimentary building blocks are already in place, for the entire point of the larger behavioral movement is that “there are certain predictably irrational ways in which humans behave.”<sup>191</sup> It is conceivable—though unlikely—that eventually behavioralists could create generalizable models of behavior incorporating these “predictably irrational ways” into a predictive model. As the last Part demonstrated, however, the cognitive biases on which the behavioral literature focuses do not lend themselves to systematic prediction of business behavior or to models of general application. At least for now, then, the behavioral literature plays no role in antitrust policy. As we have endeavored to explain, this consigns the field to irrelevance in the realm of competition law.

E. *Behavioral Antitrust's Substantive Recommendations Are Unsound*

In light of the preceding discussion, one might wonder whether behavioral antitrust has any point at all. Although

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190. See Reeves & Stucke, *supra* note 9, at 1553 (“[T]he behavioral economics literature provides insights into ways to further sharpen antitrust rules to result in fewer false positives *and* false negatives over the long run.”).

191. J. Thomas Rosch, Comm’r, Fed. Trade Comm’n, Remarks at the NERA 2010 Antitrust & Trade Regulation Seminar: The Next Challenges for Antitrust Economists 11 (July 8, 2010).

vague aspersions and imprecision characterize behavioral theory, behavioralists make some remarkable normative assertions. Two prominent authors assert that “[t]he Supreme Court’s economic thinking, as reflected in *Trinko* and *Leegin*, still lags” in light of the behavioral literature.<sup>192</sup> They suggest that the law should allow complaints alleging facts that make no economic sense under assumptions of rational profit-maximization to proceed to discovery.<sup>193</sup> They contend further that minimum resale price maintenance should still be illegal per se, notwithstanding the mountain of economic literature showing that the practice can promote efficiency.<sup>194</sup>

Both of these prescriptions are seriously ill-conceived. As to the first, behavioral antitrust scholars fail to establish a factual or theoretical premise on which to base so radical a conclusion. To justify exposing a firm to millions of dollars in discovery costs based on alleged behavior that is economically implausible; one would need convincing evidence that firms routinely depart from profit-maximization to harm competition at irrational cost to themselves. Sporadic instances of irrational predation would not justify retreating from *Twombly*. Cost-justified pleading rules accept a certain proportion of Type II errors (mistakenly letting anticompetitive behavior go unchallenged) in return for a sufficient reduction in the proportion of Type I errors (subjecting innocent firms to liability or to large discovery costs).<sup>195</sup> But the behavioralists lay no foundation at all for their quite radical policy conclusions beyond vague references to how firms and consumers may act differently based on any number of multidirectional, individual-specific biases that may or may not afflict them. As Part II demonstrated, there is no principled way to aggregate those biases into a firm policy conclusion.

A leading article criticizes the Horizontal Merger Guidelines for not being sufficiently attuned to behavioral economics.<sup>196</sup> It challenges the idea that the threat of new entry (or expansion

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192. Reeves & Stucke, *supra* note 9, at 1586.

193. *Id.* at 1584.

194. *Leegin Creative Leather Prods. Inc. v. PSKS, Inc.*, 551 U.S. 877, 890 (2007) (“Minimum resale price maintenance can stimulate interbrand competition . . . by reducing intrabrand competition.”).

195. See Easterbrook, *supra* note 92, at 39–40.

196. See Reeves & Stucke, *supra* note 9, at 1532.

by smaller incumbents with excess capacity) constrains the exercise of monopoly power in markets with low entry barriers,<sup>197</sup> that efficiencies drive merger activity,<sup>198</sup> that large purchasers limit the power of dominant sellers,<sup>199</sup> and that the government should employ deterrence theory to combat cartels.<sup>200</sup> The authors question the law's requirement of judgment for defendants in antitrust cases alleging economically irrational conduct.<sup>201</sup> And they criticize the enforcement agencies' practice of assuming that the goal of profit-maximization animates parties seeking to merge.<sup>202</sup>

But how is one to imagine a merger review process more attuned to behavioral economics? Would it confidently identify mergers whose (unstated) aim is something other than profit maximization? If so, how would it treat them? Should low entry barriers make no difference to the analysis? Or should they matter some of the time? And if so, when? There is no programmatic approach attached to the behavioralists' critique. If adopted, their views would either strip antitrust of all predictability, result in overbroad rules prohibiting many efficient business practices, or generate all-encompassing ex post reviews of almost all commercial behavior due to the absence of cost-saving rules meant to narrow antitrust scrutiny to situations in which restraints are likely to harm market outcomes.

#### F. *The Behavioral Antitrust Literature Lacks Specificity*

Imprecision and obscurity characterize the behavioral antitrust literature. One paper reviewing the (now defunct) UK Office of Fair Trading's study of the effect of price frames on consumer demand argues that purchasers' deviation from rational choice theory invites "one application of behavioral economics to antitrust," namely "to model consumer behavior and consider the effect of this behavior on competition."<sup>203</sup> How this nebulous aspi-

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197. *Id.* at 1554–60.

198. *Id.* at 1560–63.

199. *Id.* at 1563–67.

200. *Id.* at 1567–70.

201. *See id.* at 1532.

202. *See id.* at 1532 n.32.

203. *Id.* at 1542.

ration might translate into actual policy, much less into a specific tenet of antitrust doctrine, is left to the reader's imagination.

The same piece confidently proclaims that "[t]hrough a more persuasive and complex theory of rationality, behavioral economics can provide a superior account of competition, can lead to more empirically based presumptions in antitrust's legal standards, and can result in more informed antitrust enforcement."<sup>204</sup> That is a worthy aspiration. But what would the superior standards look like? The authors do not say.

Behavioral scholars analyze a number of concrete examples, but their insights are no more illuminative. Several authors question the neoclassical assumption that low entry barriers neutralize market power.<sup>205</sup> An extended discussion of cognitive defects, ranging from optimism to pessimism biases, reveals the conflicting problems of excess and insufficient entry.<sup>206</sup> How might we know which effect controls, and in what circumstances? The elusive answer, we are informed, entails "[a] more fulsome entry analysis," comprising factors "apart from entry barriers."<sup>207</sup> Which factors? There is no satisfactory explanation. As we concluded in Part II, there is no principled way to organize these biases into a coherent theory predicting the net effect of entry.

The same problem afflicts behavioralists who question the assumption that mergers generate efficiencies. They conclude that "[m]ore empirical research is needed to determine to what extent close-call mergers generate significant efficiencies."<sup>208</sup> But behavioral economics hardly invented the idea of applied econometrics. Observed departures from the predictions of rational choice theory have long provided all the impetus necessary for empirical investigation. Calls for additional empirical work relating to the power of big buyers and the optimal deterrence of cartels reflect the same history: They originate not from behavioral insights, but from previous empirical work.

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204. *Id.* at 1544.

205. *See id.* at 1554–60.

206. *Id.* at 1556–60.

207. *Id.* at 1560.

208. *E.g., id.* at 1563.

G. *Behavioral Antitrust as Modest Adjustment?*

In response to criticism that their suggestions lack a unifying theory, some behavioral scholars have offered a more modest role for their approach, claiming that it can “provide[] a mechanism for policymakers to consider whether and to what extent they should refine existing frameworks to account for nuances in human behavior.”<sup>209</sup> Not all behavioral scholars endorse the notion of such a diminished role for behavioral antitrust, as confining it to such a small scope renders the movement peripheral at best. Nevertheless, might a vision of behavioral antitrust as incrementally improving the predictions of rational choice theory hold some promise? At first blush, one might imagine so, but two considerations lead us to answer that question in the negative.

First, if behavioral antitrust aspires merely to adjust the predictions of neoclassical economics to match empirical observations, then it amounts to standard practice, and has no stand-alone value. To take a famous example, the Supreme Court recognized that empirics trump economic theory in the *Kodak* case, refusing to hold that a seller in a competitive market for original equipment could not exercise monopoly power in an after-sales market because, under a version of rational choice theory assuming perfect access to information, buyers consider the price and quality of post-sales parts and service in making their initial purchase.<sup>210</sup> The Court decided that high information costs and price discrimination could enable sellers subject to competition in the original market to exercise pricing power in separate, post-sales markets.<sup>211</sup> The Court based its holding on the principle that “[l]egal presumptions that rest on formalistic distinctions rather than actual market realities are generally disfavored in antitrust law,” a principle unrelated to the teachings of behavioral economics.<sup>212</sup>

Second, to the extent that evidence of episodic departures from rationality can generate predictive theories of choice—a proposition at odds with the modest view of behavioral anti-

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209. *Id.* at 1543.

210. *Eastman Kodak Co. v. Image Technical Servs. Inc.*, 504 U.S. 451, 465–66 (1992).

211. *Id.* at 475–76.

212. *Id.* at 466–67.



trust—improving rational choice theory can occur only if behavioral theory reliably identifies how to refine the pertinent models. Should actors be assumed to be less rational? In all circumstances? How much less? As Part II explained, behavioral economics is not up to that task. The myriad cognitive biases lying at the heart of behavioral antitrust not only lend themselves to almost any modification of conventional theory, but often cancel one another out. As a result, the suggested utility of behavioral antitrust depends entirely upon which biases are thought to explain the conduct in question. But because the movement lacks any method for determining the explanatory power of a particular bias, choosing between conflicting biases is either a random act or a political one.

#### *H. Debunking the Literature: Conclusion*

Our critique does not seek to denigrate the larger behavioral economics movement. Rather, it argues that, as applied to competition law, behavioral economics' contribution is simply descriptive. It embodies no theory, develops no predictive models, and therefore lacks practical value.<sup>213</sup>

Although it would be welcome, an underlying theory explaining why people sometimes make decisions contrary to their own welfare is not critical to useful policymaking. Empirical evidence of such conduct suffices. The contribution of the behavioral literature lies in its explanation of *why* individual decisionmaking can systemically depart from utility maximization. This contribution may significantly benefit certain areas, such as criminal law, in which lawmakers seek to shape individual choice. By understanding why people act as they do, government can adopt measures to improve citizens' decisionmaking prowess. In the realm of antitrust policy, however, this goal is largely absent.

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213. To illustrate the point, consider a well-known departure from rational choice: the tendency of consumers to embrace deals that offer enticing terms in the short run, but that are punitive over a longer time. This tendency reflects psychological conditions of framing effects and hyperbolic discounting. Empirical research has identified systemic deviations from rationality of this sort, which provide policymakers with sufficient information to adopt consumer-protection measures. It is of no relevance that the tendency of people to overemphasize the short run conflicts with neoclassical models.

#### IV. THE STAYING POWER OF NEOCLASSICAL ANTITRUST ECONOMICS

Part II demonstrated the internal contradictions and incoherence that accompany behavioral analysis of antitrust problems. Part III questioned the scholarly literature that champions the application of cognitive psychology to those issues in competition law and critiqued behavioral economics at a substantive level. This Article concludes with a brief defense of the dominant theoretical methodology for analyzing antitrust problems: neoclassical price theory. We begin by dispelling recurring mis-truths about this branch of economics and explain the overriding advantage that price theory enjoys over the behavioral antitrust literature. Above all, approaching competition problems through the lens of constrained optimization by rational actors allows one to analyze coherently what would otherwise be overly complicated phenomena. It is neoclassical economics' ability to *organize* information that distinguishes it from the behavioral analysis criticized in this Article.

Behavioral antitrust defines itself in contradistinction to today's predominant methodology. For that reason, too, it is helpful to understand the precise nature of the neoclassical paradigm at which the behavioralists take aim. Sadly, rational choice theory is routinely misrepresented and frequently misunderstood. In particular, and contrary to some detractors' assertions, nothing in neoclassical economics compels a *laissez faire* enforcement policy.

##### A. *Neoclassical Assumptions Are Not Meant to Be Realistic*

Neoclassical price theory's assumptions are strikingly unrealistic. In its purest form, the conventional model assumes perfect, symmetric access to information and unqualified utility maximization by consumers. In the real world, though, information is scarce, processing available data is costly, and consumers often lack the ability accurately to perform cost-benefit analysis. Moreover, the expected-utility theory underlying neoclassical economics fails to capture precisely what many people maximize. Economic actors routinely assess their satisfaction by reference to outcomes other than consumption or profit, such as perceived distributional fairness, expectations, and altruism. Furthermore, people often care greatly about sunk

costs, sticking to current investments when it would be better to abandon them. In addition, preferences are rarely monotonic across all levels of consumption because eventually buyers would rather have less of a given commodity than more.

It is unsurprising, then, that neoclassical models founded on profit and utility maximization sometimes get it wrong. Principal-agent problems can induce management to run a firm in its own interests, rather than to maximize shareholder value. Companies may expand the scale and scope of their businesses in lieu of short-run profit maximization.<sup>214</sup> By definition, non-profit firms maximize something other than bottom-line results. Directors and executives display varying levels of competence, leading some businesses to miscalculate the costs and benefits associated with potential strategies, and causing them to adopt imperfect ones.

Neoclassical economics implicitly assumes that firms will follow incentives to maximize profit whether the profit opportunity is sizeable or modest. In practice, however, fierce competition can threaten the financial viability of underperforming companies, creating acute incentives to cut costs and improve quality. Imperfect competition, by contrast, creates a price umbrella that allows firms to remain in business even when they fail to minimize costs. Monopolists, contrary to conventional theory, may not engage in strict profit maximization due to a phenomenon known as "X-inefficiency." All of this is to say nothing, of course, about the well-documented tendency of consumers to succumb to bouts of irrationality, whether founded on imperfect information, excessive discount rates, or frail willpower. When consumers fail to respond to market conditions rationally, the self-corrective nature of the market is muted.

Why, then, should the law defer to the predictions of a theory that relies on such outlandish suppositions? The answer is that observed departures from rationality do not corrupt the

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214. Illustratively, Howard Schultz, the CEO of Starbucks, commented in 2010 that, upon taking office, he realized that "[w]e had embraced growth as a reason for being instead of a strategy." Beth Kowitz, *Starbucks CEO: "We spend more on health care than coffee,"* CNN MONEY, June 7, 2010, [http://money.cnn.com/2010/06/07/news/companies/starbucks\\_schultz\\_healthcare.fortune](http://money.cnn.com/2010/06/07/news/companies/starbucks_schultz_healthcare.fortune), [<http://perma.cc/7HN6-SAA6>].

utility of neoclassical theory.<sup>215</sup> Empirical research broadly supports the predictions of neoclassical models of industrial organization, and deviations from “rationality” of the kind referenced above do not appear to be systemic.<sup>216</sup> Ultimately, a for-profit business exists to make money, and a predictive theory founded on profit maximization at the very least reflects a core incentive of the commercial enterprise. Because most businesses are subject to the disciplinary pressures of competition, and because management has limited freedom to pursue goals that do violence to the company’s bottom line, the desire to make a profit is a powerful explanatory factor in predicting firm behavior. This is not to say that market forces and shareholder accountability eliminate irrationality, only that they constrain them, making neoclassical economics an effective, if imperfect, predictor of market effects. In short, neoclassical economics has long played a commanding role in antitrust law for the simple reason that it works well.

*B. Price Theory as an Organizing Principle*

The mathematical precision of price-theoretic models can invite uncritical derision, not least because it suggests exact answers to intractable questions. Why assume complete, transitive, and strongly monotonic preferences, as well as rational utility maximization, when such suppositions are at odds with reality and ignore well-documented cognitive biases? The answer lies in the power of organization. An enormous amount of information accompanies almost any scrutinized restraint of trade. Without an organizing principle by which to make sense of that information, policymakers would be acting descriptively, rather than analytically.

Price theory, based in mathematics, applied to antitrust problems, yields specific policy prescriptions. As Judge Posner has explained, “[M]athematics can lend precision to theory, can uncover inconsistencies, can generate hypotheses, can enable concision and even promote intelligibility, and can sort out complex interactions, while statistical analysis can organize

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215. See POSNER, *supra* note 154, at 430 (“[A] theory is not necessarily false just because the assumptions on which it rests are unrealistic.”).

216. Bailey, *supra* note 59, at 6.

and interpret voluminous data.”<sup>217</sup> The behavioral antitrust movement lacks that quality.

C. *Neoclassical Antitrust Is Not Synonymous with the Chicago School*

We conclude by laying to rest a favorite criticism of neoclassical antitrust theory, namely the idea that the model is synonymous with a hands-off, *laissez faire* policy founded on the assumption that markets are always and everywhere efficient. This misconception arose in part from the political leanings of some prominent members of the Chicago School, who elaborated an influential policy founded on market self-correction. Ironically, such a non-interventionist approach follows from neoclassical analysis only if one draws the conclusion that abstract models of perfect competition approximate real-world markets.

In fact, neoclassical economic theory more readily lends itself to a broad, interventionist mandate, given that the industrial conditions underlying its perfect-competition model never exist in the real world. As Judge Posner has explained:

[B]ecause conditions in the real world never satisfy [neoclassical economic] theory's specifications for an efficient allocation of resources (price equal to marginal cost, no externalities, no second-best problems, markets complete, and so forth), neoclassical economic theory becomes a recipe for public interventions . . . . With every deviation from perfect competition

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217. POSNER, *supra* note 154, at 420; *see also* Paul Krugman, Talk Given to the European Association for Evolutionary Political Economy: What Economists Can Learn from Evolutionary Theorists (Nov. 1996), available at <http://www.mit.edu/~krugman/evolute.html>, [<http://perma.cc/FS46-N2U4>] (“In economics we often use the term ‘neoclassical’ either as a way to praise or to damn our opponents. Personally, I consider myself a proud neoclassicist. By this I clearly don’t mean that I believe in perfect competition all the way. What I mean is that I prefer, when I can, to make sense of the world using models in which individuals maximize and the interaction of these individuals can be summarized by some concept of equilibrium. The reason I like that kind of model is not that I believe it to be literally true, but that I am intensely aware of the power of maximization-and-equilibrium to organize one’s thinking—and I have seen the propensity of those who try to do economics without those organizing devices to produce sheer nonsense when they imagine they are freeing themselves from some confining orthodoxy.”).

labeled 'market failure' and such deviations everywhere, it is hard to retain a robust faith in unregulated markets.<sup>218</sup>

The misunderstanding arises because of the strong reliance that the economically conservative Chicago School places on neo-classical price theory. In this regard, it is important to distinguish a theoretical tool from the political views of those who employ it. Although modern economic theory and econometrics yield powerful insights into the market effects of complex business phenomena, much of the information necessary to resolve certain antitrust questions remains unknown and unavailable. Political assumptions regarding the restorative power of markets and the impact of legal rules on firms' investment decisions inevitably accompany one's application of theory in situations of imperfect information.

## V. CONCLUSION

In arguing that "behavioral economists should let rational choice theory's remaining embers dissipate,"<sup>219</sup> those promoting a behavioral vision for competition policy have, at best, wildly overstated their case. The rational-actor model, which has informed the development of U.S. antitrust law since the 1970s, possesses four great benefits. First, its projections are well delineated and specific. Second, empirical research broadly supports the extrapolations of price and game theories within the field of industrial organization, which is essential because the utility of antitrust analysis depends on its predictive accuracy. Third, neoclassical economic models are generalizable and thus susceptible of universal application. Fourth, neo-classical models can and often do incorporate imperfect information, bounded rationality, and altruism, enabling them to offer valuable guidance in market settings in which the assumptions of perfect rationality, willpower, and self-interest are likely to result in falsely specified models and hence in in-

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218. POSNER, *supra* note 154, at 428; *see also id.* at 413 ("So many economic theorists in this century have been interventionist that economic theory itself has become dominated by concepts, such as 'perfect competition' (the conditions for which are never found in the real world), 'externality,' 'public good,' 'social welfare function,' and 'market failure,' that sound like invitations to public intervention.").

219. Stucke, *Twenty-First Century*, *supra* note 7, at 532.

accurate predictions. Combined, these features explain why price theory provides a rigorous and workable foundation for antitrust policy.

By contrast, behavioral antitrust lacks a theoretical foundation, and provides no basis for identifying optimal competition rules. Although it can aspire to perform the ancillary task of “improving” the predictions of conventional antitrust economics, behavioral antitrust fails to accomplish even this. Its empirical investigations, which occupy the core of its methodology, have yet to generate any hypotheses, let alone a comprehensive theory of how competitive markets work. It amounts to little more than a patchwork of observed anomalies incapable of assisting in *ex ante* prediction. Whereas neoclassical economics and game theory produce rigorously defined predictions, which find broad (though qualified) empirical support, behavioral antitrust offers no model against which to measure the workings of actual and future markets, no testable conclusions, and no guidelines for advising clients, enforcing the laws, or deciding hard cases.

No economic model useful for antitrust analysis could incorporate the full array of influences on firm behavior—influences that may vary dramatically from company to company, market to market, and time to time. Rational choice theory focuses on what is likely to be the overriding consideration for most firms in most markets: profit. That focus enables it to model and predict future behavior in a way that antitrust analysis can readily and effectively deploy. The behavioral antitrust movement offers nothing comparable.

The economic enterprise is one of continual refinement and improvement. The recurring question for policymakers is whether behavioral antitrust can advance the state of the art in a meaningful way. The answer, at present, is “no.”